



## Design Get Up System Information Management For MSMEs

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### Abstract

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in supporting Indonesia's economic growth. Despite this importance, many MSMEs still struggle with operational management, especially in recording transactions, managing inventory, and preparing financial reports. These processes are often carried out manually, resulting in low efficiency, frequent errors, and delays in making important business decisions. This research aims to design and develop a web based Management Information System (MIS) that can assist MSMEs in managing their data in an integrated and real time manner. The system is intended to be simple, affordable, and suitable for the needs and capabilities of small businesses. Using a descriptive analytical approach, this study examines both functional and non functional system requirements, designs the system architecture, develops a prototype, and evaluates its potential benefits. The evaluation is conducted through literature analysis and limited trials on selected MSMEs. The research findings show that the proposed MIS can streamline key business processes such as sales recording, inventory control, and basic financial reporting. By providing faster access to accurate information, the system has the potential to improve operational efficiency and support better decision making for MSME owners.

**Keywords:** *Management Information System (MIS), MSMEs (UMKM), Web Based System, Operational Efficiency*

**Abstract:** Usaha Mikro, Kecil, dan Menengah (UMKM) berperan penting dalam mendukung pertumbuhan ekonomi Indonesia. Terlepas dari pentingnya hal tersebut, banyak UMKM yang masih kesulitan dengan manajemen operasional, terutama dalam pencatatan transaksi, pengelolaan persediaan, dan penyusunan laporan keuangan. Proses ini sering dilakukan secara manual, mengakibatkan efisiensi rendah, sering terjadi, dan keterlambatan dalam membuat keputusan bisnis penting. Penelitian ini bertujuan untuk merancang dan mengembangkan Sistem Informasi Manajemen (MIS) berbasis web yang dapat membantu UMKM dalam mengelola datanya secara terintegrasi dan real time. Sistem ini dimaksudkan agar sederhana, terjangkau, dan sesuai dengan kebutuhan dan kemampuan usaha kecil. Dengan menggunakan pendekatan deskriptif analitis, penelitian ini mengkaji persyaratan sistem fungsional dan non fungsional, merancang arsitektur sistem, mengembangkan prototipe, dan



mengevaluasi potensi manfaatnya. Evaluasi dilakukan melalui analisis literatur dan uji coba terbatas pada UMKM terpilih. Temuan penelitian menunjukkan bahwa MIS yang diusulkan dapat merampingkan proses bisnis utama seperti pencatatan penjualan, pengendalian inventaris, dan pelaporan keuangan dasar. Dengan menyediakan akses yang lebih cepat ke informasi yang akurat, sistem ini berpotensi meningkatkan efisiensi operasional dan mendukung pengambilan keputusan yang lebih baik bagi pemilik UMKM.

**Kata kunci:** *Sistem Informasi Manajemen (MIS), UMKM (UMKM), Sistem Berbasis Web, Efisiensi Operasional*

## INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) continue to play an essential role in strengthening Indonesia's economic structure. As one of the largest contributors to national employment and GDP, the MSME sector has repeatedly demonstrated resilience, especially during periods of economic uncertainty. Despite this significant contribution, the internal operational capacity of many MSMEs remains limited. A substantial number of business owners still manage their daily activities manually, including sales recording, inventory tracking, and financial reporting. These manual processes create inefficiencies that hinder business growth and reduce the ability of MSME owners to make timely and accurate decisions. In the modern digital era, when data is often the key driver of strategic planning, the inability to access integrated and real time information becomes a serious obstacle. (Anggadini et al., 2023)

The need for digital transformation among MSMEs is becoming increasingly urgent as competition intensifies and consumers expect faster, more accurate, and more reliable services. While large companies benefit from sophisticated Management Information Systems (MIS), a majority of MSMEs cannot adopt similar technologies due to high development costs, system complexity, and limited technical skills. Consequently, MSMEs continue to rely on traditional methods that are vulnerable to errors, difficult to track, and inefficient when business activities grow. This situation highlights the importance of designing an MIS that is not only functional and integrated but also affordable and easily accessible for small business owners. (Prabowo & Wiguna, 2021)

Furthermore, the Indonesian government has actively encouraged MSMEs to adopt digital tools as part of a broader national strategy for economic digitalization. However, despite various initiatives, many MSMEs still struggle to find systems that genuinely suit their operational needs. Existing software solutions often focus on specific functions such as accounting or point of sale systems without providing a comprehensive and integrated platform that supports transaction management, inventory control, and financial reporting in a single system. This gap underscores the necessity

of developing a web based MIS specifically tailored for MSMEs, capable of integrating essential business operations without requiring advanced technical skills or large financial investments.(Andi Arifwangsa Adiningrat et al., 2023)

The development of a web based MIS becomes even more relevant considering the flexibility and accessibility it offers. Unlike desktop applications, a web based system can be used across devices, allowing business owners to monitor their operations anytime and anywhere. This real time accessibility is crucial for MSME owners who often manage multiple roles simultaneously and require fast access to accurate information. A well designed MIS can significantly reduce the time spent on manual administrative tasks, allowing business owners to focus more on strategic activities such as marketing, product development, and customer engagement.(Alfiah et al., 2023)

The descriptive analytical approach used in this study allows a deeper exploration of MSME operational patterns and how digital tools can improve efficiency. By analyzing system requirements, designing architecture, constructing a prototype, and evaluating its potential benefits, the research provides a structured and practical contribution to the digitalization of MSMEs. The use of limited trials and literature based evaluation strengthens the reliability of the findings while offering realistic insights into how the proposed MIS can assist business owners.(Nugroho et al., 2024)

The significance of this research extends beyond technical innovation. It contributes to the larger national agenda of improving MSME competitiveness through digital empowerment. By enabling MSMEs to access integrated and real time data, the proposed MIS supports more informed decision making, enhances operational efficiency, and increases the transparency of financial management.(Kurniadi & Handayati, 2025) These improvements ultimately contribute to better business sustainability and growth, which in turn strengthens the overall economy. In summary, the background of this research is rooted in the urgent need for accessible, integrated, and user friendly digital tools that address the operational challenges of MSMEs in Indonesia. The gap between the availability of advanced MIS systems and the ability of MSMEs to adopt them creates a strong justification for building a simple, affordable, and functional web based MIS prototype. Through systematic analysis and development, this study aims to produce a solution that can help MSMEs manage sales, inventory, and finances more effectively, thereby enhancing efficiency and supporting better decision making. The findings from this research are expected to contribute meaningfully to the digital transformation efforts within the MSME sector and provide a practical foundation for future system development and implementation.(Nababan et al., 2025)

## **METHOD**

This study adopts a descriptive analytical research approach to design, develop, and evaluate a web based Management Information System (MIS) tailored for the operational needs of Micro, Small, and Medium Enterprises (MSMEs). The descriptive aspect is used to explain the existing conditions of MSME operational practices, particularly how sales transactions, inventory management, and financial reporting are conducted manually. Meanwhile, the analytical component is utilized to interpret these conditions and translate them into system requirements that can be developed into a functional prototype. Data for this research were collected through two main sources: literature studies and limited field observations. Literature studies include academic journals, government reports, and previous research related to MSME digitalization, MIS design, and web based system development. Field observations were conducted on a small sample of MSMEs to understand their daily operational workflows, identify user challenges, and validate system needs. Although limited in scope, these observations provide practical insights into the real behaviors and constraints of MSME users. (Syamsul, 2022)

The research procedure consists of four stages. First, requirements analysis is carried out to determine the functional and non functional needs of the MIS. Second, the system design stage develops the system architecture, including interface structure, database design, and workflow modeling. Third, the prototype development stage produces a simple, affordable, and accessible web based MIS using appropriate development tools. Finally, the evaluation stage examines potential system benefits through expert reviews, literature benchmarks, and small scale user trials. This methodology ensures that the resulting MIS prototype is grounded in real MSME needs while remaining practical, usable, and aligned with the research objectives. (Minasa et al., 2024)

## **RESULTS AND DISCUSSION**

### **Overview of MSME Operational Conditions**

The initial stage of this research sought to obtain a clear understanding of the current operational practices of Micro, Small, and Medium Enterprises (MSMEs). Field observations and supporting literature consistently showed that a majority of MSME owners rely heavily on manual documentation for their daily business activities. Sales are commonly recorded in notebooks or simple spreadsheets, inventory is monitored through physical checks, and financial reports are rarely produced systematically. As a result, business owners often lack access to accurate and timely information about their operations. (Maharani & Wuryaningsih, 2024)

These manual methods create several recurring issues. First, transaction records are frequently incomplete, misplaced, or inconsistent, making it difficult for MSMEs to calculate daily profits or detect discrepancies. Second, inventory monitoring becomes unreliable because stock changes are not updated immediately. This often leads to overstocking or stockouts, both of

which negatively affect business continuity. Third, without structured financial data, MSME owners find it challenging to prepare profit loss reports, calculate margins, or evaluate financial performance. This situation limits their ability to apply for loans, plan investments, or respond strategically to market changes. The findings confirm that the core problem faced by MSMEs is not merely the absence of technology but the lack of an integrated system that can support their operational routines in real time. This condition becomes the foundation for designing a web based Management Information System (MIS) that addresses these gaps.(Libraeni & Kherismawati, 2024)

### **Functional Requirements Identified**

Through direct observation and supporting literature, the study identified three primary functional needs that an MIS for MSMEs must fulfill. First, the system must be able to record sales transactions quickly and accurately, as this process represents the core operational activity of most MSMEs. Manual recording often leads to inconsistencies, delays, and missing data, which ultimately affect financial calculations and business evaluation. A digital sales module that updates information in real time therefore becomes essential. Second, the system must support effective inventory management. MSMEs frequently struggle to monitor stock levels, identify shortages, and plan restocking activities due to the absence of integrated and systematic tracking tools. (Rachman et al., 2023)An automated inventory feature allows business owners to maintain optimal stock availability while minimizing the risk of overstocking or stockouts. Third, the MIS must generate simple yet comprehensive financial reports that help MSME owners understand profit margins, expenses, and cashflow conditions. Many MSMEs do not have formal accounting knowledge, making an easy-to-understand reporting function critically important. Together, these functional requirements form the foundation of an MIS that is practical, accessible, and aligned with the operational realities of small businesses.(Sumber Daya Alam Secara Berkelanjutan Waloyo et al., 2025)

#### **1. Sales Management Module**

The first essential component is a simple and user friendly sales management feature. MSMEs need an interface that allows them to record transactions quickly, input item details, update stock levels automatically, and generate basic sales summaries. The system must accommodate both cash and digital payment types, as many MSMEs now accept e wallet or QRIS transactions.

Additionally, some MSME owners expressed the need to monitor daily revenue patterns. Therefore, the system must automatically generate daily, weekly, and monthly sales reports. This not only improves data availability but also helps business owners analyze peak hours, best selling items, and seasonal sales variations.(Anam et al., 2024)

## **2. Inventory Management Module**

Inventory control remains one of the most underestimated yet crucial aspects of MSME operations. The system needs to record stock in and stock out movements, provide notifications when items are nearly out of stock, and generate inventory summaries that show quantity, item age, and product classification. This requirement emerges from the frequent mismatch between actual stock availability and manual records. The system must also allow business owners to categorize products according to type, cost, and supplier. This level of detail is particularly useful for MSMEs dealing with perishable goods or complex product portfolios.(Romadhoni et al., 2025)

## **3. Financial Reporting Module**

One of the most significant obstacles for MSMEs is the absence of standardized financial documentation. Therefore, the MIS prototype must be capable of generating basic financial statements, including profit loss summaries, expense tracking, and cashflow views. The financial module must be easy to operate and understand, as many MSME owners have limited accounting knowledge. The financial reports should be automatically generated based on recorded transactions and expenses, reducing the risk of manual calculation errors. This provides MSMEs with a clearer understanding of their business health and supports better decision making.(Jannah Siregar et al., 2025)

## **Non Functional Requirements**

Beyond the core functionalities, this study also identified several non-functional requirements that are essential for ensuring the system's reliability, usability, and long-term sustainability. One of the primary considerations is affordability, as most MSMEs operate with limited financial resources. The system must be inexpensive to adopt and accessible through commonly available devices such as Android smartphones, laptops, or basic desktop computers. For this reason, a web-based architecture was selected, allowing users to access the system without installing additional software and enabling them to use it anytime and anywhere with an internet connection.(Lidia, 2023)

Another important requirement is ease of use. Since many MSME owners have limited technological literacy, the system interface must be simple and intuitive. Menu structures should remain minimal, supported by clear icons and straightforward navigation paths. By prioritizing essential features and avoiding unnecessary complexity, the system becomes more approachable for users unfamiliar with digital tools. Data security also plays a crucial role in the system's design. Financial and inventory data must be protected from errors and unauthorized access. To address this, the system incorporates authentication processes, data validation mechanisms, and secure storage methods. Regular database backups further ensure data integrity and help

safeguard valuable business information in case of system disruptions.(Ningsih & Tjahjono, 2024)

### **System Architecture and Design Results**

The system architecture developed in this research is based on a modular approach that aligns with the functional and non functional requirements previously identified. This modular design ensures that each component of the system sales, inventory, and financial reporting operates independently but remains interconnected through a centralized database. By adopting this model, data can flow seamlessly from one module to another without duplication or inconsistency. For instance, once a sales transaction is recorded in the sales module, the inventory module instantly receives updated stock information, and the financial module simultaneously calculates revenue inputs and categorizes them within the appropriate financial records. This interconnected structure supports real time updates across the system, enabling MSME owners to view accurate information at any given moment.(Villanueva et al., 2025)

The overall framework was constructed using web based development tools chosen for their lightweight nature and compatibility with commonly used devices. The system includes several core components that are essential to supporting MSME operations. The first component is the login page equipped with user authentication features to ensure that only authorized individuals can access the system. This is followed by a centralized dashboard that presents a summary of key business indicators, including total sales, current inventory status, and basic financial metrics. Additionally, the system incorporates a dedicated sales input page where users can efficiently record transactions; this feature automatically adjusts stock levels in the database based on item quantity sold. The inventory management page allows users to monitor item availability, input new stock, and identify stock shortages. Lastly, a reporting section is provided to generate downloadable summaries that contain sales, stock, and financial information for specified periods. The design emphasizes clarity and usability, with a navigation bar consisting only of essential menus to avoid overwhelming users. The interface layout and color choices prioritize readability and user comfort, ensuring that MSMEs with limited technological experience can operate the system smoothly.(Faizal et al., 2021)

In the prototype implementation stage, the system was built using a combination of HTML, CSS, and JavaScript for the frontend, while the backend employed a PHP based framework known for its stability and suitability for small scale business applications. MySQL was selected as the database management system due to its high efficiency, reliability, and wide availability. Each system module was individually tested to ensure proper functionality. During testing, the sales module demonstrated its capability to record

transactions accurately and update stock levels in real time without requiring manual intervention. This automated adjustment reduces the risk of data entry errors commonly encountered when MSME owners perform stock updates manually. The inventory module also performed reliably, consistently retrieving correct stock information from the database and displaying low stock notifications when certain items reached predetermined thresholds. Meanwhile, the financial module successfully generated reports based on transaction and expense data. It categorized expenses appropriately and calculated profit summaries in accordance with recorded inputs. (Kristianti et al., 2025)

Prototype testing further included an evaluation of responsiveness and compatibility across different devices. The system was tested on multiple screen sizes, including laptops, tablets, and smartphones. The results showed that the system maintained high responsiveness on all devices, with layouts adjusting automatically to ensure smooth navigation. This is particularly important because many MSME owners rely heavily on mobile phones to manage daily business activities. The ability to access the system through mobile devices significantly increases the practicality and accessibility of the MIS.

To evaluate user experience, limited trials were conducted with several MSMEs representing diverse sectors, such as retail shops, food stalls, and small scale service providers. The objective of these trials was to capture user impressions, identify operational bottlenecks, and evaluate system usefulness in real business settings. Feedback from MSME owners was overwhelmingly positive. Many users reported that the system provided them with clearer insights into daily profits and expenses, allowing them to better understand their financial position. They also appreciated the automated stock updating feature, which they found particularly helpful in reducing errors associated with manual stock recording. Users noted that the system made it easier to track lost items, manage stockouts, and maintain more organized documentation. (Hasanah et al., 2024)

Despite these positive responses, several users suggested improvements that could enhance the system's usability and functionality. Some recommended the addition of a product photo upload option, arguing that visual identification of items would be helpful for MSMEs with large or diverse inventories. Others expressed the need for an offline access mode, particularly for businesses operating in areas where internet connections are unstable or unavailable. Additionally, a few users suggested the ability to customize report formats to suit unique business requirements. These recommendations highlight areas for future refinement and align with the system's goal of remaining flexible and adaptable to different business contexts. (Saputra et al., 2024)

The analysis of system benefits demonstrates that this web based MIS offers substantial advantages across various operational dimensions. One of the most significant benefits is increased efficiency. Automating sales and inventory updates reduces the amount of time MSME owners spend on administrative tasks and significantly minimizes errors caused by manual data entry. (Hossin et al., 2025) Users reported that tasks that previously required up to half an hour could now be completed within seconds, allowing them to focus on more strategic aspects of their business, such as customer engagement or product development. Another key benefit is improved decision making. Because the system provides real time data on sales, inventory, and financial conditions, MSME owners can make more informed decisions. For example, they can restock items at the right time, adjust pricing strategies, or analyze revenue trends to understand peak selling periods. Real time financial summaries also help them plan cashflow needs more effectively. (Hardiansyah Putra, 2023)

The system also enhances transparency by providing structured documentation of all business activities. This allows MSME owners to track revenue, expenses, and inventory movements more accurately. Transparent documentation strengthens accountability and can support MSMEs when applying for bank loans or participating in government programs that require financial reporting. Furthermore, the prototype aligns with national efforts to promote digital transformation within the MSME sector. By offering a simple yet effective tool, the MIS prepares MSME owners to engage with broader digital platforms, adopt future technologies, and integrate their businesses into the growing digital economy. (Ali Mohamad et al., 2023)

Compared with previous studies, which often focus on conceptual discussions regarding MSME digitalization, this research makes a practical contribution by developing a functioning MIS prototype tailored specifically for MSMEs' operational needs. While many commercial systems are either too complex or too expensive for small businesses, the MIS presented in this study emphasizes accessibility, affordability, and ease of use. These characteristics make it more relevant for MSMEs, especially those with limited financial resources or technological experience. (Abusaimh et al., 2023)

However, the prototype is not without limitations. The user testing process involved only a small number of MSMEs, meaning that the results may not fully represent the broader sector. Additionally, advanced analytical features such as forecasting, cost accounting, or data visualization were not included in this prototype. The system also relies on an active internet connection, which may pose challenges for MSMEs operating in rural or remote areas. These limitations open opportunities for future development, including expanding system features, increasing user testing across more diverse MSME sectors, and integrating offline capabilities. (Alfani et al., 2024)

## CONCLUSION

This study concludes that the development of a web based Management Information System (MIS) provides significant value for Micro, Small, and Medium Enterprises (MSMEs) by addressing long standing challenges in sales recording, inventory management, and financial reporting. The modular system architecture, supported by a centralized database, enables real time data integration across all operational components, resulting in more accurate and accessible business information. Prototype implementation and limited user trials demonstrate that the system improves efficiency, reduces manual workload, and minimizes errors that commonly arise from traditional manual processes. Users also reported clearer insights into profit trends, stock availability, and financial performance, enabling more informed decision making. Although the prototype remains simple, its usability and affordability make it especially suitable for MSMEs with limited technological readiness. Despite several limitations such as the absence of advanced analytics and reliance on internet connectivity the MIS prototype contributes meaningfully to the digital transformation of MSMEs and offers a strong foundation for future system enhancements.

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