Review Paper

THE CHALLENGES IN PRESERVING THE ELECTRONIC RECORDS METADATA

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Abstract

This paper is highlight on the preserving a metadata for electronic records (e-Records). It discover from the electronic government (e-Government) initiative until its revealing on the challenges on preserving e-Records metadata. The evolvement of electronic document (e-Document) and e-Records also being address in this paper. Besides on the explaining on preservation metadata, this paper also focusing on selecting appropriate attribute to represent significant challenges based on the scholars. Thus, there are ten (10) challenges has been discussed in this paper including figure 1. There are Metadata Standard and Tools, Precision of category, User Resistance to change, Metadata Conflict, Extracting Core Metadata, Date Last Access, Automatic Metadata, File Plan Repositories, Pre-defined Metadata and Metadata Authenticity. In the discussion section, this paper highlights most on the history of e-Records. This shows that the history or event history is the main focus of this paper. Finally, this paper conclude the issues by making a event history issues as a critical challenges that need to be focused in preserving an e-Records metadata


1. Introduction

In the process of enhancing an e-Government (Electronic Government) initiatives, there are a lot of barriers need to be encountered. These include the technology, people and resources. In Malaysia, an e-Government initiative was launched in the year 1997 by the former Malaysian Prime Minister, Tun Dr Mahathir Mohamad [20] as one of the seven flagships of the Multimedia Super Corridor (MSC) initiative. Thus, an e-Government not only offers benefits such as fast, inexpensive, trustworthy, and reliable services to households and businesses but also presents the potential to reshape the public sector [3]. Besides, an e-Government seeks to make interaction easier for the public and businesses by enhancing their accessibility of electronic information. Despite, there are seven main projects were identified to be the core of the e-government applications [22]. There are Electronic Procurement (eP), Project Monitoring...
System (PMS), Electronic Services Delivery (eServices), Human Resource Management Information System (HRMIS), Generic Office Environment (GOE), E-Syariah and Electronic Labour Exchange (ELX). Thus, by implementing all these systems, they will involve a lot of e-Document (Electronic Document) being created in the organization.

**E-Document (Electronic Document)**

In the other words, an e-Document is defined as information recorded that requires a computer or other electronic device to display, interpret, and process it [4]. As people have started using computer technologies, they have become used to creating, managing, and filing their e-Document themselves. Even though well-structured file plans may exist for the organization’s paper records, office workers rarely adopt that plan for the management of their electronic files. Consequently, electronic documents are often created according to individual preferences, making it harder to find, use, and manage them [14]. This situation will lead them to the loss of their e-Document.

**E-Records (Electronic Records)**

In the other hand, an e-Document will change to e-Record when there is existence of business transaction. Means, the e-Document is focusing on producing a daily document whereby e-Records happen after any transaction has been made on e-Document within two agencies. Then, an electronic or digital record may be 'born digital' (created using computer technology) or they may have been converted into digital form from their original format [19]. Despite, the purpose of an e-Record is to serve as an authoritative, authentic, and reliable source of information and as the means of documenting decisions. Most importantly it would serve as evidence to the transactions that transpired in government [18].

**Preservation Metadata**

While having an e-Record as part of business process in the organization, it should be ensured that an e-Records metadata is being preserved. A metadata is data about data, also known as information about data [12]. There are two metadata types; structural metadata, about the design and specification of data structures or "data about the containers of data"; and descriptive metadata about individual instances of application data or the data content [24]. One of the most common metadata in managing e-Records is Dublin Core Metadata (DCM). The Dublin Core Metadata Element Set is a vocabulary of fifteen properties for use in resource description [2] in order to standardize the management of electronic resources in any platform of system. Thus, in managing e-Records a DCM standard become a main focus of e-Records in ensuring the validity of preserving the metadata.

In the other hand, each or every process in managing the e-Records, the preservation metadata should be inherited as well. Even though in preserving an e-Records metadata, in one form or another, it’s become a standard component of most digital preservation implementations [11]. Despite, this shows that there are standards for managing an e-Record preservation metadata.

2. **Literature Review**

In preserving e-records metadata, many organizations have to face a lot of barriers and miscellaneous either from the process of implementation or on the policy driven. As for the purpose of giving a solution to these issues, there are few reviews on challenges of preserving the e-Records Metadata need to be identified by the organization.
Figure 1: List of challenges in preserving e-Records Metadata

**Metadata Standard and Tools**

By monitoring on the movement of e-Records, standard on metadata become the main issues. This is because there are certain organizations that produced their own policy. This will lead to the issues on metadata standard implementation and also the other difficulties as well. One of the difficulties of implementing metadata standards is it has been lack of widely available tools to create, check and interpret the data [17].

**Precision of category**

An e-Records metadata should be categorized in a proper manner including its content and description. But, one reason that preservation metadata is difficult to categorize precisely is that it does not fit neatly within well-known metadata categories [5] while preserving a metadata. In preserving metadata for e-Records, it should be a mandatory for every organization. This is because it supports the distinct requirements of digital preservation such as maintaining the availability, identity, persistence, render ability, understandability, and authenticity of digital objects over long periods of time [23].

**User Resistance to change**
The usage of preservation metadata has been implemented in the organization. The usage includes people awareness and acceptance. In preserving the e-Records, there are certain people that resist changing their working culture. This is because they already complacent with their current methodology [21]. This situation will lead to the mismanagement of the e-Records when they preserving the metadata.

**Metadata Conflict**

Preserving metadata of e-Records has included a structural metadata as one of the metadata group. Thus, structural metadata consist a lot of metadata including its design and specification. In certain situation, when they are combining different metadata specifications or when embedding extension of metadata, it will lead to the metadata conflict [8]. This situation will create a large number of metadata that should be included in the process of preserving the metadata. Thus, when they want to combine a different metadata for e-records preservation, they should have a specific standard and guidelines.

**Extracting Core Metadata**

In every activity that involved e-Records preservation it should embedded a metadata as a priority to complete the preservation process. When there is a situation where most of the metadata cannot be filtering up by the organization. This will lead to the difficulty in extracting core metadata about the record, as generated at the time the record was originally created and actively used [15]. The core metadata of the records must be identified before its being transfer to permanent preservation system.

**Date Last Access**

In accessing the e-Records, it should being recorded in any way. This will create a lot of metadata including the IP address (Internet Protocol Address) and accession version. When there are no dates of last access on e-Records, the metadata is not completed and seems incorrect. But fortunately, the "date last modified" is intact for all network files [6]. When the process of preserving the e-Records occurred, they will transfer all records to new storage. This migration access of records was not being counted by the metadata description as a "date access".

**Automatic Metadata**

While preserving a metadata, there are certain metadata that being capture automatically by the system. This includes the date, author and business process. Despite, a number of records management tasks including disposal have also been automated, as a result of specific date and task trigger data inherited from workflow processes [7]. But when preserving a metadata on e-Records, there are types of that cannot be migrated as well. By migrating automatically without concerning on the value of metadata will lead to the disclosing unwanted metadata.

**File Plan Repositories**

Each organization that applies the concept of e-Records management concept, they should have their own classification scheme. In applying a classification scheme to an organization, the classification system will be designed or reflect the organizational business activity [1]. Generally, each classification of e-Records, it has involve a lot of metadata. Thus, using current discrete unit metadata methodology to reproduce the contextual knowledge expressed in a structured classification scheme such as a file plan, it would not simply require significant human input to identify the requisite metadata [10]. In other hand, it is compulsory to have complete knowledge on managing metadata in e-Records classification scheme rather than only focus on the records content. This knowledge is required in order to complete and extract the metadata from classification scheme or file plan repository.

**Pre-defined Metadata**
In certain cases, most of the metadata on e-Records preservation cannot be accessed or retrieved efficiently. This is because system does not include pre-defined metadata for records or rules for controlling metadata [16]. This means they might prefer to use a synonymous or trying error as their retrieval process. As a result, a metadata that needs to be referred become less effective in terms of reporting and auditing.

**Metadata Authenticity**

The characteristics of records have been applied in managing the e-Records. One of the characteristic is authentic [13]. This means the record itself must be original without involving any alteration. Despite, when handling a metadata for e-Records preservation, an authenticity of the metadata should be implemented as well. In most country, archives need to document any action taken to an object so that future users can judge whether an object has been altered and, if so, in what way, by what process, when and by whom [9]. This is to ensure that the metadata of e-Records being recognized and valid for the future reference.

3. **Discussion**

A metadata bring a lot of meaning in terms of preserving e-Records. The process and activities in preserving the metadata become a mandatory to any organization that practicing e-Records preservation. By having list of issues from the reviews, it showed that preserving a metadata is very structured and need an expertise to manage it. Thus, in most agencies, the process of preserving a metadata on e-Records will be done automatically without concerning the precision of data. Instead, system that being used in managing a metadata is only focus on the organization objectives and policy without referring to other standard of compliance.

In other word, the reviews showed there are issues regarding the history of e-Records that not being captured in a proper manner. In this case, it seems like to ignore the process without concerning on the validity of the data in future. The process of verifying the metadata in preservation activities has been adopted by few agencies. But, the reviews showed that there still an organization do not practice it and take it into part of their policy. Surprisingly, they are only capture the metadata on the final version of the document and ignored the event history of the e-Record metadata.

Based on the reviews, the organization that has an authority to produce guidelines on preservation of metadata, specifically highlight on the event history metadata in their policy and standard. This is to ensure that the entire challenges that being discuss previously is most important aspect in preserving the e-Records metadata. Each of the challenges has its own issues. But in an aspect of preserving the metadata for e-Records, many reviewers or scholars are most concern on the records history metadata than others. This is because when the history of the records becomes incomplete, it will lead to other challenges to occur in the process of preserving the metadata.

4. **Conclusion**

As a conclusion, the entire metadata of e-Records should be preserved effectively and efficiently. This will encouraged the archives to fully utilize the metadata for appropriate long term preservation process. Likewise, it should be generated and preserved in earlier stages in order to ensure its value, authenticity, integrity, reliability and uniqueness of the e-Records being preserved in a proper manner.
References


Shaidin, S. (2007). e-Government Initiatives in Malaysia and the Role of the National Archives of Malaysia in Digital Records Management .The National Archives of Japan and East Asian Regional Branch of the International Council on Archives (EASTICA) will co-organize the 8th General Conference of EASTICA & Seminar in Tokyo from the 21st to the 26th October in 2007 under the theme of "Development of E-Government and Digital Records Management".


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