



Enhancing MSME Competitiveness through Business Legality Mentoring and Digital Transformation in Probolinggo City

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ARTICLE INFO

Article history

Received : 27-10-2025

Revised : 29-11-2025

Accepted : 29-11-2025

Keywords

MSME; business
legality; NIB; PIRT;
QRIS; digital
transformation;
community
engagement.

ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) in Laweyan Village, Probolinggo City, encounter intertwined challenges in business legality and digital readiness that hinder their competitiveness and access to formal markets. This community engagement program aimed to enhance MSME competitiveness through integrated mentoring on business legality covering Business Identification Number (NIB), and Home Industry Food Permit (PIRT), and digital transformation training. Using a participatory approach, the program involved 20 MSME participants from the food, crafts, and trade sectors in structured workshops, administrative facilitation, and digital mentoring. Results showed that 80% of participants successfully registered for NIB, and 50% initiated PIRT applications. Most participants also adopted QRIS- based digital payment systems, improved product branding, and created active social media profiles for online promotion. Evaluation through pre and post-tests revealed substantial increases in legal and digital literacy, along with improved transaction efficiency and customer engagement. These outcomes demonstrate that combining legality formalization with digital empowerment effectively enhances MSME competitiveness and resilience. Sustained collaboration among academic institutions, local government, and MSME actors is recommended to ensure long-term impact and scalability.

Usaha Mikro, Kecil, dan Menengah (UMKM) di Desa Laweyan, Kota Probolinggo, menghadapi tantangan yang saling berkaitan antara legalitas usaha dan kesiapan digital, yang menghambat daya saing serta akses ke pasar formal. Program pengabdian masyarakat ini bertujuan untuk meningkatkan daya saing UMKM melalui pendampingan terpadu dalam bidang legalitas usaha—meliputi pembuatan Nomor Induk Berusaha (NIB) dan izin Pangan Industri Rumah Tangga (PIRT)—serta pelatihan transformasi digital. Dengan pendekatan partisipatif, program ini melibatkan 20 pelaku UMKM sektor pangan, kerajinan, dan perdagangan dalam kegiatan sosialisasi, asistensi administratif, serta pendampingan digital. Hasil menunjukkan bahwa 80% peserta berhasil memperoleh NIB dan 50% memulai proses perizinan PIRT. Sebagian besar peserta juga mengadopsi sistem pembayaran digital berbasis QRIS, memperbaiki



desain kemasan dan branding produk, serta membuat akun media sosial aktif untuk promosi daring. Evaluasi melalui pre-test dan post-test menunjukkan peningkatan signifikan dalam literasi legalitas dan digital, disertai efisiensi transaksi dan keterlibatan pelanggan yang lebih baik. Temuan ini menunjukkan bahwa integrasi antara formalitas legalitas dan pemberdayaan digital secara efektif meningkatkan daya saing dan ketahanan UMKM. Diperlukan kolaborasi berkelanjutan antara perguruan tinggi, pemerintah daerah, dan pelaku UMKM untuk memperkuat dampak jangka panjang dan keberlanjutan program.

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A. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are vital contributors to Indonesia's economy, representing more than 99% of business units and playing a significant role in employment and GDP growth (Panjaitan et al., 2025). Despite their strategic importance, many MSMEs continue to face challenges related to business legality and digital readiness. The absence of legal documents such as the Business Identification Number (NIB) and Home Industry Food Permit (PIRT) restricts access to financial support, formal markets, and government assistance programs (Setini et al., 2025). These challenges are particularly evident in Laweyan Village, Probolinggo City, where small-scale entrepreneurs in food processing and handicrafts remain unregistered and operate informally.

Digital transformation has emerged as a critical driver for MSME competitiveness in the post-pandemic era. Studies indicate that digital adoption enhances productivity, market reach, and innovation capacity when supported by digital literacy and government facilitation (Panjaitan et al., 2025), (Marolt et al., 2025). Digital transformation in MSMEs not only enhances productivity and innovation but also demands strategic adaptation to minimize implementation risks. As highlighted by Evangeulista et al. (2023), MSMEs must identify appropriate digitalization strategies—such as leveraging social media, adopting fintech tools, and developing digital literacy—to ensure successful transformation and sustain competitiveness (Agustin et al., 2023). However, the digital divide persists due to limited technological infrastructure, low digital skills, and uncertainty toward innovation among micro-entrepreneurs (Marolt et al., 2025). In Indonesia, social capital and community networks also influence digital adoption, as collaborative ecosystems improve MSMEs' ability to access resources and share knowledge (Setini et al., 2025). Strengthening social trust, mentoring, and inter-MSME collaboration has been found to significantly accelerate digital transformation and market adaptation.

Recent empirical evidence emphasizes that attitudes toward digital behavior, subjective norms, and perceived government support are key determinants of MSMEs' intention to adopt digital technologies (Panjaitan et al., 2025). Likewise, legal certainty and



compliance foster greater confidence in engaging with digital markets and financial services. For instance, obtaining NIB and PIRT licenses not only legitimizes business operations but also facilitates access to digital payment systems such as QRIS, which are crucial for modern trade integration. International studies confirm that MSMEs' digital transformation is shaped by contextual inhibitors and accelerators—ranging from financial constraints and digital literacy to government incentives and policy support (Marolt et al., 2025). The integration of digital payments through QRIS has become a central instrument in promoting MSME efficiency and financial inclusion. Natsir et al. (2023) demonstrated that QRIS not only accelerates transaction processes but also strengthens financial transparency and productivity among small-scale entrepreneurs (Natsir et al., 2023). Furthermore, digital capability development requires structured mentoring and participatory learning models, especially for rural and semi-urban entrepreneurs (Setini et al., 2025). As highlighted in a study on MSMEs in the Philippines, digital innovation coupled with legal legitimacy increases resilience, transparency, and business sustainability in emerging economies. In this context, this community engagement program aims to enhance the competitiveness of MSMEs in Probolinggo City through mentoring and facilitation in two critical domains: (1) business legality, including assistance in NIB and PIRT registration, and (2) digital transformation, focusing on the use of social media, e-commerce platforms, and QRIS for online transactions. The program adopts a participatory approach combining education, technical assistance, and digital mentoring to empower MSME actors toward formality and technological adaptability. This initiative aligns with prior findings that integrated legality and digital mentoring effectively improve MSMEs' performance and long-term competitiveness.

Therefore, this community engagement program was designed with three main objectives: (1) to improve MSME understanding and compliance with business legality requirements, specifically through mentoring for the registration of NIB and the initiation of PIRT licensing; (2) to enhance digital readiness by providing practical training in social media utilization, QRIS-based payment systems, and basic digital branding; and (3) to strengthen MSME competitiveness and market access through an integrated approach that combines legal formalization with digital transformation. These objectives serve as the foundation for developing a sustainable empowerment model for MSMEs in Laweyan Village, Probolinggo City.

B. METHODS

This community engagement program adopted a participatory mentoring model combining legal literacy, training, and digital empowerment approaches to address the main problems faced by MSMEs in Laweyan Village, Probolinggo City. The activities were carried out collaboratively by lecturers, students, and local government representatives from the Cooperative and MSME Office. The overall process consisted of three stages: preparation, implementation, and evaluation, as described in the community-based action research framework (Setiawati, 2022). The preparation stage involved coordination with village authorities and the identification of MSME partners who had not yet obtained formal business legality such as the Business Identification Number (NIB) or Home Industry Food Permit (PIRT). Data collection was conducted through interviews and field surveys to map each MSME's legality and digital readiness levels (Nalurita et al., 2024). The findings showed that 60% of participants had not registered their NIB and 75% lacked understanding of digital marketing or electronic



payments.

The implementation stage was divided into two main programs: 1) Legal assistance and administrative mentoring, which included workshops on business legality requirements, step-by-step NIB registration through the Online Single Submission (OSS) system, and guidance for fulfilling PIRT documents for food-related MSMEs. This stage adopted a hands-on mentoring approach where participants directly practiced filling in OSS forms with supervision from the facilitation team. The mentoring was also inspired by participatory frameworks applied in similar MSME empowerment projects in Tasikmalaya and Malang that emphasized direct involvement and incremental administrative learning (Setini et al., 2025), (Panjaitan et al., 2025). 2) Digital transformation and marketing empowerment, implemented through digital literacy workshops and practical training on social media utilization, branding design, QRIS activation, and e-commerce introduction.

The digital mentoring referred to the four-phase model of digital MSME development – awareness, capability building, implementation, and sustainability – as suggested by Arianto (2024). During these sessions, participants practiced creating business profiles on Google Maps, setting up QRIS for cashless payments, and designing promotional content using Canva and Instagram Business. The method followed the principles of experiential learning, where participants learn by doing through real cases and guided reflection (Setiawati, 2022).

The evaluation stage was conducted to assess the effectiveness of the activities in improving participants' understanding and skill levels. A pre-test and post-test questionnaire were distributed to measure changes in knowledge of business legality and digital literacy. The pre-test and post-test instruments consisted of a 10-item questionnaire designed to measure participants' knowledge and readiness related to business legality and digital transformation. The instrument covered three key indicators: (1) understanding of NIB registration procedures and PIRT requirements, (2) digital literacy skills, including the use of social media and basic branding tools, and (3) awareness and practical knowledge of QRIS digital payment systems. Each item used a multiple-choice or Likert-scale format to assess changes in participants' knowledge and confidence before and after the mentoring activities.

Additionally, a reflection session was held to capture qualitative feedback and participant satisfaction. According to the evaluation results, 80% of MSME participants successfully completed NIB registration, while 50% had initiated PIRT application processes. Furthermore, most MSMEs reported increased confidence in utilizing social media for marketing and improved visibility of their business products. This multi-phase participatory mentoring approach aligns with contemporary MSME empowerment models that emphasize capacity building, collaborative learning, and sustainability as the core of community development. The integration of legality formalization and digital empowerment has proven to be an effective strategy for enhancing MSME competitiveness and adaptability in the digital economy context.

C. RESULTS AND DISCUSSION

The community engagement program was implemented in Laweyan Village from August to September 2025, targeting 20 MSME participants from the food, crafts, and trade sectors. The program focused on two key interventions: (1) business legality facilitation,

and

(2) digital transformation mentoring. The following subsections present the detailed results and discussion of each stage.



Figure 1. MSME Product Showcase from Laweyan Village

1. Business Legality Facilitation (NIB and PIRT Mentoring)

The first phase of the program addressed the issue of limited legality awareness among MSMEs. Based on preliminary surveys, most MSMEs in Laweyan operated informally and were unfamiliar with the Online Single Submission (OSS) system. The team

conducted a training workshop and direct OSS mentoring session, guiding participants through each step of NIB registration, from creating user accounts to printing official NIB certificates.



Figure 2. Training Session for MSME Participants in Laweyan Village

Participants were divided into small mentoring groups for hands-on assistance.

Out

of 20 participants, 16 MSMEs successfully obtained their NIB, while 4 others completed the administrative stage and awaited validation. Following that, the team collaborated with the Health Office of Probolinggo City to provide an introductory session on Home Industry Food Permit (PIRT) requirements. Participants learned about hygiene standards, packaging labeling, and food safety documentation. This stage referred to the

participatory mentoring model introduced by Arianto (2024), emphasizing practical and iterative learning processes in community-based MSME development. The mentoring approach emphasized —learning- by-doing,‖ enabling participants to overcome administrative barriers and develop confidence in managing formal procedures. Participants who completed NIB registration expressed improved trust from suppliers and customers, especially when applying for business bank accounts and QRIS registration.

2. Digital Transformation and Marketing Empowerment

The second component of the program focused on enhancing digital literacy and marketing awareness among MSME participants. The training covered social media marketing, the introduction of QRIS as a digital payment system, and basic product branding using digital design tools. This approach aligns with Arianto (2024), who emphasized that digitalization enables MSMEs to expand market reach, improve efficiency, and strengthen innovation through low-cost technology adoption.

A two-day digital workshop introduced the fundamentals of e-commerce, business profile creation via Google Maps, and the use of Canva for designing simple product catalogs. Participants were also introduced to the concept, procedures, and benefits of QRIS for facilitating cashless transactions—an essential digital competency for micro-entrepreneurs in semi-urban regions. Following the mentoring sessions, 75% of MSME participants demonstrated an improved understanding of QRIS registration procedures and gained greater knowledge about digital payment systems. Additionally, most participants were able to create active social media pages for product promotion and develop product labels with improved visual consistency and clearer branding.



Figure 3. Collection of Business Registration Forms during the Mentoring Session

3. Evaluation of Program Outcomes

The program evaluation employed a mixed-method approach, combining pre-test and post-test surveys with qualitative observations. Initially, only 30% of participants understood NIB registration procedures and 25% had experience with digital marketing platforms. After mentoring, awareness of legality processes increased to 90%, and confidence in digital media utilization rose to 85%. Participants also reported improved transaction efficiency and customer engagement.



Qualitative feedback from reflection sessions confirmed that participants gained clearer administrative understanding from legality mentoring and benefited from the practical aspects of digital training. Several participants noted that QRIS adoption minimized transaction errors and attracted new customers preferring cashless payments. These findings affirm that integrating legality formalization and digital empowerment acts as a dual-lever strategy to strengthen MSME competitiveness in rural-urban settings.

4. Discussion

The community engagement activities demonstrated how participatory mentoring can effectively bridge the gap between formalization and digitalization among MSMEs. The integration of legal and digital training directly addressed the institutional and behavioral barriers that often hinder MSME growth. This aligns with Arianto (2024), who underlined that digital transformation in MSMEs should not only focus on technology adoption but also on formal legitimacy and financial inclusion. From a sustainability perspective, MSMEs with formal legality (NIB/PIRT) are more likely to gain access to financing programs and maintain continuity of digital marketing practices. The observed results in Laweyan confirm Nalurita et al. (2023) and Rahmiyanti et al. (2023) that legality formalization enhances accountability, while digital mentoring fosters innovation and resilience.

Furthermore, this program contributes to the local government's target of building a digitally inclusive MSME ecosystem. The synergy between academic institutions, government, and business actors creates a model for scalable community empowerment that could be replicated in other subdistricts of Probolinggo City.

The overall impact of the program can also be interpreted through the lens of capacity-building theory, which emphasizes the development of individual and organizational competencies as the foundation for sustainable empowerment. The legal mentoring and digital training components not only transferred technical knowledge but also strengthened participants' administrative confidence, digital literacy, and problem-solving abilities—key elements of long-term capacity development for MSMEs. In addition, the outcomes align with socio-technical integration theory, which argues that technological adoption is effective only when supported by social structures such as trust, mentoring, and collaborative learning. The combination of OSS-based legality assistance and QRIS-focused digital training reflects a balanced socio-technical approach, where improvements in technological capability are reinforced by enhanced social readiness and community-level support. This integration explains why participants were able to adopt new digital tools and formalize their businesses more effectively, demonstrating a deeper and more sustainable program impact.



Figure 4. Community Engagement Team of Universitas Panca Marga

D. CONCLUSION

This community engagement program proved that integrating business legality mentoring with digital transformation effectively enhances the competitiveness and sustainability of MSMEs in Probolinggo City. Through participatory mentoring and practical facilitation, MSME participants in Laweyan Village acquired essential competencies in administrative compliance and digital marketing, enabling smoother adaptation to regulatory and technological changes. The legality assistance resulted in tangible outcomes—80% of participants successfully registered for NIB, and 50% initiated PIRT applications—while digital mentoring improved QRIS adoption, branding consistency, and online promotional activity.

Overall, these achievements strengthened MSME credibility, expanded formal market access, and demonstrated that coupling formalization with digital enablement produces measurable improvements in performance and operational efficiency. Moreover, the collaborative synergy between universities, local government, and MSME actors fostered an inclusive ecosystem that supports sustainable digital economic growth. Future initiatives are recommended to extend mentoring duration, strengthen monitoring and evaluation mechanisms, and introduce advanced digital skills training to ensure broader scalability and long-term impact across regions.

E. ACKNOWLEDGEMENTS

The authors express sincere gratitude to the Panca Marga University, for funding and facilitating this community service program. Special appreciation is also extended to the Laweyan Village Government and the Department of Cooperatives, Industry, and Trade of Probolinggo City for their collaboration and administrative support during the field implementation. Deep thanks are given to all MSME participants of Laweyan Village, whose enthusiasm and commitment made the program successful.



F. AUTHOR CONTRIBUTIONS

Aries Budi Wijayanto served as the project leader and was responsible for coordinating the overall program design and collaboration with local government stakeholders. Yustina Suhandini Tjahjaningsih supervised the field implementation and led the preparation of the manuscript. Tri Prihatiningsih and Trismawati managed the mentoring sessions on business legality (NIB and PIRT) and facilitated administrative assistance for MSME participants. Muhammad Alghifari and Fitri focused on the digital transformation component, including QRIS training, digital marketing, and data collection for program evaluation. All authors jointly discussed the results, contributed to manuscript refinement, and approved the final version for publication.

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