

# Management System Web-Based Digital Archives to Support Efficient Document Management at PT Nava Path Solutions

Aidil Ahmad, Hafni, Hanna Willa Dhany

## Abstract

Archive management is important aspects in supporting the smooth running of business processes and information governance of an organization organization. At PT Nava Path Solutions, the archiving process which was previously carried out manually and semi-digitally has resulted in various obstacles such as duplication documents, difficulties search archives, limitations access control, as well as lack of audit trail. This research aims to design and build an Audit Management System Web -based digital archives that are capable of improving efficiency, security and order management document company. Methodology uses an approach software engineering with the Waterfall development model, includes stage requirements analysis, system design, implementation, and testing. The system is designed with the following features: main covering management user, category services, subcategories, terms of service, upload archives, search registration, archive list, and archive status monitoring. Testing carried out using the Black Box Testing method to ensure suitability system functionality according to user needs. The results of the study show that the developed system is able to run well and produce performance that meets specifications. The implementation of the system has been proven increase efficiency management documents through faster document access, reduction error administration, as well as management more archives structured and centralized. In addition, the existence of audit trail features and user-based access rights settings role increase aspect security and data integrity. Thus, the Management System This web- based Digital Archive can become an effective solution in supporting digitalization management archives at PT Nava Path Solutions.

**Keywords** : Management System Digital Archives, Document Management, Web-Based Applications, Efficiency Archives, Black Box Testing, PT Nava Path Solutions.

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## Introduction

Archive management is one of the function strategic in supporting the continuity of business processes something organization. In technology companies such as PT Nava Path Solutions, the volume of documents produced every days are increasing along with the increase project complexity, documentation needs technical, correspondence clients, as well as internal company documents. Archives that are not managed effectively can hamper operational performance, causing risk of losing important information, as well as reduce accuracy and speed taking decision. In the context of competitive modern business conditions the can have a direct impact on efficiency organization and quality services provided to client.

So far the archiving process at PT Nava Path Solutions is still ongoing. Lots done manually or semi-digitally using local folders, storage separately on each device employees, or through sharing applications documents that do not have integrated mechanisms for classification, revision tracking, and access control. This approach creates a number of problems, such as duplication documents, inconsistencies version, difficulty in searching documents by category certain, as well as weakness security documents of a nature secret. In addition, the absence of a monitoring system makes it impossible for management to evaluate pattern use documents, so that supervision of documentation workflow becomes less than optimal.

Along The increasing need for companies to have fast, accurate and easily accessible documentation requires a management solution. modern, integrated, and information technology- based archives. Management System Web -based digital archives are one of the relevant approach because it is able to provide real-time access, facilitating collaboration between divisions, as well as manage standardized documents through features dynamic folder structure, archive metadata, tracking version, audit trail, and access rights based control role - based access control. This type of system also supports the principle of efficiency operational through automation of search and storage processes, reduction paper use, as well as data security based authentication and encryption.

Implementation of management system Good archiving not only improves work efficiency, but also strengthen governance corporate governance that demands transparency, accountability, and audit readiness. In the environment As businesses become increasingly digitalized, the existence of a digital archiving system becomes important elements in ensuring process sustainability, mitigation risk of losing documents, as well as improvement productivity company.

Based on the problem In this regard, this research focuses on the design and development of a Management System. Web-Based Digital Archives to support efficiency management documents at PT Nava Path Solutions. The development of this system is expected to be able to overcome various manual archiving constraints, providing mechanism storage and search more documents effective, and create a better working environment productive, organized, and digitally secure.

## Literature Review

### 1 Concept of Archives and Management Archives

Archives can understood as recording information created, received, and maintained by an organization and individual as proof activities, transactions, and as source information. Standard International standard ISO 15489 defines records management as the process of managing information since created, received, used, until destroyed or saved permanent, for fulfil need business, law, and accountability organization.

Management archives (records management) includes a series activities : classification, filing, storage, maintenance, discovery retrieval, until depreciation archives. The purpose is ensure availability accurate information, can trusted, easy accessible, but still safe from access No authorized. In context modern organization, management archives No only activity

administrative, but part from governance information (information governance) that influences efficiency operational, quality services and risks compliance.

Development technology information push transformation from archives conventional based paper going to digital archives. Digital archives allow storage in electronic file forms ( text, images, audio, video, email), which are managed through system computer. Management digital archives require :

1. Structure clear classification and metadata For make it easier search.
2. Arrangement right access, version documents, as well as history change.
3. Policy retention ( shelf life ) in line with regulations and needs organization.

With Thus, the concept management modern archives do not let go from implementation standards, policies, and support system adequate electronics.

## 2 Management System Digital Documents and Archives (EDMS/EDRMS)

In literature international, term Electronic Document Management System (EDMS) and Electronic Document and Records Management System (EDRMS) refers to the application integrated used For create, capture, store, manage, and destroy document and electronic records throughout recycling his life.

In a way general, features The main EDMS/EDRMS include :

1. Storage centralized repository of documents and archives saved in One system integrated so that reduce duplication and fragmentation files in various device or application.
2. Document Classification and Metadata given category, code classification, and metadata ( e.g. date, owner, type documents, projects related ) to make it easier grouping and searching.
3. Feature search and discovery retrieval system provide search keyword based, metadata, even content document (full-text search), so that time find return document can reduced in a way significant.
4. Versioning and audit trail Every changes to the document recorded as version separately. The audit trail records who accesses, changes, or delete documents, when, and from where, so that support accountability and audit readiness.
5. Security and rights System access provide role-based access control (RBAC), authentication users, and in a number of solution also encryption, for protect document from access No legal and data breaches.
6. Workflow and automation Some EDMS/EDRMS support channel work (approval, review, distribution document ) in automatic so that speed up business processes and minimize manual error.

## 3 Document Management Efficiency

Efficiency in management document can measured through a number of indicators, including:

1. Search time documents (time to retrieve),
2. Level of duplication and inconsistency version,
3. Cost storage physique,
4. Amount error administration related documentation,
5. Satisfaction users to system archiving.

## Research Methodology

### 1 Types and Approaches of Research

Study This use approach study engineering device software engineering research with type study applied research. Research applied chosen Because focused on development solution real in the form of system management web- based digital archive that can used direct For increase efficiency management documents at PT Nava Path Solutions.

The approach used is descriptive and experimental, where the research not only describe condition existing archiving process, but also perform design, implementation, and testing system For see improvement performance from aspect efficiency, accuracy, and convenience access document.

## 2 Location and Time of Research

Study implemented at PT Nava Path Solutions, a company technology focused on development device software and digital services.

### Research Subjects and Objects

- a. Subject research : Staff administration, team management projects, and the employees involved in the management process document company.
- b. Object research : System manual/semi-digital archiving used moment This as well as system management web- based digital archive that will developed.

## 3 Data Collection Techniques

For obtain comprehensive data, research use a number of technique :

### 1 Observation

Researchers do observation direct regarding the archiving process documents at PT Nava Path Solutions, including :

- a. Storage flow documents,
- b. Use of local folders, email, or cloud applications,
- c. Average search time documents,
- d. Obstacles that arise in the management process document.

### 2 Interview

Done to party related like staff administration and project manager for understand :

- a. Type frequently used documents used,
- b. Frequency archiving and searching documents,
- c. Need feature in system,
- d. Problem security document.

### 3 Documentation Study

Collecting and analyzing documents related like structure archives company, archiving SOP, type document projects, as well as governance needs document company.

## Results

The research results obtained from the design, implementation and evaluation process of the Management System Web-Based Digital Archive developed to enhance efficiency management documents at PT Nava Path Solutions. The results presented covers overview of the system that has been developed, analysis of system performance, and impact its implementation in the archiving process company. The discussion begins with an explanation initial conditions (baseline) of the management process archives, including the constraints encountered in the manual and semi-digital archiving methods previously used. Furthermore, it is shown how the system built is able to provide solutions to the problems. through the feature main such as storage centralized, document classification, archive metadata, fast search, access control based roles, as well as audit trails of user activity.

In addition to showing the results of system implementation, this chapter also presents the test results. functional, acceptance test users, as well as analysis comparison efficiency before and after system implementation. This evaluation is carried out to obtain description comprehensive review of the system's effectiveness in improving speed search document, lower level error archiving, and supporting corporate information governance.

Thus, this chapter does not just show success technical system development, but also provide empirical evidence that management system Web -based digital archives provide

significant added value for PT Nava Path Solutions in terms of productivity, information security, and quality management document. Here are the web results :

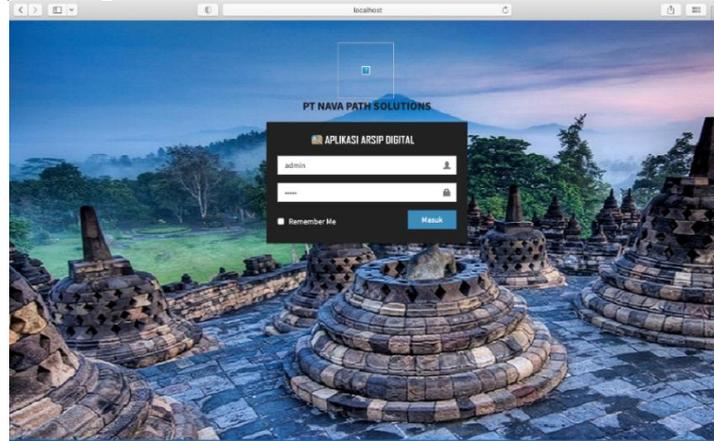


Figure 1. Login Page

The display on the login page before the user enters the system. In the middle section there is an authentication form consisting of from username column, password column, options remember me, and knob Enter. This page serves as the initial gateway for users to access features available in the application.

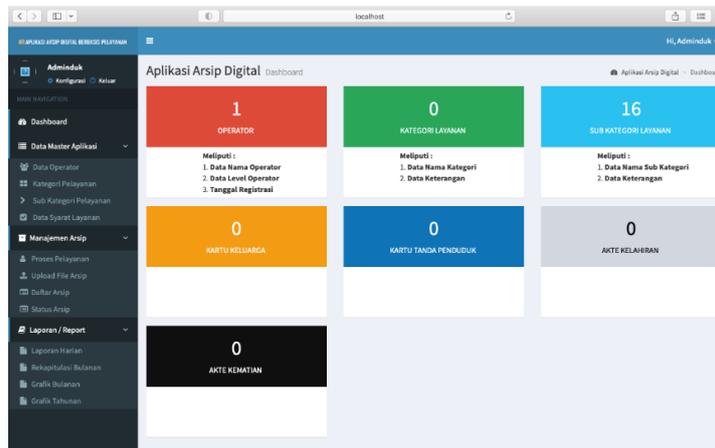
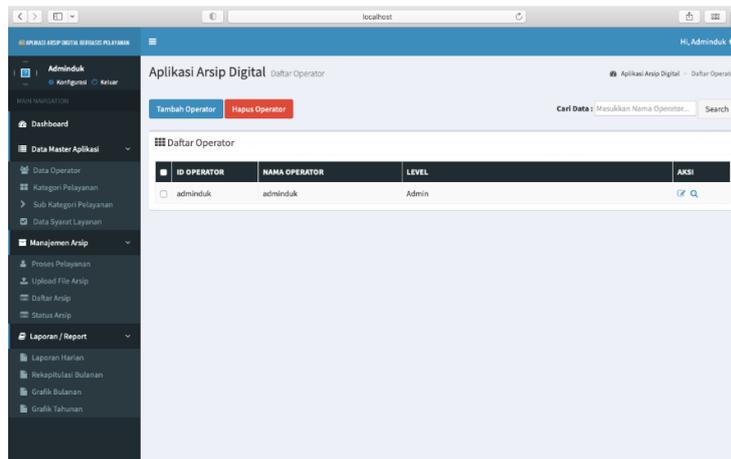


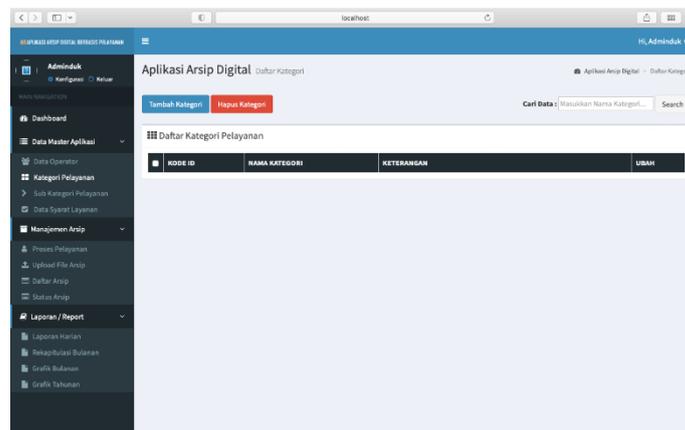
Figure 2. Dashboard Page

Display on the dashboard page after the user successfully logged in. On the left side there is a navigation menu that includes application master data, management archives, as well as Reports. The main part of the dashboard displays summary data cards such as the number of operators, categories services, subcategories services, as well as the number of archives recorded. This view helps users monitor important information quickly and in a structured manner.



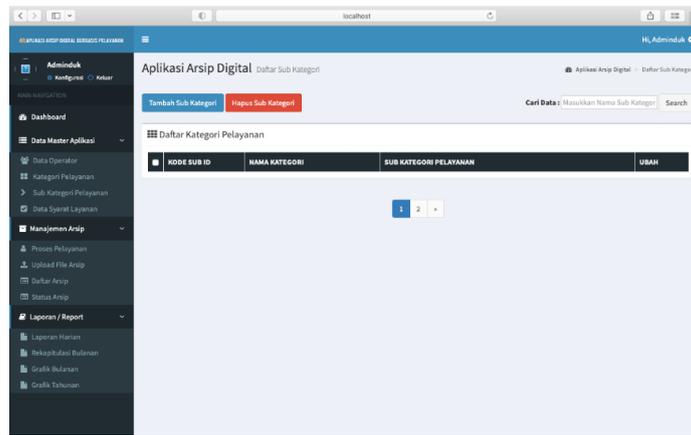
**Figure 3.** Operator List Page

Display on the Operator List page after the user successfully logged into the system. On the left side there is a navigation menu that contains application master data, management archives, as well as report. The main part of the page displays operator list table containing operator ID, operator name, and access level. At the top is available buttons to add new operators, delete operators, and column search to make it easier Users search for operator data. This view serves to manage operator information in a structured and efficient manner.



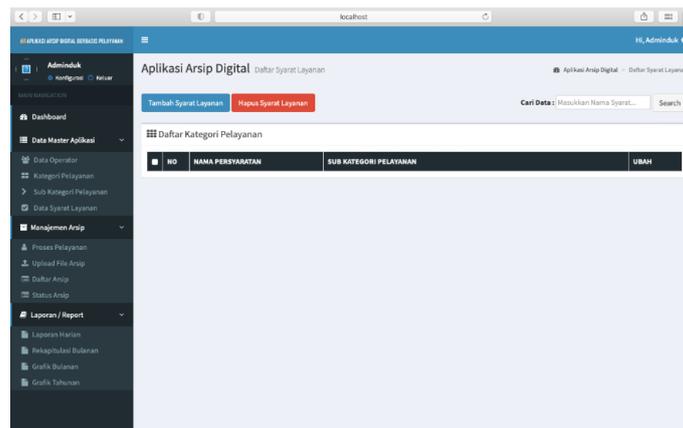
**Figure 4.**Pages Category List Service

Display on page Category List Service displays a list of categories used in system digital archives. On the side left a navigation menu is available which includes application master data, management archives, and reports. Section main page containing table category services that display ID code, name categories, as well as description. In the section on there is knob For add category new, delete categories, as well as facility search For make it easier users find the required data. Display This designed for management category service can done in a way structured and efficient.



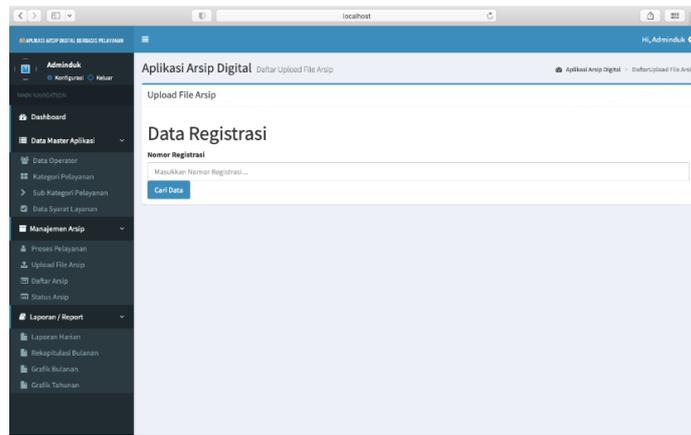
**Figure 5.** Sub Category List Page Service

Display on the Sub Category List page Service used to display and manage subcategories related to each category service. On the left side there is a navigation menu that includes application master data, management archives, and reports. The main part of the page contains table showing subcategory codes, names category parent, as well as subcategory name service. At the top is available buttons to add subcategories, delete subcategories, and column search to make it easier Users are looking for specific data. This page also features pagination to display data on several pages. make things easier navigation.



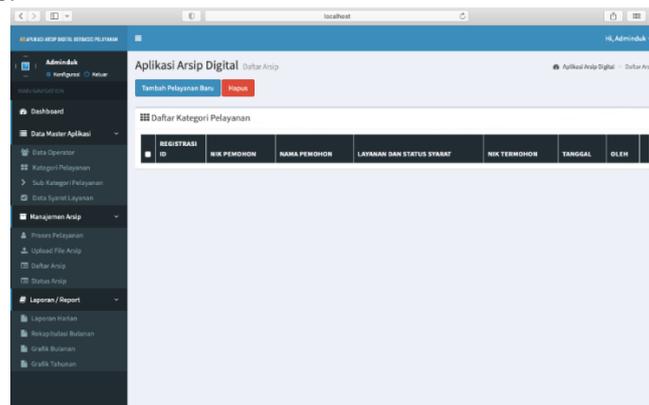
**Figure 6.** The Terms Of Service List

Appearance on the Terms of Service List page used to display and manage the list of requirements needed in each subcategory services. On the left side of the page there is a navigation menu containing Application Master Data, Management Archives, and Reports, so that make it easier users to move between modules. The main part of the page displays table containing serial numbers, names requirements, and subcategories related services. At the top of the table available buttons to add terms of service and delete terms of service, as well as column search function to make it easier users in searching for requirements data This page is designed so that admins can manage service terms data more easily. structured and efficient.



**Figure 7.** Archive File Upload Page

Display on the Upload Archive Files – Registration Data page used to search for registration data before the upload process document archives done. On the left side of the page there is a navigation menu that includes Application Master Data, Management Archives, as well as Reports, which help users move functions quickly. The main part of the page displays a search form consisting of from One input column to enter the registration number. After the registration number is filled in, the user can pressing “Search Data” button to display the required registration information. This page is designed to ensure that the upload process archives done on the correct registration data so that minimize errors and improve order management archives.



**Figure 8.** Archive List Page

View on the Archive List page Used to display and manage archive data that has been registered in the system. On the left side of the page there is a navigation menu that includes Application Master Data, Management, and Data Management. Archives, as well as Report, so that make it easier users in moving to other menus. The main part of the page displays table contains information including registration ID, applicant's NIK, name applicant, service and requirements status, applicant's NIK, registration date, and officer who does the input. At the top of the table available “Add New Service ” and “ Delete ” buttons to add new archive or delete selected archive. This page is designed so that admins can monitor, manage, and verify various archives structured and efficient service.

System testing is an important stage in the software development process to ensure that all over The functions in the application run according to user needs and the specifications that have been set. In this study, the testing method used is Black Box Testing, which is a technique examination - focused testing output based on input without looking at the internal logic processes or code structure of the system.

### 1. Login Module

Description appearance The login page is visible in the document : there is a username form, password, remember me option, and button. enter.

**Table 1.** Login Module

No Test Scenario	Test Case	Expected Output	Results
1 Login with correct credentials	Enter a valid username and password then click Login	User successfully logged in and was directed to the dashboard	Succeed
2 Login with incorrect credentials	Incorrect username or password input	The system displays the error message "Incorrect Username or Password"	Succeed
3 Form fields are not filled in	Do not fill in username / password	The system gives warning that the data must be filled in	Succeed
4 Remember Me	Tick remember me then login	Users remain logged in even if the browser is closed (during the session) active )	Succeed

## 2. Dashboard Module

The dashboard displays summary : number of operators, categories services, subcategories, quantity archives.

**Table 2.** Dashboard Module

No Test Scenario	Test Case	Expected Output	Results
1 Showing data summary	Access dashboard	The dashboard displays data cards (operator, category, subcategory, archive )	Succeed
2 Access the left side navigation menu	Click the Master Data / Archive / Report menu	The system opens the page according to the menu	Succeed

## 3. Operator List Module

**Table 3.** Operator List Module

The operator list view displays ID, operator name, access level, buttons add & delete.

No Test Scenario	Test Case	Expected Output	Results
1 Displays a list of operators	Access the operator page	complete operator table is displayed	Succeed
2 Add new operator	Click the button Add Operator, fill in the form, save	New operator data is saved and appears in the table.	Succeed
3 Delete operator	Select operator → click Delete	Operator data deleted	Succeed
4 Search operator	for Enter keywords in the search field	Relevant operator data appears	Succeed

## 4. Category Module Service

**Table 4.** Category Module Service

Page display table category + button add /delete + search.

No Scenario	Test Case	Expected Output	Results
1 Appearance table category	Access the category page	Category data appear according to the database	Succeed

No Scenario	Test Case	Expected Output	Results
2 Add category	Click Add, fill in the form	New category saved	Succeed
3 Wipe category	Select category → delete	Category missing from list	Succeed
4 Search category	Enter keywords	Table display filter results	Succeed

#### 5. Sub Category Module Service

**Table 5.** Sub Category Module Service

No Scenario	Test Case	Expected Output	Results
1 Showing subcategory	Access the subcategory page	Table subcategory come on stage	Succeed
2 Add subcategory	Click Add Subcategory	Data saved	Succeed
3 Wipe subcategory	Select → Delete	Data deleted	Succeed
4 Search	Enter keywords	Data according to filter is displayed	Succeed
5 Pagination	Click next page	Page data changed	Succeed

#### 6. Archive Upload Module

**Table 6.** Archive Upload Module

Page look for registration before uploading. There is registration number input column, "Search Data" button.

No Scenario	Test Case	Expected Output	Results
1 Search for valid registration	Enter the correct registration number	Registration data appears	Succeed
2 Search for invalid registration	Incorrect registration number input	The message "Data not found" appears.	Succeed
3 Upload documents archives	Click Choose File → Upload	Files are stored in the archive according to registration	Succeed
4 File format validation	Uploaded file is not in the correct format (eg..exe)	The system rejects and gives an error message.	Succeed
5 Upload without selecting registration	Click upload without registration data	The system rejects and gives an error message.	Succeed

#### 7. Archive List Module

Showing table archives contains registration ID, NIK, applicant, service, requirement status, officer, etc.

**Table 7.** Archive List Module

No Scenario	Test Case	Expected Output	Results
1 Displays list	Access the archive page	Archive list complete display	Succeed

No Scenario	Test Case	Expected Output	Results
2 Add new archive	Click Add New Service	The form opens and data can be saved	Succeed
3 Wipe archives	Select archive → Delete	Archives deleted	Succeed
4 Search archives	Enter keywords	Filtered data	Succeed

## Conclusion

Study succeed produce A System Management Web - based Digital Archive designed For answer PT Nava Path Solutions' needs in manage document in a way more efficient, structured, and secure. The system This capable replaces the previous manual and semi-digital archiving processes cause various problem like data duplication, difficulties search documents, as well as lack of control access and audit trail. Features main developed includes management user, category services, subcategories, conditions service, upload archives, registration data search, archive lists, and archive status monitoring functions in accordance specifications and has tested use Black Box Testing method. Test results show that all over module capable provide correct output to various scenario usage, both valid and invalid input, so that can stated worthy For used. Implementation system proven increase efficiency management documents, especially in matter speed search archives, order storage, as well as subtraction error administration. Storage centralized and standardized archives allows staff company access and verify document with more fast, while audit trail and role-based access control features enhance security as well as data integrity. The system that was built support governance information company in a way more good, because provide a documented archival process, can traceable, and easy supervised. Ability system in provide archive status data real -time help management in monitor the service process and ensure No happen delay or error in processing document. In a way overall, research This show that development System Management Web- based Digital Archives are effective and relevant solutions For increase productivity operational of PT Nava Path Solutions, as well as support digital transformation in management document company.

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