

Transformation of Record Keeping: Development of E-Archive Applications Towards Modern Information Governance

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ABSTRACT (10 PT)

The transformation of record-keeping through technology-driven approaches has become an urgent necessity in addressing the demands of modern information governance. This study explores and analyzes the challenges encountered and solutions adopted during the implementation of the E-Archive application in the Modern Market of Rokan Hulu Regency. The deployment of this application, which is web-based and utilizes a MySQL database, involves requirements analysis, design, development, and implementation phases. The research findings highlight that this transformation has positively impacted record-keeping, enhancing efficiency, speed of access, and data accuracy. Nevertheless, the study also identifies several issues, including challenges in data collection and migration, as well as user adaptation to the new system. The web-based technology solutions and MySQL database, while offering solutions for some aspects, also bring certain challenges. The results of this research provide valuable insights into the potential and constraints of implementing the E-Archive application in the context of the modern market and similar sectors. Moreover, it underscores the importance of understanding and addressing issues throughout the information governance transformation process.

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1. INTRODUCTION

In the current information era, one of the main challenges is processing data to produce useful and easily accessible information. The existing mail management administration system is still manual, making the development of an application to automate this process highly necessary. The large volume of mail being created and received renders data searches inefficient in terms of time and effort. Manual task allocation can also lead to uneven workload distribution. Therefore, a more structured mail management administration system is needed to expedite report generation and data retrieval [1].

Organizations across various sectors cannot avoid the paradigm shift in managing mail and documents. Problem-solving processes involve gathering information used by companies and organizations in digital

correspondence systems. To ensure successful mail management, it must be handled correctly. An ineffective mail system can lead to data loss and inefficiencies within companies and organizations due to backlogged mail [2]. E-Management of mail is an innovative solution that addresses the demands for efficiency, speed, and accuracy in handling various types of written communication. E-management of mail not only involves converting physical documents to digital form but also integrates information technology to support the entire document lifecycle. From creation, distribution, electronic signing, archiving, to document disposal, all processes can be optimized with a more efficient and sustainable approach [3].

The use of technology as a foundation for executing primary tasks and functions has not been fully maximized to enhance efficiency, particularly in supporting office administration for optimal operation. Therefore, every central and local government agency must be equipped with an adequate administrative system, as the completeness and perfection of such systems are crucial for every organization and government agency. In this era of information technology, transitioning from manual systems to computerized systems is essential to achieve bureaucratic reform and realize good governance as the primary goal of effective governance [4].

PD. Rokan Hulu Jaya was established based on Regional Regulation of Rokan Hulu Regency Number 33 of 2002, as per Notary Deed Number 94 dated June 20, 2002, created before YUSRIZAL SH. The Rokan Hulu Regional Government entrusted PD. Rokan Hulu Jaya with managing the Modern Market based on Rokan Hulu Regent Regulation Number 29 of 2010, to ensure the market's proper development in the future.

As PD. Rokan Hulu Jaya continues to grow, the management of correspondence has been identified as an area needing improvement. A significant amount of correspondence data at Perusahaan Umum Daerah Rokan Hulu Jaya is still handled manually, requiring substantial storage space, significant time for searching and managing documents, and posing a risk of losing valuable information. To streamline the process of handling correspondence and data management, the author proposes developing a web-based E-Management Mail system that can assist and facilitate employees in creating the necessary correspondence.

Developing a mail management system that facilitates easier management of mail archives. By implementing a computerized correspondence system, the processes of numbering and indexing letters can be automated. This mail management system is designed to include features for dynamically organizing letter templates according to different categories of correspondence.

2. METHOD

The analysis process involves identifying the essential functions for the system to be developed, the performance criteria that must be met, and the desired interface. In the development of the souvenir ordering information system, the analysis approach applied is the sequential linear method, also known as the waterfall method. The Waterfall Model is a classic approach in software development that depicts a linear and sequential development method. This model consists of five to seven phases, each with different tasks and objectives, which together describe the software lifecycle up to the delivery stage. Once a phase is completed, the development process moves on to the next phase, with the results from the previous phase flowing into the subsequent phase [5].

The stages undertaken before designing a new system involve analysis, observation, and an in-depth study of the current operating system. This aims to thoroughly understand the workings of the existing system to determine the necessary steps for designing the new system to be developed. This process also allows for identifying the weaknesses and strengths of the current system. The waterfall model is an approach that requires a systematic and sequential progression in software development, starting from the initial stages and advancing through various levels of the system [6].

a. Analisa sistem

The collection of requirements is conducted comprehensively to detail software requirements, with the aim of ensuring that the software to be developed aligns with user expectations. Software requirement specifications at this phase need to be recorded in detail. This information is typically obtained through various methods such as interviews, discussions, or direct surveys.

b. Desain sistem

System design refers to the process of creating a design plan for an application before entering the coding stage. The focus is to illustrate in detail how a system will be, including the visual interface and design references that will serve as the basis for implementation into a program in the next stage.

c. Coding

Coding is the process of translating the logic or algorithm designed in human language into machine language or programming code. These codes will form a computer program that can be executed by a computer to perform specific tasks."

d. Testing

Testing illustrates abnormal situations that may arise during the software development process. During the initial stages of definition and construction, development efforts are focused on constructing software from abstract concepts to an implementation stage that can be executed.

e. Implementasi

This is the stage of application development by programmers using a programming language.

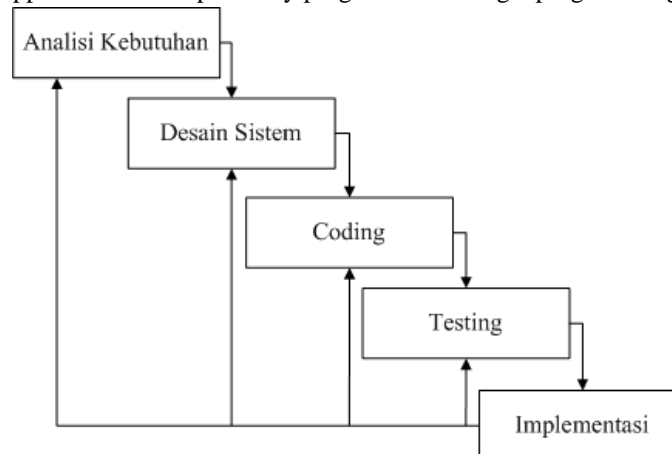


Figure 2.1 Waterfall Method

3. RESULTS AND DISCUSSION

3.1. RESULTS

The result of this research is the implementation of an e-mail management system aimed at facilitating the efficient storage and management of letters in the Regional General Company Rokan Hulu Jaya. In this system, there is a menu that serves as a means to enter a username and password to access the system's dashboard page.

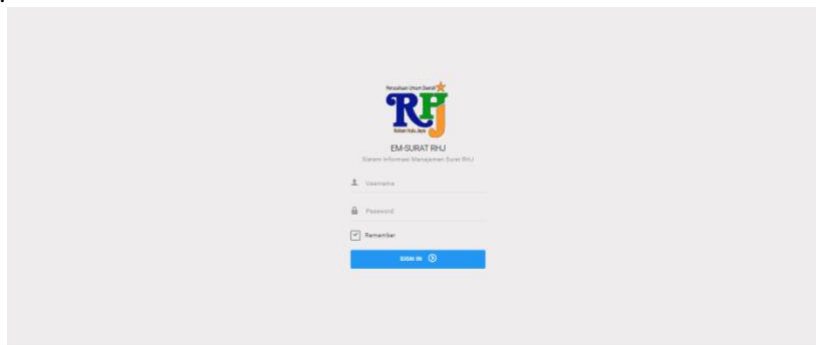


Figure 3.1 Login Menu Display

Menu ini merupakan tampilan awal saat kita setelah login. Halaman utama dari sistem.

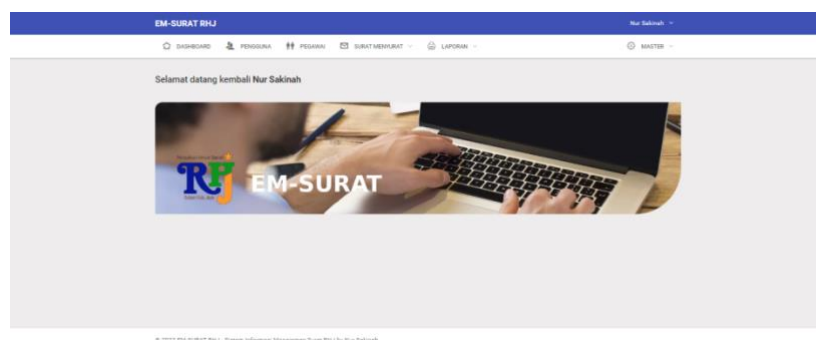


Figure 3.2 Dashboard Menu Display

3.2. DISCUSSION

3.2.1 Analysis of the Current System

Here is the procedure for the previous information system in E-Mail Management at the Regional General Company of Rokan Hulu Jaya.

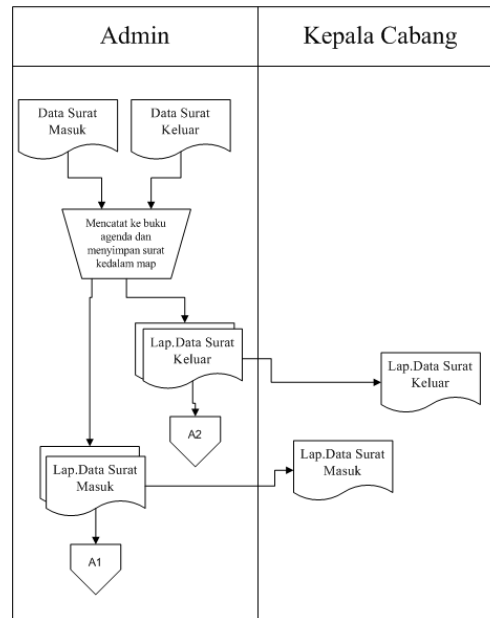


Figure 3.3 Old Information System Flow

Overall, the detailed analysis of the previous system above can be explained as follows: when there is incoming and outgoing mail data, the admin or employees in the mail section need to record this information in an agenda book or a letter archive book. Subsequently, the letters are placed in a folder according to their categories before being stored in a cabinet as a centralized archive.

3.2.2 Analysis of the New System

Here is an overview of the design analysis of the new system that will be developed for letter archive management at the Regional General Company of Rokan Hulu Jaya.

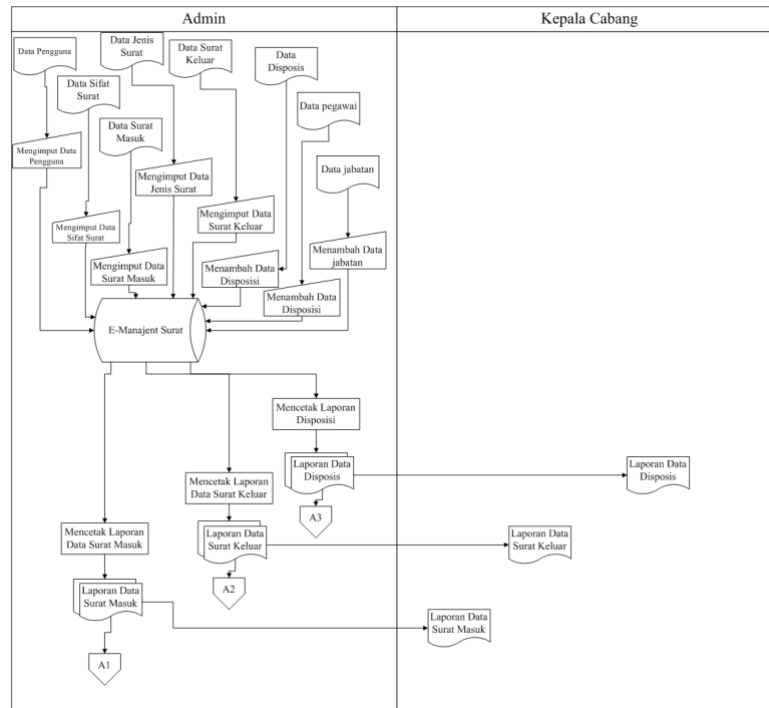


Figure 3.4 New Information System Flow

Overall, the analysis description of the new system above can be explained as follows: The administrator, as the main user of the system, has the ability to add user information to the system and include data related to employees, positions, types of letters, letter characteristics, incoming letters, outgoing letters, and disposition information. Additionally, the administrator also has the capability to print reports regarding incoming mail data, outgoing mail data, and disposition data.

a. Context Diagram of the Proposed System

The context diagram is a general representation of a system within an organization that illustrates the system boundaries, external rule interactions with the system, and the general flow of information between entities and the system. It serves as an analytical tool to understand the system to be developed. The following is an overview of the context diagram for E-Mail Management in the Regional General Company of Rokan Hulu Jaya.

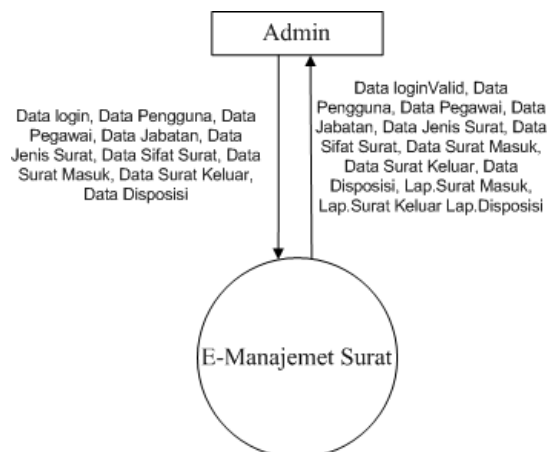


Figure 3.5 Context Diagram

b. Data Flow Diagrams (DFD) Level 1 and DFD Level 2

Here is the diagram of the Data Flow Diagram (DFD) level 1 for E-Mail Management in the Regional General Company of Rokan Hulu Jaya

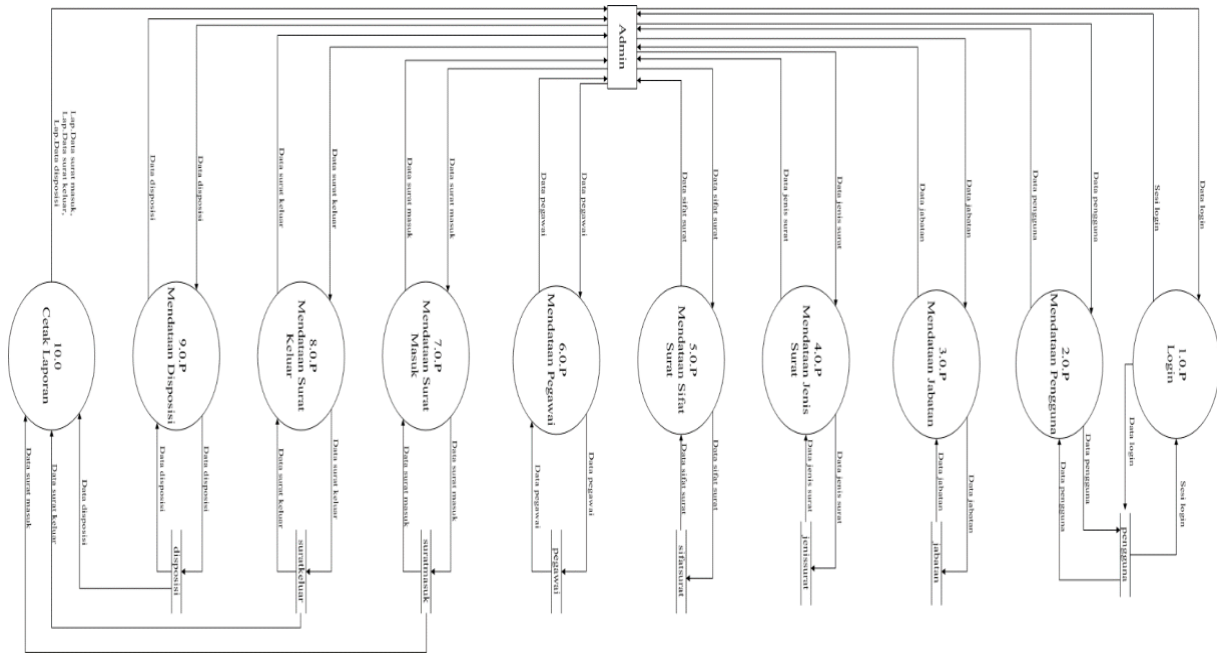


Figure 5.7 Data Flow Diagram (DFD) Level 1

The data flow diagram (DFD) level 2 of Mail E-Management at the Regional General Company of Rokan Hulu Jaya is as follows:

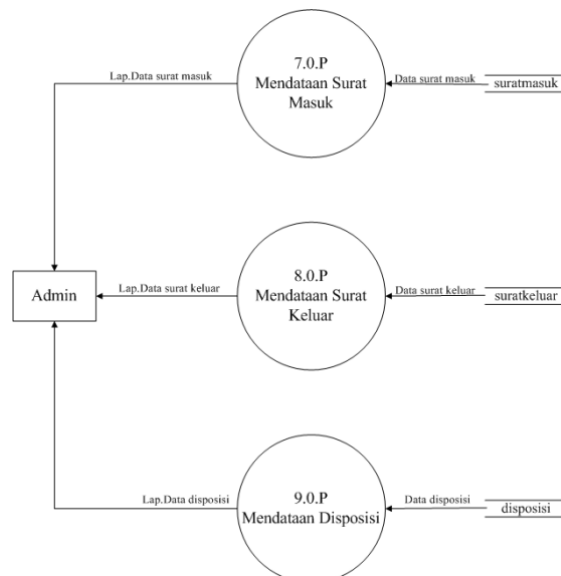
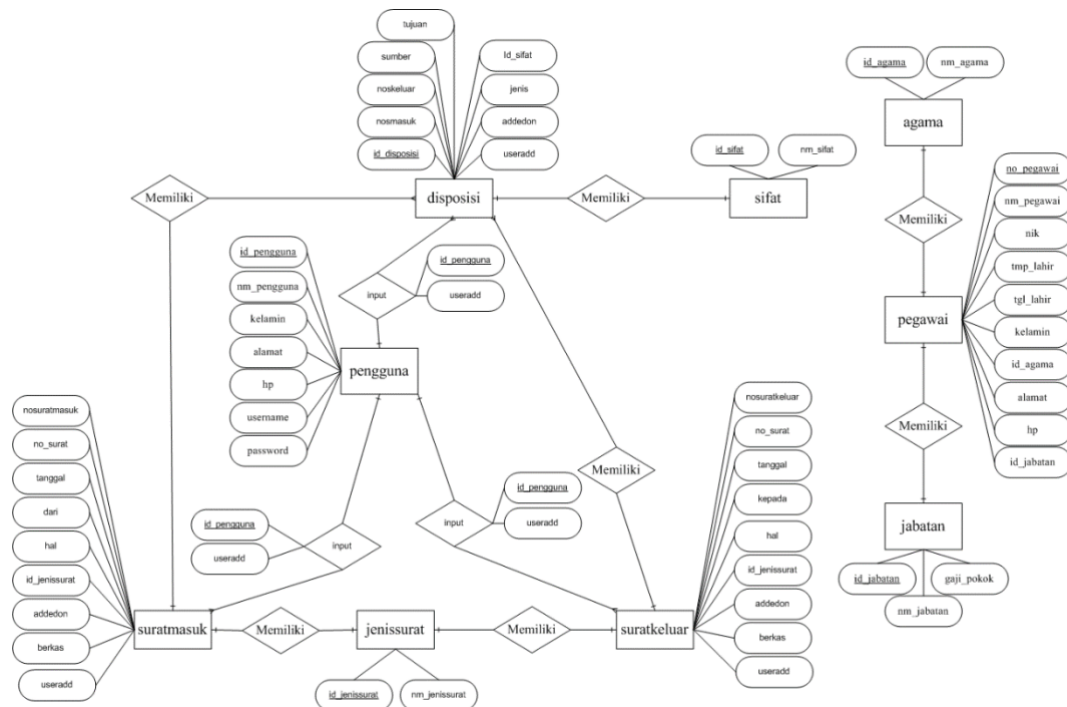


Figure 5.8 Data Flow Diagram (DFD) Level 2

c. Entity Relationship Diagram (ERD)

The Entity-Relationship model explains the relationships between data in a database, assuming that the real world consists of basic entities that have interconnections or relationships with each other. Below is the Entity-Relationship Diagram (ERD) of the Mail E-Management in the Regional General Company of Rokan Hulu Jaya.



Gambar 5.9 Entity Relationship Diagram (ERD)

4. CONCLUSION

Based on the formulation of problems and objectives related to E-Mail Management in the Regional General Company of Rokan Hulu Jaya, the author can conclude that the developed E-Mail Management system is web-based and intended for use by an administrator. The goal is to assist in the management of incoming and outgoing mail archives so that the data is not lost and can be well-managed. Recommendations that need to be considered for the development of this information system are:

- It is hoped that in the future, this system can be expanded by adding additional features or menus, such as a letter creation menu and other necessary features to make it more comprehensive
- It is expected that this system can be implemented and used optimally.




5. ACKNOWLEDGEMENTS

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REFERENCES

- [1] J. Sasongko and D. A. Diartono, "Rancang Bangun Sistem Informasi Manajemen Surat," *Ranc. Bangun Sist. Inf. Manaj. Surat Jati*, vol. XIV, no. 2, pp. 137–145, 2009, [Online]. Available: jati@unisbank.ac.id, dwiagus@unisbank.ac.id
- [2] N. Izzati, "Penerapan E-Office Dalam Upaya Peningkatan Kinerja," *Ekon. Bisnis*, vol. 18, no. 2, pp. 160–164, 2020.
- [3] A. Kuswanto, R. B. Maremitha Ungu, W. D. Rahmahwati, and F. D. Rahmawati, "Manajemen Surat Masuk Dan Surat Keluar Di Universitas Negeri Semarang Melalui Siradi (Sistem Informasi Surat Dinas)," *J. Pustaka Budaya*, vol. 9, no. 1, pp. 42–49, 2022, doi: 10.31849/pb.v9i1.7716.
- [4] A. Widiyarta, M. Rozzaq, and A. I. Muzakki, "Inovasi administratif dalam sektor publik (Studi tentang inovasi government resourch management system)," *Sos. Ekon. dan Polit.*, vol. 1, no. 1, pp. 28–36, 2020.
- [5] F. N. Hasanah, *Buku Ajar Rekayasa Perangkat Lunak*. 2020. doi: 10.21070/2020/978-623-6833-89-6.
- [6] I. Sommerville, *Software Engineering (9th ed.; Boston, Ed.)*. Massachusetts: Pearson Education. 2011.

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