

ENHANCING MSME COMPETITIVENESS IN JAKARTA THROUGH MARKET MAPPING AND BUYER CLUSTERING

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ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) often face challenges in understanding the rapidly evolving market dynamics in urban areas. This community engagement initiative examines the impact of data science training in two densely populated urban subdistricts—**Kembangan Utara** and **Meruya Selatan** in West Jakarta—focusing on enhancing the capacity of MSME actors to identify target markets and cluster buyers based on demographic data and social media trends. The program successfully provided strategic insights to MSMEs, enabling them to make data-driven business decisions. Results indicate a **more than 90% improvement in participants’ understanding** following the training, along with highly positive feedback from attendees. The study also highlights that integrating social and local data can serve as an **effective evidence-based approach** to support business growth strategies.

Keywords: MSMEs, Data Science, Buyer Clustering, Target Market, Digital Transformation

1. INTRODUCTION

The growth of Micro, Small, and Medium Enterprises (MSMEs) in urban areas often faces serious challenges in understanding the continuously changing and increasingly complex market characteristics. Amidst the pressures of the digital economy and intensifying competition, the ability of business actors to adapt their strategies to market demands becomes crucial. Decision-making based solely on intuition and experience is no longer sufficient, especially in densely populated environments such as the subdistricts of Kembangan Utara and Meruya Selatan in West Jakarta. Both subdistricts demonstrate significant local economic potential, with a substantial number of active MSMEs. However, each faces distinct yet complementary structural challenges.

Kembangan Utara, with a population density approaching 20,000 inhabitants per square kilometer, confronts primary challenges in the initial stages of business establishment. Many residents lack knowledge about which products are relevant to sell in the local market, particularly those aligned with demographic preferences in their environment. Limited data availability leads them to replicate existing business models, ultimately resulting in market saturation and reduced success potential. MSMEs in this area tend to have limited understanding of data-driven target market determination, which should serve as the foundation for product, promotion, and distribution strategies. This challenge is exacerbated by low digital literacy and insufficient comprehension of data science tools.

Meanwhile, Meruya Selatan, despite having a slightly lower population density (~12,000 inhabitants per square kilometer), faces different challenges: advanced management of products and buyers. Many MSMEs have been operational but struggle with mapping buyer characteristics and expanding market share. Residents experience difficulty in determining stock strategies, adding product variations, and targeting promotions effectively. Unlike Kembangan Utara, which focuses on “what to sell,” Meruya Selatan faces the question: “Who are our actual buyers, and how do we cluster them for advanced strategies?” Unfortunately, this process is also conducted conventionally without data-driven approaches.

Both areas share a fundamental issue: low utilization of data and technology in business strategies. Decision-making remains largely manual and speculative. In fact, social media data, demographic data, and digital market trends can become strategic information sources if combined with simple data science algorithms such as clustering. Another emerging problem is the lack of practical and easily comprehensible technical training for MSME actors, as well as limited access to technology (gadgets, high-speed internet, software) to support optimal digital adoption. The study conducted by Granita, W., & Safarini, Y. (2019) examines the impact of social media, training, and both factors simultaneously on the performance of MSMEs in DKI Jakarta Province. The study conducted by Putra, Y. M. (2018) aims to map MSMEs that have prepared Financial Statements in accordance with the SAK EMKM and to prove the effectiveness of the SAK EMKM.

Through two separate yet complementary community service programs, the implementers offer data-driven decision-making solutions to local MSME actors. In Kembangan Utara, training focuses on initial target market identification before business establishment, while in Meruya Selatan, training emphasizes buyer clustering and optimization of

advanced sales strategies. Both are supported by Python-based data processing methods and analysis of Twitter data alongside official government datasets, providing concrete examples of data science utilization for micro-scale MSMEs in urban settings.

2. METHOD

A. Steps in the Implementation of Community Service



Figure 6. Workflow of Community Service Activity Implementation

Explanation:

A. Implementation Process of the Community Service Activity (PkM):

The implementation process begins with coordination with partners to identify their needs and challenges. This process aims to determine how partners can independently identify their target markets.

Next, the PkM proposal is formulated, and preparations are made by coordinating between partners and the organizing committee regarding the schedule, duration, and the materials to be delivered by the proposer related to the issues raised by the partners.

After preparations, the activities are conducted according to the agreed schedule by both parties, focusing on training the use of data science tools for target market determination. Subsequently, the proposer prepares the necessary hardware and instructors to conduct the training.

Following the completion of activities, a monitoring process is carried out concerning the results of target market identification and subsequent turnover generated from defining the target market and the products sold.

Finally, a report is prepared based on the outcomes of the PkM, including the results achieved by the MSME partners and the deliverables provided to the partners related to this community service activity.

B. Partner Participation in Program Implementation:

- Providing adequate learning space for training and workshops.
- Involving MSME actors in the training and workshops to enhance their capacity in target market identification and product selection.

C. Program Implementation Evaluation:

- Collecting feedback from MSME actors regarding the training and materials delivered.
- Conducting surveys or interviews to assess the level of understanding and skills of MSME actors after participating in the program.
- Holding discussions with the subdistrict authorities to review evaluation results and plan follow-up actions.

3. RESULTS AND DISCUSSION

The potential and capacity of the participants to absorb the material presented appeared to be very strong, as evidenced by their clear understanding of the content delivered by the speaker. The success of this community service program can be evaluated based on the following indicators:

Table 1 Measures of Training Effectiveness

Measures	Description
Favorable Feedback from PkM Participants	The effectiveness of the community service program (PkM) was measured based on evaluation results completed by the participants.

Prior to the training, a pre-test was conducted involving 18 respondents. The results of the pre-test are shown in Figure 11, based on the question regarding participants' level of understanding: "Fully Understand" – 5.6%, "Understand" – 88.9%, and "Neutral" – 5.6%.

6. Saya mengerti isi dari materi yang diberikan mengenai **Data Science dalam Menentukan Target Pasar?**

[Copy chart](#)

18 responses

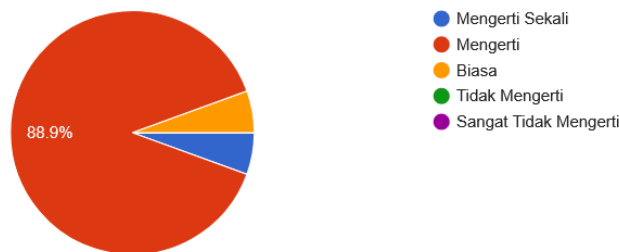


Figure 11. Pre-Training Test

After the material presentation, a post-test was conducted with 18 respondents. The results of the post-test are shown in Figure 12: "Fully Understand" – 5.6%, "Understand" – 94.4%, and there were no longer any participants who answered "Neutral".

6. Saya mengerti isi dari materi yang diberikan mengenai **Data Science dalam Menentukan Target Pasar?**

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18 responses

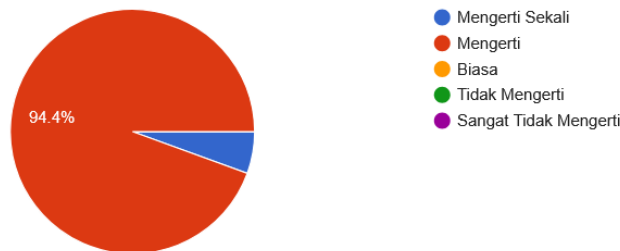


Figure 12. Post-Training Test

Overall, the material presented by the instructor was well understood and comprehended by the participants of the community service activity (PkM). This PkM activity enhanced the knowledge of the participants, who consisted of MSME actors from the Kembangan Utara subdistrict.

To further assess the success of the proposed theme, in addition to administering pre-tests and post-tests, we also distributed questionnaires related to the learning activities. The questionnaire results are presented in Table 8.

Table 8. Questionnaire on the Community Service Activity

Questions	Answers Provided
Relevance of the Material Presented to Your Daily Work/Problems Faced?	- Strongly disagree - Disagree - Neutral - Agree - Strongly Agree

How would you rate the quality of the material delivery in terms of clarity and ease of understanding?	1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree
Was the Q&A Session During the Seminar Effective and Able to Address the Questions?	1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree
Please specify the content you wish to have in the upcoming workshop session.	Essay
Kindly share your comments, recommendations, and input on the execution of this workshop.	Essay

Based on the questionnaire results, the participants' assessments can be illustrated by the figures corresponding to each questionnaire item. These assessments are presented in Figures 13a, 13b, and 13c, while the responses to the essay questions are summarized in Tables 9 and 10.

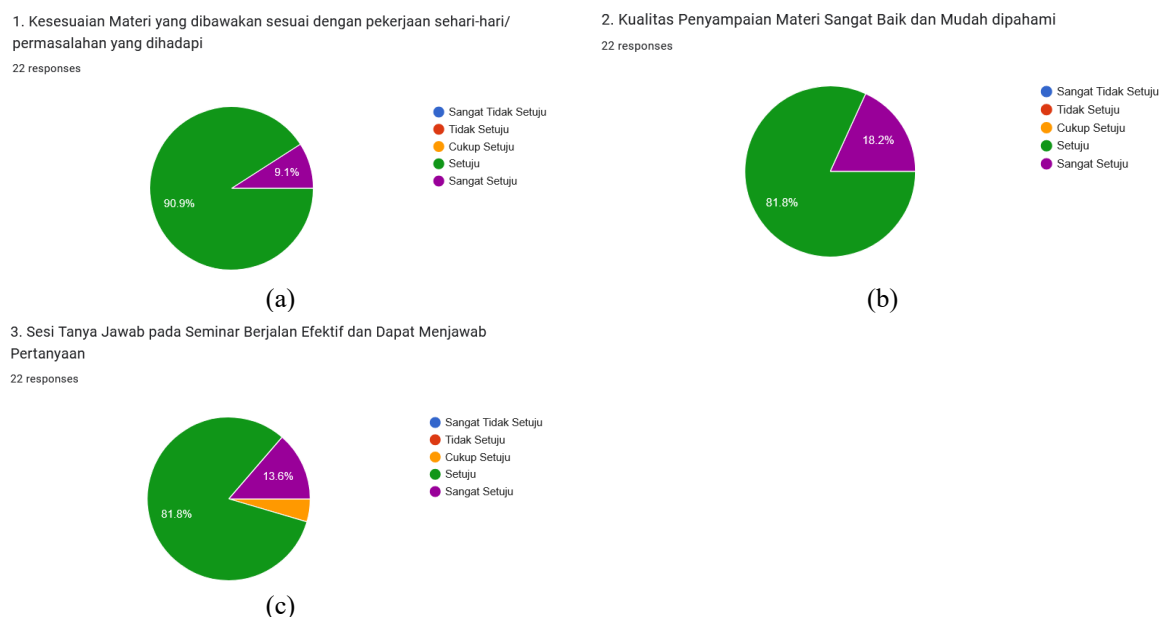


Figure 13. Evaluation Results

Table 9. Community Service Program Questionnaire: Topics Requested for the Upcoming Workshop

Questions	Participant Responses
What topics would you like to be covered in the upcoming workshop?	1. Selling 2. About analyzing sales profits 3. Good 4. Marketing content 5. Want to receive good sales content 6. Live streaming 7. Content about analyzing sales profits or market share 8. Marketing 9. Knowledge on developing sales digitally to achieve higher income 10. Sales promotion content 11. Knowledge 12. Knowledge to advance the business 13. Selling via live streaming 14. Sales using better digital methods

-
15. Advertising to help MSME traders progress more, simpler and very easy
-

Table 2 Community Service Activity Questionnaire: Please provide your comments, suggestions, and feedback regarding the implementation of this workshop

Questions	Participant Responses
Please provide your comments, suggestions, and feedback regarding the implementation of this workshop.	1. Hopefully beneficial for the wider community. 2. Very helpful for MSMEs. 3. More detailed. 4. Strongly agree and it can help our small business. 5. Hopefully beneficial for those who run businesses. 6. Very useful for further advancing marketing and sales. 7. Can assist the community in their businesses. 8. Conduct more frequent outreach to MSMEs. 9. Keep up the spirit and keep trying. 10. Everything is easy to understand. 11. Hopefully it will get better. 12. Very helpful for us MSMEs. 13. Easy to understand. 14. Easy to comprehend. 15. Conduct this more often for the community. 16. Very good, hopefully it will improve further in the future. 17. Quite good. 18. Hopefully beneficial for entrepreneurs. 19. Very helpful for MSME information. 20. Helps provide easier digital knowledge. 21. More appropriate timing so participants have more time to learn and better understand. 22. The material delivery is very helpful to further advance marketing and sales.

4. CONCLUSION

The implementation of the community service program aimed at empowering MSMEs through data science-based market mapping and buyer clustering in urban areas has demonstrated significant positive outcomes. Participants showed a marked improvement in understanding target market identification and sales strategies, as evidenced by pre- and post-training assessments. The high level of participant satisfaction, reflected in both quantitative evaluations and qualitative feedback, highlights the relevance and effectiveness of the training materials and delivery methods. Moreover, the active involvement of MSME actors and the tailored approach to addressing local market challenges contributed to the program's success. This study underscores the importance of integrating data-driven decision-making tools and digital literacy in fostering sustainable growth and competitiveness among urban MSMEs. Continued efforts to expand and refine such capacity-building initiatives are recommended to maximize their impact on the local economy.

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