

ENHANCING MANAGERIAL CONTROL AND DECISION-MAKING IN MSMES THROUGH DIGITAL MONITORING SYSTEMS

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in Indonesia's economy, yet many continue to face challenges in business monitoring, coordination, and structured reporting. This study designs and evaluates a digital monitoring application tailored for the UMKM Corner community—a collaborative MSME group in Malang. Developed using a user-centered and community-based approach, the system supports daily transaction logging, product stock alerts, and real-time performance reporting through a coordinator dashboard. Field testing and TAM-based user evaluation reveal improvements in reporting consistency, internal coordination, and overall satisfaction. By emphasizing ease of use and managerial relevance, the application offers a replicable framework to strengthen group-based MSME governance and promote data-driven decision-making in similar business environments.

Keywords: *digital application, activity monitoring, technology acceptance model, community-based MSME*

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) represent more than 99% of all businesses in Indonesia and employ approximately 97% of the national workforce [1]. Their strategic position makes MSMEs essential in sustaining economic resilience and local empowerment. However, despite their vast presence, many MSMEs face persistent challenges related to business monitoring and structured reporting—especially in community-based models where multiple enterprises operate collaboratively. In practice, MSME collectives such as UMKM Corner in Malang frequently rely on manual and fragmented documentation processes, leading to inconsistent records, delayed reporting, and limited accessibility of performance data. These limitations hinder managerial control and reduce transparency, which in turn complicates decision-making, hampers internal coordination, and limits eligibility for government or institutional support programs [2].

Digitalization offers promising solutions to address these issues by introducing tools that automate reporting, facilitate coordination, and generate real-time visibility into business operations. However, widespread adoption among MSMEs remains constrained by affordability, varying levels of digital literacy, and the lack of tailored technologies that fit the operational realities of small and informal business groups [3], [4]. This underscores the need for user-centered digital systems that are intuitive, flexible, and scalable across diverse MSME contexts. Building on this gap, the present study aims to design and evaluate a mobile-based monitoring application tailored for the UMKM Corner collective. The application is developed through a participatory approach, focusing on core managerial functions such as financial reporting, inventory tracking, and coordinator oversight. By embedding community engagement into its design, the system supports data-driven decision-making and offers a replicable framework for strengthening MSME management across similar business ecosystems.

LITERATURE REVIEW

Digital transformation in the MSME sector has gained momentum globally, with technologies such as mobile apps, dashboards, and cloud-based platforms enhancing efficiency, transparency, and competitiveness [5]. These tools allow real-time documentation and reduce administrative burdens, particularly for micro-businesses with limited capacity for structured reporting. Studies have emphasized that digital systems improve operational visibility, facilitate coordination, and support strategic planning when designed with managerial functions in mind [6], [7].

However, existing digital solutions are often developed for individual business use cases and tend to lack adaptability across MSME collectives. Group-based MSMEs frequently span diverse sectors and operate with shared governance structures, requiring systems that support uniform reporting and centralized performance monitoring [8]. Without such capabilities, digital tools risk becoming underutilized or misaligned with community dynamics. Moreover, the successful adoption of digital technology among MSMEs is influenced by key factors—including perceived usefulness, ease of use, infrastructure readiness, and access to support resources [9]. In developing countries such as Indonesia, barriers like limited internet access, affordability constraints, and varying digital skill levels continue to impede widespread implementation [10].

Frameworks such as the Technology Acceptance Model (TAM) have proven useful for evaluating user engagement with digital systems, emphasizing the role of usability and relevance in fostering adoption [11]. These principles are especially important when developing solutions for MSMEs, where tools must align with user expectations and practical needs. When applied within collective business groups, digital monitoring applications provide distinct managerial advantages. Coordinators can track key performance indicators—such as income patterns, product availability, and stock dynamics—in real time [12]. This level of insight enhances accountability and supports decision-making processes, particularly in environments that depend on reliable data for reporting and strategic coordination. By prioritizing inclusive and adaptable system architecture, this study addresses the need for digital solutions that are both functionally robust and contextually responsive to diverse MSME ecosystems.

METHOD

This study employed a community-based case study approach incorporating user-centered design principles in the development of a business monitoring system tailored for UMKM Corner, a collaborative microenterprise group in Malang, Indonesia. Rather than focusing on the technical programming aspects, the research centered on examining how digital tools enhance managerial coordination, improve transparency in financial reporting, and strengthen collective decision-making within the MSME context. The research was conducted through five consecutive stages: identifying practical user needs, designing the system architecture, executing technical implementation, conducting usability trials, and reflecting on the managerial impact. Each phase was grounded in real user input and adapted to the operational dynamics of community-based MSME management. These stages formed the methodological backbone of the study, as depicted in Figure 1.



Figure 1. Five-stage system development framework for UMKM monitoring

Source: Author's illustration based on system development process.

The first phase involved field observations and interviews to uncover the limitations faced by UMKM Corner in daily business monitoring. Common challenges included irregular transaction recording, lack of standardized reporting formats, and minimal stock tracking mechanisms—particularly affecting coordination and resource allocation among members. These insights formed the foundation for a functional requirement matrix, which informed the system's core modules. System design focused on two managerial priorities: digital financial reporting and product stock monitoring. A modular application interface was proposed to allow members to log daily income, review weekly and monthly financial summaries, and receive real-time alerts when product quantities reached a defined minimum threshold. A centralized dashboard was also developed for coordinators to oversee collective performance across members, enabling timely mentoring and data-driven support decisions. Once the structure was finalized, technical implementation proceeded through iterative prototyping and internal validation. The application was then deployed in a limited trial involving selected UMKM Corner members. Usability testing included guided tasks such as transaction input, report generation, and interpretation of stock alerts. Qualitative feedback was collected through focused interviews and a TAM-based questionnaire assessing perceived usefulness, ease of use, and contextual relevance.

Data were analyzed using descriptive qualitative methods, focusing on changes in record-keeping habits, improvements in inventory control responsiveness, and increased efficiency in coordinator-led interventions. System-generated data logs and participant reflections were used to evaluate how the digital solution influenced group-level management functions and operational trust among UMKM members.

RESULTS AND DISCUSSION

The implementation of the business monitoring application within the UMKM Corner collective led to demonstrable improvements in financial reporting, operational oversight, and managerial coordination across its member businesses. Designed through a participatory process, the system successfully shifted user behavior from irregular manual documentation toward routine, structured, and digitized reporting. The first observable impact emerged in the area of income tracking. After adoption of the system, members began entering daily transaction data consistently through the digital interface. These inputs were automatically compiled into weekly and monthly reports, accessible at any time. The application provided visualizations—such as line and bar charts—that enhanced user understanding of business trends and allowed coordinators to monitor financial progress efficiently.

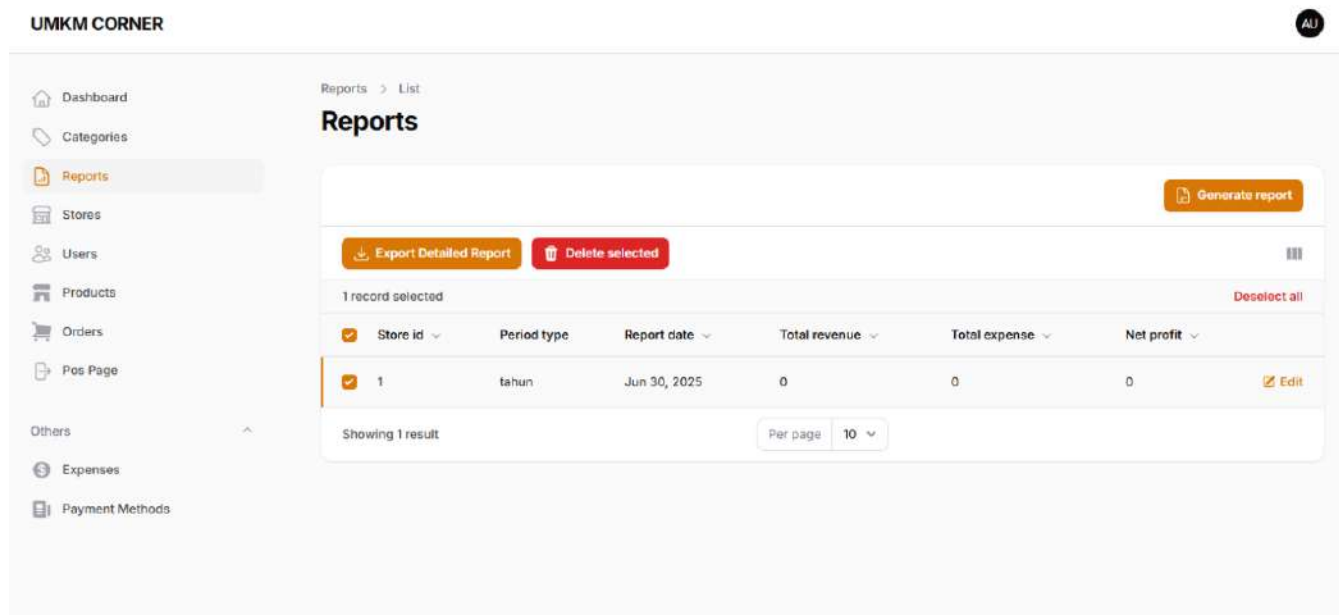


Figure 2. Monthly Income Report Module Display in the UMKM Monitoring

In parallel, the product inventory feature provided tangible benefits for day-to-day operations. The system included an automated alert that notified users when stock levels reached a predefined minimum. Interviews and field observations indicated that users appreciated this function, particularly during peak market periods, such as weekends or community exhibitions. The feature not only prevented missed sales due to stockouts, but also encouraged proactive planning and inventory control. One of the most substantial changes occurred in the role of the group coordinator. Prior to system deployment, monitoring member activity relied on verbal updates or manual data submission—often delayed and fragmented. With the introduction of the centralized dashboard, coordinators could now access real-time summary data across all members, including transaction counts, revenue trends, and product availability. This capability significantly streamlined internal evaluations, selection processes for training or aid programs, and reporting to external stakeholders such as cooperative agencies.

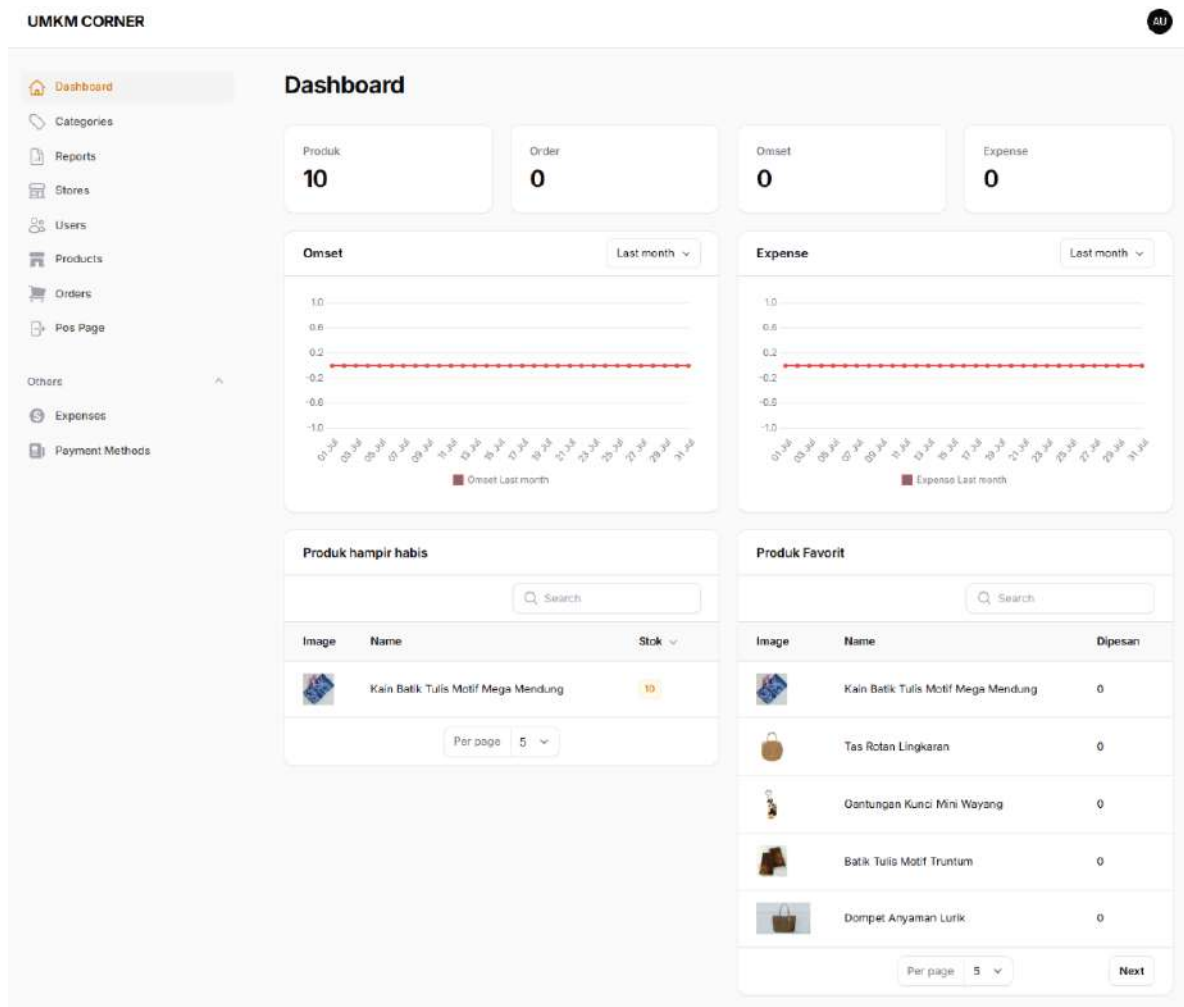


Figure 3. Coordinator Dashboard Display – Member Performance Summary

To illustrate these changes systematically, Table 2 compares managerial practices before and after system adoption:

Table 2. Comparison of Managerial Practices Before and After System Implementation

Management Aspect	Before Implementation	After Implementation
Income Recording	Manual, inconsistent	Digital, routine, and real-time
Report Accessibility	Fragmented and delayed	Centralized, automated, easily accessible
Stock Monitoring	Manual estimation	Automated alerts for low inventory
Member Evaluation Criteria	Verbal or memory-based references	Data-based assessment from system dashboard

To strengthen the validity of these findings, user perceptions were measured using a questionnaire grounded in the Technology Acceptance Model (TAM), enhanced with MSME-relevant indicators. The instrument consisted of 10 items covering usability, information clarity, feature utility, and overall satisfaction. A total of 15 active members completed the questionnaire following a one-week trial period.

Table 3. Summary of User Satisfaction Scores – UMKM Monitoring Application (Scale 1–5)

Evaluation Indicator	Average Score
Interface usability	4.7
Clarity of financial reports	4.5
Inventory alert usefulness	4.4
Support for group coordination	4.3
Overall user satisfaction	4.6

With an overall score of 4.54, users responded positively to the application, highlighting its relevance in improving daily business management. Qualitative feedback suggested that users became more consistent in documenting transactions and felt more aware of their financial position—outcomes previously unattained through manual practices. From a managerial standpoint, the system promoted more structured and consistent practices in reporting and group coordination. It enhanced internal transparency among members and strengthened collective accountability, particularly in interactions with external partners. The availability of standardized, digitized business records positioned UMKM Corner as a more administratively mature entity, better equipped to access support, submit proposals, and establish collaborative partnerships. In effect, the digital system became both a technical tool and an organizational catalyst—supporting data-informed decision-making and enabling the emergence of a more evaluative, growth-oriented culture within the MSME community.

CONCLUSION

This study demonstrates that the development and implementation of a community-based business monitoring application can generate meaningful improvements in managerial practices within MSME groups. Designed through participatory methods, the system enabled UMKM Corner members to adopt more consistent financial documentation habits, improve inventory tracking, and provide coordinators with structured data to support evaluation and data-driven decision-making. Results from user satisfaction surveys, based on the Technology Acceptance Model (TAM), revealed a high level of approval, with an average score of 4.54 across key usability and relevance indicators. This confirms the application's value not just as a technical tool, but as a managerial asset aligned with the operational realities and needs of small business collectives. The system fostered greater transparency, accountability, and internal coordination—signaling a shift toward more professional and data-oriented group governance. Recommendations To further strengthen the system's managerial utility, future development should consider the following enhancements:

- Integration with digital payment services, such as QRIS or e-wallet platforms, to enable real-time transaction logging and expand the financial dataset.
- Inclusion of expense tracking and profit analysis, allowing users to assess overall business performance beyond revenue alone.
- Automated external reporting modules, which generate formatted reports for funding proposals, cooperative documentation, or program submissions.
- Periodic digital literacy training for members to ensure sustained and effective use of the application, especially as new features are introduced.

It is also recommended that similar studies be conducted across other MSME groups with diverse organizational structures to assess the system's scalability and adaptability to different community contexts.

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