Advances in Social Science, Education and Humanities Research, volume 453
Proceedings of the International University Symposium on Humanities and Arts (INUSHARTS 2019)

Hybrid Records Management in the Ministry of Maritime Affairs and Fisheries of the Republic of Indonesia

1st Naila Rahma
Library Science Program, Faculty of Humanities, Universitas Indonesia,
Depok, Indonesia
nailarahma@gmail.com

2nd Nina Mayesti*
Library and Information Sciecne, Department, Faculty of Humanities, Universitas Indonesia,
Depok, Indonesia
nina.mayesti@ui.ac.id

***Abstract*—The rapid development of technology over the past few decades has impacted many different sectors, including records management. This can be seen from the many studies that have been conducted on the topic of electronic records management. This paper focuses on how Indonesia's Ministry of Maritime Affairs and Fisheries (KKP) implements its Sistem Informasi Kearsipan (SIKap) to support its transition into managing electronic records. This article focuses on how SIKap is used to manage hybrid records. This research aims to find out if SIKap supports hybrid records management, and how it is implemented. Findings will bring significant impacts to offices by offering aa effective solution to those organizations transitioning into managing electronic records. Data were collected through interviews with archivists and observations based on Electronic Document and Records Management System (EDRMS) requirements set by the International Council of Archives (ICA) numbers 134 through 143. Research findings show that SIKap allows hybrid records management, and that management is integrated between electronic and non-electronic records. Although only vital non-electronic records are managed in a hybrid manner, the management is carried out according to 6 out of 10 ICA requirements. Obstacles to fully compliant practice were found to be the lack of non-electronic records managed in a hybrid manner and shortage of archivists within the archival unit.**

Keywords—EDRMS, electronic records management system, hybrid records, records management

I. Introduction

Archive management is a crucial activity in the course of every organization. Without the existence of archives, there is no evidence regarding the existence of the organization itself, or its activities. The rapid development of technology allows archival activities to be carried out more effectively and efficiently when these technologies are used as tools. In archival activities, the role of technology can be used for every step in the archive life cycle starting from creation, use and storage, preservation, and retention. In 1999, a software package referred to as Electronic Document and Records Management System (EDRMS) began to be developed and used in offices, to automate the management of documents and records electronically. As a piece of software that is specifically made to assist archival activities, an EDRMS at the very basic sense should be able to automate all activities in the archive life cycle. There are various reasons as to why an organization could benefit from implementing an EDRMS. Among them are to assist in managing information owned by the organization, and to take care of storage, indexing, and retrieval of electronic documents and records. Using an EDRMS also benefits the organization implementing it because it ensures the authenticity and reliability of every document and records managed, controls the security and access to each record and keeps track of each record's retention schedule.

The Ministry of Maritime Affairs and Fisheries (hereafter referred to as KKP) is one of Indonesia's government bodies that has been using information technology to help with archival activities. This started back in 2005 and was developed continuously and renewed as new obstacles were found when using the technology when the technology being used goes through developments, and when new policies are being brought up. After going through multiple system changes and developments over the years, KKP's archival unit now uses an EDRMS which was developed specifically to accommodate KKP's archival activities. The system is known as SIKap, which is an abbreviation for Sistem Informasi Kearsipan. SIKap was first developed as an offline software package in 2012, and it was turned into an internet-based application in 2014. SIKap is used to manage both records and archives. The reason why it was turned into an internet-based application in 2014 was to ensure that data sharing could be achieved more easily among users.

It is important to mention that part of the reason SIKap was implemented in the first place was to accommodate the management of records and archives electronically in KKP. However, since there is already a large number of non-electronic records and archives that KKP has been managing before using SIKap, it became quite impossible for the archivists to input all non-electronic records into the system. Only records and archives that contain information that is considered vital are being managed in a hybrid manner using SIKap. This decision was made by the archivists based on the fact that they are aware that the non-electronic records will, sooner or later, face being assessed for retention and be disposed of. For other non-electronic records that are not inputted into SIKap to be managed in a hybrid manner, a record and archive inventory list is made to keep track of what non-electronic records and archives are being managed in KKP. The list documents the title of the record/archive, a short description regarding the information contained, retention schedule, and storage location. This list is used not only to keep track of non-electronic records and archives but also to help accommodate retrieval when needed.

Based on the background discussed above, the problem that will be resolved in this article is how SIKap as an EDRMS manages hybrid records within the Ministry of Maritime Affairs and Fisheries, as a transition before fully managing electronic records. This research aims to find out whether or not SIKap supports hybrid records management, and if so, how it is implemented. This article will identify and describe how those hybrid records are managed within SIKap, and if there are any obstacles found in the activities.

A great deal of research has been conducted on EDRMS since that technology's rapid development affects the development of EDRMS as well. Among those studies, there are several that focuses on the implementation of EDRMS in the health sector. One of those studies, conducted by Wang [1], analyzes the effect that electronic health records have in health practices. The focus of this research was not only on how the management of these electronic health records affects hospitals and patients but also how it impacts society and insurance companies. It is explained that the effect is not all positive, and this is influenced by how the transition into managing electronic records and implementing EDRMS was carried out. To ensure the success of managing electronic health records and the implementation of EDRMS, annual socialization among society, insurance companies, patients, and hospitals needs to be done so that every party has a good understanding of every aspect of the management of electronic health records.

Research regarding the implementation of EDRMS is being done actively in other sectors as well, such as the study in the public service sector conducted by Ab Aziz et al. [2]. The research focuses on the obstacles faced when implementing EDRMS in Malaysia's public service sector. In total nine obstacles are faced by the public service officers, such as the presence of resistance to change, lack of skills and knowledge, lack of information regarding the system, a lack of policy reinforcements, infrastructure problems, system security, lack of support from managerial positions, activities not being monitored, and a lack of motivation to use EDRMS. By conducting the research, Ab Aziz et al. [2] hoped that their findings could be used by other government bodies in Malaysia when embarking on implementing EDRMS in their archival activities. By describing each obstacle faced and making suggestions as to how to overcome them, it is hoped that other organizations could avoid facing the same obstacles and could achieve a better outcome when implementing EDRMS.

The difference between the research conducted in this article and other research that has been done lies in the focus of the research. As mentioned before, Wang [1] focused on the effect of implementing EDRMS in the health sector while Ab Aziz et al. [2] focused on the obstacles found when implementing EDRMS in the public service sector. Distinct from those studies, this study will focus on how hybrid records are managed in KKP.

Since the implementation of EDRMS in Indonesia can be said to be quite new, there are not many studies done yet regarding EDRMS implementation, and not many of them discuss specific aspects of EDRMS. The fact that KKP happens to have started to implement EDRMS into their archival activities since 2012 and developed their own system--SIKap--to accommodate it, inspires the writer to explore further the implementation of EDRMS in KKP. The objective behind this research is to identify how hybrid records are managed in SIKap and what obstacles are faced by archivists and users. By being able to identify those issues, the findings and analysis in this research could contribute to the development of SIKap and EDRMS in KKP by giving suggestions of solutions to help overcome the obstacles found.

Not only for KKP itself, the findings of this research will also contribute to the development of electronic records management more widely in governmental bodies in Indonesia. Modules and instructions as to what systems to use and how electronic records are managed can be found quite easily. This is because the challenge for governmental bodies lies in the transition process from managing non-electronic into electronic records. Considering that governmental bodies have been around for decades, the number of records and archives already managed can make it hard for governmental bodies to fully manage records and archives electronically. Findings of this research will be able to paint a picture for archivists as to how they can start transitioning, the possible obstacles they might face, and solutions to make sure that the transition that takes place under their supervision could be achieved successfully.

II. Method

This research was conducted using a qualitative approach, and the case study method. Creswell [3] explains that the case study method is a research method where the researcher analyzes a problem thoroughly. One of the characteristics that distinguish it from other research methods is that the case study method relies heavily on the time frame of when the research is conducted, and the activity or event being observed.

The instrument that is being used to assist in data collection in this research is a checklist of EDRMS requirements published by the International Council of Archives (ICA) in the Principles and Functional Requirements for Records in Electronic Office Environments. This publication was made to be used as a guide in developing EDRMS', created by ICA and national archival organizations from several countries, so every country has a set of universal requirements that could guide them in developing an EDRMS for their own needs. The requirements that were settled by all parties was based on ISO-15489 on Records Management. The ICA's objective by publishing the guide is that it would be used by all types of organizations and institutions—government bodies, private companies, business places, etc.—in the hope that data sharing could be done more easily and effectively, and to make sure that the EDRMS are flexible enough to be updated whenever the development in information systems requires the EDRMS to be like developed as well.

Out of 275 requirements which are divided into four categories, the requirements used in this research to collect data are the requirements within the "maintain" category. This category itself has several subcategories, however, this research focuses on the last subcategory within the category, which is the subcategory of hybrid records management. There are 10 requirements within this subcategory, which are requirements number 134 up to number 143. This checklist will be completed with data collected through semi-standardized interviews and participative observation. Three

informants were interviewed; Dede Abdurahman and Ester Triuma Ida who are both archivists, and Andetta Yulnanda who is the leader of the Information Systems and Applications Development from KKP's Data and Statistics Center (PUSDATIN). The object being observed is SIKap, which is KKP's EDRMS used to manage electronic records and archives. Data was collected from March to April 2019, in the main archival unit of KKP.

III. Result and Discussion

A. Management of Hybrid Records in KKP

Since KKP has many records and archives that had been created even before KKP started managing electronic records, the EDRMS used for managing electronic records has to be able to accommodate the management of hybrid records. The reason why KKP manages records in a hybrid manner is heavily influenced by the number of non-electronic records and archives KKP has before 2014 when the online version of SIKap was implemented. The requirements of EDRMS regarding the management of hybrid records are stated in ICA's second module, specifically requirements number 134 up to 143.

Table 1 ICA Requirements number 134 to 137

No.	Requirement	(V/X)
134	Be able to define in the classification scheme non-electronic aggregations and volumes, and must allow the presence of non-electronic records in these volumes to be reflected and managed in the same way as electronic records.	V
135	Allow both kinds of records to be managed in an integrated manner.	V
136	Allow a non-electronic aggregation that is associated as a hybrid with an electronic aggregation to use the same title and numerical reference code, but with an added indication that it is a hybrid non-electronic aggregation.	V
137	Allow a different records management metadata element set to be configured for non-electronic and electronic aggregations; non-electronic aggregation records management metadata must include information on the physical location of the non-electronic aggregation.	V

The first four requirements fulfilled by SIKap are the requirements for EDRMS to manage and treat non-electronic records managed in a hybrid manner the same way as electronic records are managed. As what is written in requirement number 134, when non-electronic records are being inputted into SIKap, archivists make sure that they describe in the metadata where that record is located within KKP's classification scheme. This is done so that other archivists and/or employees can retrieve records and archives more easily and effectively through the classification scheme.

Next is requirement 135, which requires EDRMS to be managed in an integrated manner. This is fulfilled by KKP, but it can only be applied to non-electronic records managed in a hybrid manner. This is shown by how SIKap does not differentiate electronic and non-electronic records, and the only way to distinguish the two is seeing whether or not there is information about the physical storage of the record in the metadata. When displaying search results for certain records, SIKap would display all related records to the query used at once without the users having to do multiple searches.

When searching for records and archives on SIKap, users will be able to differentiate electronic and non-electronic records by looking at the metadata of each record. For non-electronic records managed in a hybrid manner, the metadata will show a field which has the physical location of the record or archive being represented. The availability of the field containing the physical location of the non-electronic records managed in a hybrid manner following EDRMS requirements numbers 136 and 137, which states that EDRMS has to give an indication of which records are managed in a hybrid manner and to give information on where that non-electronic record is located physically.

Table 2 ICA Requirements number 138 to 140

No.	Requirement	(V/X)
138	Ensure that retrieval of non-electronic aggregations displays the records management metadata for both electronic and non-electronic records associated with it.	V
139	Include features to control and record access to non-electronic aggregations, including controls based on security category, which are comparable with the features for electronic aggregations.	X
140	Support tracking of non-electronic aggregations by the provision of request, check-out, and check-in facilities that reflect the current location of the item concerned.	X

In requirement number 138, it is stated that EDRMS in organizations which manage hybrid records has to be able to show electronic and non-electronic records when displaying search results. KKP fulfilling this requirement allows archivists and users to find as many related records as they need without having to go through the retrieval process repeatedly.

Requirements numbers 139 and 140—which are the two requirements not implemented by SIKap—focuses on the security and access aspect of hybrid records management. Requirement number 139 requires every EDRMS to control access to the physical form of all records managed in a hybrid manner, while requirement number 140 requires every EDRMS to control the usage of the physical form of all records managed in a hybrid manner. The reason why SIKap does not fulfill these two requirements are that the archival unit in KKP always tries to document every access and usage of its physical records, however, it is harder to control compared to the electronic records which rely on SIKap to control access and usage. Efforts to control access to and usage of non-electronic records are made by making sure the storage room is only opened when an archivist is present, and by writing down the usage of every physical record.

Table 3 ICA requirements number 141 to 143

No.	Requirement	(V/X)
141	Support the printing and recognition of barcodes for non-electronic objects (for example, documents, files and other containers), or should support other tracking systems to automate the data entry for tracking the movement of such non-electronic records.	X
142	Support the retention and disposal protocols and routinely apply to both electronic and non-electronic elements within hybrid aggregations.	V
143	Ensure that a non-electronic record is allocated the same security category as an associated electronic record within a hybrid records aggregation.	X

Next, are requirements number 141 up to 143, which are not requirements ICA directs EDRMS to fulfill but advises them to. First is requirement number 141 which advises the use of barcodes for each non-electronic record, to make management within the system easier to control. The main purpose of these barcodes will be to track the movement and usage of each non-electronic record, so the documentation of the activities in which those non-electronic records are involved does not have to be made manually by archivists. At KKP, barcodes are used but only to keep track of each box of non-electronic records, and barcodes are not integrated in SIKap. Therefore, for documentation purposes, archivists still have to make a list detailing the records contained in every box and where each box is located.

Requirement number 142 from ICA advises EDRMS' to implement the same policy and regulations set for electronic records, for non-electronic records and records managed in a hybrid manner. As can be seen from other requirements regarding hybrid records management, KKP tries to give electronic records and non-electronic records managed in a hybrid manner the same treatment as far as possible. However, for several reasons such as security and access control, it is impossible to use the same regulations and policies because there is an obvious difference in the form of the records, so adjustments have to be made.

The last requirement ICA made regarding the management of hybrid records is requirement number 143. This requirement advises EDRMS to allocate non-electronic records within the same security category with other associated records whether the related records are electronic or non-electronic. Technically speaking, SIKap does fulfill this requirement because the system allows the metadata of records managed in a hybrid manner to be put in the same aggregations as electronic records. However, in reality, this is not implemented because while non-electronic and electronic records can be in the same aggregation, the security category of the aggregation is not being enforced for non-electronic records. While the security and access control of electronic records can be enforced by the administrators of SIKap, that is not the case for non-electronic records since the physical records are located in a storage room. The only way to control access to physical records is by locking the storage room, and by having an archivist present whenever someone needs a certain record or archive.

B. Obstacles of Managing Hybrid Records in KKP

After doing several observations and interviews when collecting data, KKP itself—especially the archival unit and archivists—have been facing in the past several obstacles in managing hybrid records. Two main obstacles were found throughout the data collecting period of this research, are the number of non-electronic records managed in a hybrid manner, and the lack of manpower, especially staff with an archival background.

The first obstacle is the number of non-electronic records that are managed in a hybrid manner using SIKap which does not amount to 100%. As mentioned previously, KKP does not manage all their non-electronic records in a hybrid manner. This is because SIKap was only used in 2014, while KKP has been around for decades, resulting in the large volume of records and archives already managed. In the case of records that have been managed non-electronically, archivists decided to manage those with vital information in a hybrid manner. This helped archivists and users a lot, especially when needing to find certain records or archives, but at the same time affected the usage of records and archives managed non-electronically because those records did not appear in the search result lists when trying to retrieve records or archives from SIKap. This also affected the tracking of records and archives managed non-electronically, because they become "neglected" due to their dependence on the records and archives inventory lists made and updated manually.

The second obstacle is very closely related to the first one, as it explains further the reason why not all non-electronic records are managed in a hybrid manner. This is because the archival unit in KKP lacks staff who have an archival background. At the time when the data for this research was being collected, there were only four archivists in charge of running KKP's archival unit, and two of them were additionally given the responsibility of supervising the archival activity of all archival units in KKP from all over Indonesia. With the huge workload borne by only four archivists, it does not come as a surprise anymore to accept the decision made by the archivists to only managing vital records and archives in a hybrid manner. This is because to manage records and archives in a hybrid manner, the archivists have to input the metadata of those records and archives to SIKap. In short, the number of archivists in KKP's archival unit made it impossible for KKP to manage all non-electronic records and archives in a hybrid manner because of is the time it takes to input that quantity of records and archives.

IV. Conclusion

Based on the findings and analysis of data found during this research, it can be concluded that SIKap as the Ministry of Maritime Affairs and Fisheries' EDRMS manages hybrid records in nearly the same way as they manage electronic records. This is concluded even though the actions taken are not the same since there is a difference in the medium of electronic records and non-electronic records managed in a hybrid manner. However, archivists still aim to treat and manage electronic and non-electronic records similarly managed in a hybrid manner, following the same set of policies and regulations.

From the 10 EDRMS requirements set by ICA, 6 were fulfilled by KKP's SIKap while the other 4 were not. Out of these 4 requirements not fulfilled by SIKap, 2 were about tracking hybrid records, and the use of barcodes to do so, while the other 2 were focused on security issues and controlling access to the physical form of hybrid records. Findings also discovered two main obstacles related to one another, that were found in the use of SIKap to manage hybrid records. Those two obstacles are the number of non-electronic records managed in SIKap, and the lack of staff with an archival background. The large number of records and archives created and managed by KKP since KKP was first built until 2014 and the lack of manpower in the archival unit made it impossible to input all records and archives into SIKap. This led to the decision to only manage non-electronic records containing vital information in a hybrid manner. Others not considered to be vital are managed non-electronically.

Findings of this research can be very beneficial for organizations or institutions planning on transitioning into managing electronic records in an EDRMS, because this article discusses the requirements of EDRMS published by ICA, how those requirements are implemented by a governmental body in Indonesia. To prevent the obstacles arising, there are several solutions that could be implemented. The first solution is to hire more archivists and/or employees with an archival background, to take over the tasks of digitizing records and archives and inputting them into SIKap. By hiring extra people to help digitize and input records, KKP could reach a point where they fully manage electronic records and archives only. The second solution is to set and introduce regulations and policies to accommodate the management of non-electronic records by all archivists and other suitable employees. Regulations and policies need to be enforced strictly for electronic records, non-electronic records, and also for hybrid records. By setting regulations and policies to serve as a basis to all actions taken in regard to records management in KKP, all records and archives managed in KKP will be taken care of and used properly.

References

[1] Wang, Z. (2015). Analysing the Impact of Electronic Health Records. Health Information Science, 17(3), 156–163.

[2] Ab Aziz, A., Mohammad Yusof, Z., Mokhtar, U. A., & Jambari, D. I. (2018). Electronic Document and Records Management System Implementation in Malaysia: A Preliminary Study of Issues Embracing the Initiative. In G. Chowdhury, J. McLeod, V. Gillet, & P. Willett (Eds.), Transforming Digital Worlds (pp. 585–591). https://doi.org/10.1007/978-3-319-78105-1

[3] Creswell, J. W. (2014). Research Design - Qualitative, Quantitative, & Mixed Methods Approaches. California: SAGE.

[4] Ellis, J. (2008). Implementing a solution for electronic recordkeeping in the public sector. In J. Mcleod & C. Hare (Eds.), Managing Electronic Records (pp. 163–185). London: Facet Publishing.

[5] HP Software Big Data. (2015). Choosing an EDRMS for Best Practice Records Management (Rev. 5). California: Hewlett-Packard Development Company, L.P.

[6] International Council on Archives. (2008). Principles and Functional Requirements for Records in Electronic Office Environments – Module 1: Overview and Statement of Principles.

[7] International Council on Archives. (2008). Principles and Functional Requirements for Records in Electronic Office Environments – Module 2: Guidlines and Fuctional Requirements for Electronic Record Management Systems. Retrieved from http://www.adri.gov.au/products/ICA-M2-ERMS.pdf

[8] International Organization for Standardization. ISO 15489-1 Information and documentation -- Records management -- Part 1: Concepts and Principles., (2016).

[9] Jackson, S. L. (2012). Research Methods and Statistics: A Critical Thinking Approach. Belmont: Wadsworth Cengage Learning.

[10] Miles, M. B., Huberman, M. A., & Saldana, J. (2014). Qualitative Data Analysis: A Methods Sourcebook (3rd ed.). California: SAGE Publications, Inc.

[11] Read-Smith, J., & Ginn, M. L. (2011). Records Management. Ohio: South-Western Cengage Learning.

[12] Republik Indonesia. (2009). Undang-undang no 43 tahun 2009 tentang Kearsipan (*Law No. 43 of 2009 on Archives*). Jakarta: Sekretariat Negara Republik Indonesia.

[13] Safady, W. (2012). Managing Electronic Records (4th Edition). New York: Neal-Schuman Publishers, Inc.