

## Research Paper

# Digital Content Management: Systematic Review

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### Abstract

**Purpose** The purpose of this paper is to review and analyze the management, pattern of “Digital Content” based on research published and represent an overview of subjects, methodologies, contexts, and other features which are highlighted in these works. **Method:** In this study, the systematic literature review was undertaken by retrieving the studies related to “Digital Content Management” published in February 2021 on several databases. Various information of papers collected, became the basis for synthesis and analysis. In addition, all the studies were qualitatively evaluated for measuring validity of researches to present in the synthesis by Evidence Based Librarianship (EBL) critical appraisal checklist. **Findings:** the systematic review presents a systematic framework based on research' items in the “Digital Content Management” field. The items include research' methodology, data gathering tool, and other elements. **Conclusion:** The hidden subjects in the literature review were extracted and classified. Finally, based on these classes and other extracted information, the goal of the paper was achieved.

**Keywords:** Content Management; Digital Content; Digital Content Management.

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**Introduction:**

Considering the increase in the volume of information in the age of information, it is necessary that information becomes well-defined, accessible, and restricted in terms of use (Mudkavi, 2006) but because of the variety of sources types such as text, images, graphics, video, sound, documents, records which are found in digital format, there is an overload of information (Mudkavi, 2006).

Producing information in digital format was rapidly brought growing the medium for information storage (Mudkavi, 2006) and therefore digital revolution was made in the last decades and affected the aspects of information, from collection to disseminating (Rahman and Islam, 2020).

On the other hand, growing digital collections make us face the challenges such as continued access and long term preservation (Rahman and Islam, 2020). This creates the necessity that is called "Content Management" (Mudkavi, 2006).

Content Management is defined as "the set of processes and technologies that support the collection, managing, and publishing of information in any form or medium" (Rahman and Islam, 2020; IVAN, 2009) which increase the probability of the long life of digital content (Mudkavi, 2006) and is became more important by expanding the number of this contents year by year (Rahman and Islam, 2020).

However, the term of "Digital Content Management" is taken as a synonym for other terms such as Digital Rights Management (DRM), Electronic Document Management Systems (EDMS), Electronic Resource Management (ERM) (Rahman and Islam, 2020) but the shared and key elements for the success of digital content management are preservation, metadata, and access (Han, 2004). It also helps to obtain much information with less effort, saving money and manpower (Rahman and Islam, 2020) and is applied for accessing the strategic goals (Rahman and Islam, 2020).

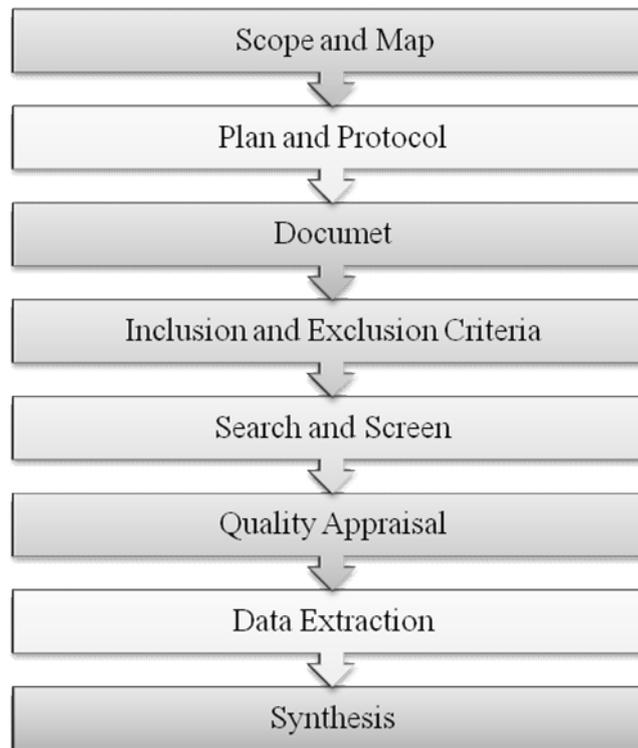
Nowadays, e-sources such as e-book, e-journal, e-report and others have been becoming popular among the users and the mobile phone has a basic role in changing the culture of using digital instead of printed sources (Rahman and Islam, 2020; Mudkavi, 2006). Therefore, the importance of content management has been stressed and gained attention among the users.

Given the increase of demands for digital sources, we need digital content management (Han, 2004) and it is important to understand the

Management' pattern of “Digital Content”. Hence, the main problem of this paper is with systematic review for capturing the information about the researches in this field. This represents a more complete picture of Digital Content Management in the scientific community.

### Method

The purpose of this paper is to review and analyze the Management' pattern of “Digital Content”. In order to this, the systematic review was employed as a methodology. The systematic review is undertaken using 8 steps guidelines that Jesson, Matheson, and Lacey (2011) mentioned investigating the pattern of digital content management.



**Chart 1. Steps of Systematic Review**

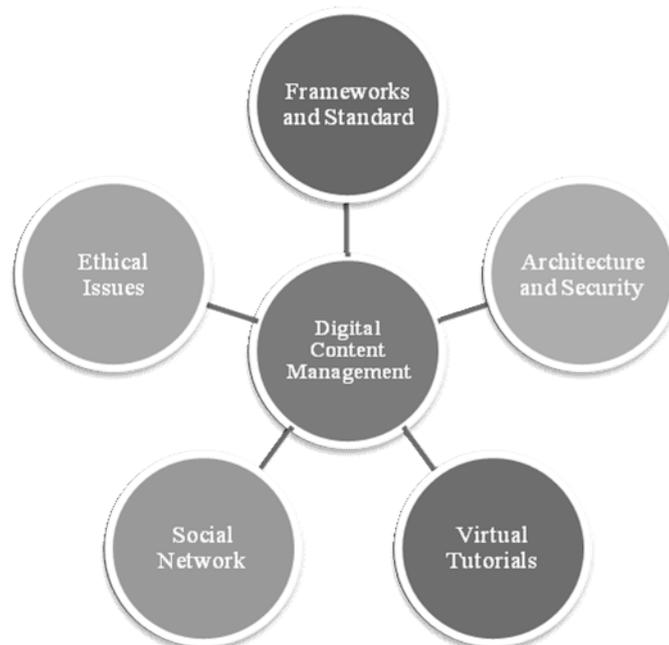
Systematic review is “a systematic and transparent tool for collecting, appraising and synthesizing of researches findings on a special topic which minimizes the bias resulting from single studies and non systematic reviews” (Jesson, Matheson and Lacey, 2011).

Systematic review contains structured searches on a special topic that researchers apply to retrieve articles on the field and will be replicated sometime in future.

### 1. Scope and Map

Systematic review is the process of synthesizing and interpreting both qualitative and quantitative findings that scholars use for investigating and evaluating the researches in various fields.

By the systematic review, assessing articles and understanding their findings may be a valuable time saver for every Decision-making organization who wishes to introduce new conducts, technologies, or treatments into his/her research trends, tools or methods in a responsible and scientific manner. Therefore, reading a good systematic review or meta-analysis would prevent technicians from reading several original research articles (which may be gathered in the systematic review) with a view to reaching a real conclusion.



**Chart 2. Scope of Digital Content Management**

## **2. Plan and Protocol**

The synthesis aims to identify the Management' pattern of “Digital Content”. The following research questions are steps toward mapping this pattern:

- What are the methodologies used for digital content management in studies?
- What are the carriers\contexts\fields of digital content management?
- What are the producers of science in the field of digital content management?

## **3. Document**

This study utilizes online and reputable databases for gathering literature published in the subject area. In order to ensure that all of the articles or papers are captured, a Google search was done. The Search keyword used for all databases and Google was “Digital Content Management”.

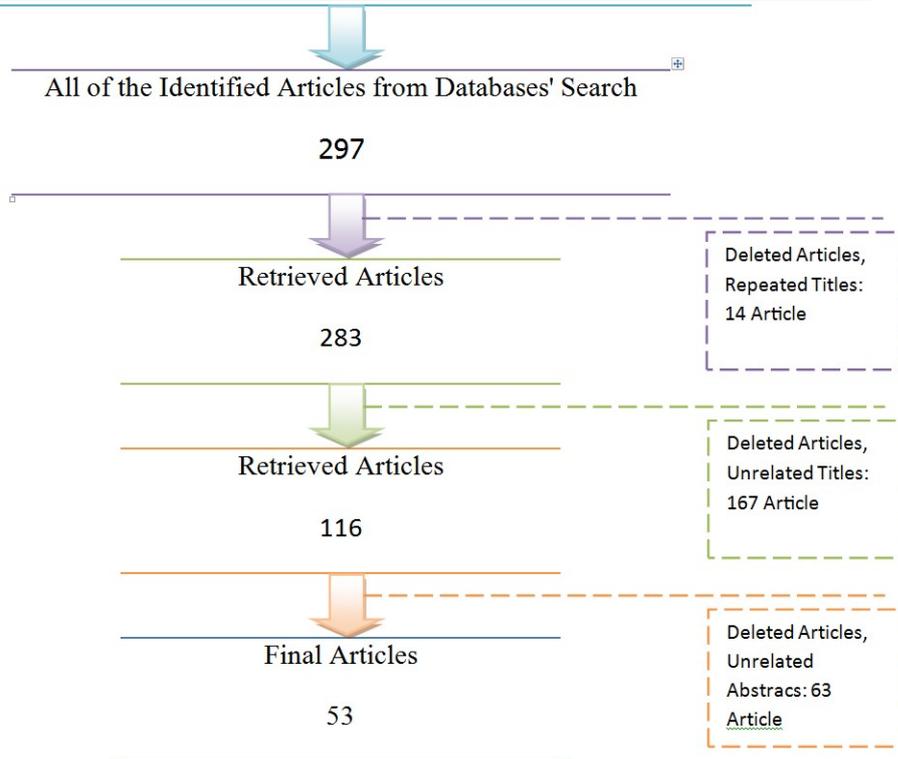
## **4. Inclusion and Exclusion Criteria**

Retrieved articles from databases were examined based on inclusion and exclusion criteria. This investigation was accomplished by reading and analyzing all the articles and there were finally 53 papers . The focus of the synthesis is on Persian and non-Persian (English, French, ...) papers, in order to this, both Persian and non-Persian databases were searched. The databases were chosen which are contained the "article" because the researches were limited to “Article”. In addition, the fulltext of article can be obtained from it. Although the ProQuest and Irandoc are best known for the thesis and dissertation but they include the articles and they were searched but in Irandoc no article was found on this subject. By content, reviews were excluded and the research studies were chosen for this synthesis.

## **5. Search and Screen**

All of the searches were carried out in a week (2010/02\02 to 2021\02\09) and the papers\articles only were identified from the database. Names of databases and numbers of extracted papers were integrated into the table below.

Elsevier	ProQuest	Emerald	DOAJ	Google
35 Article	160 Article	83Article	2 Article	5 Article
Noormags	MagIran	ISC	NL	Google Scholar
2 Article	1 Article	4 Article	1Article	4 Article



**6. Quality Appraisal**

Although there are many checklists for critical appraisals that are freely available, Glynn’s critical appraisal checklist was used. This checklist is specific to library and information science but it is general enough to be applied to both qualitative and quantitative evaluations (Catalano, 2013).

Consequently, all of the studies in this analysis were evaluated using Glynn’s (2006) Evidence Based Librarianship (EBL) critical appraisal checklist.

Results of the evaluation appear in the “Research Design” table (Table 1).

**Table 13. A Part of “Research Design” Table**

NO	Author / Country of Study	Sample Size	Sampling Method	Research Method	Data Gathering tool	Subject of Study	EBL Critical Appraisal Score	Comments
1	Norman Paskin/UK	Unknown	Unknown	Descriptive	Unknown	Copyright - Electronic Publishing - Identification - Information Management - Internet	<75	B>75
2	Yan Han/USA	3	Unknown	Survey	Unknown	Content Management - Operating Systems - Maintenance - Information Systems - Digital Storage	>75	D<75
3	Seong Oun Hwang... [et al]/Unknown	Unknown	Unknown	Survey	Unknown	DRM - Content distribution - Security	<75	B>75
4	Sameer Kumar, Thomas Snavely / USA	Unknown	Unknown	Survey	Unknown	Strategic alliances - Outsourcing - Innovation - Digital publishing - Process innovation - New product development	>75	A&C<75
5	Paul Warren, David Alsmeyer/UK	Unknown	Unknown	Survey	questionnaire & depth focus group	Digital Libraries - Information Management - Content Management - semantically-enabled knowledge technology ((SEKT	>75	D<75
6	Miles Kimball / USA	Unknown	Unknown	Survey	Unknown	Enterprise database - e-Portfolio - Pedagogy - Portfolio - Trends	>75	A<75
7	John Shuler / USA	Unknown	Unknown	Descriptive	Unknown	Federal Depository Libraries - Economic Landscape - Political Landscape	<75	C>75
8	Jjen-Yu Hsu, Hao-Re Ke, Wei-Pang Yang/ Taiwan	Unknown	Unknown	Descriptive	Unknown	Museums - Content management - Knowledge management - Taiwan	>75	C<75
9	Manuel Moreira Silva,	Unknown	Unknown	Survey	Unknown	Integration of ontology-	<75	C>75

## 7. Data Extraction

Research data were reached from two tables: “Bibliography Information” (Table 2) and “Research Design” tables<sup>1</sup>.

“Bibliography information” table contains the information such as: author, country, year, discipline or group studied, and objectives/implications of the study. “Research Design” table includes data collection method and sample size, sample method, data collection instrument information, critical appraisal results, and comments.

## 8. Synthesis

The notes about different aspects of reviews that were organized in the tables are used to answer the main questions.

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1. The Whole content of tables is available and can be presented, but in the paper we have had to present only the first page of the table due to limitation of article volume.

Information of articles was categorized in tables to answer synthesis questions using the interpretive synthesis approach.

Interpretive synthesis can develop concepts by answering questions and help to denounce\clear dimensions of matter based on quantitative and qualitative data and describing the information. The benefit of interpretive synthesis approach is to present different forms of evidence that the author must interpret to provide an explanation for a phenomenon.

**Table 14. A Part of “Bibliography Information” Tables**

NO	Author / Country of Study	publication date	Field of study	Purpose / Application	Subject of study
1	Norman Paskin/UK	1999	Ethical issues in digital content management	use of The digital object identifier system to content management	Copyright - Electronic Publishing - Identification - Information Management - Internet
2	Yan Han/USA	2004	Economic and social dimensions of digital content management	Implication in University of Arizona	Content Management - Operating Systems - Maintenance - Information Systems - Digital Storage
3	Seong Oun Hwang... [et al]/ Unknown	2004	Ethical issues in digital content management	surveys trends in the e-portfolio boom, relating the development of database portfolio systems to portfolio pedagogy	DRM - Content distribution - Security
4	Sameer Kumar, Thomas Snayely / USA	2004	Technical, cultural and social infrastructure of digital content management	Present approach to in this unique type of product development to business situations	Strategic alliances - Outsourcing - Innovation - Digital publishing - Process innovation - New product development
5	Paul Warren, David Alsmeyer/UK	2005	Digital transformation frameworks	describing the application of semantic knowledge technology to a case study in intelligent content management	Digital Libraries - Information Management - Content Management - semantically-enabled knowledge technology ((SEKT
6	Miles Kimball / USA	2005	Technical,	surveys trends in the e-portfolio boom,	Enterprise database -

## Findings

All of the studies were finally chosen for synthesis concern with digital content management and were conducted online.

- What are the methodologies used for digital content management in studies?

Nearly all researches used the survey method. One of those applied mixed-method and several studies also are descriptive. Limited numbers of the survey mentioned population and sample and a few of them have explained its method.

The research tool of 8 surveys is questionnaire and one survey employed questionnaire and interview at the same time. Other studies have not provided a description of used tools.

- What are the carriers\contexts\fields of digital content management?

Selected researches for the synthesis analyzed different databases to control the ethnics of digital content management. Librarians and archivists were other elements of this investigation for extracting the management' pattern of digital content.

What are the producers of science in the field of digital content management?

There is a variety of countries as a study' context and all of the researches have been done on special occasions in different situations.

According to the tables, several themes might be gathered from content of the published works about digital content management field. The themes can be categorized into some classes such as: architecture and security, ethical issue, economic and social dimension, standards and frameworks, technical and cultural aspects and finally the challenges.

Reached information from the tables also indicated that, during 1999-2021, digital content management field topics changed from topics based on source and repository to those related to social media and semantic networks. since 1999, research topics in the field of digital content management have included a series of thematic historical developments. From copyright, electronic publishing, information security, digital libraries to content management systems (CMS), digital technologies, social networks, knowledge management, multimedia and archival resources, e-learning, data mining and semantic systems

### **Discussion and Conclusion**

Systematic literature review of digital content management area presents a review of studies in this field. As mentioned earlier, this study makes several contributions.

First, there are 2 essential methods: survey and mixed-method.

Second, there are carriers\contexts\fields of digital content management. Most of the research has been done on data analysis of selected databases or surveys of users, librarians and archivists to evaluate the effectiveness of their methods and tools on the research purposes.

Third, there are producers of science in the field of digital content management. Most of the scientific products of the statistical community have been produced by authors from the United States, the United Kingdom, Bangladesh and India.

By using a systematic method in the field of digital content management, in addition to identifying the rich resources in this field, it also includes classification and summarization. Therefore, it is very useful for those researchers who are looking for the most useful information in the shortest possible time. Due to information bombardment, poor studies, inconsistencies in the results of studies, loss of time and capital and identification of research needs, the study is an essential review.

Systematic review in the field of digital content management with meta-combination and meta-analysis method in this article showed how the evolution of the study areas of the thematic scope of digital content management took place. On the other hand, the prolific, active and talented writers introduce this field and along with its nationality, show the author and the research process of that country in the field of digital content management. In some cases, the results can even reveal their research habits. Combining the use of the systematic review method with the existing documented critical evaluation factors, the scientific productions of that field can also be analyzed collectively and separately. In some cases, they could be compared the results and samples of the articles with each other.

One of the main features of this research through the systematic review method is its high reliability, ie. reproducibility, and finally, it can be used as a powerful tool for comprehensive study and diagnosis and analysis of regular studies to answer research questions in the field of digital content management.

Results of the research can help to capture an overview of “Digital Content Management” through the studies which are published in famous databases. Using the research results, universities and research centers can be notified about the “Digital Content Management” scope in respect of subject, methodology, dataset and tools and other features. In addition, the responsible organizations can develop the Content Management system.

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