Evaluating Electronic Record Management System (ERMS) Collective Access Using ISO 16175-2:2011

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Abstract. The aim of the study is to evaluate ERMS software of Collective Access using functional requirements of search and retrieval in ISO 16175-2: 2011. A qualitative approach was chosen as the method to evaluate Collective Access. Data were collected with observation and documentation. The finding shows that Collective Access only meets 18 of 26 attributes of functional requirements (199-225). 8 attributes of functional requirements not met, include: 1) Provide searching tools for free text and boolean searching (204); 2) Provide for 'wild card' searching (205); 3) Allow users to retrieve aggregations through the use of a unique identifier (2011); 4) Allow user to save and re-use queries (216); 5) allow the user to refine (narrow) searches (218); 6) Provide relevance ranking of the search results (222); 7) Provide concept searches use a thesaurus (224); 8) Provide browsing mechanism in form graphics/display (225). Collective Access needed to be developed for instances, adding feature keeping and using history queries, history search, narrow search, boolean operator, variation of the wild card, unique identifier, and thesaurus. Finally, the study is limited to certain functional requirements, standards, and applications. Future study needs to consider aspects that have not been discussed or comparisons with certain standards or applications.

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1 Introduction

The advances in information technology are creating major changes to all aspects of human life, including record management (Putranto et al., 2018). Record management is important to ensure that available records can be protected and easily retrieved. Hendrawan & Ulum (2017) reveals electronic records' life cycle and management more efficiently than conventional records. Archivist/record manager need to implement ERMS as a process and procedures to ensure records management remains available and easy to retrieve.

ERMS is a computerized system designed and developed to manage paper-based and digital-born records (Jamaludin et al., 2011). ERMS provides various functions, including access control, auditing, disposal, and metadata (The National Archives, 2012). Fast finding, flexible indexing, simplifying accessibility, assuring responsibility, and easier monitoring are just a few benefits of ERMS (Habiburrahman, 2016). ERMS is most useful for handling electronic records and the services provided.

Institutions can implement ERMS open-source software such as Omeka, Collective Access, Collectionspace, ICA AtOM, and ARTERI. Collective Access is a popular ERMS that support academic institutions, art organizations, foundations, corporations, museums, archives, and historical societies (Paqua et al., 2018). One of the institutions that uses Collective Access is the National Hellenic Museum, Chicago, United States of America.

To identify the feasibility of ERMS software, ISO 16175-2:2011 on Principles and Functional Requirements for Records in Electronic Office Environments is used (ISO 16175-2, 2011). ISO 16175-2:2011 is derived from the basic framework of ICA-REQ module two, which has four main aspects: create, maintain, disseminate and administer. Of these four aspects, there are 275 functional requirement attributes (Fachmi & Mayesti, 2021)

ISO 16175-2:2011 is used as an ERMS evaluation tool to provide feasibility considerations users. The evaluation must be determined to measure how feasible an information organization can implement software.

In this study, a qualitative approach was chosen as the method to evaluate ERMS. Data were collected with observation and documentation. The researchers evaluated ERMS Collective Access using ISO 16175-2: 2011 search and retrieval aspects (dessiminate) which consists of 26 attributes number 199-225. Other aspects such as create, maintain and administer are not discussed.

2 Results and Discussions

2.1 Collective Access

Collective Access is a digital collection management system maintained by the staff at Whirl-i-Gig and contributed to the open-source community (Whirl-i-Gig, 2023b). The Collective Access project was started in 2003 in response to the lack of non-commercial, affordable, open-source solutions for digital collection management. Collective Access has search features, Web-based collection discovery, and support for a various metadata standards and media formats. Collective Access is useful for managing various types of collections and media (Applegate, 2016).

Surles (2015) mentions Collective Access' power and popularity are evidenced by the growing list of archives, institutions, museums, and organizations that use it and the scholarly literature that continues to rise to support it.

2.3 Evaluating Collective Access Using ISO 16175-2:2011

Evaluation of Collective Access by ISO 16175-2:2011 functional requirements. Functional requirements are used as a measurement tool for software used in creating and deploying of electronic records because they reveal organizational principles and functional aspects related to electronic records in a global environment. (International Council on Archives (ICA), 2008) .

Evaluation of 26 attributes of functional requirements numbers 199-225 or search and retrieve aspects chosen. The search and retrieve aspect explains that ERMS cannot provide information to those not authorized to access it. (ICA, 2008).

In this study, Demo Collective Access (https://demo.collectiveaccess.org/ Whirl-i-Gig, 2023a) and the National Hellenic Museum (https://collections.nationalhellenicmuseum.org/ National Hellenic Museum, 2023a) are used as research sites.

2.2.1 Attribute Number 199-218 (Shall)

The Mandatory requirement (shall) search and Retrieval ERMS Collective Access on Numbers 199-218: 7 attributes are appropriate and 5 attributes are not appropriate.

Table 1. Checklist of functional requirements of search aspects, and "Shall or Mandatory" interviews that are not met by ERMS Collective Access

No	Attributes	✓/✗
204	Provides a search tool for:	✗

No	Attributes	✓/✗
	a. Free text search of combinations record and aggregation record management metadata elements and record content: and b. Boolean searching of records management metadata elements	
205	Provide for 'wild card' searching of records management metadata that allows for forward, backward and embedded expansion.	✗
211	Allow records and aggregations featured in the search results list to be selected, then opened (subject to access controls) by a single click or keystroke.	✗
216	Allows users to save and re-use queries.	✗
218	Allow users to refine (that is, narrow) searches.	✗

Collective Access allows records of all types and levels to be searched according to metadata, with the order of record metadata such as object id, object name, date created, alternative name, measurements, object description, origin, right and reproduction, and citation (Requirements 199, 200, 201, 208, and 214 are met). Users can browse and search to find records using search bar and advanced search (Requirements 202 and 213 are met).

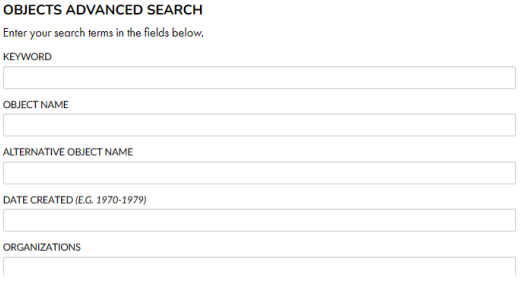

Figure 1. Advanced Search Feature (Collections.nationalhellenicmuseum.org, 2023)

Searching in one or more aggregations and viewing the metadata as a single entity in Collective Access is possible (Requirements 206 and 207 are met). Records or aggregations displayed in the results list can be selected and opened with a single click (Requirements 210 and 217 are met). Collective Access provides unlimited functionality regarding digital, non-digital, or hybrid media records in that metadata points directly to the source of the records obtained (Requirement 215 is met). Each search result in the display format section displays the total number and filter results (Requirement 209 is met).

Administrators can set configurations for further search or other settings via https://demo.collectiveaccess.org/ (Requirement 203 is met) .

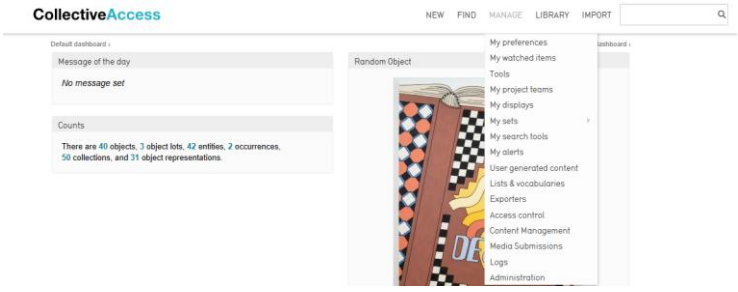

Figure 2. Administrator settings where to Catalog collections (Whirl-i-Gig, 2023a)

Collective Access protects user access. Administrators have access to all features, users are not permitted to access or modify more sophisticated (Requirement 212 is met).

2.2.2 Attribute Number 219-224 (Should)

Requirements recommended (should) search and retrieval of ERMS Collective Access at Numbers 219-224: 4 appropriate attributes and 2 non-appropriate attributes.

Table 2. Checklist functional requirements of the " Should or Recommended" aspect of search and retrieval which are not met by ERMS Collective Access

No	Attribute	✓/✗
222	Provides relevance ranking of the search results.	✗
224	Provide concept searches through the use of a thesaurus incorporated as an online index	✗

Collective Access provides information regarding any object records available online, offline, or near line, which is informed with metadata object description, origin, right and reproduction, and citation (Requirement 220 is met). Display formats vary according to order, object type, year, language, collection, material, individual source, and organization (Requirement 221 is met).

The Collective Access search method supports proximity searching - users can perform more specific searches and limit more specific results; search results are only on records that meet certain word requirements (Requirement 219 is met). The citation function can 'extract' the digital record to the original record (Requirement 223 is met).

2.2.3 Attribute Number 225 (Shall)

Mandatory requirement (shall) search and ERMS Collective Access retrieval at Number 225: 1 attribute is not appropriate.

Table 3 . Checklist of functional requirements for aspects of search and retrieval that are "shall or required" that are not met by ERMS Collective Access

No	Attribute	✓/✗
225	Provides a browsing mechanism that enables graphical display or other display browsing techniques at any level of aggregation.	✗

2.4 Critical thinking

Collective Access allows users to do a browser and search to find records using a search bar and advanced search. Following Mukred et al. (2016), ERMS enables easy and efficient search and retrieval of records. Santoso & Prabowo (2021) also said that search and retrieval are mandatory features in ERMS. They gave an example of the ERMS SIKS, which has general and special search features with restrictions such as archive types.

Surles (2015) recommends Collective Access because it supports providing access to many files in various formats, including images, documents, audiovisuals, and videos, and can access Google Maps and can support resources and metadata. Collective Access metadata can be customized in several ways. Installation profile modifications can easily create custom systems and provide the ability to customize metadata fields flexibly after the program is installed.

Furthermore, Collective Access has also provided access restrictions so that users (not administrators) cannot change the metadata of search results. Following the elaboration of Santoso & Prabowo (2021), control over records can be done with access control and archive security. Access control is also regulated in requirement number 91, namely restrictions on access rights according to user roles and system admin control (Fachmi & Mayesti, 2021). Control requirements are a software mechanism that automatically gives the administrator authority to provide access restrictions by organizational policies (Rahma & Mayesti, 2019).

3 Conclusions

The results of Collective Access evaluation using ISO 1615-2 aspects of search and retrieval number 199-225 revealed that out of 26 attributes, 18 were fulfilled, and 8 were not met. A few attributes that have already reached their full potential can be categorized as appropriate, there is an integrated search system that enables users to manage their searches, and there is a wealth of comprehensive metadata about the contents and location of available records. In Collective Access, the administrator lacks the necessary permissions to modify the display/menu settings.

Eight attributes are "shall" but have not been implemented, including 1) Provide search tools for free text and boolean search (204); 2) Provide 'wild card' search (205); 3) allow users to retrieve aggregations through the use of unique identifiers (2011); 4) allow users to save and reuse queries (216); 5) allows users to narrow (narrow) searches (218); 6) Provides a ranking of the relevance of search results (222); 7) Provide a search for concepts using a thesaurus (224); 8) Provides a browsing mechanism in graphical/display form (225). The open-source Collective Access is once again concerned with meeting all of its requirements because the search and retrieval process is one that users must complete.

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