

Information System for Managing Incoming and Outgoing Mail at the Central Statistics Agency of West Sumba Regency

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abstract

BPS West Sumba Regency still manages mail manually, facing issues of efficiency, transparency and accuracy. Manual processes risk document loss and recording errors. This research aims to identify problems and recommend an integrated information system. This innovation is expected to increase productivity, reduce errors, and speed up decision-making at BPS. Rapid Application Development (RAD) is a software development model that focuses on accelerating processing time. This approach combines object-oriented development methods and structured techniques to accelerate the process of creating a system or application. The research showed that the implementation of the new information system at BPS West Sumba Regency improved operational efficiency. Mail processing time dropped from 3 hours to 1 hour, and the error rate was reduced from 15% to 2%. User satisfaction increased from 60% to 90%, which had a positive impact on employee motivation. User satisfaction increased from 60% to 90%, which had a positive impact on employee motivation and collaboration. The system also strengthened and improved transparency.

abstract

BPS Kabupaten Sumba Barat masih mengelola surat secara manual, menghadapi masalah efisiensi, transparansi, dan akurasi. Proses manual berisiko kehilangan dokumen dan kesalahan pencatatan. Penelitian ini bertujuan untuk mengidentifikasi masalah dan merekomendasikan sistem informasi terintegrasi. Inovasi ini diharapkan meningkatkan produktivitas, mengurangi kesalahan, dan mempercepat pengambilan keputusan di BPS. Rapid Application Development (RAD) adalah model pengembangan perangkat lunak yang berfokus pada percepatan waktu pengerjaan. Pendekatan ini menggabungkan metode pengembangan berorientasi objek dan teknik terstruktur untuk mempercepat proses pembuatan sistem atau aplikasi. Penelitian menunjukkan bahwa penerapan sistem informasi baru di BPS Kabupaten Sumba Barat meningkatkan efisiensi operasional. Waktu pemrosesan surat turun dari 3 jam menjadi 1 jam, dan tingkat kesalahan berkurang dari 15% menjadi 2%. Kepuasan pengguna meningkat dari 60% menjadi 90%, yang berdampak positif pada motivasi pegawai. Kepuasan pengguna meningkat dari 60% menjadi 90%, yang berdampak positif pada motivasi dan kolaborasi pegawai. Sistem ini juga memperkuat dan meningkatkan transparansi.

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Association for Computing Machinery

ACM Computing Classification System (CCS)

EBSCOhost

Communication and Mass Media Complete (CMMC)

1. Introduction

Every government institution, including the Central Bureau of Statistics (BPS), must have an efficient incoming and outgoing mail system. These letters are important tools for official communication and documentation that support various administrative and operational tasks (Endra & Hadi, 2021). Ineffective mail management can lead to delays, loss of information, and decreased productivity. Many government agencies have switched to digital mail management systems because advances in information technology require integrated information systems (Kuswantoro et al., 2022). An integrated information system can also increase document transparency by making the process of searching, archiving, and storing documents easier (Nurrahman et al., 2023). According to (Saryani et al., 2019), there is evidence that the application of information technology in the public sector can improve service efficiency and effectiveness. Many government agencies have used information systems to meet various needs, such as managing correspondence, showing how much information technology can help government operations.

Currently, most of the incoming and outgoing mail management processes at the Central Bureau of Statistics (BPS) of West Sumba Regency are carried out manually. BPS West Sumba still faces problems in terms of efficiency, transparency, and data accuracy, although some agencies have switched to digital systems. Manual processes can lead to lost documents and recording errors, which can slow down communication between divisions. The use of web-based applications and document management software are some of the solutions that have been implemented in other agencies. For example, some BPS in other regions have used an e-archive system to manage mail, which allows for better collaboration between units and real-time data access. However, inadequate training, insufficient infrastructure, and resistance to change are often barriers to implementing these systems. This research is needed to determine the mail management problems faced by BPS West Sumba Regency. This research will provide suggestions for the development of a more integrated and user-friendly information system by analyzing the existing system. Moreover, due to the

increasing need for transparency and accountability in government, this research is also relevant to support improved public policy implementation. Using the latest technology, it can automate the process of archiving and processing mail. Machine teaching techniques can be used to improve the accuracy of character recognition on incoming mail. In addition, data analysis can be used to predict future communication patterns and statistical needs. It is hoped that this innovation will increase productivity, reduce errors, and speed up the decision-making process.

The trend of technology-based document management has grown rapidly in recent years, mainly due to the emergence of cloud computing products and integrated document management systems. In the post-pandemic context, systems that support teamwork and remote access are becoming increasingly important. This research will investigate the relationship between the use of cloud-based mail management solutions and the needs of BPS West Sumba. This solution will allow employees to access and manage documents from anywhere, which increases flexibility and responsiveness. This research is essential to improve the management of incoming and outgoing mail at BPS West Sumba Regency, given the current conditions and problems. This research is expected to not only provide effective solutions, but also become a reference for other institutions facing similar problems. This is expected through technological innovation and the application of best practices.

In addition, this system has the potential to increase accountability and transparency and facilitate report generation and analysis of mail data (Arif Fitriyanto et al., 2023; Londa et al., 2022). (Mardiyati, 2020) stated that Indonesia's information systems are developing rapidly as a result of the government's bureaucratic reforms, especially information systems in government institutions. Information systems have been used by many organizations to assist with various administrative tasks, such as managing correspondence (Ricky Akbar dkk Hal et al., 2023). This success may have encouraged BPS West Sumba Regency to implement a mail management information system. Previous studies have shown that the implementation of these information systems can

improve organizational performance (Praja et al., 2022). This study will apply the rapid application development (RAD) method, which will use a descriptive qualitative approach. Data will be collected through observation, interviews, and document analysis. The results of the study are expected to provide an overview of the current conditions in mail management and provide information about the good and bad of implementing a mail management information system. This research aims to build an efficient and effective information system for managing incoming

mail and outgoing mail at BPS West Sumba Regency. It is hoped that the results will help BPS West Sumba Regency improve its administrative performance and provide examples for other government agencies that want to use information technology to manage letters. In this study, we used journals and previous research that discussed theories and research subjects about incoming mail and outgoing mail management information systems. The resume of previous research that is used as the main reference is as follows.

Table 1. Previous Research

No.	Title	Method/Theory	Source
1.	Web-based Incoming and Outgoing Mail Filing Information System in Batujajar District	MVC (Model, View, Controller), Code Igniter Framework PHP and Waterfall model	(Wina Witanti et al., 2020)
	Result The system built focuses on archiving letters and letter dispositions, which can minimize data loss, as well as backup of manual storage letter archives and damage to letter archives.		
2.	Design of Information System for the Management of Incoming Letters, Outgoing Letters and Sppd in Jatijajar Village	Grounded Research	(Susanto et al., 2021)
	Result This Application System for Processing Incoming and Outgoing Letters and Sppd in Jatijajar Village can facilitate the staff in managing incoming, outgoing and sppd letters in Jatijajar Village.		
3.	Web-based Incoming and Outgoing Mail Information at an Agency	Model SDLC (system development life cycle) waterfall	(Nouvel & Indriani, 2021)
	Result An information system that manages incoming mail and outgoing mail according to a set flow, and can solve current problems.		
4.	Correspondence Archives Information System	User Acceptance Test (UAT)	(Rizky Asyari & Ramadhani, 2021)
	Result Based on User Acceptance Test (UAT) testing that has been carried out by system users at the Ministry of Religion of Payakumbuh City, it is said that over all this system is easy to understand and in accordance with what is expected.		
5.	Design of Information Systems for the Management of Incoming Letters and Outgoing	Unified Modeling Language (UML)	(Nur Hadiza et al., 2023)

Letters at the Sarolangun Regency Population Control and Family Planning Office		
Result		
Information system for managing incoming letters and outgoing letters at the Population Control and Family Planning Office, which can manage letter data to be organized and can help make it easier for staff to work.		
6.	Management of Incoming and Outgoing Mail	(Azizah & Farah & Kuswanto, 2021)
	Qualitative descriptive	
	Result	
Increase the number of archivists and storage infrastructure, the recording process is carried out after receiving a disposition from the head so that the recording process is not carried out twice.		

The difference between this research and the previous research above which is used as a literature review is that this research uses the Rapid Application Development (RAD) method with a descriptive qualitative approach for its writing. The research location is also a difference between this research and previous research. Previous studies generally used the Waterfall method, User Acceptance Test (UAT) and Grounded Research.

Systems, Information and Information Systems

In information technology, "system" usually refers to a combination of hardware, software, networks, and procedures that work together to process, store, and distribute information to achieve specific goals (Nur Aziz, 2022). Information is data that has been processed and organized so that it has meaning and value for those who receive it (Nur Aziz, 2022). Information is very important in many ways in the modern world, such as organizational management, communication, and decision making. Making effective decisions requires timely, accurate, and relevant information (Nur Aziz, 2022). An information system is a combination of software, hardware, networks, human resources, procedures, and human resources used to collect, process, store, and transmit data. The main purpose of information systems is to assist the daily operations of the organization, including decision making and management strategies. Information systems are essential for organizational operations in the modern era because they enable efficient data processing and the rapid dissemination of information to decision makers.

Rapid Application Development (RAD)

An important software development process model, especially in terms of fast turnaround time, is Rapid Application Development (RAD). Rapid Application Development (RAD) is an object-oriented system development approach that combines development and software methods and various structured techniques to accelerate system or application development (Hidayat & Hati, 2021a). Rapid Application Development (RAD) is a software development method that can accelerate system development. The goal of RAD is to shorten the time usually required between the design and implementation of information systems during the conventional system development life cycle (Hidayat & Hati, 2021a). Rapid Application Development (RAD) involves analysis and users during three stages of system development: assessment, design, and implementation. These three steps are:

1) Needs Planning Stages

At this stage, users look at the purpose of the application or system and the information required to achieve that purpose. Users from different levels of the organization participate in this process. Work together with users to design systems, build systems, find objects and information needs, introduce new systems, plan the needs of the RAD Design Workshop, and implement these plans at the required stage (Hidayat & Hati, 2021b).

2) Workshop Design Stages

This stage is the design and refinement stage, known as the workspace or workshop. Users can

view and refine the already designed modules to match user responses during the Rapid Application Development (RAD) workshop design process. In addition, they have the ability to respond to actual working prototypes (Hidayat & Hati, 2021b).

3) Implementation Stages

At this stage, the analysis with users conducted during the workshop stage is carried out to create the business or non-technical part of the enterprise system. The new system or subsystem will be tested and submitted to the company once this component is approved. After that, the system will be developed and improved. Nowadays, rapid design classes (RAD) will determine user ownership, user satisfaction, and acceptance of the new system. Changes like this are usually much more dire than changes made without user participation (Hidayat & Hati, 2021b).

Unified Modeling Language (UML)

The visual language Unified Modeling Language (UML) models systems and communicates with them using diagrams and supporting text. Any type of software application-written in a programming language or running on a hardware device, operating system, or network-can be created with UML (Tiwari et al., 2021). UML modeling is an object-oriented and visually-based modeling method, so the focus is on creating static structures and dynamic information system models rather than developing data and process models. The diagrams offered by UML are categorized into five different perspectives for modeling systems (Koç et al., 2021; Tiwari et al., 2021).

1) Use Case Diagram

According to (Sri Darwiyanti, 2003), use cases are the meaning of system functions from the user's point of view. Use cases show the system to users through scenarios created so that they can use and understand it (Sri Darwiyanti, 2003). In use cases, the user is often referred to as an actor, someone who is responsible for running the system.

2) Activity Diagram

Activity Diagrams show business processes and workflows between a system and actors. Its role is the same as the flowchart, but the activity

diagram can support a system while the flowchart only explains the flow of the system (Sri Darwiyanti, 2003).

3) Sequence Diagram

Sequence diagram is an application scenario. Actors can see various examples of objects and messages using sequence diagrams. where items and messages are placed between items in the usecase (Sri Darwiyanti, 2003).

4) Class Diagram

The class name is depicted in UML notation in the form of a box. The class name is placed on top of the box and capitalized at the beginning of the sentence. Class names consisting of two or more syllables must be concatenated without spaces with an uppercase letter at the beginning of each syllable. A class attribute describes the limit of values that may exist on a class object. A class may not have a single attribute. An operation is something that only a class can do or that only a class can do (Sri Darwiyanti, 2003).

2. Research Method

Data Collection Methods

Accurate and reliable data are critical for ensuring the validity of this study. Data collection was conducted at the West Sumba Regency Central Bureau of Statistics (BPS) to provide up-to-date and comprehensive information. The methods employed include:

1) Observation

Researchers directly observed the process of managing incoming and outgoing mail at BPS West Sumba Regency. These observations enabled a detailed examination of workflows, system interactions, and the roles of staff managing documents. This included activities such as receiving, recording, distributing, and storing correspondence. The objective of the observation was to identify existing inefficiencies, recording inaccuracies, and other obstacles affecting operational effectiveness.

2) Interview

Structured interviews were conducted with employees directly involved in the mail management system at BPS West Sumba. The aim was to gather insights into current procedures, identify challenges, and understand user needs.

These interviews provided qualitative data reflecting employee perspectives, experiences, and suggestions regarding the efficiency and effectiveness of the current system.

3) Literature Review

A review of relevant literature was undertaken to analyze theories, models, and best practices for mail management systems. Sources included official documents, research reports, books, journal articles, and other references related to information systems and document management in government agencies. This review served to contextualize the study within existing research and informed the proposed system design.

System Development Methods

The Rapid Application Development (RAD) method was employed for system analysis and design. The RAD approach emphasizes iterative development with active user involvement. The system was modeled using the Unified Modeling Language (UML), and diagram creation was facilitated through Draw.io software. The RAD method encompassed the following stages:

1) Problem Analysis

This stage aimed to systematically identify and define issues within the current mail management processes. The focus was on diagnosing inefficiencies, potential errors, and system limitations. Solutions were designed to address these challenges, prevent recurrence, and enhance overall operational performance.

2) System Requirements Analysis

A thorough analysis was conducted to determine the functional and technical requirements of the new system. This ensured alignment with the operational needs of BPS West Sumba Regency. Key technologies employed included PHP and JavaScript for programming, the Bootstrap framework, and MySQL for database management.

3) Analysis of the Current System

The existing mail management processes were assessed to understand their operational structure, software utilization, workflow efficiency, and accuracy. This analysis highlighted the limitations of manual and semi-manual systems, such as the use of registers or basic computer applications, and identified areas for improvement.

Implementation of the RAD Method

The RAD method was applied in phases to facilitate rapid development and refinement:

1) Preparation Phase (1 month)

Initial data collection and identification of research objectives.

2) Development Phase (2 months)

Creation of the initial system prototype, followed by prototype testing and feedback collection.

3) Refinement Phase (2 months)

Incorporation of user feedback, final testing, and system training.

Table 2. Research Steps

Steps	Description	Duration
1. Preparation	Identification of research needs and objectives.	1 Month
2. Prototype	Development of the initial prototype of the system.	1 Month
3. Trial	Conduct prototype trials with participants and collect feedback.	1 Month
4. Refinement	Implement changes based on user feedback.	1 Month
5. Tranning	Conduct user training to use the system.	
6. Final Testing	Conduct final testing to ensure the system is ready for use.	1 Month

3. Result and Discussion

Result

Requirements Planning

The proposed information system is designed to be web-based, employing a three-tier architecture to ensure scalability and efficiency. The architecture comprises a Presentation Layer, Business Logic Layer, and Data Layer. The Presentation Layer provides an intuitive and responsive user interface (UI) accessible via web browsers, ensuring ease of navigation and quick access to essential features (Serhani et al., 2020); (Tokovinin, 2021). The Business Logic Layer handles core functionalities such as recording incoming and outgoing mail, managing dispositions, maintaining records, generating reports, and executing workflows.

Finally, the Data Layer is responsible for secure data storage and management using a relational database, enabling efficient data retrieval and digital archive management (Serhani et al., 2020); (Tokovinin, 2021). The system is equipped with several key features to streamline mail management processes. For incoming mail management, the system allows users to log details such as letter number, receipt date, sender, subject, and attachments, with the option to upload digital scans for archival purposes. It facilitates letter disposition by enabling distribution to relevant departments or personnel and provides status tracking to monitor the mail's progress and actions taken. Outgoing mail management includes features for recording mail details, uploading digital versions of letters, and implementing a tiered approval process to ensure accountability.

The archive management feature automatically organizes mail by date, type, or subject, and offers a robust search capability based on parameters like mail number or keywords. The system also includes a dashboard that summarizes mail activity and alerts users to pending tasks, alongside reporting tools for creating monthly summaries, distribution reports, and employee performance evaluations. Additionally, tiered access rights are implemented to ensure that user roles and responsibilities dictate their level of access within the system. To ensure security, the system employs authentication and authorization mechanisms using usernames and passwords, with

optional support for two-factor authentication. Data backup and recovery features are integrated to safeguard against loss or corruption, ensuring the system's reliability and resilience. The development of the web-based mail management information system utilizes Unified Modeling Language (UML) planning tools to model its structure and operations. Key UML diagrams include the Use Case Diagram, Activity Diagram, Sequence Diagram, and Class Diagram [(Sri Darwiyanti, 2003); (Tiwari et al., 2021)]. The Use Case Diagram identifies four main actors: the system administrator (admin), who manages the system and user access; the Head of BPS, who oversees mail data, forwards disposition letters, and assigns tasks; the Secretary, who manages mail data and serves as an intermediary between divisions; and Division/Unit Officers, who process and act on mail data as assigned. These diagrams provide a comprehensive visualization of system workflows and interactions, supporting the effective design and implementation of the information system.

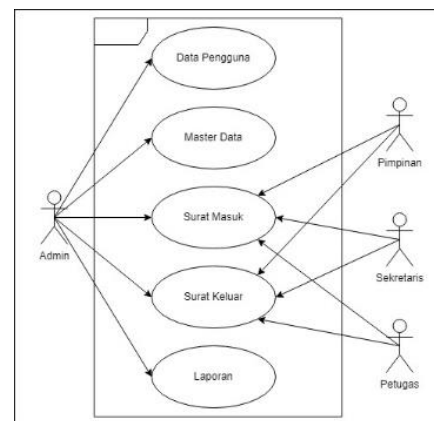


Figure 1. Use Case Diagram

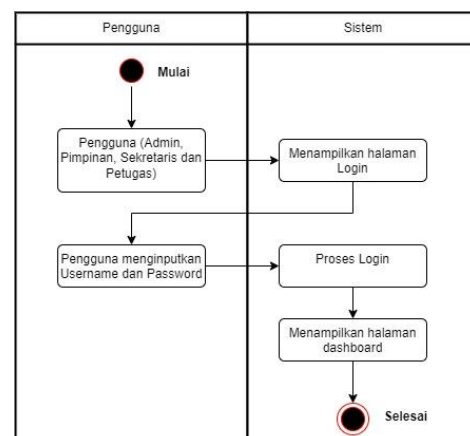


Figure 2. Login Activity Diagram

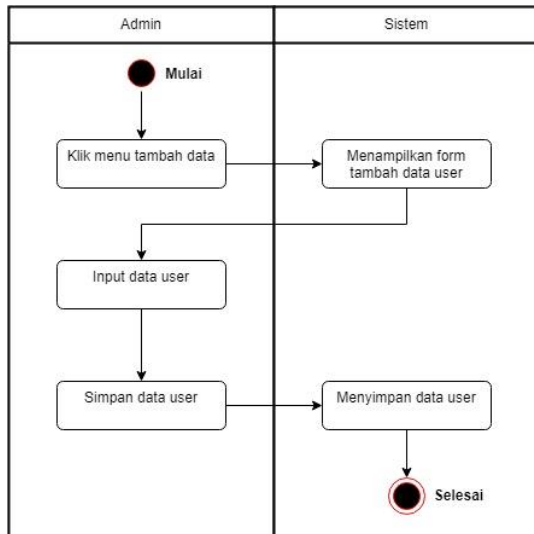


Figure 3. Activity Diagram Admin Data User

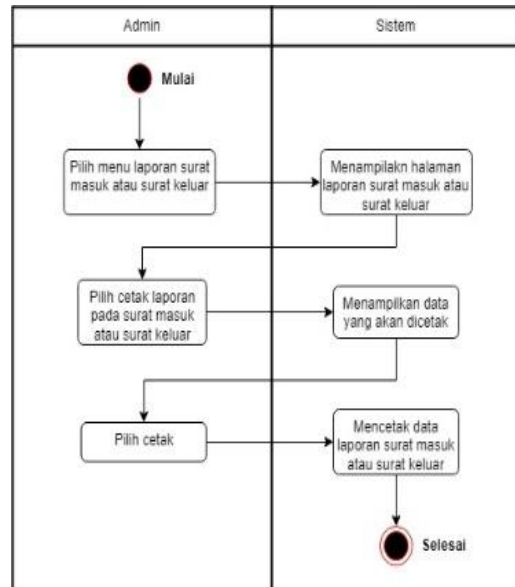


Figure 6. Activity Diagram Admin Print Report

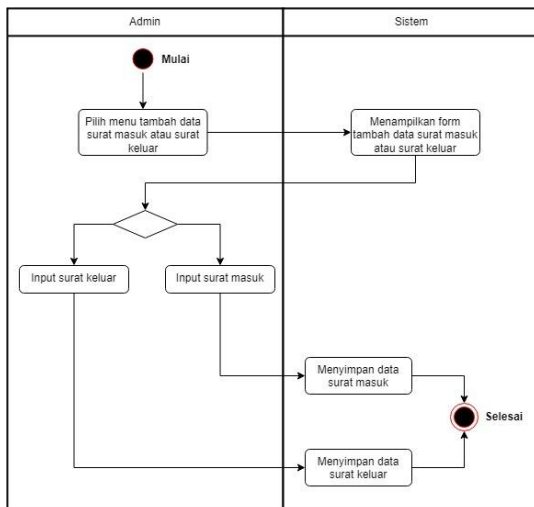


Figure 4. Activity Diagram Admin Input Data

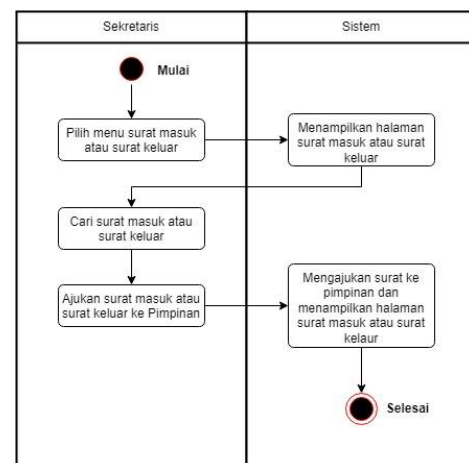


Figure 7. Secretary Activity Diagram

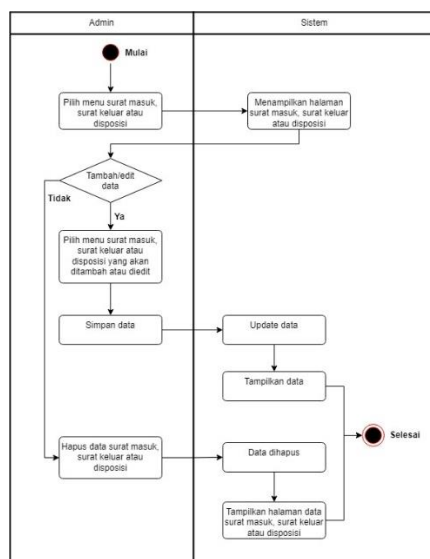


Figure 5. Activity Diagram Admin Manage Data

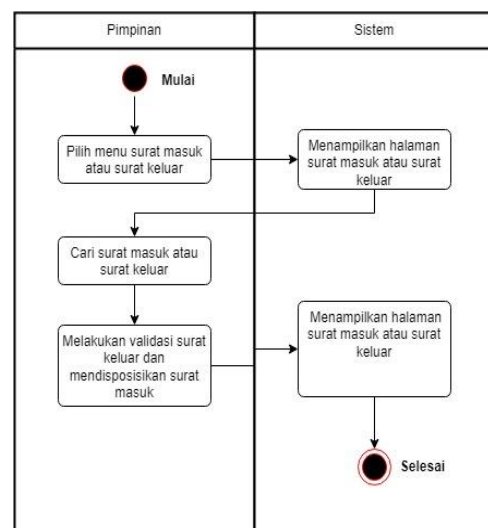


Figure 8. Leader Activity Diagram

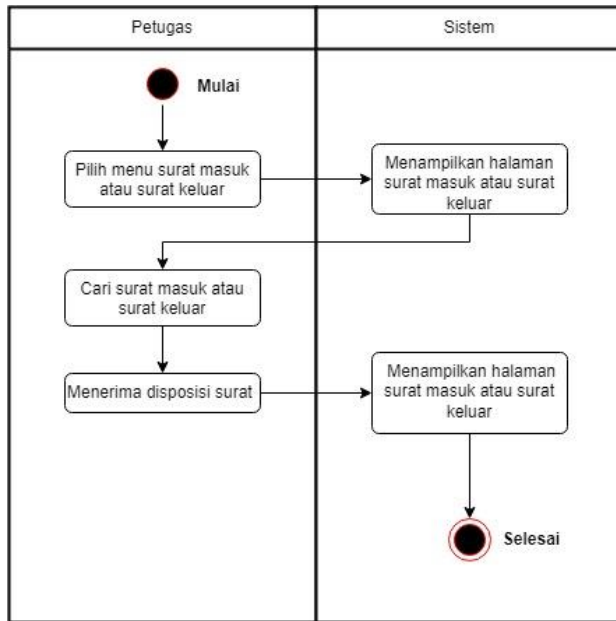


Figure 9. Officer Activity Diagram

Sequence Diagram

Sequence diagrams can show the flow of functionality in a particular case.

Sequence Diagram Admin Data User

The user data sequence diagram explains how to manage user data, including adding and editing user data. To process user data, the administrator presses the add menu.

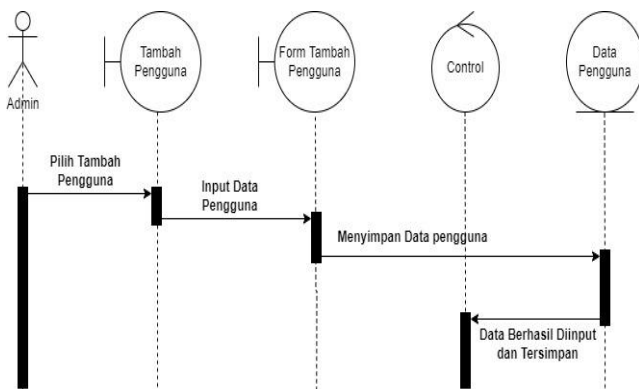


Figure 10. Sequence Diagram Admin Data User

Sequence Diagram Admin Manage Mail Data

The incoming and outgoing mail data sequence diagram explains the management of mail data, including editing and deleting mail data. For the mail data management process, the administrator presses the edit and delete features.

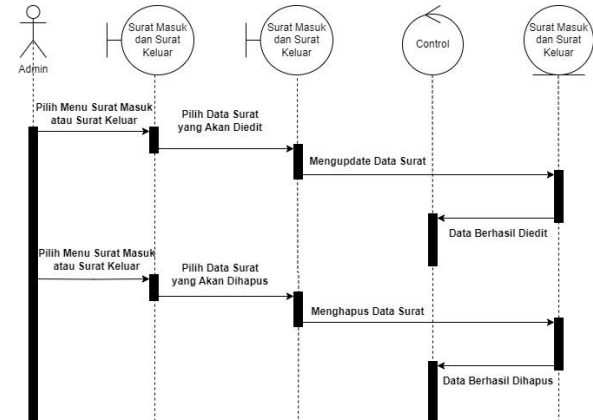


Figure 11. Sequence Diagram Admin Manage Mail Data

Sequence Diagram Admin Input Data

The incoming and outgoing mail input sequence diagram explains how to manage incoming and outgoing mail data. Admin emphasizes the ability to add incoming letters and outgoing letters in the letter input process.

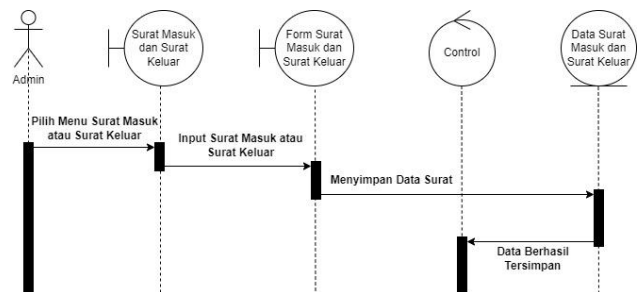


Figure 12. Sequence Diagram Admin input Data

Sequence Diagram Admin Print Report

The sequence diagram for printing incoming and outgoing mail data reports explains the management of mail data, namely printing letters. Admin emphasizes the print data feature in the process of printing letter data.

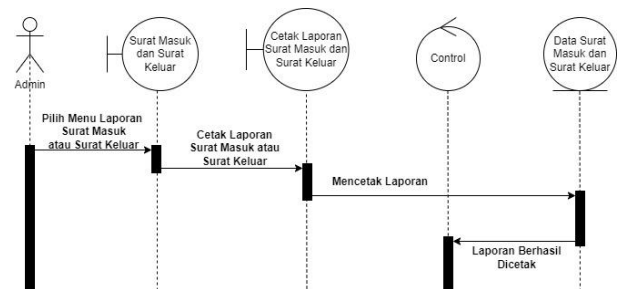


Figure 13. Sequence Diagram Admin Print Report

Secretary Sequence Diagram

The incoming letter and outgoing letter data sequence diagram explains how to manage letter data when reading and submitting letters. The secretary selects the incoming mail or outgoing mail menu for the process of managing mail data.

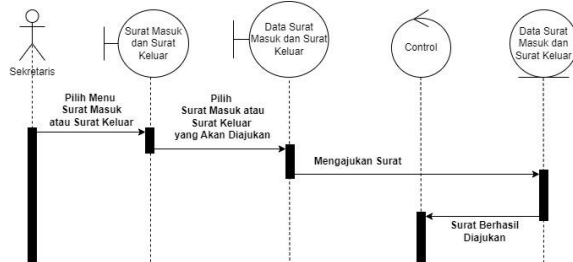


Figure 14. Secretary Activity Diagram

Leader Sequence Diagram

The incoming letter and outgoing letter data sequence diagram explains how to manage letter data for reading and disposition of letters. The leader selects the incoming mail or outgoing mail menu for the mail data management process.

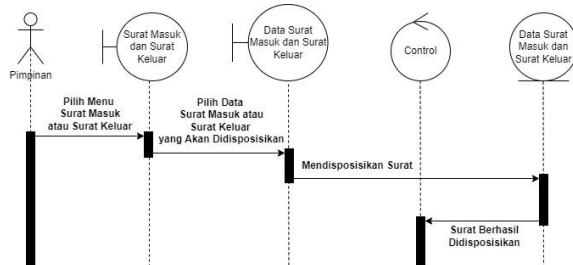


Figure 15. Leader Sequence Diagram

Officer Sequence Diagram

Read and receive letter dispositions from leaders and archive letters, the sequence diagram of incoming and outgoing letter data explains the management of letter data. Officers select the incoming mail or outgoing mail menu for the mail data management process.

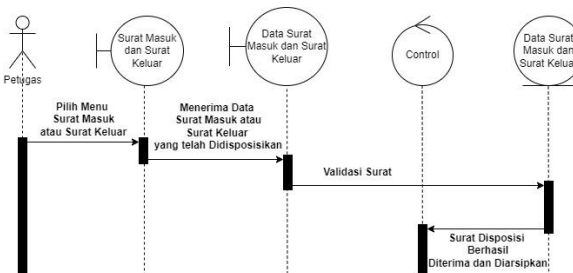


Figure 16. Sequence Diagram Officer

Class Diagram

The design of system entities and their relationships are depicted in the class diagram. The following is an explanation of the cardinality between tables: the user table is 1 to because 1 user can add more than one user; the user table with the incoming mail table is 1 to because 1 user can send more than one incoming letter; the user table with the disposition letter table is 1 to because 1 user can send more than one disposition letter; and the user table with the outgoing letter table is 1 to because 1 user can send more than one disposition letter.

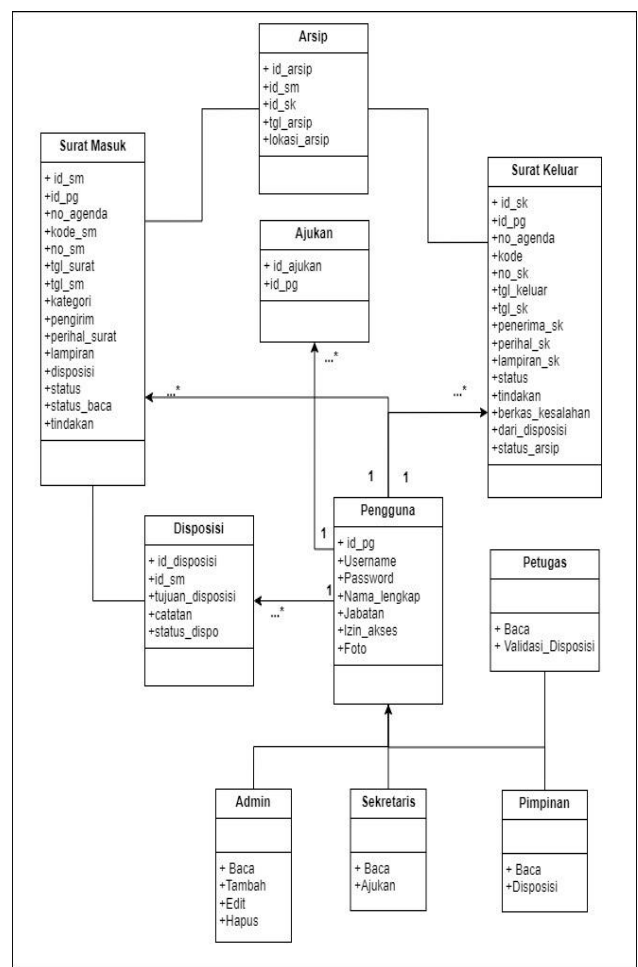


Figure 17. Class Diagram

Database

From the results of the Class Diagram that has been made, objects that are useful for system needs can be drawn in the form of tables. These tables are connected through foreign keys to form a relationship or commonly known as the Relational Database Management System (RDBMS).

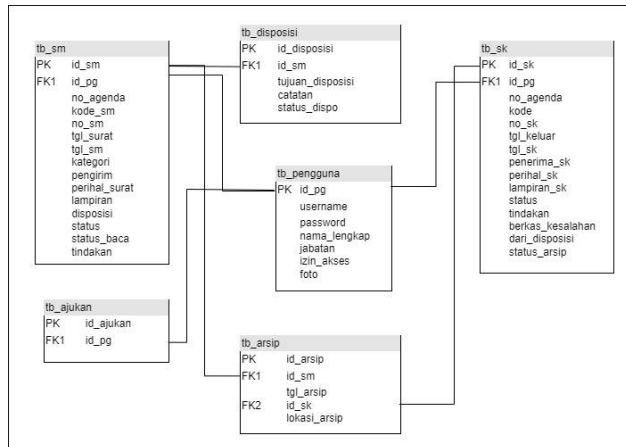


Figure 18. Relational Database management System

Implementation

The implementation phase focuses on translating the proposed system design into a functional and operational mail management information system. This stage involves deploying the system architecture, configuring its features, and ensuring that all components work cohesively to address the operational needs of the Central Statistics Agency (BPS) in West Sumba Regency.

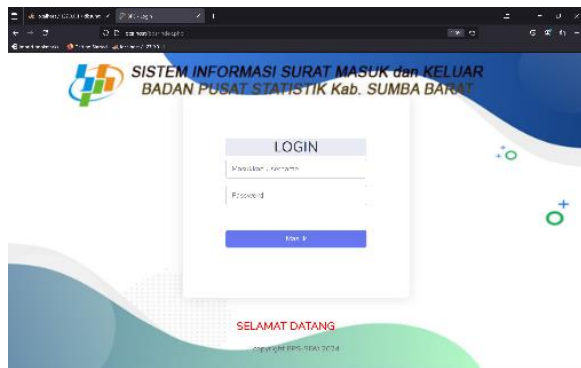


Figure 19. Login Page

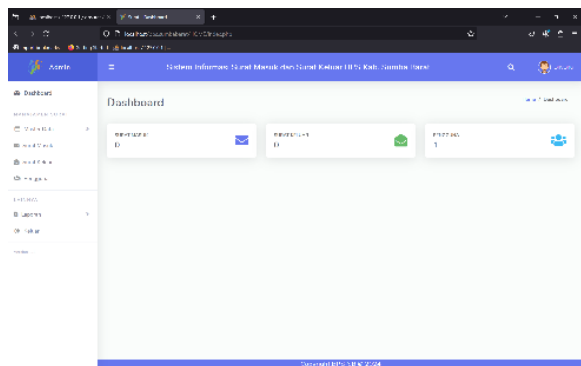


Figure 20. Dashboard Page

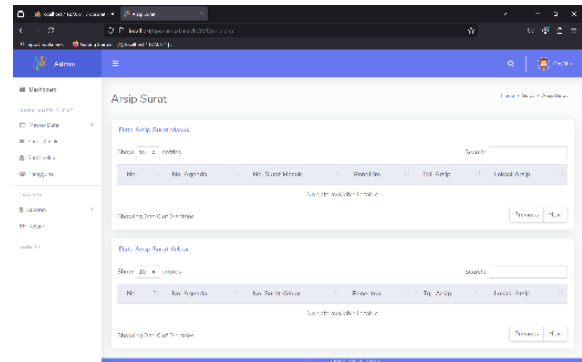


Figure 21. Letter Archive Master Data Page

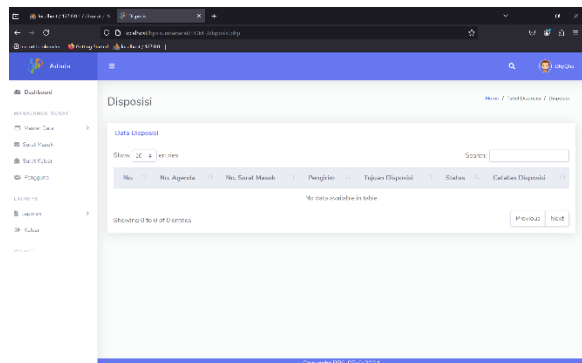


Figure 22. Disposition Master Data Page

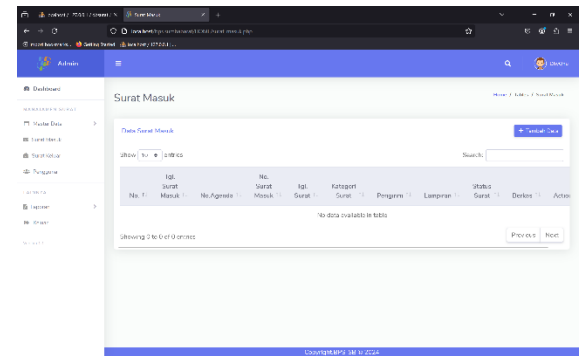


Figure 23. Incoming Mail Page

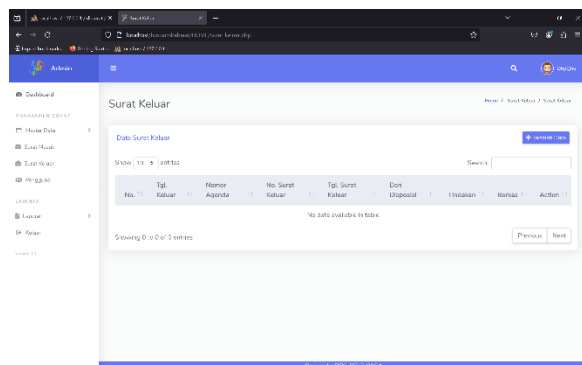


Figure 24. Outgoing Mail Page

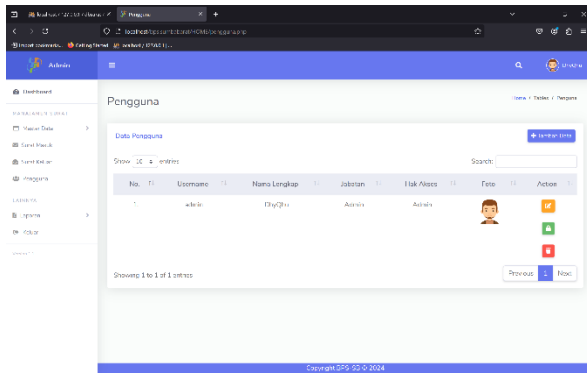


Figure 25. Admin Page

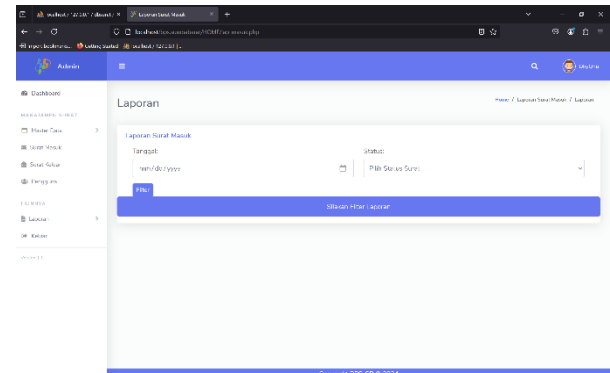


Figure 29. Incoming Mail Report Page

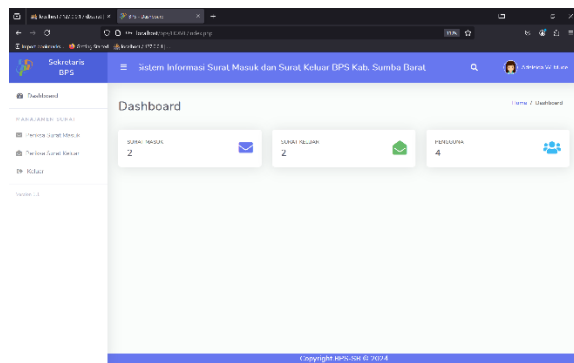


Figure 26. Secretary Page

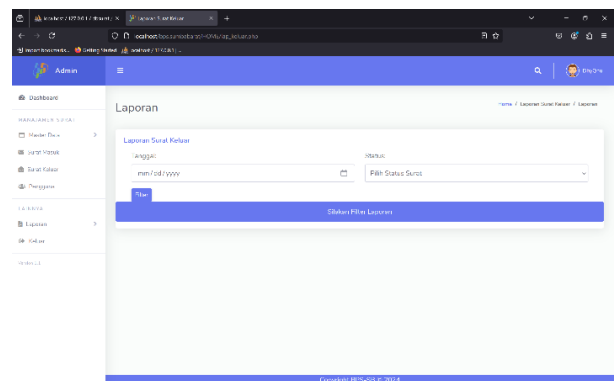


Figure 30. Outgoing Mail Report Page

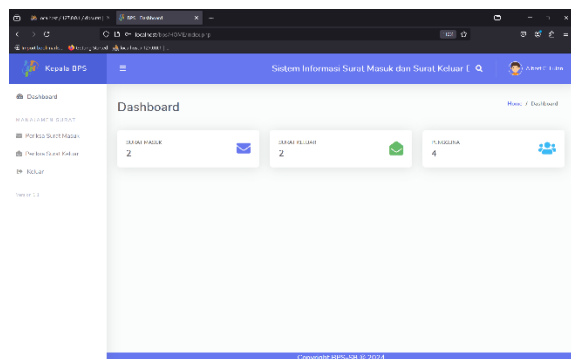


Figure 27. Leader Page

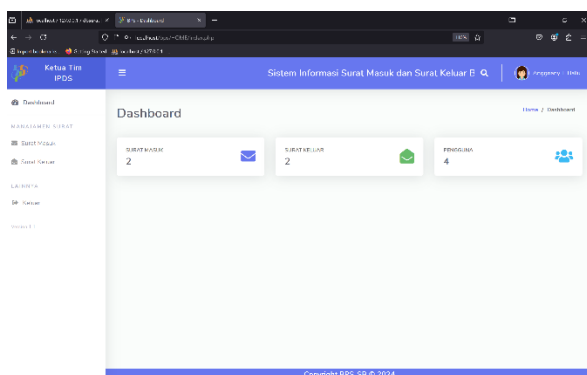


Figure 28. Officer Page

Discussion

The results showed that the implementation of the new mail management information system at BPS West Sumba Regency had a significant impact on operational efficiency. The decrease in letter processing time from 3 hours to 1 hour per letter is an important indicator of increased productivity. In this context, operational efficiency does not only mean reducing time, but also optimizing existing resources. This shows that BPS can handle more volume of mail in the same time, which in turn supports the speed of response to the growing public and information needs. The reduction of recording errors is another important result that reflects the success of the new system. The error rate reduced from 15% to 2% signifies that the technology implemented is able to improve data accuracy and reliability. This is very important, especially in the context of statistical data management, where small errors can result in wrong decisions. With a more reliable system, BPS can provide more accurate data to stakeholders, including the government and the public, thus increasing the legitimacy and credibility of the institution.

Increased user satisfaction is also an important concern in this study. With the satisfaction level jumping from 60% to 90%, it is clear that BPS employees feel the real benefits of the new system. A positive user experience can increase work motivation and collaboration among employees. This shows that in the development of information systems, considering the user experience (UX) aspect is key to successful implementation. Employees who feel supported by an efficient system tend to be more proactive in performing their duties, which has a positive impact on the overall performance of the organization. Finally, increased community engagement is an encouraging outcome of the new information system. With more active users, BPS not only strengthens internal relationships, but also builds better communication bridges with the public. Greater transparency and accountability through easier access to information can increase public trust in BPS. In the long run, this can encourage public participation in statistical programs and public

policies produced by BPS, creating an ecosystem that is more collaborative and responsive to community needs. This research shows that innovations in information technology can create broad social impacts, not only at the internal level of the organization but also in the wider community.

Comparison of Old System and New System

To provide a clear picture of the effectiveness of the new mail management information system, the following is quantitative data comparing the results of the previous system with the developed system. This data includes aspects of efficiency, accuracy, and productivity.

1) Efficiency Improvement

With mail processing time reduced from 3 hours to 1 hour, the new system shows significant efficiency. This means BPS can process more letters in less time.

Table 3. Efficiency Improvement

Aspect	Old System	New System	Improvement (%)
Letter Processing Time	3 Hours/Letter	1 Hour/Letter	66.67%
Document Search Time	20 Minutes/Document	5 Minutes/Document	75.00%

2) Error Reduction

The reduction in recording errors from 15% to 2% shows that the new system is very effective in

reducing errors, which is one of the crucial factors in mail management.

Table 4. Error Reduction

Aspect	Old System	New System	Reduction (%)
Recording Error	15% of Total Letters	2% of Total Letters	86.67%
Lost Documents	10 Documents/Month	1 Document/Month	90.00%
Process Error	12% of Total Letters	1% of Total Letters	91.67%

3) Productivity Improvement

The increase in user satisfaction from 60% to 90% indicates that employees feel more comfortable and productive using the new

system. The increase in the number of active users indicates that the new system is easier to access and use.

Table 5. Productivity Improvement

Aspect	Old System	New System	Improvement (%)
User Satisfaction (survey)	60%	90%	50.00%
Response to Incoming Mail	48 hours (average)	2 hours (average)	75.00%

Based on the quantitative data above, it can be concluded that the new mail management information system not only improves efficiency and productivity at BPS West Sumba Regency, but also reduces errors that were previously a significant problem. This provides strong justification that the developed system is effective in supporting agency performance.

This research provides several theoretical implications that contribute to the existing body of knowledge in the field of information systems and public sector management. First, it reinforces the theory of information system development, emphasizing the critical role of user participation during the design process. The application of the Rapid Application Development (RAD) method demonstrated its effectiveness in creating a system that is both responsive and aligned with user needs. Second, the study supports document management theory by highlighting how digitization can significantly reduce errors and enhance efficiency in information management. This finding contributes to the growing literature on the role of digital transformation in the public sector, particularly in improving operational workflows. Lastly, the results confirm the relevance of information technology as a powerful tool for enhancing the performance of public organizations. By demonstrating the value of technological innovation in bureaucratic reform, this research provides empirical evidence of its potential to optimize processes and improve service delivery within government institutions.

The practical implications of this research are evident in the significant improvements achieved through the implementation of the new mail management information system at BPS West Sumba Regency. First, the system has enhanced operational efficiency by reducing mail processing time from 3 hours to 1 hour per letter. This improvement directly boosts productivity and enables BPS to meet the growing demand for faster information delivery. Second, the system has substantially improved accuracy by reducing recording errors from 15% to 2%. This increase in data reliability is critical for decision-making and the production of statistical reports, thereby enhancing user and stakeholder confidence in the information provided.

Lastly, the system has significantly improved user satisfaction, with a notable increase from 60% to 90%. This improvement indicates that employees find the system more user-friendly, which can foster wider adoption, higher morale, and greater motivation across the organization. These practical benefits demonstrate the system's effectiveness in addressing operational challenges and strengthening organizational performance.

4. Conclusion

The conclusion of this study shows that the implementation of the new mail management information system at BPS West Sumba Regency has succeeded in significantly improving operational efficiency. The reduction in letter processing time from 3 hours to 1 hour per letter reflects increased productivity and resource optimization. In addition, the reduction in recording errors from 15% to 2% shows that the new system is able to improve data accuracy and reliability, which is very important in statistical data management. User satisfaction also saw a significant increase from 60% to 90%, signifying the tangible benefits of the new system for employees. The improved user experience contributed to better work motivation and collaboration among employees, positively impacting the overall performance of the organization. In addition, community engagement increased, strengthening the relationship between BPS and the community and improving transparency and accountability. Overall, this research confirms that innovations in information technology not only have a positive impact within the organization, but can also create better relationships with the community, increase public participation, and support the development of more responsive policies. This research also shows that the new mail management information system not only brings significant practical benefits to BPS West Sumba Regency, but also makes an important theoretical contribution to the understanding of system development and information management. With these results, it is hoped that other institutions can take lessons and implement best practices that have proven effective.

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