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RESEARCH ARTICLE

# Information System for Incoming and Outgoing Mail Archiving at PT. PLN (PERSERO) Sigli Area, Pidie Regency

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**Abstract**

This study aims to develop an information system for managing incoming and outgoing mail at PT. PLN (PERSERO) Sigli Area, Pidie Regency. The existing manual system, which relied on Microsoft Word and Excel, led to inefficiencies, slow processing times, and the risk of errors in document management. The developed system utilizes Microsoft Visual BASIC 6.0 to automate the archiving, searching, and reporting of mail data, significantly improving operational efficiency. The development process involved several key phases: feasibility study, preliminary planning, system analysis, system design, implementation, and testing. The feasibility study identified the system's requirements, while the planning phase mapped out the project scope through design tools such as Data Flow Diagrams (DFD). The system analysis phase involved collaboration with users through interviews and surveys, ensuring the design met organizational needs. The system design phase focused on creating the database structure and process flows, while the implementation phase included coding, testing, and user training. The system's performance was evaluated by comparing its processing speed and data retrieval accuracy to the old manual system. Results indicated a significant improvement in processing time, user satisfaction, and overall efficiency. This new system replaces the outdated manual method, streamlining mail management and enhancing productivity at PT. PLN (PERSERO) Sigli Area.

**Keywords**
Information System; Mail Archiving; PT. PLN (PERSERO); Microsoft Visual BASIC; System Development; Automation; Data Management.

# 1 | INTRODUCTION

In the digital era, information management has become a crucial aspect of enhancing operational efficiency within organizations. The management of letters, both incoming and outgoing, is an essential part of administrative tasks that cannot be overlooked. Every letter received or sent holds significant value in supporting smooth communication between the organization and external parties. Therefore, efficient and accurate letter management is required to ensure that information can be processed and accessed quickly when needed. However, despite the rapid technological advancements, many organizations still rely on manual systems for letter management. This often leads to various issues, particularly with the time required to search for letters and the potential for recording errors. The manual process of archiving incoming and outgoing letters takes considerable time, especially when the volume of correspondence is high. Additionally, the risk of errors in recording becomes a serious problem that can impact decisions made based on the available information. Therefore, it is essential to replace manual systems with technology-based solutions that are more efficient and can reduce the potential for errors.

One solution to address these issues is the use of computer-based systems. For example, Septiani and Haitami (2020) conducted research on the design of a letter archiving system in Desa Kampung Besar using alphabetical filing and chronology system methods. Their study demonstrated that by applying these methods, letter management becomes more structured and efficient, and the process of letter retrieval can be carried out more quickly. This shows that choosing the right filing method plays a significant role in the efficiency of the system. On the other hand, the use of Microsoft Visual Basic for Applications (VBA) has also proven to be an effective solution in developing letter management applications. VBA is a programming language integrated into Microsoft Office applications such as Excel and Access. VBA-based applications enable the automation of various administrative tasks, such as archiving, searching letters, and generating reports. In Setiawan's (2020) research on automating BMN stock opname through QR code scanning using VBA, it was shown that this technology can optimize data management processes, reduce human errors, and increase efficiency. This technology can similarly be applied to letter management systems, where archiving, searching, and report generation can be automated, reducing the time needed for these administrative tasks.

Another relevant study by Khan, Kalwar, and Chaudhry (2021) illustrates how VBA can be used to optimize delivery times for materials. While the focus of this research was on logistics, it shows how VBA can improve operational processes that require data processing. The same concept can be applied to letter management, allowing for faster and more accurate recording of letters, retrieval, and report generation. Moreover, Rifai *et al*. (2023) developed an application for self-assessment of information security using VBA and MSXML2.XMLHTTP at Diskominfo Kabupaten Kampar. Although this research focuses on data security, it demonstrates how VBA can be used to build well-integrated systems that efficiently manage data and ensure data security. Similarly, in letter management, VBA-based applications can provide the necessary security measures to protect sensitive information contained in certain letters.

In addition to desktop-based technology, web-based systems are increasingly being adopted by organizations for letter management. Naja *et al*. (2024) developed a web-based digital archive management system at the Dinas Pertanian Provinsi Aceh, which allows letters to be managed online and accessible from anywhere. Web-based systems offer several advantages, such as flexibility in data access and better integration among various stakeholders in the organization. The implementation of web-based letter management systems also allows for easier and faster archiving of letters, reducing dependence on specific hardware. By implementing the right technology for letter management, PT. PLN (PERSERO) Area Sigli can overcome various issues caused by the manual system. A more efficient system can simplify letter archiving, speed up data retrieval, and generate reports more accurately and on time. This will undoubtedly enhance productivity and facilitate decision-making, which in turn will support the smooth operation of PT. PLN (PERSERO) Area Sigli in Pidie Regency. This study aims to design and implement a letter management system for incoming and outgoing letters at PT. PLN (PERSERO) Area Sigli based on Microsoft Visual Basic for Applications (VBA). The system is expected to enhance the efficiency of letter management by automating archiving, searching, and report generation, reducing reliance on manual systems, and improving data accuracy and security.

# 2 | BACKGROUND THEORY

Mail management is an integral part of the administration of every organization or institution. Incoming and outgoing mail serves as a means of communication that connects various parties in business or government processes. Given the significant role of mail in organizational operations, an efficient and organized mail filing system is essential. Without an effective system, mail management can be inefficient and vulnerable to loss or damage. As explained by Wali (2020), a good filing system is an important foundation in software engineering for administrative applications. The

majority of institutions in Indonesia still rely on manual methods to manage mail, which poses several challenges. Amalia and Huda (2020) in their study on mail archiving at the Musi Banyuasin Regency Manpower and Transmigration Office, emphasized that manual methods cause slower retrieval times, increase the risk of errors in documentation, and make it difficult to find important documents. As a result, the need for a more modern system to address these problems is increasing. Alfaris *et al*. (2022) added that the operations research approach can be used to optimize administrative processes, including mail management.

Technology-based information systems have become an increasingly popular choice for managing incoming and outgoing mail. Web-based systems offer significant advantages over manual systems, enabling digital and integrated mail management. Witanti *et al*. (2020) in their study of a web-based mail archiving system in Batujajar District, demonstrated that the system increased accessibility and streamlined the mail search process, which previously took longer with manual methods. The system also provides efficiency benefits in mail management, as documents can be stored digitally and accessed at any time through a web-based platform. Wali (2017) emphasized that Windows-based applications with Visual Basic .NET can be an effective solution for document management systems. In a study of the mail management system at Ma Darul Ihya Bogor, Mahmudah *et al*. (2019) emphasized that the implementation of an information-based system minimizes human error in documentation and retrieval. Well-organized mail in the information system allows for faster access and easier checking by authorized personnel. In addition, the system facilitates the management of mail that requires further action, such as archiving or re-delivery. Hartono and Wardani (2019) also emphasized the importance of web-based systems for managing letters. Their research shows that such systems simplify access to important documents online, reducing reliance on manual systems that can slow down organizational performance. The use of such technology allows for more efficient mail management and ensures better data security compared to physical systems.

Prawono and Pamungkas (2015) in their study at STMIK AUB Surakarta explained that the use of a web-based letter archiving system can reduce operational costs related to managing physical letters. The system not only reduces the cost of paper procurement and physical storage but also optimizes the use of human resources, which previously spent time managing letters manually. With the digitization of letters, management becomes faster and more structured, resulting in operational cost savings. Purbasari *et al*. (2024) added that the right programming algorithm can increase the efficiency of information systems, including in document management. The application of technology in letter management also increases transparency and accountability in the organization. As explained by Saputro *et al*. (2024), an information system for letter management allows for better supervision of every letter transaction. All incoming and outgoing letter transactions are recorded in a system that can be monitored in real time. This increases transparency in the organization, makes it easier for auditors or authorized personnel to track letters received or sent and ensure that every step of the letter management process complies with established procedures. Wali (2018) highlighted that Microsoft Office add-ins can be utilized to enhance the functionality of document archiving systems.

The use of a web-based system for archiving also offers better security. Digital letter data can be protected using encryption and strict access control. This not only ensures the confidentiality of letters but also minimizes the risk of losing important documents due to disasters or physical damage. Thus, letter management becomes safer and more secure. The implementation of a web-based letter archiving system provides a more efficient and organized solution compared to manual methods. At PT. PLN (PERSERO) Sigli Area in Pidie Regency, the adoption of a web-based system for letter archiving can improve operational efficiency, speed up letter retrieval, and provide convenience in managing incoming and outgoing letters. The integrated system not only improves administrative processes but also strengthens security, transparency, and accountability within the organization. With the right system, PT. PLN (PERSERO) Sigli Area can minimize common problems that arise with manual letter management, such as errors in documentation, lost letters, and difficulty in retrieving documents. The implementation of a web-based system is expected to improve the company's overall administrative performance, have a positive impact on time, cost, and labor efficiency, and improve the quality of services provided to the community.

## 3 | METHOD

This research focuses on the development, implementation, and evaluation of a web-based mail archiving system at PT. PLN (PERSERO) Sigli Area, Pidie Regency. The objective is to improve the efficiency and effectiveness of managing incoming and outgoing mail. The research methodology follows a systematic approach, which includes system development, feasibility analysis, system design, implementation, testing, and user evaluation. The study uses a combination of qualitative and quantitative methods to gather insights and evaluate the system's performance from different perspectives. The first phase of the research involved the system development process, which aims to replace the existing manual system with a more efficient and automated web-based system. The current system used by PT. PLN (PERSERO) Sigli Area involved Microsoft Word and Excel for managing mail data, which resulted in delays in processing

and retrieving archived mail. This inefficiency highlighted the need for a more structured and technology-driven solution. The new system was developed using Microsoft Visual BASIC 6.0, which was chosen for its user-friendliness and functionality to improve the overall mail management process.

A feasibility study was conducted to assess the technical, operational, and organizational needs for the new system. This study identified gaps in the current manual system and focused on providing a more reliable and faster solution. Based on the feasibility study, the system was designed to accommodate the specific needs of PT. PLN (PERSERO) Sigli Area, focusing on improving data accessibility, efficiency in mail processing, and ease of generating reports. The next phase involved preliminary planning, where the project's scope was determined, and necessary system components were outlined. This phase included the creation of Data Flow Diagrams (DFD) to illustrate how data would flow through the new system. These diagrams helped identify the key processes involved in the system, including data input, processing, and reporting. The system analysis phase followed, where system analysts worked closely with users to gather detailed information about their needs. This was done through interviews, observations, and questionnaires. The analysis helped refine the system's specifications and ensure that the new web-based system would meet user requirements. In the system design phase, the system architecture and database structure were defined. The system was designed to handle various types of mail data, including sender and recipient details, document attachments, and mail status. The database was structured to store mail-related data efficiently, and flowcharts were used to outline the process flow for each part of the system. The design also included user interface mockups that were aimed at ensuring ease of use for the administrative staff.

The implementation phase involved coding the system using Microsoft Visual BASIC 6.0. Once the system was developed, it underwent thorough testing to ensure that it met the required performance standards. Data was inputted into the system to test its processing speed, data accuracy, and reliability. The system's performance was compared with the old manual system to evaluate improvements in processing time and user satisfaction. User training was also conducted to ensure that employees could operate the new system effectively, providing them with the necessary skills to manage mail archiving tasks. To gather data for the research, primary data was collected through interviews, observations, and surveys with the employees at PT. PLN (PERSERO) Sigli Area. These methods helped identify the current challenges and inefficiencies of the manual system, as well as gather feedback on the usability and performance of the new web-based system. Additionally, secondary data was gathered through the review of internal documents and reports to understand the existing procedures and best practices in mail archiving.

Data analysis in this research involved both qualitative and quantitative methods. Qualitative data was analyzed using thematic analysis to identify recurring themes and patterns in users' responses regarding the current system's inefficiencies and the expectations from the new system. Quantitative data was analyzed using descriptive statistics, assessing factors such as system speed, user satisfaction, and the effectiveness of mail data retrieval and reporting. Additionally, performance metrics such as data entry time, retrieval speed, and error rates were evaluated to compare the old and new systems. The system testing and evaluation phase provided insights into the new system's operational performance, focusing on key tasks such as data input, processing, retrieval, and report generation. These tasks were tested in real-world conditions to ensure that the system operated efficiently under typical workloads. User feedback was collected to evaluate the system's usability and its alignment with the needs of the organization.

Throughout the research, ethical considerations were prioritized. Informed consent was obtained from all participants, and confidentiality was maintained at all stages of data collection. Personal data was anonymized to ensure privacy, and the data collected was solely used for the purposes of this research. Despite the insights and improvements provided by the new system, the study acknowledges certain limitations. The results of this research are specific to PT. PLN (PERSERO) Sigli Area, and further research may be necessary to assess the system's adaptability to other locations or organizations with different operational needs. The methodology outlined above provides a comprehensive approach to understanding the development, implementation, and evaluation of a web-based mail archiving system. By integrating user feedback, system analysis, and testing, this research aims to demonstrate the significant improvements brought by technology to the mail management process at PT. PLN (PERSERO) Sigli Area, offering valuable insights for organizations seeking to streamline their administrative tasks.

## 4 | RESULTS AND DISCUSSION

### 4.1 Reults

#### 4.1.1 System Development

System development involves designing a new system to replace or enhance an existing one. The previous system at PT. PLN (PERSERO) Sigli Area required improvement due to significant delays in searching and retrieving data related to incoming and outgoing mail. At the time of the study, PT. PLN (PERSERO) Sigli Area still used Microsoft Word and Excel, which made reports generating time-consuming and inefficient. To address these challenges, a new mail archiving system was developed using Microsoft Visual BASIC 6.0 to streamline processes

and improve efficiency. The development of the new system involved several key stages, starting with identifying the requirements for the updated system. The first stage, the Feasibility Study, focused on identifying the needs for the new system. This included not only the additional features requested by management but also the shortcomings of the existing manual system. PT. PLN (PERSERO) Sigli Area was relying on manual methods, making the implementation of a computerized system essential to improve the process. Following the feasibility study, the Preliminary Planning Phase aimed to define the scope of the system and project. During this stage, key design tools such as Data Flow Diagrams (DFD) were created to map out the structure of the system and ensure it met organizational requirements. The System Analysis Phase involved close interaction between the system analyst and the users to gather detailed information about their specific needs. This phase utilized interviews, observations, and surveys to understand how the current system was being used and where improvements were necessary. Based on this feedback, the design of the new system was refined to ensure it would address all user needs. This was crucial in ensuring that the new system would be effective and align with the operational goals of PT. PLN (PERSERO) Sigli Area.

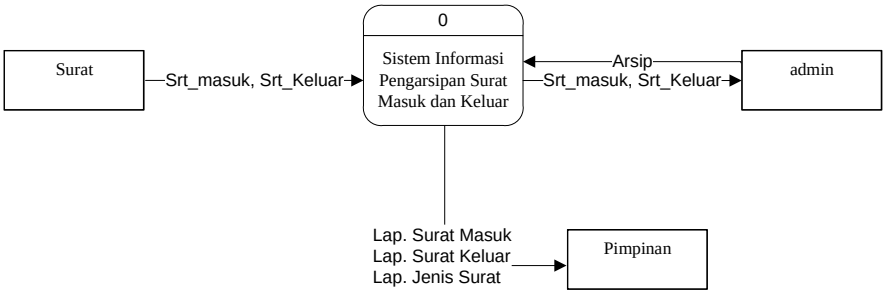


Figure 1. Context Diagram of the Incoming and Outgoing Mail Archiving Information System

The development of the mail archiving system involved replacing the old manual process with a more efficient, computerized solution. The existing system at PT. PLN (PERSERO) Sigli Area was primarily using Microsoft Word and Excel, which led to delays in processing and retrieving archived data. To address these challenges, the author developed a new information system for mail archiving using Microsoft Visual BASIC 6.0, which streamlined the process and improved efficiency. The development process began with the feasibility study, where the system's requirements were identified. This phase not only took into account the new needs expressed by management but also evaluated the shortcomings of the existing manual system. The introduction of a computerized system was deemed necessary to replace the outdated methods in place at PT. PLN (PERSERO) Sigli Area. Following this, the preliminary planning phase involved outlining the scope of the project and creating key design tools such as Data Flow Diagrams (DFD), which mapped the structure of the system and helped ensure it met organizational needs.

In the system analysis phase, the system analysts worked closely with users to gather detailed information on their needs. This was done through interviews, observations, and surveys to ensure the new system would effectively address user requirements. The collected data helped refine the system's design, ensuring that the new system would improve data accessibility, processing, and reporting. The system's structure was clarified through the use of process diagrams, which mapped the flow of data and illustrated how each component would function. The system design phase focused on creating the architecture of the new system. This involved two main components: database design and process design. The database design ensured that all user requirements were captured effectively, while the process design detailed the flow of operations within the system. Program specifications were also created, providing the necessary instructions for the programming team. The system's structure was visualized through a set of interface diagrams, including the login page, main menu, file menu, report menu, and exit menu.

In the system implementation phase, the new system was developed using Visual BASIC. The system underwent thorough testing, where sample data was entered to assess its performance and compare it with the old system. This phase also involved the installation of the system, which required appropriate hardware, including personal computers, monitors, and printers, along with the necessary software like Windows 7, Microsoft Visual BASIC, and Microsoft Access. Finally, user training was conducted to ensure employees could effectively use the new system. This hands-on training helped users learn how to manage the database for incoming and outgoing mail. By following this structured development process, PT. PLN (PERSERO) Sigli Area was able to replace its old manual system with an efficient, computerized mail archiving system, streamlining operations and improving the overall efficiency of mail management.

### 4.1.2 System Design

The designed information system provides a feature for fast data processing, significantly improving the workflow at PT. PLN (PERSERO) Sigli Area, Pidie Regency. The primary goals of the system design are to improve the existing information system by enhancing the data processing procedures and to replace the previous manual archiving system, which relied on Microsoft Excel 2007, with a more efficient system using Microsoft Access 2007 and Microsoft Visual BASIC 6.0. This new system streamlines the data archiving process for incoming and outgoing mail. The process of system creation involved several key steps. First, a program folder was created by navigating through the file explorer, selecting the desired drive, and creating a new folder labeled "program." Then, a new project was initiated in Microsoft Visual BASIC 6.0 by selecting "New Project" and choosing "Standard EXE." Following that, a database was created using Microsoft Access. The new database was named "Mail Archiving Application," and it was saved to facilitate further system development.

The database was designed with several key tables to organize and manage the data. The User Table stores user information, including the user code, name, status, and password. The Mail Type Table categorizes the types of mail, including a primary key for mail type code, description, and additional details. The Incoming Mail Agenda Table captures information related to incoming mail, including agenda number, mail number, date, subject, attachments, sender, and recipient. Similarly, the Outgoing Mail Agenda Table records the details of outgoing mail, including agenda number, mail number, date, subject, attachments, and recipient information. The system also includes several forms to simplify data entry and interaction. The Login Form is the first screen the user encounters and requires entering the username and password to access the main menu. The design properties of the login form include labels for "Login" and "Password" fields, with text input boxes for entering the username and password, and buttons for login and cancel options. This system design ensures efficient management of incoming and outgoing mail at PT. PLN (PERSERO) Sigli Area, with streamlined processes and improved user experience, replacing the outdated manual methods with a modern and automated approach.

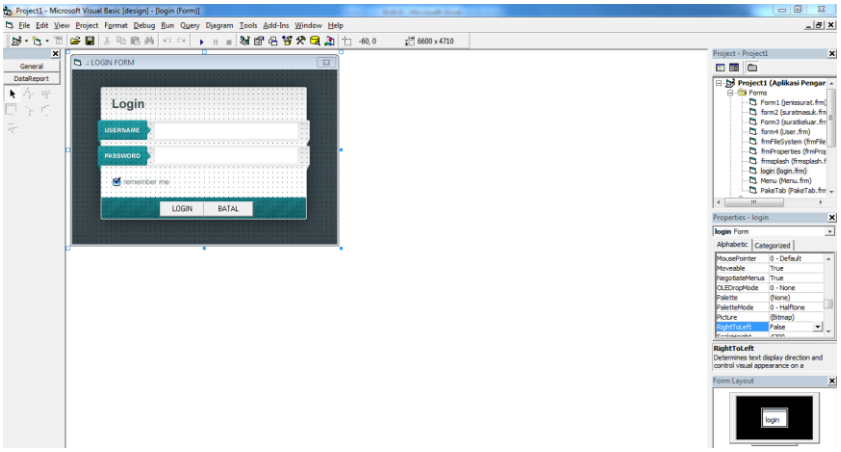


Figure 2. Login Form Design

The main menu form serves as the central interface, containing separate sections for various functions. This form includes menus for file management, input of incoming and outgoing mail data, input of mail type data, and a report section. These components are designed to ensure a streamlined user experience, allowing easy navigation and access to essential features. The file menu enables users to manage document-related tasks, while the input sections allow for efficient data entry for both incoming and outgoing mail, as well as categorizing mail types. The report section provides the functionality to generate necessary reports related to mail activities. The properties of each menu section are outlined in Table 4, and the design of the main menu form is illustrated in Figure 15. This well-organized structure ensures that users can access and manage the system's features seamlessly, contributing to overall system efficiency.

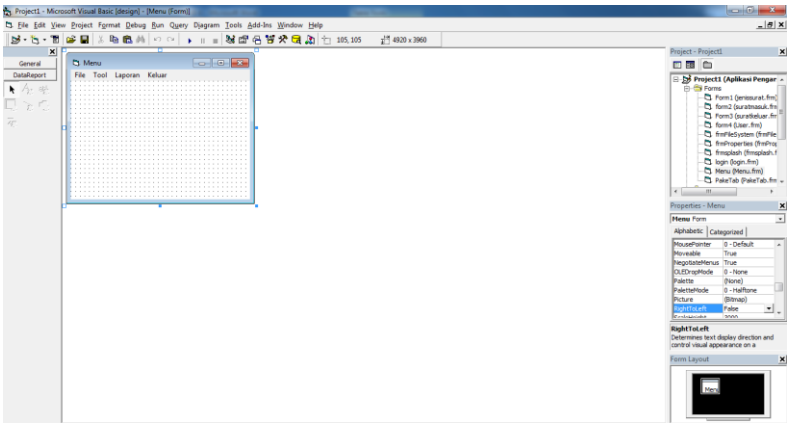


Figure 3. Main Menu Form Design

The Mail Type Data Input Form has been specifically designed to capture essential details about the types of mail. It allows users to enter the mail type code, description, and any other relevant information. The form is structured to make the categorization of different types of mail straightforward, ensuring that each type is easily identifiable. This design allows for better organization and quick retrieval of data whenever needed. Similarly, the Incoming Mail Data Input Form plays an important role in recording information related to incoming mail. This includes the agenda number, mail number, date of the mail, subject, attachments, type, sender, recipient, and the date when the mail was received. By capturing these details in an organized manner, it becomes much easier to track and manage incoming correspondence. The form is designed to ensure that all necessary information is recorded accurately, and its user-friendly layout ensures a smooth and efficient data entry process.

The Outgoing Mail Data Input Form is dedicated to recording details of outgoing correspondence, including transaction numbers, dates, mail type, and balance. It captures all the key details that need to be tracked for mail leaving the organization. The form is organized in a way that simplifies data entry and ensures consistency across the system. By capturing relevant information for both incoming and outgoing mail, this form ensures that no piece of mail goes unaccounted for, allowing the organization to maintain accurate records. Each form is designed with clarity in mind, featuring labels and fields that make it easy for users to understand exactly what data is required. Users are provided with clear options to input, edit, delete, or close their entries. The input option enables users to add new data, the edit option allows for modifying existing records, and the delete option ensures that any erroneous or outdated information can be removed. The close button offers a simple exit from the form once all necessary data is entered or updated. These forms make managing incoming and outgoing mail at PT. PLN (PERSERO) Sigli Area much more efficient. The structured design of each form ensures that data is entered accurately and in an organized manner, making mail management easier and faster. The system allows for smooth tracking and retrieval of records, improving the overall efficiency of the mail archiving process and ensuring that nothing is lost or misplaced. With these features in place, PT. PLN (PERSERO) Sigli Area is better equipped to manage its mail data in a streamlined and effective way.

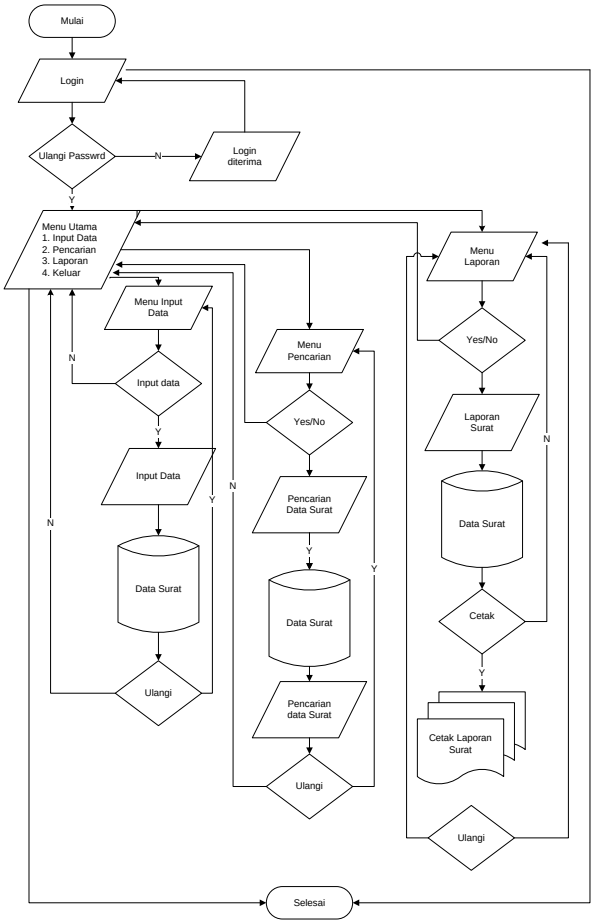


Figure 4. Flow Chart

The flowchart outlines the steps involved in the user login process and navigation through the system's main features. First, the user is prompted to log in by entering their password. If the login attempt is unsuccessful, the system asks them to try again. Once logged in, the user is directed to the Main Menu, where four options are available: Data Input, Search, Report, and Exit. Selecting Data Input allows the user to enter new mail data, which is then saved in the Data Surat section. If Search is chosen, the user is led to the search menu, where they can look up existing mail records. If the search is successful, the system retrieves the relevant data. When the Report option is selected, the user is prompted to confirm if a report should be generated. If confirmed, the system produces a report based on the mail data. The user can continue to repeat the process or exit the system as needed. This flow ensures smooth interaction with the system, offering clear pathways for entering, searching, and generating reports.

### 4.2 Discussion

The system development process at PT. PLN (PERSERO) Sigli Area focused on transitioning from an outdated, manual method to a more efficient computerized solution for managing incoming and outgoing mail. Previously, PT. PLN (PERSERO) Sigli Area used Microsoft Word and Excel, which led to inefficiencies and delays in retrieving mail data. Similar to findings by Witanti *et al*. (2020), who emphasized the importance of a web-based archiving system for efficient mail management in Batujajar, the new system was designed to overcome these challenges. The new system utilized Microsoft Visual BASIC 6.0, aiming to improve operational efficiency by streamlining the data entry, retrieval, and reporting processes. The development process began with a Feasibility Study to assess the requirements of the new system. This study, as seen in research by Mahmudah *et al*. (2019), ensured that the system would meet both the organization's new needs and the shortcomings of the previous manual process. The next step involved Preliminary Planning, where system design tools, such as Data Flow Diagrams (DFD), were created to map out how the system would function. These diagrams helped define the project scope and clarify the design structure, which aligns with the methods used by Prawono and Pamungkas (2015) for effective system design in administrative environments.

In the System Analysis Phase, close collaboration between system analysts and users was crucial, as

recommended by Suhandono *et al*. (2019). User feedback through interviews and surveys helped refine the system's design, ensuring it would enhance data accessibility, processing, and reporting. This was key to ensuring the new system aligned with the operational goals of PT. PLN (PERSERO) Sigli Area. The System Design Phase focused on creating the system architecture, including database and process design. Following best practices outlined by Hartono and Wardani (2019), the system used a relational database to ensure efficient data storage and retrieval. The design was then tested through the Implementation Phase, where the new system was installed, hardware and software requirements were met, and users were trained to ensure effective system operation. The new system performance was evaluated against the previous one. As observed by Masykur and Atmaja (2015), the automated system improved operational efficiency, making it easier to manage and track mail. By adopting this approach, PT. PLN (PERSERO) Sigli Area successfully replaced their old manual system with a more efficient, computerized solution, significantly enhancing mail management operations. This transition mirrors the benefits seen in other studies, such as Nouvel *et al*. (2021), where web-based systems improved organizational workflows and reduced the time needed for data retrieval and reporting.

## 5 | CONCLUSIONS AND FUTURE WORK

The implementation of the mail archiving system at PT. PLN (PERSERO) Sigli Area has successfully transformed the organization's approach to managing incoming and outgoing mail. The transition from a manual system using Microsoft Word and Excel to a more efficient system based on Microsoft Visual BASIC 6.0 has significantly improved the overall workflow. This new system streamlines the archiving, searching, and reporting processes, reducing time delays and minimizing errors in data retrieval. The improvements in processing speed and data accuracy have made it easier for staff to manage mail efficiently, and the feedback from users has confirmed the system meets the organization's needs. The development process involved a comprehensive series of phases, including feasibility analysis, system design, and thorough testing to ensure the system aligned with PT. PLN (PERSERO) Sigli Area's operational goals. The results have shown a clear improvement in the speed and accuracy of data management, offering a substantial improvement over the previous manual system. Looking to the future, there are several areas for further development. One potential improvement is integrating the mail archiving system with other organizational systems, such as document management or customer relationship management systems. This could create a more interconnected digital ecosystem within the organization. Additionally, upgrading the system to a web-based platform could increase accessibility, allowing users to manage mail from different locations and enhancing overall flexibility. Further research can assess the long-term impact of the system on organizational productivity, user satisfaction, and its potential scalability to other branches or departments within PT. PLN (PERSERO).

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