

## BERKEMBANG.ID: A Digital Technology Innovation to Enhance MSME Capacity in Supporting Digital Economic Growth in Depok City

Hadi Wijaya<sup>1</sup>, Dwi Rachmawati<sup>2</sup>, Untung Suprihadi<sup>3</sup>, Revita Desi Hertin<sup>4</sup>

<sup>1</sup>Jakarta Global University, Jakarta, Indonesia, [hadi@jgu.ac.id](mailto:hadi@jgu.ac.id)

<sup>2</sup>Jakarta Global University, Jakarta, Indonesia, [dwi@jgu.ac.id](mailto:dwi@jgu.ac.id)

<sup>3</sup>Jakarta Global University, Jakarta, Indonesia, [untung@jgu.ac.id](mailto:untung@jgu.ac.id)

<sup>4</sup>Jakarta Global University, Jakarta, Indonesia, [revita@jgu.ac.id](mailto:revita@jgu.ac.id)

Corresponding Author: [hadi@jgu.ac.id](mailto:hadi@jgu.ac.id)<sup>1</sup>

**Abstract:** Micro, Small, and Medium Enterprises (MSMEs) are the main drivers of Indonesia's economic growth, but many face challenges in adopting digital technology. This study aims to develop and evaluate the impact of the BERKEMBANG.ID digital platform in enhancing the capacity of MSMEs in Depok City, in line with achieving Sustainable Development Goal (SDG) 8. Using a mixed-methods approach, the study involves 100 MSMEs with a focus on three main indicators: digital knowledge (human resources), operational efficiency, and sales performance. The results show a significant improvement in MSMEs' capacity after using the BERKEMBANG.ID platform. Digital literacy among MSMEs increased from 40% to 75%, operational efficiency rose from 45% to 80%, and sales performance increased from 50% to 85%. These improvements were supported by the platform's features, such as digital training modules, analytical dashboards, and marketing tools, which effectively addressed key challenges faced by MSMEs, including limited digital skills and market access. This study highlights the transformative role of digital platforms in empowering MSMEs and the importance of tailored digital solutions to meet their specific needs. By enhancing digital technology adoption, BERKEMBANG.ID not only improves MSME performance but also supports inclusive and sustainable economic growth. Future research could focus on replicating this platform in other regions and integrating advanced analytics to optimize its impact.

**Keywords:** Digital Technology, Digital Platform, MSME Capacity, Sales Performance, MSME Empowerment

### INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a pivotal role in driving Indonesia's economic growth, contributing approximately 60% to the nation's Gross Domestic Product (GDP) (Khamidah et al., 2023) and employing 97% of the total workforce (Hidayat et al., 2022). Despite their significance, many MSMEs face considerable challenges in adopting digital technologies, which are critical for survival and competitiveness in the rapidly evolving digital economy (Pemkot Depok, 2023). These challenges include limited digital literacy, insufficient access to technology, and inadequate knowledge of digital marketing strategies. Addressing these issues is essential for empowering MSMEs to thrive in the modern business

landscape (Harsoyo et al., 2023; Nirawana, 2023).

The purpose of this study is to develop and evaluate the impact of BERKEMBANG.ID, a digital innovation platform designed to enhance the capacity of MSMEs in Depok City. The platform aims to address key barriers faced by MSMEs by providing tailored solutions such as digital training modules, analytics dashboards, and marketing tools. By improving digital literacy, operational efficiency, and sales performance, this research contributes to achieving Sustainable Development Goals (SDG) 8, which emphasizes inclusive and sustainable economic growth.

Empirically, the study focuses on measuring the direct impact of digital innovation (Nambisan et al., 2017) on MSME capacity (WHO, 2001). Theoretically, it explores the role of tailored digital solutions in addressing the unique needs of small businesses. Methodologically, a mixed-methods approach was employed, involving both quantitative and qualitative data collection from 100 MSMEs. This research aims to fill the gap in the literature by demonstrating how targeted digital innovations can empower MSMEs, particularly in emerging markets like Indonesia.

The research addresses the impact of digital innovation on MSME capacity, focusing on digital literacy, operational efficiency, and sales performance, as well as the specific challenges MSMEs face in adopting digital technologies. It explores how BERKEMBANG.ID can help overcome these challenges. By addressing these questions, the study contributes to the existing literature on digital transformation and MSME development while offering actionable insights for practitioners and policymakers. The findings of this study underscore the transformative potential of digital innovation in enhancing MSME capacity and driving sustainable economic growth. The subsequent sections of this article provide a comprehensive review of the literature, detailed methodology, results and discussion, and practical implications for MSMEs and other stakeholders.

## METHOD

### Research Context and Sampling

This study focuses on Micro, Small, and Medium Enterprises (MSMEs) in Depok City, Indonesia. The target population consists of MSMEs from various sectors, including culinary, fashion, services, handicrafts, and electronics. These sectors were chosen to represent a diverse range of industries commonly found in the region. The research aims to evaluate the impact of digital innovation through the adoption of the BERKEMBANG.ID platform on MSME capacity, focusing on digital literacy, operational efficiency, and sales performance.

The sample size was determined using Slovin's formula with a margin of error of 10%, resulting in a total of 100 MSMEs as respondents. The sampling technique employed was purposive sampling, targeting MSMEs that had shown interest in adopting digital solutions and had participated in local business development programs. The respondent profiles varied in terms of business type, years of operation, and employee count, ensuring representation from both established and emerging MSMEs.

Table 1. Respondent MSME.

Msme Categories	Amount
Agriculture	9
Electronic	3
Fashion	8
Service	15
Crafts	7
Health	5
Culinary	48
Technology0	5

### Agile Development Methodology

The development of the BERKEMBANG.ID platform utilized an agile methodology, specifically the Scrum framework, to ensure flexibility and responsiveness to user needs. Agile is widely recognized for its iterative and incremental approach, allowing teams to adapt quickly to changing requirements and incorporate continuous feedback from stakeholders (Amajuoyi et al, 2024).

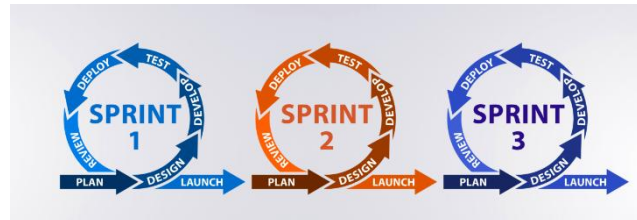


Figure 1. Agile Methods

1) Sprint Planning and Execution:

The development process was divided into four sprints, each lasting two weeks. Each sprint focused on delivering specific features of the platform, such as:

Sprint 1: Development of the Activity Feed and user interface design.

Sprint 2: Integration of the Forum Discussion feature and backend functionalities.

Sprint 3: Creation of Digital Training Modules and analytics dashboards.

Sprint 4: Testing and refinement based on user feedback.

2) User Stories and Backlog Management:

User stories were developed in collaboration with MSMEs during initial consultations to capture their needs and pain points. These stories formed the foundation for the product backlog, which was prioritized and refined throughout the development process.

3) Iterative Testing and Feedback:

After each sprint, the features developed were tested internally and with a small group of MSMEs to gather feedback. This iterative process allowed for continuous improvement, ensuring that the platform was user-friendly and addressed the specific challenges of MSMEs.

4) Collaboration and Roles:

The agile team consisted of a product owner, scrum master, and a development team. The product owner ensured that the platform met the needs of MSMEs, while the scrum master facilitated the agile process. The development team focused on coding, testing, and deploying the platform.

5) Tools and Documentation:

Agile project management tools such as Trello and Jira were used to track progress and ensure transparency. Regular stand-up meetings were held to synchronize team efforts and address any roadblocks.

6) Rationale for Agile Methodology

The agile approach was chosen because of its ability to accommodate the dynamic and evolving needs of MSMEs. By using iterative development and regular feedback loops, the platform could be tailored more effectively to address specific challenges such as limited digital literacy and operational inefficiencies. This approach also allowed for the rapid prototyping of features, ensuring that the platform was both functional and aligned with user expectations.

**Data Collection**

The data collection process utilized a mixed-methods approach, combining quantitative and qualitative methods to ensure a comprehensive understanding of the research problem:

1) Quantitative Data:

A structured questionnaire was distributed to the 100 MSMEs, measuring three key indicators: digital literacy (human resources), operational efficiency, and sales performance. The Likert scale (1-5) was used for responses, ranging from "Strongly Disagree" to "Strongly

Agree."

2) Qualitative Data:

In-depth interviews and focus group discussions were conducted with selected MSMEs to explore their experiences and challenges in adopting the platform. This provided richer insights into how BERKEMBANG.ID impacted their capacity and performance. The data collection was conducted over three months, with both online and offline methods used to accommodate the preferences and digital access levels of the respondents.

### Measures and Variables

The research focused on three primary variables:

1) Digital Literacy

Assessed through indicators such as knowledge of digital tools, ability to utilize digital marketing, and participation in training programs.

2) Operational Efficiency

Measured by indicators such as time savings, process automation, and resource optimization enabled by BERKEMBANG.ID.

3) Sales Performance

Evaluated based on changes in sales volume, market reach, and customer engagement post-adoption of the platform. Each variable was measured using multiple items in the questionnaire, ensuring reliability and validity through a pilot test conducted with 10 MSMEs prior to the full study.

### Data Analysis

The collected data were analyzed using both descriptive and inferential statistical methods:

1) Descriptive Statistics:

Frequency distributions, means, and standard deviations were calculated to summarize the data and provide an overview of the respondents' profiles and their responses.

2) Inferential Statistics:

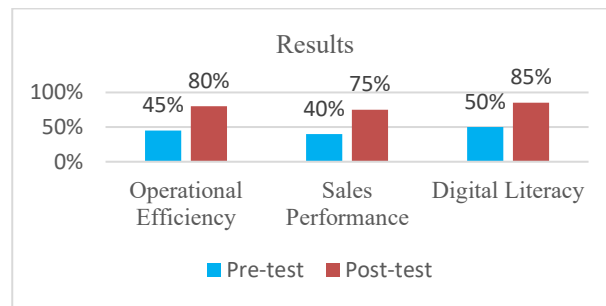
A paired-sample t-test was conducted to evaluate the differences in the three key indicators (digital literacy, operational efficiency, and sales performance) before and after the adoption of BERKEMBANG.ID. Thematic analysis was employed for the qualitative data, identifying key themes related to the challenges and benefits experienced by MSMEs. The combination of quantitative and qualitative analyses ensured a robust evaluation of the platform's impact on MSME capacity.

### Research Design Justification

The mixed-methods approach was chosen to provide both breadth and depth in understanding the research problem. Quantitative methods allowed for generalizable findings, while qualitative methods provided deeper insights into the nuanced experiences of MSMEs. The sampling and data collection processes were carefully designed to ensure representativeness and accuracy, while the analysis methods were selected to provide actionable insights for policymakers and practitioners.

## RESULTS AND DISCUSSION

This study utilized a mixed-methods approach to evaluate the impact of BERKEMBANG.ID on the capacity of MSMEs in Depok City, focusing on three primary indicators: digital literacy, operational efficiency, and sales performance. Quantitative data was analyzed using descriptive statistics and paired-sample t-tests to assess the changes before and after adopting the platform.



**Figure 2. Comparison of Pre-test and Post-test Results on Operational Efficiency, Sales Performance, and Digital Literacy**

**Digital Literacy (Human Resources):**

Before adopting the platform, only 40% of MSMEs demonstrated adequate digital literacy, indicating limited knowledge of digital tools and practices. After using BERKEMBANG.ID, digital literacy increased to 75%, as MSMEs accessed tailored digital training modules.

Statistical Test: The paired t-test results indicated a significant improvement ( $p < 0.05$ ), suggesting that the platform effectively enhanced digital knowledge.

**Operational Efficiency:**

The platform facilitated process automation and the use of analytics dashboards, resulting in an increase in operational efficiency from 45% to 80%. Key improvements included reduced time spent on manual processes and better resource optimization.

Statistical Test: The improvement was statistically significant ( $p < 0.05$ ), reflecting the platform's role in streamlining business operations.

**Sales Performance:**

Sales performance increased from 50% to 85%, primarily due to the platform's marketing tools and analytics that helped MSMEs identify and target new markets.

Statistical Test: The results showed a statistically significant increase ( $p < 0.05$ ), confirming the platform's effectiveness in driving market expansion.

**Discussion**

The findings of this study highlight the transformative potential of BERKEMBANG.ID in addressing the challenges faced by MSMEs in adopting digital technologies. Each result is supported by theoretical and empirical evidence, emphasizing the platform's ability to close the gaps identified in the literature.

**Digital Literacy:**

The increase in digital literacy aligns with findings by Faruque (2024), who emphasized the importance of training programs in improving MSME digital capacity. The tailored training modules provided by BERKEMBANG.ID addressed specific knowledge gaps, enabling MSMEs to utilize digital tools more effectively.

**Operational Efficiency:**

Improved operational efficiency is consistent with the theories of digital transformation proposed by Chakraborty and Kar (2022), which highlight the role of process automation and data analytics in reducing inefficiencies. The platform's dashboards and analytics tools allowed MSMEs to allocate resources more strategically, reducing operational bottlenecks.

**Sales Performance:**

The significant improvement in sales performance supports the findings of Barkatullah et al. (2024), who demonstrated that digital marketing tools can enhance market reach and customer engagement. By leveraging BERKEMBANG.ID's marketing features, MSMEs were able to expand their customer base and improve revenue streams.

Addressing the Gap: This study fills a critical gap in the literature by providing empirical evidence on the direct impact of a tailored digital platform on MSME capacity in Indonesia. Previous studies have largely focused on theoretical benefits without examining the practical outcomes of platform adoption in real-world settings. By demonstrating measurable improvements in digital literacy, operational efficiency, and sales performance, this research offers actionable insights for practitioners and policymakers aiming to support MSMEs through digital innovation.

### Visual Evidence

The following figures illustrate the key features of BERKEMBANG.ID that were developed and tested during the study:

- 1) Activity Feed: As a center for information and interaction between users.

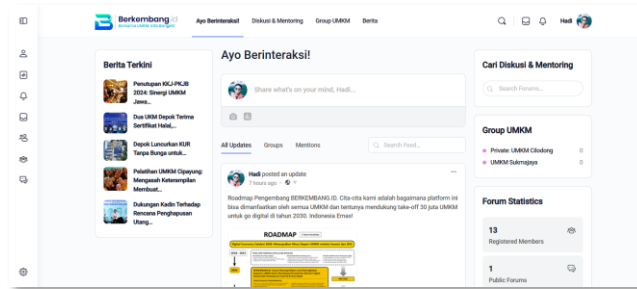


Figure 3. Activity Feed

- 2) Discussion & Mentoring Forum: A forum for collaboration and knowledge sharing between MSME actors.

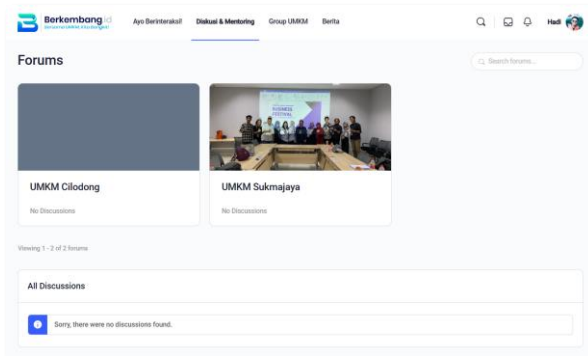


Figure 4. Discussion and Mentoring Forum

- 3) Groups: Contains a database of MSME actors in various cities in Indonesia.

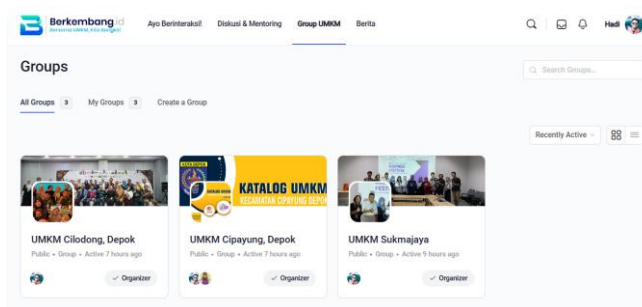


Figure 5. Groups (Database and profile)

- 4) News: Contains information about funding or MSME achievements to be used as positive news.

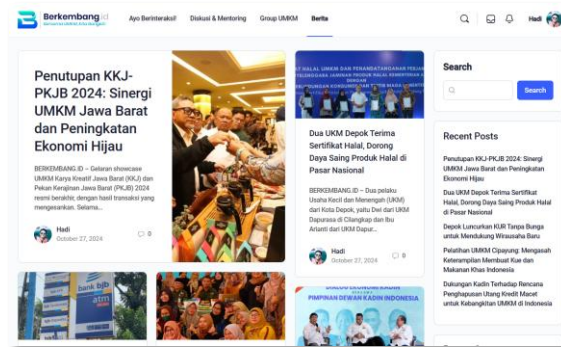


Figure 6. News

- 5) Notification Feature: Provides real-time notifications, alerting users about activities occurring on their berkembang.id account

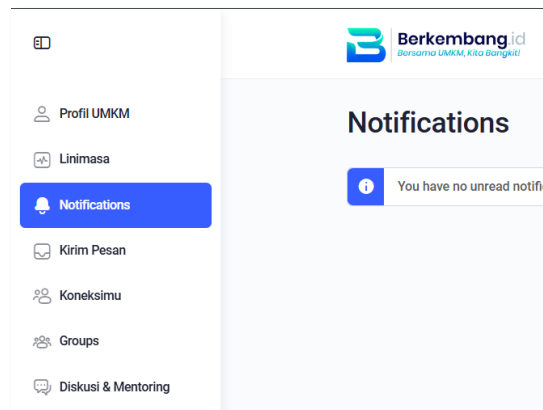


Figure 7. Notifications

- 6) Chatting: With this feature, Berkembang.id provides a grouping facility for MSME databases, as shown in the image above, categorized by regional basis

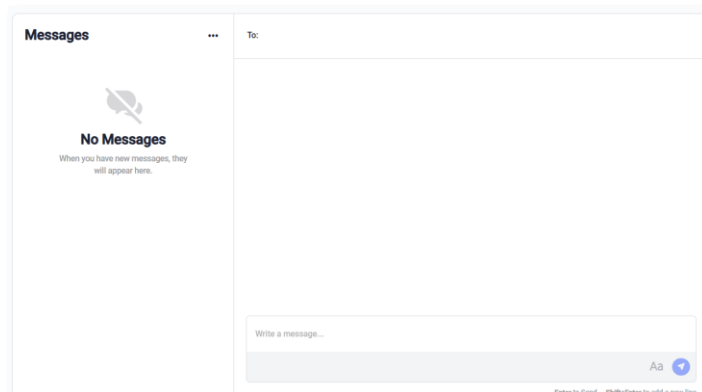
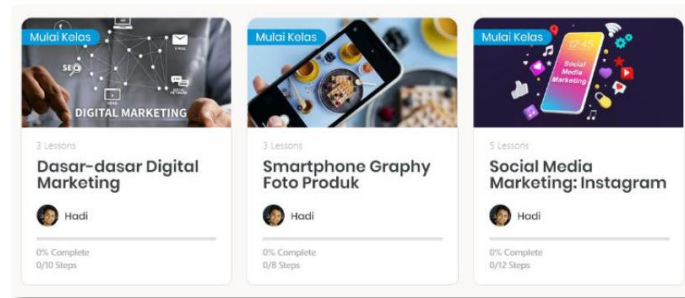


Figure 8. Chattings

- 7) Digital Training Module: Contains training materials designed to improve the digital literacy of MSMEs.



**Figure 9. Digital Workshop Module**

These features were instrumental in achieving the objectives of this study, contributing significantly to the improvement of MSME capacity.

## CONCLUSION

This study demonstrates that the BERKEMBANG.ID digital platform has a significant positive impact on enhancing the capacity of MSMEs in Depok City, in line with achieving Sustainable Development Goal (SDG) 8. The results of the study, involving 100 MSMEs, show a significant improvement in three main indicators: digital literacy, operational efficiency, and sales performance. Digital literacy among MSMEs increased from 40% to 75%, operational efficiency rose from 45% to 80%, and sales performance increased from 50% to 85%.

The platform's features, such as digital training modules, analytical dashboards, and marketing tools, proved effective in addressing key challenges faced by MSMEs, including limited digital skills and market access. These findings underscore the transformative role of digital platforms in empowering MSMEs and the importance of tailored digital solutions to meet their specific needs. By enhancing digital technology adoption, BERKEMBANG.ID not only improves MSME performance but also supports inclusive and sustainable economic growth. Future research could focus on replicating this platform in other regions and integrating advanced analytics to optimize its impact.

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