International Journal of Scientific and Management Research
Volume 8 Issue 11 (November) 2025
ISSN: 2581-6888
Page: 93-102

Building an Integrated Accounting Application for Loan Management at BMT Koto Baru Solok Grand Mosque

Firman Surya[1], Eliyanora[2]*, Irda Rosita[3], Hidayatul Ihsan[4], Dita Maretha Rissi[5], Fera Sriyunianti[6], Elfitri Santi[7], Fitra Oliyan[8], & Shofia Hanifa[9]
[1,2,3,4,5,6,7,8,9]Department of Accounting, Politeknik Negeri Padang, **Indonesia**
DOI - http://doi.org/10.37502/IJSMR.2025.81108

Abstract

The research aims to develop and implement an integrated accounting application for loan management at the BMT Masjid Raya Koto Baru Solok. The application was built using Microsoft Access and MySQL Community Server. The application development process used the RAD method. Parallel implementation methods were applied for data migration and system operations. Within one month, the application was running smoothly and producing financial reports according to the BMT's needs.

Keywords: Application, BMT, Financial Reporting

1. Introduction

Baitul Maal Wat Tamwil (BMT) is a financial institution or integrated independent business center with sharia principles built by community self-help groups in order to develop productive businesses and investments with a profit-sharing system with the aim of encouraging savings, investment and financing activities of its members.

Difficult access for the public and MSMEs to formal financial institution funding is the background to the growth of non-bank financial institutions in the community known as Microfinance Institutions ("MFIs"). According to Article 1 number 1 of Law 1/2013, MMFs are defined as"Microfinance Institutions, hereinafter abbreviated as LKM, are financial institutions specifically established to provide business development and community empowerment services, either through loans or financing for micro-scale businesses to members and the community, savings management, or providing business development consulting services that do not solely seek profit."

Baitul Maal wa Tamwil (BMT) is a non-profit organization founded and developed by the community, typically using resources, funds, or capital from the local community at the outset. The concept of 'maal' emerged and has become an integral part of Muslim life, specifically the collection and distribution of funds for zakat, infaq, and sedekah (ZIS) in a productive manner. The concept of 'tamwil', on the other hand, was born for productive business activities purely to benefit the lower-middle class (micro) of society.

The Koto Baru Grand Mosque BMT aims to provide loans to the community for various business and consumption needs, and its existence is considered a lifeline for many customers who were previously in debt to loan sharks. Although the BMT's existence is perceived to have helped the community, there are still some fundamental problems faced by the management.

Several implemented policies are not in accordance with sharia principles, and the management has not yet separated the management of collected funds, both zakat funds and qardhul hasan funds, which are distributed in the form of loans. The management also does not yet understand the principles of implementing sharia-based accounting, starting from the recognition or recording of transactions, measurement, and presentation of financial reports for zakat funds and qardhul hasan funds. The main problem that is felt to be very urgent is the lack of an integrated, database-based accounting information system to support financial management activities.

This research aims to develop a good accounting information system application and in accordance with the business processes carried out by BMT and to improve the basic understanding and soft skills of the management of BMT Masjid Raya Koto Baru in managing funds collected both in the form of zakat and qardhul hasan funds and to be able to implement them so that the management of these funds is in accordance with sharia principles and sharia accounting so that the financial reports presented are more transparent, trustworthy and accountable. Thus, BMT Masjid Raya Koto Baru can be more effective in providing services to the community and is expected to further increase public trust and contribution to the institution.

1.1 Formulation of The Problem

The research problem is how to integrate financial management and reporting activities at the BMT Masjid Raya Koto Baru Solok. Based on this problem, this study aims to develop and implement an integrated accounting information system that can be used by the BMT Masjid Raya Koto Baru Solok in financial management and reporting. Specifically, this objective can be described in the following research questions.

1.2 Urgency

The importance of this research lies in the fact that accounting information systems are essential for ensuring accountability in financial management. This research aims not only to enrich the literature on financial accounting and accounting information systems, but also to assist BMT managers in maintaining the sustainability of their assets and business processes through an integrated accounting information system.

This research is expected to produce an accounting information system application for BMT financial management as a means of accountability for donors' trust, managed by the management. When linked to the university's research strategic plan, this research has strong relevance to the Padang State Polytechnic (PNP) Research Strategic Plan (Renstra) for 2021-2024. One of the main issues or leading research topics at PNP is the Governance of Sharia Financial Institutions. In this regard, BMT, which usually also known as Islamic social financial institutions, included in the scope of the study determined by the 2021-2024 PNP Research Strategic Plan.

2. Literature Review

2.1 BMT Management and Challenges in SIA Development

Baitul Maal wat Tamwil (BMT) is a sharia-compliant microfinance institution that manages community funds, both in the form of savings and financing. As institutions that play a crucial role in community economic empowerment, BMTs are required to have effective accounting

Copyright © The Author, 2025 (www.ijsmr.in)

information systems for financial management. However, the management of accounting information systems (AIS) in many BMTs often encounters a number of issues that can hinder their performance and effectiveness.

Accounting information systems play a vital role in BMT financial management, as they assist in recording transactions, managing cash flow, preparing financial reports, and monitoring the institution's operational activities. In the context of BMTs, AIS is used not only for financial reporting purposes but also to ensure compliance with Sharia principles in financial transactions (Mardani & Fauzi, 2021). With the right information systems, BMTs can improve transparency, accuracy, and efficiency in financial management.

Many BMTs still rely on manual systems for recording transactions and preparing financial reports, which leads to potential human error and data inaccuracies. The lack of adequate hardware and software makes it difficult for BMTs to implement efficient accounting information systems (Hendro & Utami, 2020). Furthermore, the limited human resources skilled in information technology are also a limiting factor.

BMTs often use various applications or systems that are not well integrated. For example, applications for recording financing transactions are not connected to cash management systems or financial reporting. This results in data duplication, calculation errors, and time-consuming reconciliation processes (Sukoco & Gunawan, 2021). Unintegrated systems also complicate effective financial monitoring and control.

Human resources in BMTs, particularly those at the operational level, often struggle to understand and implement accounting information systems that meet expected standards. Inadequate training and low levels of technological literacy among BMT staff are major obstacles to accurate and efficient financial management (Hidayat & Rachman, 2022). These limitations also impact the quality of the resulting financial reports.

One of the main challenges in BMT accounting information systems is how to ensure financial transactions comply with Sharia principles. This requires a system that can separate Sharia-compliant and non-Sharia-compliant transactions and manage community funds with high transparency (Putra & Riani, 2020). Suboptimal implementation of accounting information systems often risks neglecting this aspect, so that it can lead to violations of applicable sharia principles.

BMT accounting information system must be able to protect financial data from the threat of theft or information leaks. However, many BMTs have not prioritized data security in their system implementation, both in terms of data storage and system access. This poses a significant risk to the institution's financial security and reputation (Sihombing, 2020). To address infrastructure limitations, BMTs need to invest in more adequate information technology, such as using integrated accounting software. By utilizing cloud computing-based technology, BMTs can be more efficient in data management and minimize the risk of manual errors (Mulyadi, 2021).

Implementing an integrated information system is crucial to reduce data inaccuracy and improve operational efficiency. BMTs should consider implementing an ERP (Enterprise Resource Planning) system that can connect all aspects of financing transactions, cash management, and financial reporting into a single, centralized platform (Sukoco & Gunawan, 2021).

Copyright © The Author, 2025 (www.ijsmr.in)

Improving human resource capacity through regular training on information technology and systems-based accounting is key to improving BMT financial management. This training can cover the use of accounting software, understanding Sharia principles in financial transactions, and how to maintain data security (Azizah & Salim, 2022).

2.2 Integrated AIS Application Development

The development of an integrated Accounting Information System (AIS) application is a crucial solution for improving the efficiency and effectiveness of financial management in organizations, including financial institutions such as Baitul Maal wat Tamwil (BMT), companies, and the public sector. An integrated AIS enables all parts of an organization— from cash management, financing transactions, inventory, to financial reports—to be connected in one platform, facilitating real-time data access and reducing errors resulting from manual processes or disconnected systems. This literature will discuss the importance of developing an integrated AIS application, the challenges faced in its development, and the various approaches used in implementing an integrated AIS application.

An integrated Accounting Information System (AIS) is a system that combines various financial processes, such as transaction recording, budget management, financial reporting, and others, into a single, interconnected system. The main advantage of an integrated AIS is its ability to accelerate information flow and improve data accuracy across the organization (Laudon & Laudon, 2021). By using an integrated AIS, organizations can manage financial data more efficiently, reduce duplication of work, increase transparency, and simplify monitoring and control.

Integration between modules in an AIS application allows data entered in one part of the system to be automatically connected to other parts without the need for data entry repeatedly. This reduces the time required for data processing and minimizes the possibility of human error (Ismail & Sulaiman, 2020). Because all transactions are recorded in a single integrated system, the resulting financial reports are more accurate, complete, and consistent. This system allows data to be processed automatically, thereby minimizing the risk of errors or fraud in transaction recording (Albrecht et al., 2018). With an integrated system, all transactions can be tracked and audited more easily, allowing management to conduct more effective oversight. This also contributes to accountability within the organization, as stakeholders can easily monitor all financial activities (Simkin et al., 2021). Integrated AIS applications facilitate real-time financial data analysis. Management can access faster and more adequate reports, allowing business decisions to be made timelier and more based on valid data (Tilley et al., 2019).

Although developing integrated AIS applications offers many benefits, several challenges need to be addressed during the development process. Most organizations, especially smaller ones or microfinance institutions such as BMTs, may face limitations in terms of technological infrastructure. Developing integrated AIS applications requires sophisticated hardware and software capable of supporting complex integration processes (Gable et al., 2021). Furthermore, a stable network and adequate security are also crucial factors. Many organizations already use manual or disparate accounting systems. Integrating legacy systems into a new platform can be a significant challenge, especially if the data in the legacy system is incompatible with the new system (Laudon & Laudon, 2021). The process of migrating data from the old system to the new one often requires significant time, cost, and effort. Developing and maintaining integrated AIS applications requires experts with programming skills,

Copyright © The Author, 2025 (www.ijsmr.in)

database management skills, and an understanding of accounting principles. A shortage of human resources with these skills can hinder effective system implementation and management (Adeniran et al., 2022). Developing an integrated AIS application can require significant investment, both in terms of hardware and software costs, and human resource training. For organizations with limited budgets, this can be a significant obstacle to implementing the project (Smith & McKeen, 2020).

Implementing an integrated AIS must comply with various applicable regulations, including accounting standards and compliance with relevant laws. In the context of Sharia-compliant organizations such as BMTs, it is crucial to ensure that the developed system supports compliance with Sharia principles in financial transactions (Yusuf & Murdiono, 2021).

3. Research Design

This research will be conducted using a development research approach (System Development) with a case study setting. The choice of system development method used Rapid Application Development (RAD) is a software development model that aims to accelerate the application development process by prioritizing iteration and prototyping. RAD uses a prototype-based approach, allowing developers to create an initial version (prototype) of an application and then refine it through user feedback.

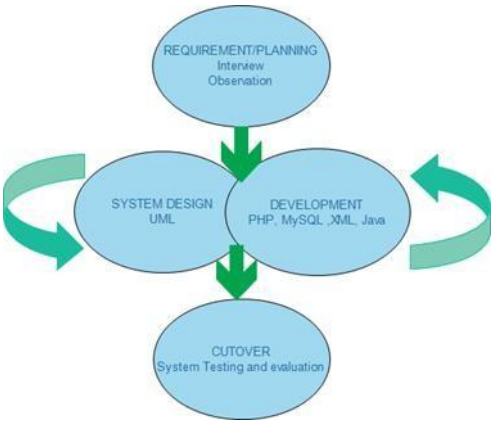

Fig. 1: Rapid Application Development

In the initial phase, the development team and users (stakeholders) jointly define the primary objectives of the application to be built. This process involves identifying the functional and non-functional requirements of the system to be developed. The goal of this phase is to ensure that all parties involved have a shared understanding of what is desired and expected from the application. After the initial requirements are gathered, the development team begins building a prototype of the application. A prototype is an early version of an application that typically has basic functionality and a very simple interface. This prototype is built with the aim of obtaining feedback from users as quickly as possible.

Once the prototype is successfully created, users are given the opportunity to test and provide feedback on the prototype. Users evaluate whether the application meets their expectations and whether there are any areas that need to be fixed or improved. This feedback is crucial because it forms the basis for the next iteration of application development. After receiving feedback, developers revise the prototype and add additional functionality. This process is repeated

Copyright © The Author, 2025 (www.ijsmr.in)

several times (iterations), with the prototype being refined and improved based on user feedback. Each iteration results in a better version of the application. Once the iterations are complete and the application reaches the desired level of maturity, it is ready to be implemented in a production environment. Although RAD emphasizes rapid development, the resulting application must still be of good quality and ready for use by end users.

Once the application is deployed, a maintenance phase will be conducted to ensure it continues to run smoothly. This includes fixing bugs, adding new features based on user feedback, and performing necessary system updates.

3.1 Data Collection

This study uses in-depth interviews (in-depth interview) observation and documentation as data collection methods. Interviews were conducted individually unstructured and open- ended questions with parties directly involved in the management of the BMT Masjid Raya Koto Baru Solok. Observations will be conducted to gain an in-depth understanding of the BMT's business processes, system requirements, and management mechanisms. Documents related to BMT management will also be collected to enable research into designing an integrated accounting information system at the Masjid Raya Koto Baru Solok.

3.2 Data Analysis

The data that has been collected regarding system requirements and business process flows is then re-arranged (rearrange) so that it can be presented in a coherent and clear system narrative. Then, based on this narrative, data flow documentation (Data Flow Diagram) and a data model are created that meet the needs of the system to be built.

3.3 Prototype Development

The application prototype is then immediately built based on the DFD design and Data Model using MySQL and Microsoft Access VBA. The prototype development process will be carried out in the form of repetition (iteration) where after the initial model is formed, it will be immediately communicated and tested by users to get feedback that will later be used to revise and build the application further so that at the end of the iteration it will produce an application that truly suits the user's needs.

Fig. 2: Login Screen

The application design begins with the login interface. In this section, the user enters a username and password. The application processes the entered data to ensure it matches. If valid, it displays a list of loans, including outstanding balances and loan status. Loan

Copyright © The Author, 2025 (www.ijsmr.in)

information is presented in a table, filtered by outstanding loan status. This is done to minimize the amount of data displayed and focus users' search for outstanding data.

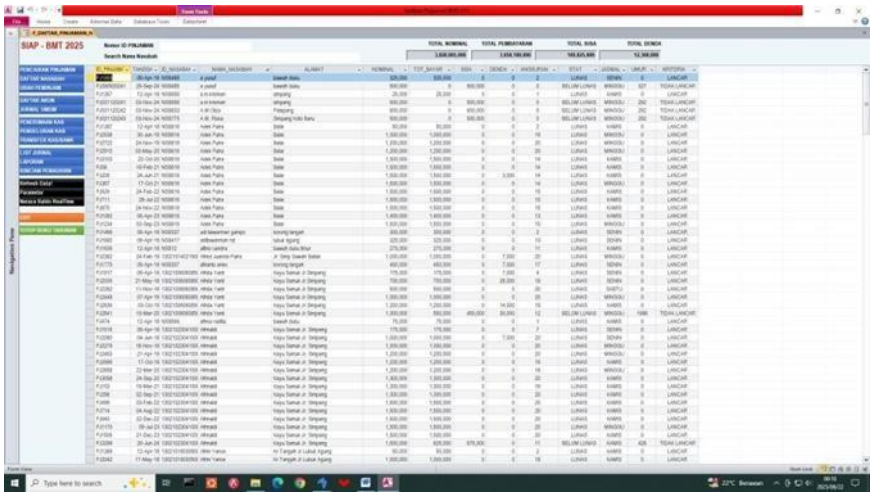

Fig. 3: Main Menu and Loan List

To facilitate the loan installment process, a dynamic loan data search box is provided. Users can search for loan data based on the loan number or borrower's name. The application will filter the loan data based on the criteria entered in the search box. Based on the search results, the user selects the appropriate loan. The application will then display a payment transaction form. Loan installments and automatically fill in loan data and other information such as due dates, remaining arrears, and installment payment history. Users enter payment details received from customers and click the post button. The application automatically logs the transaction and records the payment data in the customer's loan register.

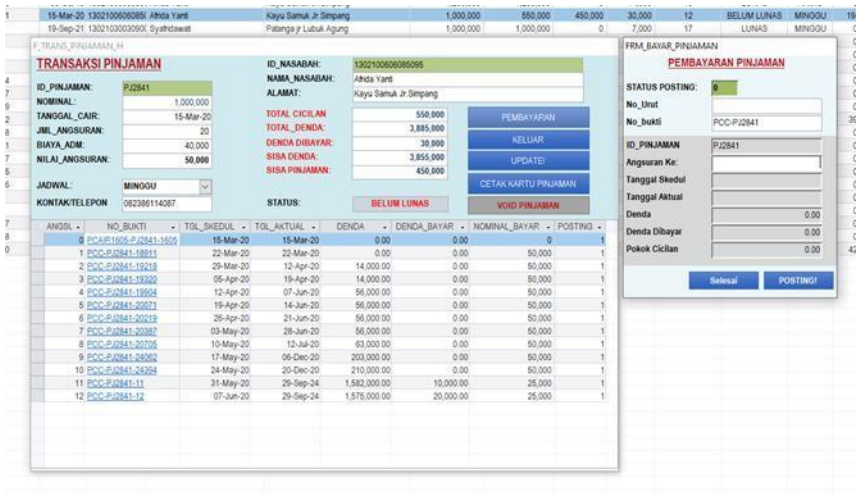

Fig. 4: Loan Payment Transaction

Loan disbursement activities are carried out using the loan disbursement form module. In this module, users input customer information and the loan amount requested. The application will display the customer's historical loan status. If the customer still has outstanding balances, the loan disbursement process cannot proceed until the customer has paid off the outstanding balance. Once the disbursement information is valid, the application automatically creates a loan disbursement transaction journal and enters the data into the customer's loan register.

Copyright © The Author, 2025 (www.ijsmr.in)

Fig. 5: Loan Disbursement Transaction

The financial reports generated by this application include financial position reports and activity reports. Supporting reports include the general ledger and trial balance. This reporting process is executed through the reporting parameters module. In this module, users enter the start and end dates of the reporting period and select the type of report to be processed. The application will display the report based on the entered parameters. The resulting report can be printed directly to a printer or saved as a portable document format (PDF).

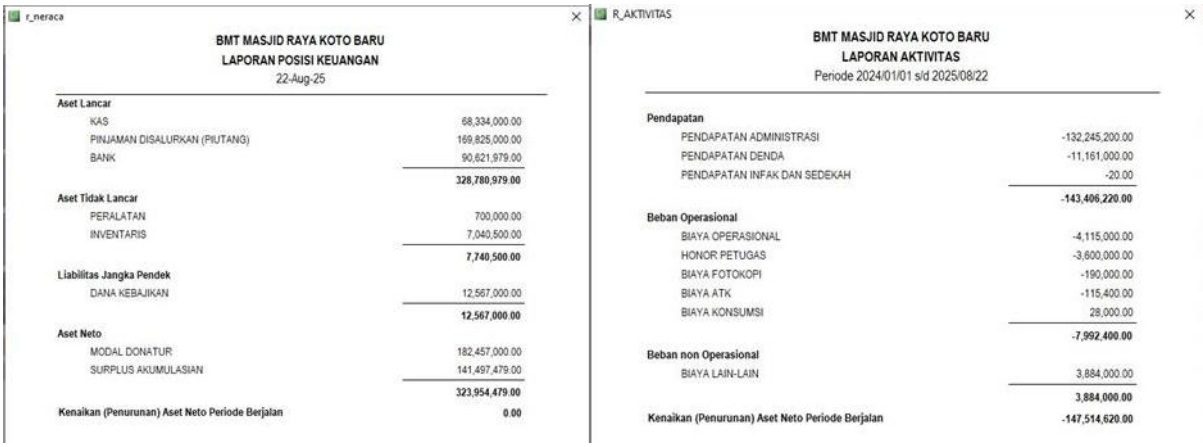

Fig. 6: Financial Report

3.4 Prototype Testing

The prototype that was created had to be tested to ensure all processes were running as expected. The testing process used dummy data for all application processes, including testing

Copyright © The Author, 2025 (www.ijsmr.in)

the loan disbursement module, loan data retrieval, loan installment payment receipt, and reporting. The following tabulates the test results.

Table 1: Module Testing

Module	Test Results
Login	Valid
Customer Data Input	Valid
Loan Disbursement	Valid
General ledger	Valid
Cash Receipts	Valid
Cash Disbursement	Valid
Cash Transfer	Valid
Borrower Data Changes	Valid
Input Account Data	Valid
Annual Book Closing Process	Valid
Financial statements	Valid
Daily Cash Receipt/Expenditure Recapitulation	Valid

4. Implementation

The implementation process was carried out after testing all modules proved valid. The initial implementation step was to prepare the application infrastructure, consisting of a database server, client applications, and a LAN. The application database used MySQL Community Server running on the Microsoft Windows operating system, while the client application was developed using Microsoft Access 2010. The MySQL ODBC driver was used to connect data from the database server to the client application.

Once the infrastructure is running smoothly, the next implementation step is data migration. The data that must be entered into the database includes customer data, account data, loan data, and opening balance data. The data migration process is carried out by exporting the data collected in Microsoft Excel into the database.

The implementation approach chosen for this activity uses a parallel implementation method, where all modules are run simultaneously, while the old (manual) system remains running until the reports are consistent across the two systems. This parallel process lasts for a relatively short period of about one month of transactions, after which users switch from the manual system to the BMT application because the reports are now valid.

5. Conclusion

The integration of all financial management processes at the BMT Masjid Raya Koto Baru Solok, including customer registration, loan disbursement, loan search and installment payments, cash receipts, cash disbursements, cash transfers, general journals, and financial reporting, can be achieved by developing a financial management application. The application was built using Microsoft Access and MySQL Community Server. The application

Copyright © The Author, 2025 (www.ijsmr.in)

development process used the RAD method. The parallel implementation method was applied to data migration and system operations. Within one month, the application was running smoothly and producing financial reports according to the BMT's needs.

6. Acknowledgement

Thanks to the Padang State Polytechnic for funding this research, the Management of the BMT Masjid Raya Koto Solok, and other parties who supported this activity.

References

1) Agarwal, R., & Tiwari, R. (2021). ERP Systems and Their Role in Business Operations. Journal of Information Technology, 12(4), 25-37.
2) Albrecht, WS, Stice, EK, Stice, JD, & Swain, MR (2018). Financial Accounting: An Integrated Approach. Cengage Learning.
3) Azizah, N., & Salim, M. (2022). Human Resources Training in Accounting Information System Management at BMT. Journal of Accounting Education, 14(2), 67-78.
4) Hendro, S., & Utami, S. (2020). Evaluation of Accounting Information Systems in Islamic Microfinance Institutions. Journal of Information Technology, 13(1), 43-58.
5) Hidayat, R., & Rachman, M. (2022). Strategy for Improving Human Resource Quality in BMT Financial Management. Journal of Management and Accounting, 6(1), 28-36.
6) Ismail, NA, & Sulaiman, M. (2020). Evaluating the Implementation of Integrated Accounting Information Systems. International Journal of Accounting Information Systems, 31(1), 52-63.
7) Laudon, K.C., & Laudon, J.P. (2021). Management Information Systems: Managing the Digital Firm. Pearson.
8) Mardani, M., & Fauzi, A. (2021). Sharia Financial Management in BMT: An Accounting Information System Perspective. Journal of Sharia Accounting, 12(2), 102-115.
9) Mulyadi, M. (2021). Application of Information Technology in Accounting to Improve BMT Efficiency. Journal of Technology and Management, 7(3), 190-201.
10) Putra, P., & Riani, I. (2020). Compliance with Sharia Principles in BMT Financial Management: The Role of Accounting Information Systems. Journal of Islamic Economics, 9(1), 44-56.
11) Sukoco, S., & Gunawan, G. (2021). Implementation of Integrated Accounting Information Systems in BMT. Journal of Information Systems, 8(3), 231-243.
12) Sihombing, H. (2020). Data Security in Accounting Information Systems at BMT. Journal of Information Security, 5(2), 112-124.

Copyright © The Author, 2025 (www.ijsmr.in)