
**CONCEPTUAL MODEL OF A DIGITAL SALES SYSTEM FOR RURAL MSMEs
BASED ON SYSTEM REQUIREMENTS ANALYSIS**

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Abstract

Rural Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in strengthening local economies; however, many still face limitations in market access, digital literacy, and the use of integrated sales systems. In Desa Tombatu, Minahasa Tenggara Regency, MSMEs have begun utilizing digital platforms and marketplaces, yet their use remains fragmented and unsupported by structured sales information systems. This study aims to analyze system requirements and develop a conceptual model of a digital sales system tailored to the characteristics of rural MSMEs. The research adopts a descriptive qualitative approach using system requirements analysis, supported by literature review and field observations. The findings identify two main categories of system requirements: functional and non-functional. Functional requirements include product and price management, automated sales transaction recording, inventory management, customer data management, digital payment integration, delivery management, and simple sales reporting. Non-functional requirements emphasize ease of use, simple interface design, data security, mobile accessibility, and system reliability under limited internet connectivity. Based on these requirements, a conceptual digital sales system model is proposed, incorporating the principles of the Technology Acceptance Model (TAM), particularly perceived usefulness and perceived ease of use. The proposed model serves as a foundational framework for developing a user-oriented and sustainable digital sales system, with the potential to enhance efficiency, competitiveness, and economic resilience of rural MSMEs.

Keywords: Rural MSMEs; Digital Sales System; System Requirements Analysis; Conceptual Model; Technology Acceptance Model

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) located in rural areas actually possess very significant economic potential. Many of these enterprises produce distinctive flagship products derived from local resources and the capabilities of local communities (Taviprawati et al., n.d.). However, this potential has not yet been fully utilized. One of the main constraints is limited market access, low adoption of information technology, and the absence of sales systems capable of connecting rural business actors with consumers in a broad and sustainable manner. As a result, rural MSME products face difficulties in scaling up and are less competitive compared to similar products from other regions, particularly those that have already entered digital sales platforms. On the other hand, current technological developments offer new opportunities to expand market reach (Salsabila et al., 2024). The primary challenges faced by rural MSMEs include limited market access, as many still rely on traditional marketing methods and therefore struggle to reach wider markets (Dermawan et al., 2024), low digital literacy and inadequate digital infrastructure, where insufficient digital knowledge and training, as well as uneven internet infrastructure, remain major barriers (Asikin et al., 2024), and limited capital and human resources, as difficulties in accessing financing and a lack of managerial skills hinder innovation and business expansion (Bursan, 2025).

In the context of the digital economy, MSMEs in the Tombatu area have begun to utilize marketplace platforms as channels for product marketing and distribution, both through national marketplaces and local platforms based on digital media. Marketplaces are used as tools to expand market reach, reduce dependence on conventional sales, and increase the visibility of MSME products beyond the village and sub-district levels. However, the use of these marketplaces is generally still limited to sales and promotional functions and is not yet supported by an integrated accounting information system.

Marketplaces and online sales systems have proven effective in connecting sellers and buyers without geographical constraints. Nevertheless, the adoption of this technology at the village level still faces various obstacles, including limited digital knowledge, systems that do not adequately match user needs, and minimal integration among sales features, inventory management, transaction processing, and product delivery. These conditions create an urgent need to design an appropriate digital sales system model. Changes in consumer behavior, which increasingly favor online shopping, require rural MSMEs to adapt quickly. Without concrete efforts to implement a structured digital sales system, rural MSMEs risk falling behind, experiencing limited growth, and even losing opportunities in an increasingly competitive market (Chotimah et al., 2024). Therefore, a comprehensive needs analysis must be conducted before designing the system model. This analysis includes identifying the required system features, ease of use, data security levels, and the stakeholders involved, ranging from MSME actors and consumers to system administrators and logistics service providers. With an appropriate system model, MSMEs will be better able to manage product information, process transactions efficiently, and expand their marketing reach (Sujarweni, 2024). Designing a conceptual model based on needs analysis is a crucial step before the system is implemented as a fully functional application. This model serves as a guideline for developers and village stakeholders in planning effective marketing digitalization. A



conceptual model grounded in system requirements analysis forms an essential foundation for village marketing digitalization. Such a model ensures that the developed system is relevant, effective, and sustainable, while also enhancing competitiveness and economic self-reliance at the village level (Agusta, 2023). The urgency of developing this model extends beyond technical aspects, as it directly contributes to strengthening the rural economy, creating new business opportunities, and increasing the value and marketability of local products through targeted use of information technology. Limited digital accounting literacy, insufficient technical assistance, and the absence of an integrated marketplace–accounting model tailored to the characteristics of rural MSMEs remain key challenges. Therefore, the Tombatu area represents a relevant research object for examining the development of a marketplace-based accounting information system model oriented toward ease of use, MSME capacity building, and sustainable business performance improvement.

REVIEW OF LITERATURE

Rural MSMEs

Micro, Small, and Medium Enterprises (MSMEs) play an important role in improving community economic development, particularly in rural areas. Rural MSMEs generally utilize the potential of local resources such as agricultural products, handicrafts, traditional foods, and creative products based on local culture. However, these enterprises face various challenges, including limited access to capital, inadequate business management capabilities, low adoption of technology, and restricted market access. Sales digitalization has therefore become one of the key strategies to enhance the competitiveness of MSME products amid shifting trends in modern trade that are increasingly based on online systems. (Salsabila et al., 2024).

Sales Information System

An information system is a combination of technology, procedures, databases, people, and hardware used to collect, process, store, analyze, and distribute information (Zemmouchi-ghomari, n.d.). A sales information system plays a primary role in recording transactions, managing product data, controlling inventory, managing customer information, and generating structured sales reports. A well-designed information system should support operational efficiency, facilitate access to information, and assist decision-making in sales activities. A sales accounting system is a crucial component of modern business management, particularly in enhancing efficiency, accuracy, and internal control in the sales process. It helps companies, especially MSMEs, to systematically record, manage, and report sales transactions, both cash and credit, while also supporting managerial decision-making (Saputro et al., 2020) A digital sales system refers to transaction mechanisms conducted electronically through computers or smartphones. This system includes stages such as product ordering, electronic payment, product delivery, and the issuance of transaction evidence. Compared to manual transactions, digital sales systems offer advantages in terms of faster service, reduced operational costs, automated data management, and greater transparency in sales processes. For rural MSMEs, digital sales systems can drive revenue growth and improve overall business management efficiency.

Rural Economic Digitalization

Rural economic digitalization refers to efforts to utilize information technology in managing economic activities in villages, including the marketing of local products and the development of MSMEs. Digitalization can enhance market access, strengthen local economies, reduce dependence on intermediaries, and create new business opportunities. Through various programs such as “Digital Village” initiatives and technology-based MSME empowerment, the government encourages the development of an integrated digital ecosystem in rural areas (Nugroho et al., 2025). Rural economic digitalization is effective in improving competitiveness, income, and MSME empowerment, provided that it is supported by continuous training, adequate infrastructure, and cross-sector collaboration. Key challenges, such as digital literacy and infrastructure limitations, must be addressed to ensure that the benefits of digitalization are equitably experienced across all villages. The integration of digital systems has the potential to enhance the accuracy of financial reporting, expand marketing reach, and increase the professionalism of MSMEs in responding to digital competition (Tuerah et al., 2025).

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) explains that the use of a technological system is influenced by two main factors (Abdullah, Fazil and Ward, 2016)

1. Perceived Usefulness – the belief that using a system will enhance performance.
2. Perceived Ease of Use – the belief that a system is easy to use and learn.

The acceptance of digital sales systems by rural MSMEs is strongly influenced by perceived usefulness and perceived ease of use. These two factors have consistently been identified as the primary determinants of digital technology adoption across various MSME contexts, including rural areas. In the context of rural MSMEs, the adoption of digital sales systems is largely determined by the extent to which business actors perceive the system as beneficial and easy to operate. Therefore, the design of the system model must take into account user preferences, levels of digital literacy, and habitual practices within rural communities. The acceptance of digital technology among rural MSMEs is also influenced by perceptions of usefulness and ease of use, as well as by factors such as trust and social support. Consequently, system design should consider digital literacy, local preferences, and socio-cultural support mechanisms to ensure optimal technology adoption (Erni Suprihatin, Usep Suhud, 2025).

RESEARCH METHOD

Type and Research Approach

This study employs a descriptive qualitative approach using a system requirements analysis method. This approach is selected because the research focuses on designing a conceptual model of a digital sales system rather than testing hypotheses or conducting inferential statistical measurements. The study is conceptual–applicative in nature, aiming to produce a system model design tailored to the conditions and characteristics of rural MSMEs, which will serve as a foundation for the subsequent development of a digital sales system.



Research Location

The research location of this study is Tombatu Village, Minahasa Tenggara Regency, North Sulawesi Province. Tombatu Village was selected because it has significant MSME potential based on local resources, yet continues to face limitations in the utilization of digital technology, particularly in product sales and marketing systems.

Research Object

The object of this study is the sales system of rural MSMEs in Tombatu Village, Minahasa Tenggara Regency, which includes:

- MSME product marketing processes,
- Sales transaction mechanisms,
- Management of product and inventory data,
- Distribution and delivery flows, and
- The utilization of digital technology to support sales activities.

Research Subjects Include:

- Rural MSME actors in Tombatu Village,
- MSME managers or representatives,
- Village stakeholders involved in MSME development and empowerment, and
- Prospective users of the digital sales system.

The Research Subjects Include:

- Rural MSME actors in Tombatu Village,
- MSME managers or representatives,
- Village authorities involved in MSME development and empowerment, and
- Technology Acceptance Model (TAM).

The literature sources were obtained from scientific journals, academic books, and policy documents related to MSME development and digital villages.

Field Observation

Field observations were conducted directly in Tombatu Village to examine:

- MSME sales patterns,
- Marketing methods that remain predominantly conventional,
- The utilization of digital technology in business activities, and
- The constraints faced by MSME actors in managing sales.

Data Analysis Techniques

The data analysis technique used in this study is descriptive qualitative analysis, which consists of the following stages:

- Problem Identification. Identifying the main problems faced by MSMEs in Tombatu Village related to sales and marketing systems.
- System Requirements Analysis. Analyzing the requirements of the digital sales system based on the results of field observations and a review of relevant literature.

- System Actor Mapping. Identifying the actors involved in the system, including MSME actors, consumers, system administrators, and delivery partners.
- Conceptual Model Design. Developing a conceptual model of a rural MSME digital sales system that aligns with the conditions and characteristics of Tombatu Village.

RESULTS AND DISCUSSION

Overview of MSMEs in Tombatu Village

Tombatu Village, Minahasa Tenggara Regency, is home to a number of MSMEs operating in sectors based on local resources, such as processed food products, agricultural produce, and household handicrafts. These MSMEs serve as important pillars of household and village economies; however, most still conduct their business activities in a traditional manner. Field observations indicate that MSME product marketing in Tombatu Village is still predominantly characterized by direct (offline) sales, word-of-mouth promotion, and the use of basic social media platforms without an integrated management system. This condition results in limited market reach and suboptimal business management.

Current Conditions of MSME Sales Systems

Based on the results of field observations and preliminary analysis, the MSME sales system in Tombatu Village exhibits the following characteristics:

- Manual Sales Recording.
Most MSME actors still record sales transactions manually, which increases the risk of recording errors and creates difficulties in preparing sales reports.
- Limited Digital Marketing.
The use of digital technology is generally limited to social media platforms and instant messaging applications, without support from a structured sales system.
- Lack of Business Process Integration.
Sales processes, inventory management, payment transactions, and product delivery are not integrated into a single system, making efficient business management challenging.
- Limited Digital Literacy.
MSME actors demonstrate varying levels of digital literacy, indicating the need for a system that is simple and easy to use.

These findings indicate a gap between the needs of MSMEs and the digital sales systems currently available.

Results of the Digital Sales System Requirements Analysis

The system requirements analysis resulted in two main categories: functional requirements and non-functional requirements.

a) Functional System Requirements

The functional requirements of the digital sales system for MSMEs in Tombatu Village include:

- Product and price data management,
- Automated sales transaction recording,

- Inventory management,
- Customer data management,
- Digital payment integration,
- Product delivery management, and
- Provision of simple sales reports.

The results of the digital sales system requirements analysis for MSMEs in Tombatu Village indicate that the system to be developed must be capable of addressing the core operational needs of business actors while also adapting to the conditions of the rural environment. From the perspective of functional requirements, the digital sales system is expected to support structured product and price data management, enabling MSME actors to easily update product information in response to market dynamics. Automated recording of sales transactions is a critical requirement, as most MSMEs still rely on manual record-keeping, which poses risks of recording errors and data loss. In addition, inventory management is necessary to help business actors monitor product availability and prevent stock shortages or overstocking.

Other functional requirements include customer data management as a foundation for building long-term relationships, digital payment integration to enhance transaction efficiency and convenience, and delivery management to support market expansion beyond the village area. The provision of simple sales reports is also an essential feature, serving as a tool for evaluating business performance and as a basis for managerial decision-making by MSME actors (Irmal et al., 2024).

b) Non-Functional System Requirements. The identified non-functional requirements include:

- Ease of use (user-friendly),
- A simple and intuitive system interface,
- Transaction data security,
- Accessibility through mobile devices, and
- System reliability under limited network conditions.

Regarding non-functional requirements, ease of use and a simple system interface are the top priorities, considering the limited digital literacy of some MSME actors. Transaction data security is also essential to maintain user trust. Accessibility through mobile devices and system reliability under limited internet connectivity are critical factors for the successful implementation of the system in Tombatu Village. Therefore, non-functional requirements are not merely supportive aspects but constitute strategic elements in ensuring the sustainable adoption of the system by rural MSMEs (Candi & Pringkuku, 2025).

Design of the Conceptual Digital Sales System Model

Based on the results of the requirements analysis, a conceptual model of a digital sales system for rural MSMEs was designed, involving several key actors, namely:

- MSME actors as managers of products and transactions,
- consumers as buyers,
- system administrators as managers of data and system operations, and
- delivery partners as supporters of product distribution.

This model illustrates the flow of information from product management and ordering processes to payment and delivery. The design of the conceptual model aims to ensure that the developed system is capable of supporting the business processes of MSMEs in Tombatu Village in an integrated manner.

Alignment of the Model with the Conditions of MSMEs in Tombatu Village

The resulting conceptual model has been tailored to the actual conditions of MSMEs in Tombatu Village, particularly in terms of:

- feature simplicity,
- ease of operation, and
- compatibility with local business practices.

This approach is essential to ensure that the system is not only technically advanced but also acceptable and sustainably usable by MSME actors.

Perspective Technology Acceptance Model (TAM)

The results of the study indicate that perceived usefulness and perceived ease of use are the primary factors influencing the acceptance of digital sales systems by MSMEs in Tombatu Village. MSME actors tend to be willing to use the system when:

- the system helps increase sales,
- the system simplifies transaction recording, and
- the system is easy to learn without requiring complex training.

These findings are consistent with the Technology Acceptance Model (TAM), which emphasizes that technology acceptance is strongly influenced by users' perceptions of usefulness and ease of use.

Implications for Rural Economic Digitalization

The development of a digital sales system based on system requirements analysis has the potential to:

- expand the marketing reach of MSME products,
- improve the efficiency of business management,
- promote professionalism among rural MSMEs, and
- strengthen the economic self-reliance of Tombatu Village.

With adequate training and infrastructure support, this system can become an integral part of a sustainable rural digital ecosystem.

Synthesis of Research Findings

The findings of this study indicate that MSMEs in Tombatu Village require a digital sales system that is:

- simple and easy to use,

- integrated across business processes, and
- aligned with the characteristics and needs of users.

The results of the study indicate that MSMEs in Tombatu Village require a digital sales system that is simple and easy to use, as most business actors have limited digital literacy and are not yet accustomed to complex technology-based systems (Sevi Andriasari, Nizamiyati, Iis Ariska Nurhasanah, 2024). Overly complex systems have the potential to reduce user interest and hinder sustainable technology adoption. Therefore, the interface design and usage flow should be intuitive, with relevant and non-excessive features.

In addition, MSMEs in Tombatu Village require a system that integrates business processes, ranging from product management and transaction recording to inventory management and sales reporting. Such integration is essential to reduce manual record-keeping, minimize data errors, and enhance the efficiency and accuracy of business management. Fragmented systems tend to make it difficult for MSME actors to comprehensively monitor their business performance.

Furthermore, the digital sales system must be aligned with user characteristics and needs, including business scale, product types, and the socio-economic conditions of the village. The conceptual model developed in this study serves as an important initial foundation for the development of an effective, adaptive, and user-oriented digital sales system for rural MSMEs, thereby supporting improved competitiveness and sustainability of MSMEs in Tombatu Village (Rizky et al., 2025).

CONCLUSION

This study aims to analyze system requirements and design a conceptual model of a digital sales system that aligns with the characteristics of rural MSMEs in Tombatu Village, Minahasa Tenggara Regency. Based on field observations and a review of relevant literature, it can be concluded that the sales systems of MSMEs in Tombatu Village are still predominantly characterized by manual record-keeping, conventional marketing practices, and the use of digital technology that remains fragmented and unintegrated. These conditions result in limited market reach, low business management efficiency, and insufficient data support for informed decision-making.

The results of the requirements analysis indicate that MSMEs in Tombatu Village require a digital sales system that incorporates functional requirements such as product and price data management, automated transaction recording, inventory management, customer data management, digital payment integration, delivery management, and the provision of simple sales reports. In addition, non-functional requirements—including ease of use, a simple system interface, data security, mobile accessibility, and system reliability under limited network conditions—are identified as critical success factors for system adoption.

The conceptual model of the digital sales system developed in this study is based on the results of the requirements analysis and the principles of the Technology Acceptance Model (TAM), with particular emphasis on perceived usefulness and perceived ease of use. This model is expected to serve as an initial foundation for the development of a relevant, adaptive, and user-oriented digital sales system. When supported by adequate training and infrastructure, the proposed system has the potential to enhance competitiveness, operational

efficiency, and the sustainability of rural MSMEs, while simultaneously accelerating the digitalization of the local economy in Tombatu Village.

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