

# CHAPTER III

## IMPLEMENTATION PLAN AND DESIGN OF DIGITAL TRANSFORMATION PROJECT

### 3.1 Digital Transformation Framework

The digital transformation framework outlines how a company moves through a period of significant change due to the current developing business situation. Hence, it became a necessity for P.T. XYZ to be able to provide adequate customer service while using the available resources. Below is the outline of the digital transformation framework:

#### Digital Transformation Framework

Table 3.1 Digital Transformation Framework

STRATEGY	CURRENT & FUTURE STATE	ROADMAP	IMPLEMENT	MONITOR
<ul style="list-style-type: none"> <li>• Business unit to transform</li> <li>• Problem to focus on</li> <li>• Digital Vision</li> <li>• Digital strategy to pursue</li> <li>• Digital objectives</li> </ul>	<ul style="list-style-type: none"> <li>• Prioritize sub-dimensions based on digital vision</li> <li>• Assess existing digital maturity</li> <li>• Set the desired digital maturity level</li> <li>• Gap analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Develop high level stages that describe the changes of subdimensions from the current toward the future state</li> </ul>	<ul style="list-style-type: none"> <li>• Fulfill and allocate the resources needed</li> <li>• Manage changes by preparing activities to influence people commitment and behaviors</li> </ul>	<ul style="list-style-type: none"> <li>• Examine indicators developed during gap analysis</li> <li>• Business indicators; revenue, cost, profit, ROI, etc.</li> <li>• Digital indicators: employee doption, customer acquisition, completion time, number of views, etc.</li> </ul>

This can be described as follows:

#### 3.1.1 Strategy

##### 3.1.1.1 Determine which business unit to transform

With the company that is still growing, many of its business units are still manual. One of the business processes to transform is the

document storage of the patient's record then if the said transformation goes as planned, the prototype will be implemented in the other business unit of the company such as the document storage of the finances, taxations, the data inventory, petty cash, etc. P.T. XYZ is currently planning on expanding the company by opening another branch in South Jakarta.

#### **3.1.1.2 Determine which problem to focus on**

The focus of the problems to be overcome through digital transformation is document management. It is focused on the first document storage that is still manual. Second, it takes time to search for the documents of patient's records which will cause a loss of productivity and delayed operations. Third, there is a risk of losing documents or document mishandling issues, including the duplication or redundancies of the information on multiple copies because they are not well managed. Fourth, one of the products was missed due to improper petty cash and invoice verification documentation. The proposed EDMS is expected to fix the document management system and solve the problems mentioned above.

#### **3.1.1.3 Determine the vision of the proposed digital transformation**

The company's strategy in implementing the digital transformation is focused on the document management system to address the documentation process from mailings, and billing, and the EDMS implementation strategy is done by the collaboration with the I.T. divisions and staff to strengthen the business process.

Document management is essential for the company to improve its productivity by using the automated workflow that reduces the time spent on day-to-day business activities and improves its accuracy and traceability. Time savings can be easily translated to cost savings in terms of labor, process cycle, and time-to-market costs. The automation

deletion deadlines and retention periods to make sure employees fully comply with regulations. Moreover, to reduce the risk of loss, errors, and redundancies of the documents in paper forms that take up physical spaces. Thus, this can create good time and space efficiency costs for the company. This can be turned into the vision of the proposed digital transformation.

#### **3.1.1.4 Determine the objectives of the digitalization**

The objective of the proposed digitalization is to improve productivity and efficiency. Therefore, the planned digital strategy that is offered is to support the digital vision of document management that can be done by implementing EDMS which is a part of the Enterprise Content Management (ECM),

The practice of ECM attempts to address key concerns such as content storage, effective classification, and retrieval; archiving and disposition policies; mitigating legal and compliance risk; reducing paper usage, and more (Pelz-Sharpe et al., 2009). Therefore, the company's digitalization objectives for utilizing EDMS are time savings, increasing productivity, improving communications among departments, and automated workflow.

### **3.1.2 Current and Future State**

#### **3.1.2.1 Determine the priority of the subdimensions based on the digital vision**

Determining the suited subdimensions with the digital vision is by looking through the Enterprise Content Management (ECM) maturity model suitable to the company's ideas. The subdimensions for digital fabrication are according to the existing dimensions: human, information, and system. These three dimensions are then divided into thirteen subdimensions (Pelz-Sharpe et. al., 2009)

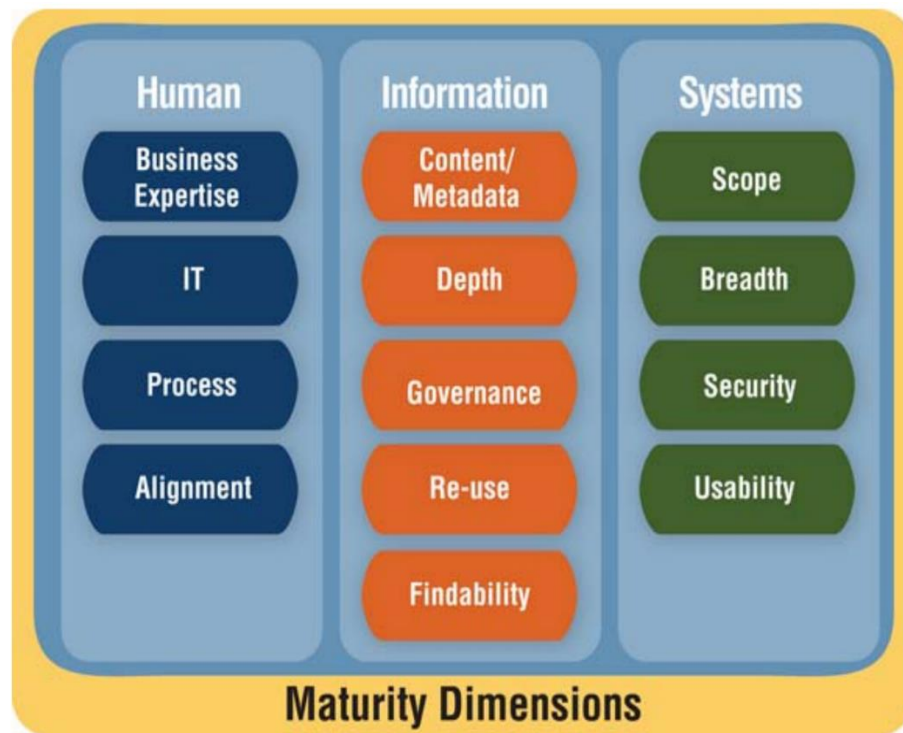


Figure 3.1 Maturity Dimension

Source: Pelz-Sharpe et al., 2009

The first dimension is "Human," which is divided into four subdimensions: business expertise, I.T. Expertise, process, and alignment. The business expertise subdimension includes the team member and executive knowledge concerning ECM guidelines. The I.T. expertise subdimension deliberates the ability to maximize the utilization of the new systems that are proposed. The process subdimension is the degree to which the company has analyzed its content-oriented business process. Lastly, the alignment subdimension is the level of effective business activity that includes I.T. collaboration, understanding, and synchronization (Pelz-Sharpe et al., 2009). This study will prioritize the Business expertise subdimension because it will help to determine the fluency of each staff to run the system, the I.T. expertise subdimension, which will determine the readiness of the I.T. department of developing and maximizes the advantage of the new

system, and the process subdimension which will evaluate the company's process of managing its data and documents.

The second dimension is "Information," which comprises five subdimensions: content/Metadata, depth, governance, re-use, and findability. The content/metadata subdimension determines the level of how a company evaluates its content and metadata. The depth subdimensions determine the comprehensiveness of its lifecycle content management. The Governance subdimensions determine the degree of methods and guidelines addressing its information management. The re-use subdimensions assess the amount of comprehension of its re-useable content opportunities. Lastly, the Findability subdimension determines the capability to find the correct data at the right time (Pelz-Sharpe et. al., 2009). As for this study, the subdimensions that will be prioritized are the governance subdimension to evaluate the company's strategy and protocol regarding the digital transformation project, and the findability subdimension to assess the company's effectiveness in finding its documents/data.

Lastly, the third dimension comprises four subdimension: scope, breadth, security, and usability. The scope subdimension determines the applicable range of ECM functional capabilities. The breadth subdimension determines the development from departmental to enterprise-wide management systems. The security subdimension determines the degree to which the actual data access reflects the company's rights. Lastly, the usability subdimension determines the required application to the purpose (Pelz-Sharpe et al., 2009). As for this study, the subdimensions that will be prioritized are the security subdimension which will measure how the company secures its documents/data and its strategy for the proposed digital transformation project, and the usability subdimension, which determines which

application is currently used and what application is required to support the flow of ECM of the company for the digital transformation project.

The prioritized subdimensions of the digital maturity model mentioned above will determine which business aspects will be evaluated. This transformation is expected to enhance document management, improve time efficiency, minimize document loss, and develop an automated document management workflow on P.T. XYZ.

### **3.1.2.2 Assess the existing digital maturity**

Assessing the current digital maturity is done to determine the company's digital readiness and evaluate the aimed level of the proposed digital transformation project. Furthermore, to understand which technology is available in the company. This is done by sending out a 20-points questionnaire based on the prioritized subdimensions mentioned above to the employees, colleagues, and management team to openly discuss the proposed ideas.

Gathering data from the questionnaires filled by the employees, colleagues, and management team assess this digital transformation level. To measure the said level is by using a variable operationalization as a guide. Variable operationalization involves processing raw data sequences into variables in statistical analysis for research writing (Babones, 2014). The variable operationalization table will be further described below:

U N I V E R S I T A S  
M U L T I M E D I A  
N U S A N T A R A

Table 3.2 Variable Operationalization Table

No.	Dimension	Subdimension	Definition	Indicator	Scale	Reference
1.	Human	<ol style="list-style-type: none"> <li>1. Business Expertise</li> <li>2. I.T.</li> <li>3. Process</li> </ol>	The attributes of each individual and department to reach institutional goals.	<ol style="list-style-type: none"> <li>1. Document Management System</li> <li>2. I.T. department on developing the system</li> <li>3. Document Management Process</li> </ol>	<ol style="list-style-type: none"> <li>1. Unmanaged</li> <li>2. Incipient</li> <li>3. Formative</li> <li>4. Operational</li> <li>5. Proactive</li> </ol>	ECM3 (ECM Maturity Model) Version1.0 (Pelz-Sharpe, et al 2009) Assessing the functionality of the Enterprise Content Management Maturity Model (Katu,2016)
2.	Information	<ol style="list-style-type: none"> <li>1. Governance</li> <li>2. Findability</li> </ol>	The attributes that affect the content in the ECM software application include the	<ol style="list-style-type: none"> <li>1. Strategy and protocol</li> <li>2. Document finding effectiveness</li> </ol>	Level 1-5	Pelz-Sharpe, et al 2009 Katu,2016

			ability to manage that content.			
3.	System	1. Security 2. Usability	The company's technical ability to implement the ECM workflow	1. Security/safekeeping 2. Document management system usage	Level 1-5	Pelz-Sharpe, et al 2009 Katu,2016

Source: Yaputri, 2021

### 3.1.2.3 Set the desired digital maturity level

The Enterprise Content Management (ECM) maturity model will be utilized to assess the desired digital maturity level. The model can be applied to audit, evaluate, and explain the current state of an organization, provide a roadmap for maturing an organization's capabilities, and focus on the maturity model anticipated by the company (Pelz-Sharpe et al., 2009).

The ECM maturity model has graded maturity levels ranging from the entire information collection and essential control to an increasingly complex group of management and integration. Finally, resulting in a mature state of continuous experimentation and improvement (Katu, 2012). The five levels are unmanaged, incipient, formative, operational, and pro-active which will be further explained in the table below:



LEVEL	STATE	CHARACTERISTICS
1	<b>Unmanaged</b>	The enterprise does not formally manage content. Distributed share drives and local hard disks serve as document stores, resulting in redundant data, inability to find content, and high levels of rework and end user frustration.
2	<b>Incipient</b>	Functional or project driven approaches emerge to managing some subsets of content. Various technologies (e.g., DM, Collaboration) and competing/redundant products are deployed, but remain poorly used and insufficiently applied.
3	<b>Formative</b>	The enterprise has inventoried content and put plans, policies, and procedures in place, but remains in the process of implementing them --likely over several years. Multiple projects are underway, but risk conflict and failure in the absence of a broader strategy. Notions of information lifecycle management begin to get incorporated.
4	<b>Operational</b>	Content is managed pervasively throughout the enterprise—albeit in diverse systems. Applicable retention schedules have been applied to all critical electronic content. The enterprise has also figured out what content <i>not</i> to manage, and has made space for social/collaborative content management as well.
5	<b>Pro-Active</b>	Content management functionality is available broadly as a shared service and is viewed in the context of a broader services-oriented effort. The enterprise can procure and incorporate new content technologies (such as DAM) as needed, and plug into a flexible architecture to serve the business. Solid understanding of core information management issues and key business drivers allows the enterprise to be more agile in the roll-out of new services.

Figure 3.2 ECM Maturity Model Description

Source: Pelz-Sharpe et al., (2009)

The new system of the digital transformation project is expected to show improvement in the business process through system use.

#### 3.1.2.4 Gap analysis

After assessing the digital maturity level in the company, the result will show the current condition of the company's digital maturity condition and the desired condition of the digital transformation project. The gap analysis compares the current state to the future shape and

identifies what needs to be done to fill the gap between the present and future conditions. And as for this study, P.T. XYZ needs to develop strategic planning based on the ECM maturity model to integrate the company's system from the Formative level to the Operational level.

### **3.1.3 Roadmap of the Digital Transformation**

The digital transformation roadmap aims to develop the step-by-step progress from the current state to the future state. In doing the digital transformation, the pilot project will be implemented in one of the company's business units, handling patient records.

The roadmap of the digital transformation will be viewed from 2017 until the current document management system. Document management is still handled manually using Microsoft Excel, and Microsoft Word and some are handwritten. In addition, all documents are still using paper and stored in Bantex, which sometimes causes the loss of documents, and time consumed by manual document searching, resulting in the loss of productivity. To overcome these problems, the suggestion of making a digital transformation was proposed in 2021. This proposal is expected to be applied gradually in the company starting from one business unit. Next, conduct a discussion with the I.T. department about implementing the digital transformation by planning and designing the EDMS prototype.

By 2022, the proposal is expected to be approved by the stakeholders and collaborated with the I.T. department to design the prototype. Once the prototype is developed, the pilot project will be launched and experimented with on a selected business unit. This is to train users and staff so the system can work optimally, and by 2023 users can start to adapt to the automated workflow. The automated workflow will reduce the time spent on document searching, enhance the

communications between staff, and provide greater accessibility for the physicians in accessing patients' records and writing a new prescription remotely.

By 2024, the system is expected to run accordingly. The plan that has been running will be evaluated and is hoped to be implemented in more business units such as finances, taxations, the data inventory, petty cash, etc. P.T. XYZ is planning on expanding the company by opening another branch in South Jakarta. This system can also be implemented in the new branch. Below is the digital transformation roadmap:

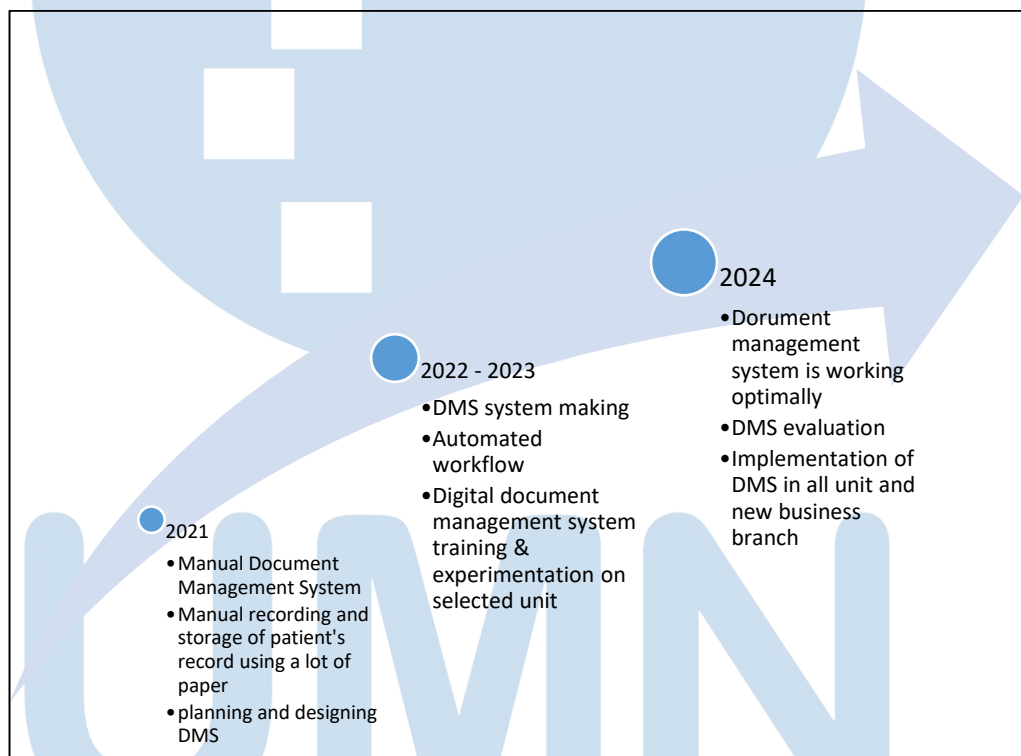


Figure 3.3 Digital Transformation Timescale

Source: Yaputri, 2022

### 3.2 Digital Maturity Model Development and Implementation

The digital maturity model effectively provides guidelines for a clear path throughout the transformation journey. Using the digital

maturity model will empower a company through its transformation journey. It enables business leaders to assess their state during their transformation journey, create short- and long-term goals, and make impactful transformation project investments (Deloitte, 2018).

While terminology like Electronic Document Management Systems (EDMS), Electronic Records Management Systems (ERMS), and Electronic Document and Records Management systems have been used interchangeably with ECM (EDRMS) (Nguyen et al., 2007), EDMS and ERMS were the first-generation applications, followed by EDRMS and ECM as illustrated in the figure below (Katu, 2012b, p. 39). These concepts, on the other hand, frequently coexisted. As illustrated in Figure 3.5 (Katu, 2016).

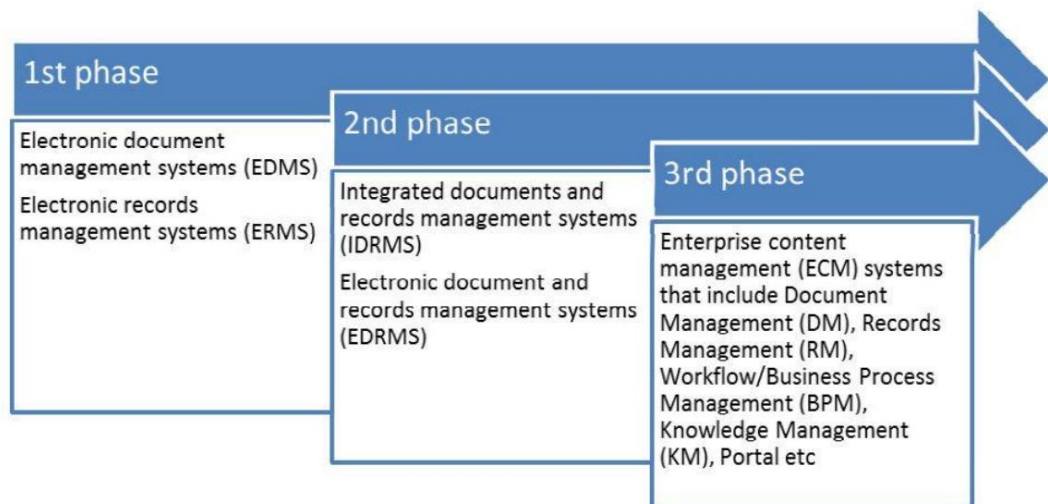


Figure 3.4 The Evolution of Terms Related to ECM

Source: Katuu, 2016

Enterprise Content Management (ECM) focuses on fundamental ideas including data storage, proper classification, and access, archival and disposition policies, minimizing paper usage, and more. However, implementing a digital transformation requires planning and developing a comprehensive strategy that deals with individuals, information, and systems as ECM aspects.

### 3.2.1 Dimensions and Subdimensions

There are three dimensions of ECM maturity dimensions which are human, information, and systems. The human category involves the attributes of each individual in enhancing maturities, such as expertise in the different aspects of a company and their collaborations in implementing the strategic procedure to achieve the company's goal. The information category involves the characteristics that affect the ECM software application content, including its expertise in controlling its data. Lastly, the system category consists of the company's technical proficiencies, which are assessed regardless of whether the software applications are exclusive or non-exclusive (Katu, 2016). The three dimensions are then divided, not 13 subdimensions which was elaborated in figure 3.2.

As shown in figure 3.2, the human category comprises four subdimensions: business expertise, I.T. Expertise, process, and alignment.

1. Business Expertise - team member and executive knowledge concerning ECM guidelines
2. I.T. Expertise - ability to maximize the utilization of the new systems that are proposed.
3. Process - the degree to which the company has analyzed its content-oriented business process.
4. Alignment - level of effective business activity which includes the I.T. collaboration, understanding, and synchronization

The second dimension comprises five subdimensions: content/Metadata, depth, governance, re-use, and findability.

5. Content/metadata - level of how a company evaluates its content and metadata.
6. Depth – the comprehensiveness of its lifecycle content management.

7. Governance - degree of methods and guidelines addressing its information management.
8. Re-use - the amount of comprehension of its re-useable content opportunities.
9. Findability - the capability to find the correct data at the right time.

Lastly, the third dimension comprises four subdimension: scope, breadth, security, and usability.

10. Scope - the applicable range of ECM functional capabilities.
11. Breadth - the development from departmental to enterprise-wide management systems.
12. Security - the degree to which the actual data access reflects the company's rights.
13. Usability - determine the required application to purpose.  
(Pelz-Sharpe et. al., 2009).

### **3.2.2 Indicators to measure dimensions and subdimensions**

The ECM maturity model provides a set of complete standards to assess the ECM implementation. The ECM Maturity model can be used to develop a comprehensive strategy that reduces risk and aligns with the unique characteristics. The detailed measurements of assessing the gap in the digital maturity will be shown in figure 3.6 below:

U N I V E R S I T A S  
M U L T I M E D I A  
N U S A N T A R A

Dimension:		Level: 1) Unmanaged	2) Incipient	3) Formative	4) Operational	5) Proactive
HUMAN	IT Expertise	No experience managing formal repository and workflow systems	Struggling 1.0 implementations of some systems	More advanced version 2.0+ implementations of systems, with focus on business-critical content	Managing repository and workflow systems is a core IT skill	Pro-active experimentation and learning about emerging content technologies
	Business Expertise	Ignorance about value and role of ECM	Growing sense of awareness about lack of management services	Communication plans include updates to key stakeholders about ECM business value	Executive sponsorship of ECM as a practice; process and content analysis are core skills	Content management designated a core employee skill and part of their HR reviews
	Process	Few or no standardized procedures around content	Basic process analysis leads to some ad-hoc workflows	Initial modeling of inter-departmental processes to prep for automation	Automated processes span systems and departments	Robust exception-handling and experimentation within framework
	Alignment	Key business drivers are not well understood by IT strategists, resulting in ECM gaps in IT portfolio	Gaps still exist between technology and core business processes; IT-metrics not evaluated by business outcomes	IT and Business both understand their information management roles and their respective strategies are no longer developed in a vacuum	Execution of IT & Business strategies become more cohesive, but still follow push-pull model	Strategy development between IT and the Business is done in collaborative and concurrent manner with frequent reviews using proper metrics
INFORMATION	Content/metadata	No formal inventory; no formal classification	Departmental inventories and initial content tagging	Enterprise inventory underway; controlled vocabularies (CVs) initiated	All new repositories and content types registered; global taxonomies created	Pervasive ROT elimination; Folksonomy development; Ongoing metadata reviews
	Depth	No lifecycle management	Most content archived haphazardly; some departmental RM efforts	Development of formal electronic retention, RM, and disposition schemes	Implementation of electronic and paper-based RM across the enterprise	All content types go through formal lifecycles.
	Governance	No policies and procedures	Scattered policies; few or no formal procedures	Development of information governance structure and codification of procedures	Policies and procedures widely disseminated; Enterprise ownership in place	Active review and adaptation; Voice of Customer key to feedback process
	Re-use	Content routinely duplicated	Content still routinely duplicated	Initial content analysis and structuring	Documents repurposed across systems and channels	Content components re-used across systems and channels
	Findability	Employees spend excessive time searching using various internal search engines	Search indexes tuned and basic metadata applied	Rationalization of search technology; analysis of search logs and further tuning, leveraging CV terms	Development of specific enterprise and/or federated search applications	Search and classification become a central service, with business-driven variants
SYSTEMS	Scope	No understanding of core content types	Some basic DM implementations with ad hoc workflow	Identification of core content types, locales; pilot projects for DAM, BPM, etc.	Business-critical information systems prioritized	Broad availability of diverse management systems
	Breadth	No systems	Scattered departmental efforts	Initial attempts to combine or integrate systems across departments	Successful departmental initiatives have been scaled enterprise-wide	Encourage and adopt innovations from departmental levels
	Security	No security regime in place	Dependent on individual systems	Formal projects initiated to address gaps & redundancies due to multiple solutions	Standardized policies and procedures exist and are system enabled	Security is treated as a centralized shared service
	Usability	Lack of systems make end user usability considerations moot	Employee adoption rates measured, but dissatisfaction unanalyzed	Some initiatives use Scenario Analysis and User Persona techniques to guide design	User-centered design underpins all system designs, with formal collection of user feedback	Usability is a guiding principle in all system activity

Measurement / Monitoring and Feedback Processes

Figure 3.5 ECM Maturity Model Indicator

Source: Pelz-Sharpe et al., (2009)

### 3.3 Benefits of Using Technology

#### 3.3.1 Technology to implement DTP

In implementing the digital transformation project, the technology involved is the secretariates or document management control. To manage the growing volume of papers, every firm requires an Electronic Document Management System (EDMS). On the other hand, companies frequently oppose this requirement because of the high cost and complexity of EDMS installation. Specifically, efficient use of EDMS necessitates significant changes in working patterns, whereas most technological issues can be addressed by using low-cost databases and integrating easily with the Windows environment. Not only should an effective EDMS control documents, but it should also give access to them

throughout the organization. EDMS should also consolidate data in a user-friendly environment, allowing users to save, access, and alter data with ease (Zdraveski, et al., 2020).

The objective of the EDMS is an operational improvement that includes process efficiency, improving productivity and proper document storage. EDMS will enhance the company's process efficiency by reducing the manual act through digitization, which results in quick and remote access to the document, improving productivity through an automated workflow that reduces the time spent on the daily business activity and improves its accuracy and traceability. The time savings can result in cost savings in labor, process cycle, and time-to-market costs. The automated workflow supports daily works such as invoice verification by all processing steps of documents are seamlessly logged for transparency. The data will be audit-proof and comply with timeline and regulations. EDMS could also accelerate the access to a patient's record for the physicians to review the prescribed medications and treatments remotely. Document management is beneficial for the company by reducing the physical space. It can also reduce errors, damage, redundancies, or loss of documents, which aligns with the company's digital vision.

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### 3.3.2 Changes in the Business Process

#### 3.3.2.1 Current State

##### Workflow and document storage P.T. XYZ

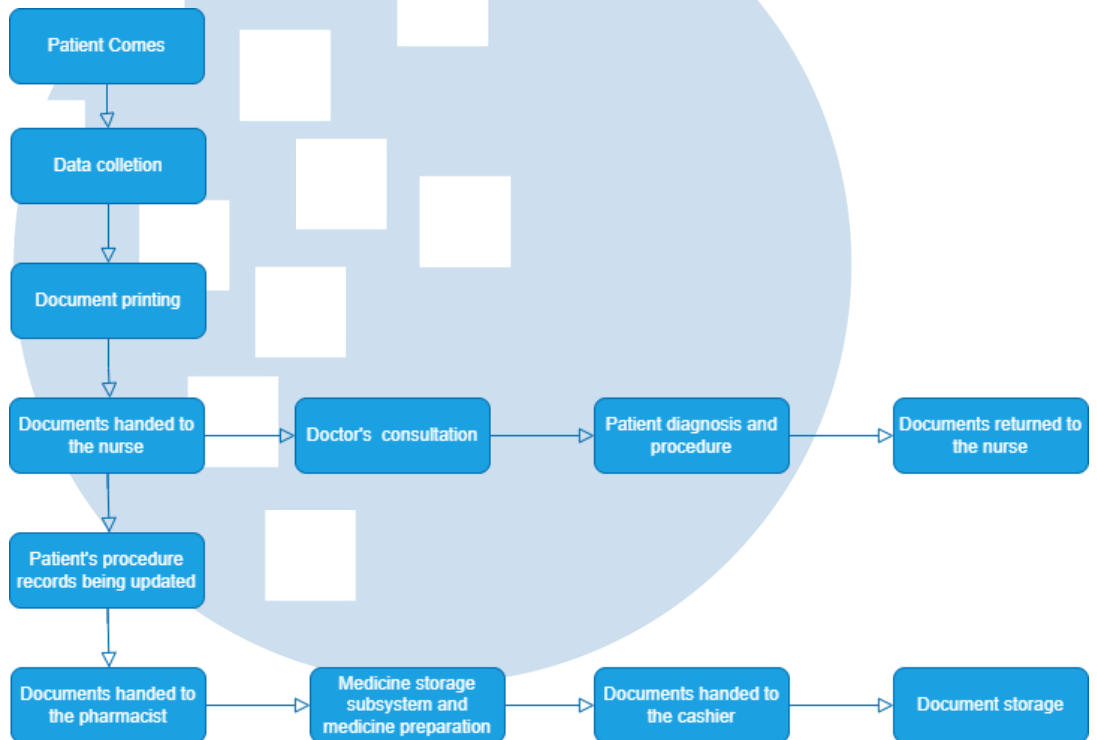


Figure 3.6 Current State flowchart of the company's document management system.

Source: Yaputri, 2022

Currently, the company is still managing its document system manually. As shown in the chart above, the transferring of patients' records is still a lot of hustles and ineffective. And after making the above chart, the author analyzes which part needed to be changed and transformed. And made up the framework plan of how the workflow will look after the digital transformation project. The workflow and document storage plans are as follows:

### 3.3.2.2 Workflow and document storage plans

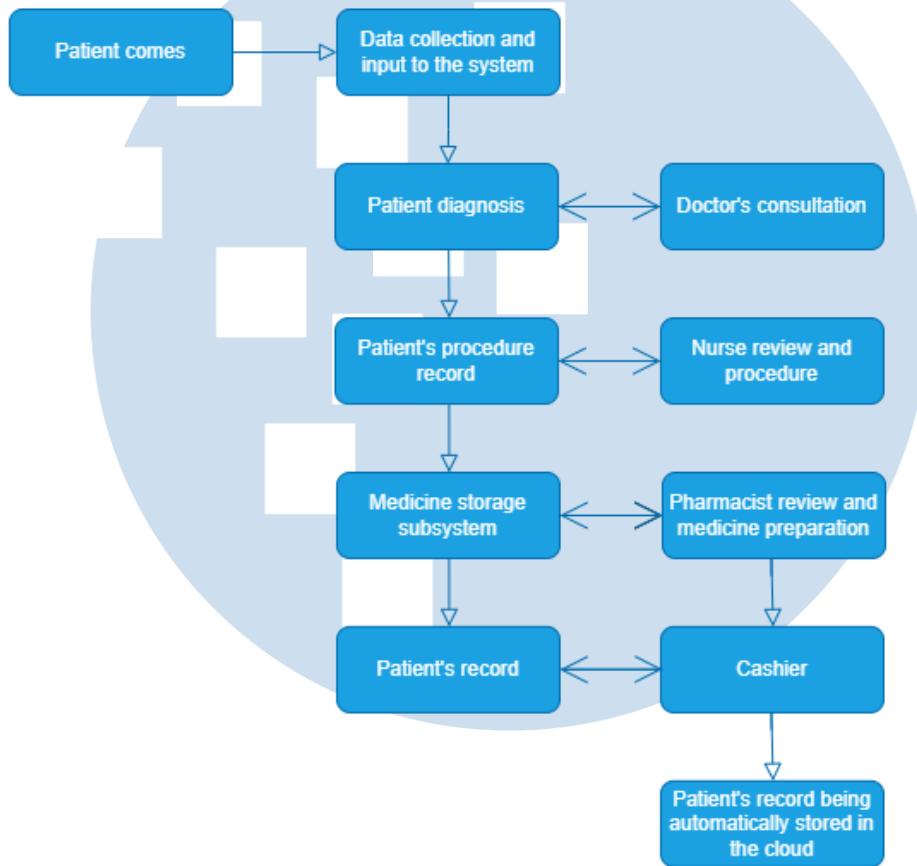


Figure 3.7 Future State flowchart of the company's document management system

Source: Yaputri, 2022

### 3.3.2.3 Key Indicators of the Impact of DTP implementation

The key indicator of the impact of DTP implementation can be measured through time, workflow, and cost. The indicator to see the "time" segment can be seen from the time efficiency of staff's access to the document. The EDMS will assist in the automated workflow by just typing the code of the document, and the document will pop up instantly rather than going through the filing cabinet (Bantex) for

document find. In addition, the EDMS can check errors in the papers. Hence, it will reduce document redundancies.

When indicated, productivity can measure the "workflow" segments. The automated workflow will assist in the quicker transaction process, increasing productivity and better customer service. This is because of staff when keeping up with deadlines and the company's protocol since EDMS will remind users of which data has to be done first, and there is an automated deletion of the completed tasks (Zdraveski, et. al., 2020).

As for the "cost" segments, EDMS can reduce the company's expenses on printing and buying papers, filing cabinets (Bantex), and folders since all the documents and data will be saved to the systems. In addition, EDMS will also benefit from better use of office space since there is no more need for multiple filing cabinets and document storage cupboards, reducing office costs.



### **3.4 Implementation of Digital Transformation Project**

The implementation of the digital transformation project will integrate the secretariates/document management control of a company. There will be a collaboration with the I.T. departments in designing the prototype of the EDMS. The implementation project is expected to integrate document management, business process automation, web content management, scanning and digitization of paper documents, and the company's digital archives. In the research for implementation, the researcher conducted a quantitative study by constructing a research questionnaire. The objective of this survey is to determine the current condition of the company's digital maturity. The questionnaire was built with three human variables, information, and system, based on the 13 subdimensions of the ECM maturity model as shown in figure 3.2. The questionnaires were then distributed to the person involved with the company, such as the stakeholders, managers, and staff.

Before distributing the research questionnaires to the stakeholders and managers for the primary data collection, the questionnaire has to go through a pre-test to check its validity and reliability. The pre-test was given to ten respondents via a google form.

#### **3.4.3 Method of Data Collection**

The questionnaire had to be checked for its validity and reliability during the data collection through a pre-test. A validity test is performed to determine whether an instrument is accurate or correct in measuring research variables. The measurement result will be accurate if the measuring device is valid or correct, or in other words, validity refers to how a measuring instrument has measured what it wishes to measure (Yudisaputro, 2020).

While a reliability test is used to determine the level of stability, constancy, predictability, and accuracy of a questionnaire, this test was used to determine the suitability of a questionnaire's value at different

times and using the same questionnaire. The accuracy or error-freeness of a measurement is determined by its dependability, which ensures that measurement data is consistent over time. Or in other words, the reliability of a measurement is an indication of stability and consistency. Although reliability and validity tests seem to have different concepts, they are interconnected (Yudisaputro, 2020).

The validity test is done using the Pearson Product-Moment Correlation coefficient (Pearson Correlation coefficient) using the SPSS for Windows version 26.00 application program which measures the strength of a linear association between two variables. The Pearson product-moment correlation seeks to create a best-fit line across the data of two variables, and the Pearson correlation coefficient,  $r$ , reveals how far apart all these data points are from this best-fit line (Laerd Statistics, 2020). This study will measure the validity test using the bivariate Pearson Correlation method in SPSS.

The bivariate Pearson Correlation assesses whether there is statistical evidence for a linear relationship between the same pairs of variables in the population, as measured by a population correlation coefficient ("rho"). The Pearson Correlation is a parametric measure often used to measure correlations between pairs of variables as well as within and between sets of variables. Which displays if two continuous variables have a statistically significant linear relationship and the strength of that relationship (i.e., how close the association is to being a perfectly straight line), and whether the linear direction is increasing or decreasing (Kent State University, 2021). The strength of the correlation can measure the validity of the test. If the  $r$  is smaller than 3%, it indicates a small/weak correlation, if the  $r$  is between 3% - 5% indicates a medium/moderate correlation. Then if  $r$  is larger than 5%, reveals a large/strong correlation (Kent State University, 2021).

The purpose of a reliability test is to determine how consistent a measurement result is when repeated multiple times. The purpose of the reliability test is to establish whether the questionnaire employed in a study produces a consistent measure. As a result, the concept of reliability is intimately linked to the degree to which measurement data can be trusted or not.

To check the reliability of each question, the Cronbach's coefficient alpha method used the Windows version 20.00 SPSS program. Cronbach's alpha is a method of evaluating reliability that compares the amount of shared variation, or covariance, among the items that make up an instrument to the total variance. If the instrument is dependable, there should be a lot of covariance among the items when compared to the variance (Collins, 2007). Cronbach's Alpha coefficient is the most commonly utilized since it is used to represent a variety of items like those on a Likert scale. Reliability of less than 0.6 is poor, while the reliability of 0.7 is fair, and reliability of more than 0.8 is excellent.

The validity and reliability tests were conducted from the results of the ten respondents at P.T. XYZ using SPSS software. A brief explanation of the test results will be further discussed in Table 3.3 below.

Table 3.3 Validity and Reliability Test Result

Variable	Indicator	<i>r</i> value	<i>r</i> table	Description	Cronbach's Alpha	Critical point	Result
Human (Business expertise)	P1	0.542	0.361	valid	0.773	0.6	Reliable
	P2	0.813	0.361	valid			
	P3	0.886	0.361	valid			
Human (IT)	P4	0.661	0.361	valid			
	P5	0.420	0.361	valid			
	P6	0.631	0.361	valid			
	P7	0.631	0.361	valid			

	P8	0.660	0.361	valid			
	P9	0.500	0.361	valid			
Information (Governance)	P10	0.744	0.361	valid	0.773	0.6	Reliable
	P11	0.832	0.361	valid			
	P12	0.834	0.361	valid			
	P13	0.807	0.361	valid			
	P14	0.793	0.361	valid			
System (Security)	P15	0.886	0.361	valid	0.773	0.6	Reliable
	P16	0.559	0.361	valid			
	P17	0.610	0.361	valid			
	P18	0.421	0.361	valid			
System (Usability)	P19	0.703	0.361	valid			
	P20	0.871	0.361	valid			

Source: Yaputri, 2022

In this study, the instrument validity test was carried out using the Pearson method. The criteria used is that if the calculated *R-value* is greater than the *r* table, it is concluded that the indicator is valid. In contrast, if the estimated *r-value* is lower than the *r* table, the indicator is supposed to be invalid.

For a sample size of 10, the *r* table value is 0.361 ( $\alpha= 5\%$ ). Based on the table above, all questions each have a calculated *R-value* greater than the *r* table (0.361), it can be concluded that all of these questions are valid.

The reliability test was carried out using the Cronbach Alpha method, if the value of the reliability coefficient obtained was more significant than the critical point, namely 0.6, it was concluded that the variable was reliable, whereas if the reliability coefficient value received was lower than the critical point, namely 0.6 it is concluded that the variable is unreliable.

Based on the table above, the Human, Information, and System variables respectively have a Cronbach Alpha value of 0.773. Because all the variable has a Cronbach Alpha value greater than 0.6, it can be concluded that all variables are reliable.

### **3.5 Design for Establishing a Digital Transformation Case Study**

The design of this transformation project will start with a brief explanation of EDMS. Then the introduction of the EDMS system to the staff of P.T. XYZ. Finally, the researcher will explain the problem that is currently faced by the company and state the purpose of this transformation.

After which, the researcher will measure the digital maturity model of the company using the Enterprise Content Management (ECM) Maturity Model. By composing a research questionnaire that was distributed to the staff of P.T. XYZ to determine the current and desired digital maturity level in implementing the EDM system in the company. Therefore, the researcher can compose a roadmap that will answer the problem that the company faces. Then it will be closed with the summary and recommendation of this digital transformation project.

