

Improving Operational Efficiency Through Digital Archiving: A Case Study of Debtor Document Management at BRI Regional Office Denpasar

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Abstract

This study explores the digitalization of debtor document archives at BRI Regional Office Denpasar, aiming to address the inefficiencies of manual document management. Prior to this study, debtor document management was performed manually, resulting in delays in document retrieval and prolonged credit decision-making times. This study introduces a novel approach by implementing a digital archive system using spreadsheets, which significantly improves operational efficiency, document accessibility, and security. The methodology employed follows the PDCA (Plan, Do, Check, Action) cycle, which includes interviews, data collection, and iterative evaluations. The findings of this study show that digitalizing debtor documents significantly reduced retrieval times, enhanced the speed of credit decision-making, and streamlined administrative processes. The implementation of this system also allowed for real-time access to debtor documents, improving organizational control and document security. The study contributes to the literature by demonstrating the effectiveness of digital archiving in the banking sector and highlights the potential for broader adoption of digital solutions in similar financial institutions. The implications of this study suggest that digital archive systems can significantly enhance operational efficiency, improve service delivery, and ensure compliance with regulatory standards.

Keywords: Banking Efficiency, Community Service, Debtor Document Management, Digitalization, Economy

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INTRODUCTION

The banking sector in Indonesia plays a pivotal role in the country's economic development. Banks are central to the financial system, as they facilitate the flow of capital through credit provision, support financial development, and enhance operational efficiency across various industries. By offering accessible financial services, banks not only contribute to short-term economic growth but also support long-term economic stability and growth (Agustina et al., 2022; Aryati et al., 2023; Junaidi, 2024). As key players in the national economy, banks like Bank Rakyat Indonesia (BRI) are crucial in driving financial inclusion, fostering entrepreneurship, and supporting infrastructure development. With BRI's substantial credit portfolio reaching IDR 1,180.1 trillion in Q1

2023, primarily driven by micro-lending (BRI, 2023), it becomes evident that the banking sector's contribution is substantial.

In Indonesia's banking sector, despite rapid growth, inefficiencies persist, particularly in managing debtor documents. Based on two weeks of field observation at BRI Regional Office Denpasar, it was evident that manual document management led to delays, misplaced records, and errors, severely impacting credit decision-making processes. The traditional reliance on physical archives hindered operational efficiency and timely service provision. Given BRI's vast debtor base, the need for digital transformation became clear. Adopting digital technologies can significantly enhance the efficiency, visibility, and quality of data management, reduce human error, and improve service speed. As digital technologies evolve, physical archives are being replaced, allowing for more secure, accessible, and efficient management of debtor information (Saprudin et al., 2022). The integration of these technologies not only improves the quality and accessibility of management information systems but also supports better strategic planning and operational oversight (As et al., 2024; Swapna Sabari & Kamesh, 2019). This shift towards digital solutions is essential for optimizing operations and meeting the growing demands of the banking sector (Sardjono et al., 2024; Schmidt et al., 2017; Suganya & Vetrivel, 2024).

However, despite the significant potential of digitalization, the success of this transformation depends not only on the technical implementation but also on the readiness of both the organization and its employees. As observed, a key challenge in the transition to digital systems is ensuring that staff are adequately trained and supported throughout the process. Successful digital transformation requires comprehensive training to empower employees with the necessary skills to manage and use digital systems efficiently (Srivastava et al., 2024; Swapna Sabari & Kamesh, 2019). Therefore, this study not only addresses the preparation and implementation of the digital archive system at BRI but also emphasizes the importance of staff education and training. By equipping staff with the right tools and knowledge, BRI can ensure that the digitalization process is seamless, leading to enhanced efficiency, reduced errors, and an overall improvement in service delivery. This dual focus on technology and human readiness is crucial for achieving long-term success and sustainability in the digitalization of debtor document management.

This study builds on previous research that highlights the importance of digitalization in improving operational efficiency within the banking sector (see Al-Ansi et al., 2022; Czerwińska et al., 2020; Mardiana et al., 2024; Rutskiy et al., 2022). While existing studies emphasize the technological advancements in document management (see Lopes & Prakash, 2023; Subia & Corpuz, 2020), a notable gap remains in understanding how these systems can be successfully implemented in real-world banking environments, particularly in relation to the readiness and adaptation of employees. This study addresses this gap by not only focusing on the technical aspects of digital archiving but also incorporating the critical component of staff training and support, ensuring that both the organization and its workforce are fully prepared for the transition. The novelty of this work lies in its comprehensive approach to digital transformation, combining technological adoption with human resource development to create a more effective and sustainable solution for debtor document management at BRI Regional Office Denpasar. The primary objective of this study is to demonstrate how a well-implemented digitalization strategy can enhance operational efficiency, reduce errors, and improve service delivery in the banking sector,

offering valuable insights for other institutions seeking to embark on similar digital transformation journeys.

METHODS

Research Design

This study follows a qualitative research design primarily focused on a community service initiative aimed at improving the efficiency of debtor document management through the implementation of a digital archiving system at BRI Regional Office Denpasar. The research design is action-oriented, where the goal is not only to introduce a solution but also to evaluate its effectiveness in real-time. The research is structured to address the practical challenges of manual document management by introducing and assessing a digitalization process.

Study Area

The study was conducted at BRI Regional Office Denpasar, focusing specifically on the administrative processes related to debtor document management within BRI Regional Office Denpasar. The study area includes the office's administrative and operational units, specifically the staff involved in debtor document management, as well as the physical archive room where documents were stored. The intervention aimed at transforming the physical storage system into a digital archive to streamline access, improve security, and enhance the overall operational efficiency of BRI's credit services.

Subject

The subjects of this study were the staff members at BRI Regional Office Denpasar, particularly those involved in managing debtor documents within the bank's administrative and operational units. These staff members were directly impacted by the manual document management system and played a critical role in both the transition to the digital archiving system and the ongoing use of the new system. The study focused on understanding their experiences, challenges, and feedback regarding the digitalization process, as well as evaluating their adaptation to the new system through interviews, observations, and feedback. Their insights were crucial in assessing the effectiveness of the intervention and ensuring that the digital archiving system met the operational needs of the bank.

Procedure

The procedure was carried out in phases, adhering to the PDCA (Plan-Do-Check-Action) cycle, as illustrated in [Figure 1](#). This cyclical process allowed for continuous improvement of the digitalization efforts at BRI Regional Office Denpasar.

1. Plan

In the planning phase, initial meetings with BRI staff were held to identify the challenges faced with the manual document management system. Based on these discussions, a strategic plan was developed to implement a digital archiving system using spreadsheets, including designing the data entry format, identifying the necessary resources, and setting timelines for training and implementation.

2. Do

The "Do" phase involved the actual implementation of the digital system. Staff were trained on how to use the new system, and the transition from manual archives to digital spreadsheets began. This phase also included addressing any immediate issues and providing hands-on support to staff during the transition.

3. Check

The effectiveness of the digital system was monitored during this phase. The team assessed whether document retrieval times had improved, whether errors had been reduced, and how well staff adapted to the new process. Feedback from the staff was gathered through informal discussions and interviews.

4. Action

Based on the evaluation in the "Check" phase, necessary improvements and adjustments were made to the system. This included optimizing the data entry process, ensuring smoother integration of the digital system, and refining the spreadsheet template to improve ease of use and minimize errors.

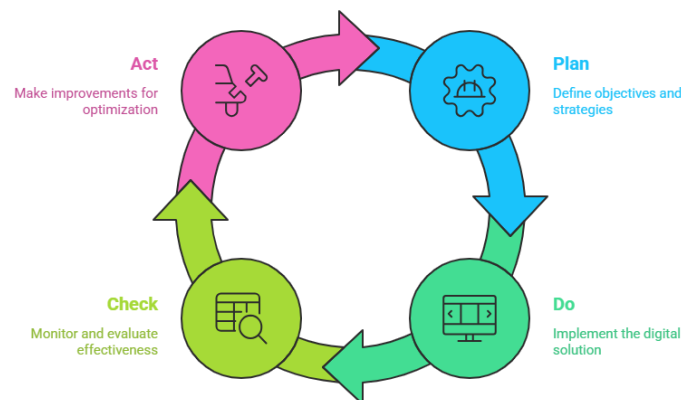


Figure 1. The PDCA Cycle for Digitalizing Debtor Document Management at BRI Regional Office Denpasar

Data Collection

Data was collected through multiple methods to ensure a comprehensive understanding of the impact of digitalization on debtor document management at BRI Regional Office Denpasar. Interviews were conducted with BRI staff to gather insights into the challenges they encountered with the manual system and their experiences with the new digital system. Observations were also carried out during the implementation phase to assess the usability of the digital system, focusing on how staff adapted to the new processes and identifying any challenges or issues that arose. Additionally, document analysis was conducted to compare the time taken to retrieve debtor documents manually versus the time required with the digital system. This analysis also evaluated the accuracy and organization of the documents before and after the system's implementation, providing a clear picture of the improvements in operational efficiency brought about by the digitalization process.

Data Analysis

The data analysis was conducted using thematic analysis to identify recurring themes across the data collected from interviews, observations, and document analysis. The first step involved coding, where responses

from staff interviews and observational notes were categorized into key themes, such as efficiency, errors, and user experience. Following this, thematic grouping was performed, where the coded data was organized into broader themes. These grouped themes were analyzed to identify patterns and trends related to the effectiveness of the digital archiving system. Finally, a comparison was made between the findings and existing literature on digital transformation in banking, particularly focusing on document management (Saprudin et al., 2022). This comparison helped contextualize the results and ensured that the findings aligned with broader trends in the sector, reinforcing the relevance and validity of the study's conclusions.

Credibility and Dependability

To ensure the credibility and dependability of the findings, several steps were taken throughout the data collection and analysis process. Triangulation was employed by collecting data from multiple sources, including interviews, observations, and document analysis. This approach allowed for cross-verification of findings, ensuring consistency and reducing the risk of bias. In addition, member checking was utilized, where feedback was solicited from BRI staff to confirm the accuracy of the researchers' interpretations of the data. This helped ensure that the conclusions drawn were aligned with the staff's perspectives and experiences. Furthermore, an audit trail was maintained, with detailed records kept of all data collection and analysis activities. This process ensured transparency and provided a means for future verification of the findings, reinforcing the rigor and reliability of the study.

RESULTS AND DISCUSSION

Through interviews conducted with BRI staff at the Regional Office in Denpasar and direct observations of the document management processes, several key issues were identified with the bank's manual debtor document management system. One of the primary problems highlighted was inefficiency in document retrieval. Staff reported that retrieving, accessing, and processing debtor data was time-consuming, often taking up to 15 minutes per document. This delay significantly affected the credit decision-making process, slowing down the service provided to debtors. Another significant issue identified was the security of archived documents. Physical storage of debtor records posed a considerable risk of document loss or damage, and there was no reliable system to track the status or location of these records. The inability to easily locate and manage documents securely created a major barrier to efficient operations. Additionally, accessibility to documents was another major challenge. Access to physical documents was often restricted to certain staff members, which limited the ability to monitor and process debtor information in a timely manner. This hindered the overall efficiency of credit decision making and created delays in providing services to debtors, thereby impacting customer experience. Based on these findings, further discussions and interviews with staff members suggested that digitalization of the document management system would address these issues, particularly in improving efficiency, document security, and accessibility.

System Design and Implementation

In the next phase of the study, the design and implementation of the digital archiving system focused on

creating a Debtor Document Register Spreadsheet. This system was designed to streamline the documentation process and ensure organized and efficient management of debtor records. The spreadsheet format was carefully structured to include the following key data fields:

1. Number: This field was included to record and track the total number of debtor documents stored in the archive. This information is crucial to maintain an accurate count of all documents and ensure that nothing is overlooked during the retrieval process.
2. Date Stored: This entry allows staff to document the date on which each debtor document was stored in the system. This provides valuable information on the age of the records and assists in managing document retention periods.
3. Uker (Unit Kerja) BRI: This field categorizes the documents by their respective BRI office units, which may include Kantor Wilayah (Regional Office), Kantor Cabang (Branch Office), Kantor Cabang Pembantu (Sub-Branch Office), and Kantor Unit (Unit Office). This classification aids in organizing and quickly identifying where each document originated from, streamlining the retrieval process.
4. Full Name: The name of the debtor whose document is being archived. This field ensures that each document is easily identifiable and can be matched with the corresponding debtor for accurate data management.
5. Account Number: This field includes the debtor's account number, which serves as an additional reference point for the document. It provides an easy link to the debtor's financial records and simplifies the process of finding related information.
6. Credit Proposal: This entry captures the type of credit proposal submitted by the debtor, such as a loan application or credit modification request. It helps staff quickly assess the context of the document in relation to the debtor's credit history.
7. Assigned Staff: This field records the staff member responsible for processing or managing the debtor's document. This ensures accountability and helps track the staff's workload, facilitating easier follow-up when necessary.
8. Stored Documents: This field categorizes the types of documents being stored, which may include credit applications, supporting documents, loan agreements, or other relevant paperwork. This categorization enables easier sorting and retrieval of documents based on their type.

An example of the spreadsheet format used in the digital archiving system can be seen in [Figure 2](#).

No	Tanggal Unduh User	Nama Debitur	Nomor Koneksi	Usulan	Pembagian Sosial Pembagian Kanca	Dokumen Yang Diunggah
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Figure 2. Debtor Document Register Spreadsheet Example

Once the debtor documents were registered in the spreadsheet, the next step was to sort the documents before they were sent to branch offices or stored in the archive. The documents stored in the archive included credit packages with applications for substitution, new loans, extensions, changes in terms, reprice-ups, unflagged restructuring, and old cases. On the other hand, documents not stored in the archive or sent to the branch office were those related to settlements or restructuring applications.

Following the sorting process, the documents were then stored in the archive based on their corresponding branch office (kanca), ensuring that documents from different branches were not mixed together. This organization method facilitated easier document retrieval and ensured that future research could be conducted efficiently, reducing the time spent locating specific records. The structured approach to sorting and storing documents provided a more systematic and organized method compared to the previous manual filing system. The spreadsheet system was implemented in a way that allowed staff to input, track, and manage debtor documents digitally. This design provided a more efficient and organized method for storing records compared to the previous manual system. The use of spreadsheets enabled real-time updates and easier document retrieval, which directly addressed the inefficiencies and challenges observed in the manual archiving system.

Staff Educating and Training

After the design and implementation of the digital archiving system, the next crucial step was to conduct education and training sessions for the staff at BRI Regional Office Denpasar. The purpose of these training sessions was to ensure that all staff members were equipped with the knowledge and skills required to effectively use the new system, particularly the Debtor Document Register Spreadsheet, and to understand the benefits and procedures for sorting and storing documents in the digital system.

The training sessions were structured in several phases to address both the theoretical understanding of the new system and the practical application:

1. **Introduction to the Digital System:** The initial phase of training provided an overview of the digital archiving system, including the rationale behind the transition from manual to digital document management. Staff

were introduced to the various fields in the spreadsheet and how each field contributes to more efficient document tracking and retrieval.

2. **Hands-on Training with the Spreadsheet:** In the second phase, staff participated in hands-on sessions where they learned to enter debtor data into the spreadsheet. They were taught how to register documents, fill in key fields (such as account numbers, credit proposals, and document types), and how to organize the data for future access. This interactive session allowed staff to practice using the system in real-time, ensuring they understood the data input procedures and the logic behind document categorization.
3. **Sorting and Storing Documents:** The final phase of training focused on the sorting and storage process for debtor documents. Staff were educated on the specific criteria for sorting documents, distinguishing between credit packages that needed to be archived versus those to be sent to branch offices. They were also trained on how to properly store the documents in the archive, ensuring that records were organized by branch office (kanca) to prevent mixing and to facilitate easy retrieval later.

Throughout the training, emphasis was placed on error prevention and accuracy, as these are critical to the efficiency and reliability of the new system. Staff were given practical examples to troubleshoot common issues, such as incorrect data entry or misclassification of documents, and were provided with guidance on how to address these challenges.

To assess the effectiveness of the training, feedback was collected from the staff through surveys and informal discussions. The majority of the staff reported that the training sessions were comprehensive and helped them feel more confident in using the new digital system. However, a small percentage of staff still expressed concerns about the initial adaptation process, particularly regarding the organization and input of large volumes of data. These challenges were addressed through additional follow-up sessions and one-on-one support for those requiring further assistance.

Evaluation

To assess the success of the developed system, a comprehensive evaluation was conducted across several key performance indicators. The goal was to measure the improvements in operational efficiency, data management, document accessibility, and the speed of the credit decision-making process following the implementation of the digital archiving system at BRI Regional Office Denpasar. The following table ([Table 1](#)) provides a detailed comparison of the operational performance before and after the system was implemented, highlighting the significant improvements observed.

Table 1. Comparison of Operational Performance Before and After Digital Archiving Implementation

Indicator	Before the Activity	After the Activity
Operational Efficiency	The process of storing and updating debtor data was time-consuming, especially when searching for debtor information in physical archives.	Data collection and updates became faster and more organized, with information being entered directly into spreadsheets and accessed/updated in real-time.
Data Archiving System	Documents were stored manually with no systematic record, requiring physical	Debtor documents were registered in the spreadsheet and monitored in real-time, allowing

Indicator	Before the Activity	After the Activity
	searches through large volumes of paper files.	for more efficient management and quicker retrieval of documents.
Debtor Document Access	Access to debtor data was limited, with only certain staff members handling the documents. This caused delays in analysis and decision-making.	Real-time access to debtor documents became available, allowing staff to quickly verify and update document status without physical retrieval.
Credit Decision Processing	Credit decisions were delayed due to difficulties in locating debtor documents and the need to request documents from other branches.	Credit decisions became more efficient as documents were easily accessible and could be retrieved quickly, speeding up the analysis and approval process.

Based on the evaluation above, it can be concluded that the implementation of the digital archiving system significantly improved the operational efficiency, accuracy, and accessibility of debtor document management at BRI Regional Office Denpasar. The comparison between the manual and digital systems clearly demonstrates the benefits of digitalization in reducing retrieval times, minimizing errors, and enhancing the speed of credit decision-making. The real-time access and organized storage facilitated by the new system not only streamlined the processes but also allowed staff to provide faster and more reliable services to debtors. These improvements have contributed to a more efficient workflow, leading to better service delivery, enhanced customer satisfaction, and increased overall productivity. The success of this system highlights the positive impact of adopting digital solutions in banking operations and underscores the importance of continuous staff training and support for successful digital transformation.

Improvements and Adjustments Based on Evaluation

Based on the evaluation during the "Check" phase, several necessary improvements and adjustments were made to the digital archiving system to enhance its functionality and effectiveness. One of the key improvements involved optimizing the data entry process. Initially, some staff members faced challenges in inputting large volumes of data quickly and accurately. To address this, the system was refined to simplify data input procedures, reducing the likelihood of errors and improving the overall speed of data entry. Additionally, to ensure smoother integration of the digital system, adjustments were made to the workflow to enhance compatibility with existing processes. This included ensuring that the new system seamlessly fit into the bank's broader operations, allowing for minimal disruption and easier adoption by the staff. Training and ongoing support were also provided to help staff adjust to these changes, ensuring that they could fully leverage the capabilities of the digital system. Furthermore, the spreadsheet template was refined to improve its ease of use. The design of the spreadsheet was adjusted to ensure that it was more intuitive and user-friendly, with clearly defined fields and more efficient organization of data. This revision made it easier for staff to navigate and input debtor information accurately, further minimizing the risk of errors and improving the efficiency of the system. These adjustments, based on feedback from staff during the "Check" phase, contributed to a more streamlined and effective digital archiving system, better suited to the needs of BRI Regional Office Denpasar.

The findings of this study demonstrate significant improvements in operational efficiency, document accuracy, and credit decision-making speed following the implementation of a digital archiving system at BRI Regional Office Denpasar. These results are consistent with existing literature on digital transformation in banking, which emphasizes the profound impact of digital technologies on operational efficiency and service delivery. Digital technologies have been shown to enable banks to automate operations that previously required substantial resources and time. According to Slobodanyk et al. (2024) and Nguyen et al. (2025) the automation of banking processes, such as transaction handling, customer service, and data management, can reduce the time required for these tasks by up to 70%. This aligns with the findings of this study, where the digital archiving system at BRI reduced document retrieval times by 66%, allowing staff to process debtor information and credit decisions more quickly. This efficiency not only benefits the bank by increasing productivity but also improves customer service by reducing waiting times.

However, as this study demonstrates, the success of digital transformation is not solely dependent on technological infrastructure but also on employee acceptance of the new system. Kitsios et al. (2021) emphasized that employee acceptance is crucial for the success of digital transformation in banks. Targeted educational programs and training sessions play a key role in facilitating this transition, ensuring that staff are adequately prepared to incorporate digital systems into their daily tasks. The success of the digital system at BRI Regional Office Denpasar was significantly influenced by the comprehensive training provided to the staff. While the majority of staff adapted well to the new system, some faced initial challenges, particularly with data entry and document organization. These issues were addressed through additional training and support, reflecting the findings of Srivastava et al. (2024), who highlighted the importance of continuous education to ensure successful digital adoption.

The transition from manual to digital document management also highlights a critical shift in organizational culture. Solberg et al. (2020), Holtel et al. (2021), Muduli & Choudhury (2025) argue that digital transformation requires not only technical skills but also a shift in mindset among employees, as they need to embrace new workflows and change traditional habits. This transformation, as seen in the case of BRI, was facilitated by the structured training program, which gradually introduced staff to the system's functionalities and provided ongoing support to ensure its integration into their daily operations. As observed, when employees fully embraced the system, it resulted in smoother workflows, better data accuracy, and more efficient decision-making. Nevertheless, it is essential to recognize that the success of digital systems in banking also hinges on organizational readiness and leadership support. McCarthy et al. (2022) emphasized that strong leadership and clear communication about the benefits of digital transformation are necessary to foster a culture that is open to change. At BRI, the management team played a crucial role in communicating the importance of the digital system and in ensuring that the resources for training and technical support were available. Future research could examine how leadership styles and organizational strategies further influence the success of digital transformations in the banking sector.

CONCLUSION

This study demonstrates that the digitalization of debtor document management at BRI Regional Office Denpasar significantly enhanced operational efficiency, expedited credit decision-making processes, and improved document security and accessibility. The implementation of a digital archiving system using spreadsheets reduced document retrieval times by 66%, addressing the inefficiencies of the previous manual system. The results indicate substantial improvements in administrative workflows, error reduction, and real-time access to debtor documents. However, the success of the digitalization effort was heavily dependent on effective training and staff readiness. Challenges during implementation were primarily related to the adaptation of staff to the new system and managing large volumes of data. Therefore, the success of digital transformation is not solely reliant on technological infrastructure but also on organizational preparedness and the quality of staff training. Despite these positive outcomes, this study has some limitations. It was conducted at a single branch, limiting the generalizability of the findings to other branches or financial institutions. Additionally, the long-term impacts of digitalization on customer satisfaction, employee performance, and business growth were not explored in this study.

Future research should expand the scope by including multiple branches or different financial institutions to assess the broader applicability of the findings. Further studies should also explore the long-term effects of digitalization on customer satisfaction and employee performance. Additionally, research on the cost-effectiveness of digitalization, including implementation and maintenance expenses, would provide valuable insights for financial institutions considering similar transformations.

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KDKAW : Writing - Review & Editing, Formal Analysis, and Methodology;
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