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Design Of A Vba-Based Financial Recording And Transaction Tracking Application In Excel At Kartika Laundry, South Jakarta City

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Abstract

This study aims to design and implement a financial recording application based on Microsoft Excel, utilizing Visual Basic for Applications (VBA), for the micro, small, and medium enterprise (MSME) Laundry Kartika. The main problem identified is the lack of internal control in financial recording practices, which are still carried out manually without adequate recording procedures, resulting in transaction data that are not systematically documented and are at risk of loss or distortion of financial information. In addition, the absence of an effective accounts receivable and payable tracking mechanism causes credit transactions to often go unrecorded, which may lead to uncollectible receivables and reduce the reliability of financial reports. The developed application, AKLUN (Aplikasi Akuntansi Laundry), provides key features such as automated transaction input, preparation of general journals and ledgers, presentation of income statements and balance sheets, a fixed asset depreciation tracker, and a user authentication-based security system. The application development was carried out using the waterfall model, which includes stages of needs analysis, system design, implementation, testing, and maintenance. The implementation results indicate that AKLUN can improve the regularity and consistency of transaction recording, enhance financial documentation from previously unstructured to more systematic and well-documented, and provide an accountable and reliable accounts receivable and payable tracking mechanism. Thus, AKLUN serves as a relevant, effective, and adaptive digital solution to support efficient and responsive financial management for MSMEs in the context of digital transformation.

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in the Indonesian economy due to their substantial contribution to Gross Domestic Product (GDP) and employment absorption. In 2023, MSMEs contributed approximately 61% of Indonesia's GDP, equivalent to IDR 9,580 trillion, while employing nearly 97% of the national workforce (Amalia, N., Putri, D., & Kurniawan, 2023). This contribution highlights the strategic importance of MSME sustainability and performance in supporting inclusive and resilient economic growth (Keunis, 2022). Despite their vital role, many MSMEs continue to face structural challenges, particularly in financial recording and management practices. Empirical studies indicate that a large proportion of MSMEs are unable to prepare systematic and consistent financial reports due to limited accounting knowledge, low awareness of bookkeeping importance, and reliance on manual or informal recording methods. These weaknesses result in inaccurate financial information that cannot adequately support performance evaluation or strategic business planning.

Weak financial documentation also limits MSMEs' access to external financing and strategic partnerships. According to UN ESCAP, inadequate bookkeeping practices reduce transparency and accountability, making it difficult for MSMEs to meet administrative requirements imposed

by financial institutions and business partners (Madan, 2020). Consequently, poor financial records become a major barrier to MSME competitiveness in an increasingly digitalized economy. Advances in digital technology offer opportunities for MSMEs to improve financial recording quality through the adoption of simple, application-based systems. One accessible alternative aligned with MSME characteristics is the use of Microsoft Excel enhanced with automation features, which enables real-time transaction recording, structured data processing, and systematic financial reporting (Hayati, U., Prihartono, W., Saeful, A., & Triyono, 2023). Excel-based systems are particularly suitable for micro-enterprises due to their affordability and familiarity (Puspitasari, D., & Basuki, 2021).

Visual Basic for Applications (VBA) is an embedded programming language in Microsoft Excel that enables automation of calculations, transaction management, and report generation. Excel–VBA systems operate offline and do not require internet connectivity, making them appropriate for MSMEs with limited digital infrastructure. However, such systems also have limitations, including dependency on local storage capacity and potential logical errors if internal controls are weak. These financial recording issues were observed at Laundry Kartika, a micro-scale laundry business in South Jakarta that relies on manual bookkeeping. Many transactions, particularly credit sales, were not recorded consistently, causing difficulties in cash flow monitoring, receivable management, and accurate financial position assessment.

Strengthening internal control through Standard Operating Procedures (SOPs) and management policies is therefore essential to ensure reliable and accountable financial recording (Nisa, 2025). The integration of a VBA-based accounting system with SOPs and management policies is expected to improve transparency, consistency, and financial discipline within MSMEs (Supriyanto, D., & Utami, 2022). Based on these conditions, this study aims to develop a Microsoft Excel–based financial recording system supported by VBA, complemented by SOPs and management policies at Laundry Kartika. This research is expected to provide a practical solution to improve MSME financial reporting accuracy and sustainability in the digital era.

METHODS

This study employed a qualitative applied research design with a system development approach to address financial recording problems faced by micro-enterprises. The research design was considered appropriate because the study aimed not only to understand existing financial recording practices but also to develop and implement a practical solution in the form of a digital financial recording system. The research focused on a single case study, Laundry Kartika, a micro-scale laundry business located in South Jakarta, which was selected due to its reliance on manual and informal financial recording practices.

The subject of the research was the owner of Laundry Kartika, who acted as the primary user of the developed system. The study used primary data collected directly through field observations, semi-structured interviews, and documentation review. Semi-structured interviews were conducted to obtain in-depth qualitative information regarding daily business operations, existing financial recording procedures, transaction frequency, cash flow management, and the

owner's understanding of profit and loss. Observations were carried out to examine real operational practices, while documentation of manual transaction notes was collected to support system requirements analysis and ensure alignment with actual business conditions.

Data collection procedures were conducted sequentially and systematically. First, interviews and observations were used to identify weaknesses in the existing manual recording system, including inconsistent transaction recording, lack of documentation for credit transactions, and the absence of clear information regarding cash inflows, cash outflows, and outstanding receivables. These findings indicated the need for a simple, automated, and user-friendly financial recording system that could be operated by micro-entrepreneurs without an accounting background.

The system development process followed the Waterfall Model, a linear and sequential software development method in which each phase must be completed before proceeding to the next stage. This model was selected because the system requirements were clearly defined at the initial stage and were unlikely to change significantly during development, making it suitable for small-scale application development. According to (Pressman, 2014), the Waterfall Model provides clear development stages, comprehensive documentation, and structured control over each development phase. The development stages included requirement analysis, system design, implementation, testing, and maintenance. This approach is also consistent with (Sommerville, 2004), who states that the Waterfall Model is appropriate when system requirements are stable and well understood from the outset.

During the requirement analysis stage, user needs were identified based on interview and observation results. These needs included structured transaction input, automatic journal and ledger generation, credit and receivable tracking, and the production of basic financial statements. The system design stage involved developing a Microsoft Excel-based application integrated with Visual Basic for Applications (VBA). The system interface was designed to be simple and intuitive, using predefined input forms to ensure data consistency and completeness. The application structure supported automatic transaction processing, account classification, and financial report generation, including income statements and balance sheets.

System implementation was carried out using Microsoft Excel and VBA, focusing on core functionalities such as transaction input modules, automated journal entries, ledger posting, receivable tracking, and financial statement generation. The system was tested directly by the business owner using a personal Windows-based laptop with Microsoft Excel installed, reflecting

real usage conditions among micro-entrepreneurs. Testing involved entering actual transaction data to evaluate system functionality, accuracy, and ease of use. User feedback was collected and used to refine the system, including the addition of navigation buttons and integration of standard operating procedures (SOPs) and management policies within the application.

After implementation, a maintenance phase was conducted to ensure system sustainability and adaptability. Maintenance activities included minor feature adjustments based on user feedback, such as adding filters for receivables and ongoing transactions, as well as print functions for financial documents. These improvements were intended to enhance usability without requiring major system redesign.

Data analysis in this study was descriptive and practical, based on the financial outputs generated by the application. The recorded data included transaction details, operational expenses, revenues, receivables, and asset values. Simple financial analysis was performed using the generated income statements and balance sheets to evaluate profitability, cost efficiency, and asset values. This analysis enabled the business owner to assess financial performance objectively and supported data-driven decision-making related to pricing, cost control, and business development.

To strengthen internal control, the study also developed Standard Operating Procedures (SOPs), management policies, and a user manual for the application. These documents served as operational guidelines to ensure consistent transaction recording, proper receivable management, and sustainable system use. The inclusion of SOPs and a user guide was intended to enhance transparency, accountability, and long-term usability of the financial recording system within the micro-enterprise context.

RESULTS AND DISCUSSION

System Testing and Validation Results of AKLUN Application

The results of this study are derived from a comprehensive system testing and validation process conducted on the AKLUN (Aplikasi Akuntansi Laundry) application implemented at Laundry Kartika. The testing phase aimed to evaluate the technical functionality, usability, and accounting compliance of the system through a structured validation mechanism involving end users, media experts, and accounting experts. This multi-perspective evaluation approach was adopted to ensure that the application met practical UMKM needs while remaining aligned with accounting and system development principles (Romney, M. B., & Steinbart, 2020).

User Validation Results

User validation was conducted by the owner of Laundry Kartika as the primary system user. The evaluation consisted of fourteen indicators covering interface appearance, ease of use, system benefits, and supporting outputs. The results indicate that the AKLUN application performs effectively in supporting daily financial recording activities.

The interface design received positive ratings, with indicators related to menu clarity and button navigation achieving the highest scores. The system was considered easy to operate, and transaction input processes for income, expenses, and depreciation were rated very satisfactory. System performance indicators, including processing speed and operational stability, also received high scores, indicating that the application runs smoothly without errors.

In terms of benefits, the user reported that the application significantly assists in understanding financial conditions, monitoring receivables and payables, and generating structured financial reports. Supporting outputs such as Standard Operating Procedures (SOP) and the User Manual were rated as helpful in improving recording discipline and system usage consistency.

Media Expert Validation Results

Media expert validation focused on technical aspects of the AKLUN application, including interface design, VBA programming structure, system efficiency, and sustainability. The evaluation results show that the interface layout and navigation are clear and intuitive. The VBA code structure was assessed as well-organized and functional, with no logical or computational errors identified during testing.

System efficiency indicators, such as data processing speed and file performance on low-specification devices, received very satisfactory ratings. The system demonstrated stable operation without conflicts between macros or worksheets. In terms of sustainability, the application was considered flexible enough to support future development or feature expansion.

Material Expert Validation Results

Material expert validation examined the conformity of the AKLUN application with basic accounting principles and SAK EMKM requirements. The results show that automated journal entries, account classifications, and report formats align with the accounting standards applicable to micro and small entities. Financial statements generated by the system—including general journals, ledgers, income statements, and balance sheets—were assessed as accurate, systematic, and relevant for UMKM decision-making purposes (Indonesia, 2016).

The expert evaluation also highlighted that the system successfully translates accounting concepts into a simplified operational form that can be understood by non-accounting users with the support of a user manual. This finding indicates that AKLUN not only functions as a recording tool but also as an educational medium that enhances financial literacy among UMKM owners (Suwardjono, 2016).

System Maintenance and Feature Enhancement Results

Based on testing and validation feedback, system maintenance activities resulted in the addition of several functional features. These included a printing feature for financial reports and an automated transaction filtering feature. The print feature enables users to generate physical or digital copies of transaction records and financial statements, while the filtering feature allows users to monitor outstanding receivables, payables, and ongoing transactions more efficiently.

DISCUSSION

Interpretation of AKLUN System Performance and Usability

The findings indicate that the AKLUN application effectively addresses the financial recording challenges faced by Laundry Kartika. The high user validation scores suggest that the system is accessible and practical for UMKM owners who lack formal accounting backgrounds.

The simplicity of the interface and the clarity of transaction input processes encourage consistent financial recording, which is a persistent issue among micro-enterprises. This result supports the argument that UMKM require uncomplicated yet functional financial recording systems tailored to their operational capacity, as emphasized by (Rofiqoh, I., Zulhawati, Buchdadi, A. D., & Gurendrawati, 2023), who highlight that simplicity and relevance are essential characteristics of financial reporting systems for micro-scale businesses.

Technical Feasibility of Excel VBA-Based Accounting Systems

Media expert validation confirms that Microsoft Excel combined with VBA automation is technically feasible for developing customized accounting systems tailored to UMKM needs. The system's stability, efficiency, and low hardware requirements demonstrate that Excel–VBA applications can serve as cost-effective alternatives to commercial accounting software, particularly for micro-scale enterprises with limited digital infrastructure (Sumarsono, 2021). These findings reinforce previous research indicating that Excel-based accounting applications can function as effective and affordable alternatives to commercial accounting software (Hasmawati, Aponno, C., Siahaya, S. L., & Usmany, 2023).

Accounting Compliance and Financial Information Quality

Material expert evaluation shows that AKLUN complies with fundamental accounting principles and aligns with SAK EMKM guidelines. This compliance enhances the credibility and reliability of financial information generated by the system, allowing UMKM owners to use financial reports not only for internal monitoring but also for external purposes such as financing and performance evaluation. Consistent journalization and standardized report formats contribute to improved transparency and accountability (Qimyatussa'adah, Nugroho, S. W., & Hartono, 2020).

Role of Supporting Documents in Strengthening Internal Control

The inclusion of SOP and a User Manual strengthens the implementation of internal control within the business. These documents guide users in recording transactions consistently and interpreting financial reports accurately. As a result, the system functions not merely as a recording tool but also as a control mechanism that supports accountability and financial discipline.

Implications for UMKM Financial Management Practices

Overall, the findings support the assertion that a VBA-based financial recording system integrated with internal control mechanisms can significantly improve financial management practices in UMKM. The AKLUN application enables business owners to monitor financial performance, manage receivables and payables, and make informed decisions based on reliable data. These outcomes align with the study's objective of enhancing financial literacy and operational sustainability among small business actors.

CONCLUSION

This study demonstrates that the development and implementation of the AKLUN (Laundry Accounting Application) successfully address the practical challenges faced by micro-scale enterprises in establishing a structured, disciplined, and accountable financial recording system. By transforming a previously manual and inconsistent bookkeeping practice into a semi-digital system based on Microsoft Excel and VBA, AKLUN enables systematic transaction recording, automated journalization, and real-time financial reporting aligned with the principles of SAK EMKM. The research findings indicate that the application functions effectively across all designed modules, including transaction input, journals, ledgers, and financial statements, while remaining accessible to users without formal accounting backgrounds.

The validation process involving end users, media experts, and accounting experts confirms that AKLUN meets technical, functional, and material feasibility standards. High evaluation scores across usability, system stability, programming structure, and accounting compliance indicate that the system is not only technically reliable but also contextually relevant for UMKM operations. The integration of Standard Operating Procedures (SOP), management policies, and an operational guide further strengthens the system by embedding internal control mechanisms and promoting consistent financial discipline. Collectively, these elements position AKLUN not merely as a recording tool, but as an integrated financial management ecosystem suitable for micro-enterprises.

From a broader perspective, this research contributes to the body of knowledge on low-cost, context-adaptive accounting system design for UMKM by demonstrating that Excel-VBA–based applications can function as viable alternatives to commercial accounting software. The findings support the notion that simplicity, usability, and consistency are critical success factors in encouraging financial record adoption among micro-entrepreneurs. Furthermore, the implementation of AKLUN aligns with Sustainable Development Goal (SDG) 8 by promoting productive economic activities, improved financial governance, and sustainable business growth at the micro-enterprise level. Nevertheless, the results should be interpreted cautiously, as the study was conducted within a single UMKM context with limited transaction complexity.

Recommendations and Research Limitations

Despite its effectiveness, this study has several limitations. The AKLUN system is designed to accommodate basic financial transactions and does not yet include advanced features such as tax accounting, multi-bank integration, cloud-based data storage, or real-time multi-user access. Additionally, as the system relies on Excel VBA, its performance and accuracy remain dependent on proper user compliance with established procedures. These limitations reflect a deliberate design choice to prioritize feasibility and accessibility for micro-scale enterprises rather than comprehensive automation.

Future research is encouraged to expand the scope of implementation across multiple UMKM sectors to test the system's adaptability and scalability. Further development may incorporate cash flow reporting, service-based sales analysis, automated receivable reminders, and cloud-based platforms to enhance data security and collaboration. From a research perspective, comparative studies between Excel-VBA systems and commercial accounting software could provide deeper insights into cost–benefit trade-offs and adoption behavior among UMKM. Ultimately, this study serves as an initial empirical foundation for developing practical, affordable, and standards-compliant accounting systems that support financial literacy and sustainable growth in the UMKM sector

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