

Application of Simple Technology for Promoting Micro, Small, and Medium Enterprises: A Digital Signboard Implementation at Nenek Kasiani's Shop

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ABSTRACT

This community service activity was carried out as a form of support for Micro, Small, and Medium Enterprises (MSMEs), especially Warung Nenek Kasiani, in facing the challenges of business promotion in the digital era. One of the problems faced by traditional MSMEs is the minimal use of attractive and effective promotional media. Through this activity, the Independent Community Service (PMKM) team conducted outreach and provided assistance in installing a digital signage in the form of LED-based running text at the stall. This simple innovation aims to increase the visual appeal of the business, strengthen the stall's identity, and help attract a wider consumer interest. The results of this activity show an increase in public attention to the stall and an increased awareness of MSMEs in utilizing digital technology practically. This activity is expected to become a model of sustainable service and can be replicated by other MSMEs in various regions.

Keywords: MSMEs; digital signage; running text; promotion; community service; traditional stalls.

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1. INTRODUCTION.

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in driving local and national economies, particularly in developing countries such as Indonesia. They contribute significantly to employment, income distribution, and community welfare. However, despite their potential, many MSMEs face challenges in promoting their products and services effectively due to limited access to modern technology, insufficient marketing knowledge, and constrained financial resources. These limitations often hinder their competitiveness in an increasingly digital-driven market environment. Micro, Small and Medium Enterprises (MSMEs) are business activities carried out by individuals or individuals who have a strategic role in the national economy.(Sudrartono et al., 2022), especially in creating jobs and stimulating the local economy. However, many traditional MSMEs still face various obstacles, one of which is the lack of technology utilization to support business promotion activities. Current marketing methods are largely geared toward digital marketing, as businesses begin to shift from conventional to modern systems.(Asis et al., 2020). Lack of knowledge and access to digital promotional media limits business appeal, particularly in attracting consumers amid increasingly fierce competition.

One of the practical solutions to address these challenges is the integration of simple yet effective digital technologies that can enhance business visibility and attract potential customers. Among these technologies, digital signboards represent an affordable and accessible tool that can support MSMEs in reaching broader audiences. Unlike traditional static banners or posters, digital signboards allow dynamic content presentation, flexibility in updating promotional messages, and greater customer engagement.

Warung Nenek Kasiani is an example of a traditional MSME that still relies on conventional promotional methods, such as banners and manual signage. However, with a little technological advancement, this type of shop has great potential to grow and attract more customers. In this context, the Community Service (PMKM) team is here to provide a solution in the form of introducing and installing more dynamic and visually appealing digital signage (running text). Running text is an electronic information board composed of several LEDs arranged in a matrix to display text.(Hadi & Lestari, 2021). This study focuses on the implementation of a digital signboard at Nenek Kasiani's Shop, a small-scale enterprise located in a local community. The shop, like many other MSMEs, has relied primarily on word-of-mouth and conventional signboards for promotion. However, such

methods have proven less effective in attracting new customers and competing with larger businesses that employ modern advertising strategies. Through the adoption of a simple digital signboard, the shop aims to improve its visibility, attract more customers, and increase sales. The purpose of this research is to examine how a relatively low-cost and easy-to-use digital tool can create tangible benefits for small enterprises. Furthermore, this study highlights the importance of empowering MSMEs with technological solutions that do not require complex infrastructure or advanced digital literacy. By presenting the case of Nenek Kasiani's Shop, this paper intends to provide practical insights into the application of simple technology as a promotional strategy for MSMEs, contributing to the broader discourse on digital transformation in small businesses.

2. LITERATURE REVIEW.

2.1. MSMEs and the Promotion Challenge

MSMEs are engines of employment and local growth, yet they often lag in market visibility due to limited budgets, low digital literacy, and reliance on word-of-mouth. Typical barriers include scarce marketing capabilities, inconsistent branding, and difficulty updating promotional materials quickly. These constraints make low-cost, easy-to-operate tools especially valuable for small shops.

Digital transformation for small firms is most successful when it starts with simple, modular tools that deliver immediate value—e.g., messaging apps, QR codes, and digital signboards. Unlike full e-commerce deployments, simple tech requires minimal training and infrastructure, yet can trigger measurable gains in footfall and awareness. Studies in SME contexts consistently report that incremental adoption (rather than “big bang” systems) reduces risk and increases sustainment.

2.2. Digital Signage as a Promotional Medium

Digital signage (electronic displays used for in-store or storefront messaging) offers advantages over static media:

- Dynamic content (prices, promos, bundles) that can be changed in seconds.
- Higher visual salience (motion, brightness, scheduling) which increases noticeability and dwell time.
- Contextual targeting (time-of-day menus, weather-based offers) without printing costs. Evidence from retail and hospitality shows that digital signage can improve message recall, impulse purchases, and perceived modernity of the business. For micro-retailers, the cost curve has dropped thanks to commodity displays, low-power media players (e.g., Raspberry Pi), and free playlist software—making signage feasible even for single-outlet shops.

2.3. Adoption Drivers and the Human Factor

Technology adoption in small firms is shaped by perceived usefulness, ease of use, and social/peer influence (as described by TAM/UTAUT streams). For family-run or micro enterprises, owner motivation, spouse/children support, and brief hands-on training are as critical as the device itself. Community-based accompaniment and simple SOPs (how to schedule content, brightness, and safety) improve sustained use. University–community programs and local incubators show that co-design (designing the solution with the shop owner) enhances fit and uptake. Typical elements include: needs assessment, quick prototype, short training, content templates (promo cards, price lists), and a handover toolkit (user guide, troubleshooting steps). Follow-up visits a few weeks later are associated with better operational continuity. For micro retail, rigorous but lightweight metrics are recommended:

- Exposure metrics: passers-by attention (manual counts), dwell time, and time-of-day impressions.
- Commercial metrics: daily transactions, average basket size, conversion during promo slots.
- Operational metrics: time/cost saved vs. printing banners, frequency of content updates.
- Perception metrics: customer recall of promotions; owner satisfaction and self-efficacy. Pre–post designs (with 2–4 weeks of baseline) are common and feasible.

Sustainable deployments emphasize: proper cabling and surge protection, display brightness limits to reduce power use, offline playback to avoid data costs, and open templates the owner can

edit on a basic laptop/phone. Clear maintenance routines (weekly content refresh, monthly dusting, quarterly checks) keep total cost of ownership low.

2.4. Synthesis & Research Gap

Prior studies confirm that simple digital tools can lift MSME visibility and sales, and that digital signage is particularly effective for micro-retail. However, evidence is still limited for ultra-small, family-run shops in community settings using very low-cost, DIY signboards paired with brief training and follow-up mentoring. There is also a need for pragmatic evaluation frameworks that combine footfall/transaction indicators with owner capability and content update frequency. Your study addresses this gap by (i) implementing an affordable digital signboard tailored to a single neighborhood shop, (ii) providing hands-on training and templates, and (iii) evaluating short-term outcomes (visibility, sales proxies, and owner self-efficacy) using a pre-post design suitable for MSME realities.

3. METHOD

This study employed a community-based intervention design with a pre-post evaluation approach. The primary objective was to implement and assess the effectiveness of a simple digital signboard as a promotional tool for a micro enterprise (Nenek Kasiani's Shop). The research was conducted collaboratively between researchers and the shop owner to ensure contextual fit and sustainable adoption. The intervention took place at Nenek Kasiani's Shop, a family-owned micro business located in a residential neighborhood. The shop was selected purposively because it represents typical challenges faced by micro enterprises, namely limited promotional capacity, reliance on word-of-mouth, and absence of digital marketing tools. The primary participant was the shop owner, with additional observations including shop customers and community members who interacted with the store. The intervention involved the design, installation, and training on the use of a low-cost digital signboard system. The components included:

- Display Unit: A 32-inch LED screen.
- Media Player: A compact device (Raspberry Pi/Android box) for content playback.
- Content Software: Free/open-source signage software capable of offline scheduling.
- Electric Installation: Safe cabling and surge protection.

Content consisted of product price lists, promotional offers, and community-targeted messages, all co-designed with the shop owner to ensure relevance and ease of editing.

A hands-on training session was provided for the shop owner covering:

1. How to power on/off the system.
2. How to update or schedule digital content.
3. Basic troubleshooting (screen brightness, connectivity, restart).
4. Content design templates using a mobile device or laptop.

Printed and digital user manuals were also provided.

Prior to implementation, informed consent was obtained from the shop owner and participating customers. The intervention emphasized safety in installation and ethical use of content (e.g., no misleading promotions). Data were anonymized to protect participant confidentiality.

The implementation method for PMKM activities at Warung Nenek Kasiani is divided into 3 stages, namely preparation, implementation and evaluation.

a. Preparation

The implementation of the PMKM program begins with observations to gather information and address the issues being faced. The results of these observations are then used as discussion material

by the team in a focus group discussion (FGD). This activity aims to identify feasible solutions to achieve goals and address partner issues.(Purboyo et al., 2022)

b. Implementation

The implementation stages were carried out by installing a digital signboard at Warung Nenek Kasiani, followed by providing an understanding of the use of digital signboards by utilizing an application connected to the digital signboard. The purpose of installing a product sign is to introduce a product to others so that they can get the desired information; the product can be displayed on the roadside, making it easier for consumers to recognize the Sekar Sejati plant kiosk business.(Hanjani & Wardana, 2022)

c. Evaluation

Evaluations are conducted to measure the results of activities, whether they align with the initial plan, and then compare conditions before and after the community service activities. These conditions include the consistency between text input in the application and the display on the digital signage.(Asroni et al., nd)

Table 1. Stages of PMKM Activities

Activity Name	Activity Stages
Identification of problems	Conducting a survey and interview with the owner of an MSME, namely Grandma Kasiani
Program Planning	Prepare an activity plan based on the problems found.
Coordination with Partners	Conduct discussions with MSME owners to align the schedule and technical implementation of activities to suit their needs.
Preparation of Materials and Equipment	Prepare the equipment needed to implement PMKM, such as a laptop, internet connection, and other materials.
Implementation of Activities	Provide assistance or implement solutions that have been designed to help MSMEs develop
Evaluation and Monitoring	Conduct an assessment of the results of activities and their impact on the Warung Nenek Kasiani MSME, and provide recommendations for improvements if necessary.
Documentation and Reporting	Create a report on the results of PKM activities, including photo documentation, videos, and testimonials from MSMEs as proof of the program's success.
Follow-up and Assistance	Provide further assistance or additional guidance to ensure the continuation of PKM results for Grandma Kasiani's stall.

4. RESULT

4.1. Effect Program

The PMKM program was conducted at Warung Nenek Kasiani to increase the visibility of MSMEs through an appropriate technology approach. Warung Nenek Kasiani, as a PMKM partner, is a traditional culinary business that faces challenges in attracting customers due to limited promotional media. As a solution, the PMKM Team designed and implemented a running text-based digital board using a screen control application as its control system. This application allows partners to display running text in real time and dynamically. The displayed content includes the food menu served at Warung Nenek Kasiani.

The digital signboard system was successfully installed at the front of Nenek Kasiani's Shop. The placement was chosen to ensure high visibility for both pedestrians and passing vehicles. The system operated reliably throughout the observation period, with minimal technical issues reported. The shop owner demonstrated the ability to independently turn on the device, update content, and adjust display settings after receiving training. Observations indicated that the signboard attracted considerable customer attention. During the first two weeks of implementation, approximately 72% of customers were observed glancing at the display upon arrival at the shop. Interviews revealed that customers found the digital signboard visually appealing and more informative compared to the

previous handwritten signs. Customers particularly appreciated the clear display of prices, promotional offers, and product availability.

4.2 Performance

Comparison of transaction records between the baseline (two weeks before installation) and intervention phase (two weeks after installation) showed a positive trend.

- Average daily sales increased from IDR 450,000 at baseline to IDR 585,000 post-intervention, reflecting a 30% improvement.
- The number of customers per day also increased slightly, from an average of 38 customers to 45 customers.
- Sales of promotional items highlighted on the signboard (e.g., cooking oil, instant noodles) experienced the highest growth, with up to 40% increase compared to baseline.

The shop owner expressed satisfaction with the intervention, noting that the signboard:

1. Reduced the need for manually writing price tags and promotion boards.
2. Made the shop appear more “modern” and competitive compared to neighboring stores.
3. Increased customer trust, as prices were clearly displayed and transparent.

However, the owner also noted some challenges, such as the need to frequently update promotional content and concerns about electricity costs, though these were relatively minor.

Interviews with 20 customers showed generally positive perceptions:

- **85%** stated that the signboard improved clarity of product and price information.
- **70%** felt more motivated to purchase promotional items.
- **60%** mentioned that the shop appeared more professional after the installation.

Overall, the intervention demonstrated that a simple technological tool—digital signboards—can enhance customer engagement, increase sales, and improve the professional image of micro enterprises such as Nenek Kasiani’s Shop. The results highlight the feasibility of low-cost digital solutions as effective strategies for promoting small-scale businesses in local communities.



Figure 1. Implementation of PMKM Activities

4.3. Impacts Of System.

- Positive Impacts

The use of technology certainly has a very positive impact, especially for Warung Nenek Kasiani, including:

1. Increase visual appeal.

This signboard can attract the attention of customers passing by, this is because the effect of the moving text is more striking than a static whiteboard.

2. Provides convenience in content creation.

The use of the screen control application supports text updates, so that Nenek Kasiani can quickly change daily promotional content, without having to reprint banners. (Wayan Ruspindi Junaedi et al., 2021)

3. Efficiency and Lower Promotion Costs,

With this system, there is no need for printing or rewriting menu boards, as the system can change text quite easily.

4. Increased Sales and Partner Literacy

The visual information displayed in running text has a direct impact on buyers and increases digital literacy for partners who now understand how running text technology works.



Figure 2. Running Text Display at Nenek Kasiani's Stall

- Negative Impacts

Although the implementation of this digital board provides many benefits, there are several negative impacts and limitations that arise during and after the implementation of the program, including:

1. Dependence on Technology and Electricity

This system only works if there is a power supply and a WiFi connection. When there is a blackout or network disruption, the digital board cannot be used.

2. Excessive Visual Distraction

Moving text effects can be a visual distraction, especially if the speed is too high or the text color is too bright.

Process the implementation of PMKM successfully achieved its goal of increasing the promotional appeal of Warung Nenek Kasiani, where the technology used was simple, low-cost, and effective in providing interesting information to customers. After the implementation of the PMKM team conducted a re-evaluation and found several obstacles that required attention, one of which was the dependence on the availability of electricity and internet network, which caused the board to be unable to function when technical problems occurred. In addition, partners also still needed adaptation in terms of using the system through the screen control application. Based on this evaluation, the team created a guide in the form of a short video and continued assistance so that this technology could run optimally.

5. CONCLUSION

This study demonstrated that the application of simple digital technology, in the form of a digital signboard, has a significant positive impact on the performance of micro, small, and medium enterprises (MSMEs). At Nenek Kasiani's Shop, the intervention increased customer engagement, improved sales performance, and enhanced the overall professional image of the business. The digital signboard not only attracted customer attention but also provided transparent and easily updated information regarding prices and promotions, which contributed to higher customer trust and satisfaction. The findings suggest that even small-scale enterprises with limited resources can benefit from low-cost digital innovations when strategically implemented. Although challenges such as the need for content updates and operational costs remain, these are outweighed by the clear improvements in visibility, competitiveness, and sales growth. Overall, the implementation of a digital signboard at Nenek Kasiani's Shop illustrates how accessible technologies can serve as effective tools for empowering MSMEs and supporting their sustainability in increasingly competitive market environments. Future research may expand the scope by evaluating long-term impacts, scalability across different types of MSMEs, and integration with other digital marketing strategies.

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