

# COMPARISON OF USED METADATA ELEMENTS IN DIGITAL LIBRARIES IN IRAN WITH DUBLIN CORE STANDARD

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## Abstract

**Introduction:** Internet and Wide World Web development, as well as the increasing content of electronic information resources in the web environment has created many challenges front of organizers and managers of information. One of the fundamental challenges is how to manage electronic resources to increase their accessibilities, to increase recall and precision. A new way that in recent years has been created for encounter with this problem is metadata. The most important environments that can use from metadata are digital libraries (DLs). Because of rapid development of DLs in Iran and organization and management importance of resources in these libraries, in this research has been paid to investigation of usage of metadata elements in DLs in Iran and their adaptation rate with Dublin Core standard.

**Method:** This research is survival descriptive research. First used metadata elements has been determinate in DLs in Iran and then has been paid to adaptation rate of used metadata elements in eight DLs in Iran with Dublin Core standard using of a check list.

**Findings:** Findings of research showed none of DLs in Iran have not used from special metadata schema like Dublin Core and etc. But this research showed 100 percent of libraries have used from general metadata elements (HTML metatags). "Omid-e Iran" DL using 7 elements is in first rank and "DID" DL using 1 element is in last rank.

**Result:** Findings denote used metadata elements are limited to html metatags that in between these elements a few number are adaptation with Dublin Core elements. We hope managers and designers of DLs study researches and step impressively for more standardization of DLs in Iran.

**Keywords:** Digital libraries, Metadata, Metatags, Dublin Core, Iran

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## 1. INTRODUCTION

Spread and consisting of internet and World Wide Web lead to provide capabilities, variation environment to produce, process, storage and generally access to information for all people that spread of digital libraries is example of these capabilities. On the other hand, this phenomenon, such as many others, is important from the aspect of designing, planning, accessibility and how the information inters to these environments. Here, recently, it is developed pattern to enter, organize, place and manage the information for digital libraries, that some examples are metadata plans, like Dublin Core standard, Text Encoding Initiative, Metadata Encoding and Transmission Standards. The present research considers applying metadata in digital libraries in Iran and adaptation level of used elements with Dublin Core standard.

## 2. RELATED WORK

Many researches are done in this scope. Haji Zeinolabedini (2001) in his research about considering applied metadata elements in 28 Persian site, shows that foreign ministry site with applying 10 elements has the highest amount and agricultural ministry with applying just one element, has the lowest amount to apply metadata elements.

Sharif research (2007) in considering the effect of five metadata elements in Dublin core on an electronic paper with 81 pages, shows that search engines aren't pay attention to presence of metadata elements and "title" element in "HTML" is the most effective.

Majidi and Pishva research findings (2007) shows that rate of applying "keyword" and "description" in open access magazines is 33.1 and 29.9 percent. In Bahmanabadi research

(2005) was determined that more than 90 percent of Persian sites at least use one of metatags. Gilvari and Mehrad research findings (2005) in considering applied rate of metatags in designing 97 Persian electronic magazines showed that 26.9 percent of them use metatags. In Saadat and Jowkar research (2009) mentioned that 20 libraries from 70 world national library use metatag (public metadata) against special metadata in web pages. Mohammad (2006) in considering 150 search pages of 3 search engine (Altavista, HotBot, Infoseek) resulted that adding metadata elements, increase these pages rank in these 3 search engines.

Also, Alimohammadi research (2001) showed that only 31.5 percent of websites, use keyword metatag, and usage rate of "description" metatags were 24.6 percent. Lawrence and Gills (in Alimohammadi, 2003 and Pisha and Majidi, 2007) considering usage rate of metadata showed that 34.2 percent of web pages, use from HTML metadata.

Craven (2000) determined 56.8 percent of mentioned pages, used metatags. Qin and Wesley (in Alimohammadi, 2003 and Pisha and Majidi, 2007) with using four search engines resulted that only 253 pages use HTML metadata.

Lei Zhang and Jastram (2006) with studying 24000 pages resulted that 62.83 percent of metadata plans on internet are "HTML" tags, 7.42 percent include Dublin core metadata and 44.12 percent include another metadata plans. Guinchard (2002) in considering using rate of different libraries from Dublin Core metadata for describing their resources showed that major libraries that use these metadata are national libraries. Also, result of this research showed that 73 percent of these libraries use metadata like Dublin core, that 61 percent of these libraries use "HTML" language to encoding Dublin Core elements. And Karpenko (1998) resulted that 43.3 percent of these libraries use metadata that software consider for web pages automatically and 41.5 percent of libraries don't use metatags at all.

### 3. PROBLEM STATEMENT:

One of basic elements in every library and information center is organizing information resources. After selecting and providing resources, the organizing stage is the most sensitive responsibilities in libraries and information centers because that library and information center that has rich information resources, but has not ability to access that information for its society, will not have necessary effective. Making accessible resources can't obtain except with correct organizing and indexing and abstracting them. Traditional libraries use bibliographic records in form of copy or electronic to reach this goal. But we use another way to organize electronic resources with regard to their difference with copy resources. Recent development to offer new methods in organizing electronic resources and many projects in this scope is showing world

tendency to use these new methods to describe, locate, organize, search, documentation, and evaluate of electronic resources. One of those new methods is metadata. The goal of metadata is describing, locating, organizing, searching, documenting, evaluating, selecting information resources and generally managing electronic resources. Perhaps we can say the main place to apply metadata is digital libraries with different performances. The main problem in this research is considering attention to applying metadata elements in digital libraries construction in Iran and their adaption level with Dublin Core standard. Determining applied metadata elements in these libraries and compare with Dublin Core standard as world criteria to storage, organizing and retrieving information in web environment will show that how is situation to apply metadata elements and standardization level of these elements in digital libraries in Iran.

## 4. METHODOLOGY:

### 4.1 Research Method

The research method is descriptive survival method. With using survey method, first considered metatags in digital libraries websites and then determined adaption rate of these elements with Dublin Core metadata elements using one adapting checklist of "HTML" language metatags with Dublin Core elements

### 4.2. Research Society:

Research society was 8 digital libraries websites in Iran. To determine these DLs, we use available list in Astan-e Ghos Digital library website as only available list. Also, there were done many searches with using Google search engine that was distinguished 110 sites was started with name of "digital library", "electronic library" and "virtual library" in Iran. 13 weblogs were deleted because of lack adaption with digital library criteria. Also, 14 libraries were deleted because of lack accessibility and 45 libraries had not any action and 8 libraries were eliminated because of lack available full text resources and 14 libraries because of difference with Iran rules. Among the other 11 libraries, 3 of them remove because of not answering to researchers questions from the society. In this way, main work has done on 8 digital libraries. The study was done from July to September 2010

## 5. PROJECT QUESTIONS:

1. Which digital library in Iran use metadata elements?
2. Which metadata elements are used in digital libraries in Iran?
3. How many of applied metadata in digital libraries in Iran adapt to Dublin core metadata?

## 6. FINDINGS:

In relating to first research question, and to determine libraries that use metadata, findings showed that non of digital libraries in Iran didn't use special metadata initiatives for example Dublin Core and text encoding initiative. But Consideration of these libraries websites showed that all libraries (100 percent) use from common metadata elements (HTML metatags).

In relating to second research question, libraries websites was considered with using Netscape and Internet Explorer and was extracted "HTML" metatags (common metadata). These metatags include 2 metatags types: HTTP-EQUIV metatags and name attribute metatags (table 1).

**Table1:** Used metadata elements in Digital libraries in Iran

Library Name	HTTP-Equiv Metatag	Meta name Attribute	Frequency
Omid-e Iran	Content-Type, Expire, Rating	Description, Author, Copyright, Revisit, Title, Relation Robot, Keyword	11
Yassobeldin	Cache control, Content, Proagma, Type	Title, Description, Robot-Revisit	8
Ahloolbayt	Content-Type, Progid	Title, Description, Robot-Organator	6
Parstak	Language, Content-Type	Title, Keyword, Author, Description	6
Downloadbook	-----	Robot, Author, Description, Keyword, Revisit	5
Tebyan	-----	Tebyan-Keyword-Copyright-Relation-Verify	5
Hawzah	Language-Progid	Title	3
DID	-----	Title	1

Considering special digital libraries websites showed that "Omid-e Iran" digital library with 11 Elements is in first rank and "Yasob Aldin", "Parstech" and "Ahloolbait" with using 8,6,6 elements are in the next ranks, after that "Tebyan" and "Downloadbook" digital libraries place with using 5 elements. "Howzah" digital library with using 3 elements is in fourth rank. And "DID" digital library with 1 element is in fifth rank.

The chart 1 shows that "title" element with 87.5 percent had the most usage among digital libraries. Also "description" and "keyword" elements are used in 5 libraries (62.5 percent); and placed in second rank. 50 percent of libraries have used "Revisit" and "Author" (37.7 percent) and "Copy rights", "language", "progid" and "Relation" are used in 2 libraries (25 percent) and other elements placed in next rank.

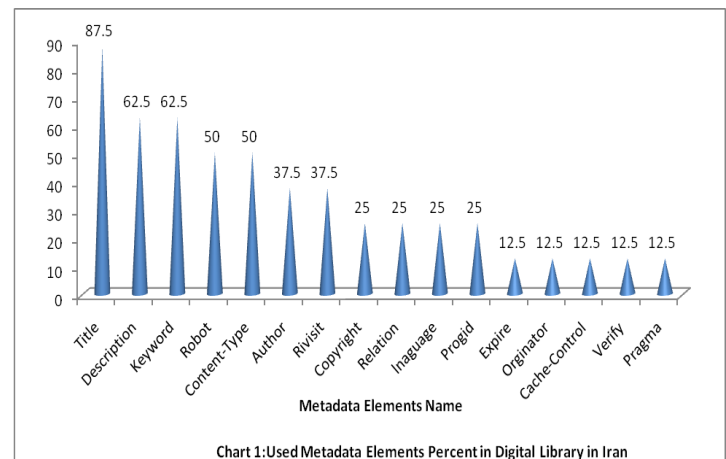


Chart 1:Used Metadata Elements Percent in Digital Library in Iran

To answer third question in research, it was used one adaptive table among "HTML" metatags and Dublin Core elements to determine adaption rate of metadata elements in digital libraries in Iran with Dublin Core standard and was distinguished amount of this adaption. Findings have been show in tables 2 and 3 and chart 2.

**Table2:** Adaptation Table of Used Metadata Elements in Digital Libraries in Iran with Dublin Core Metadata

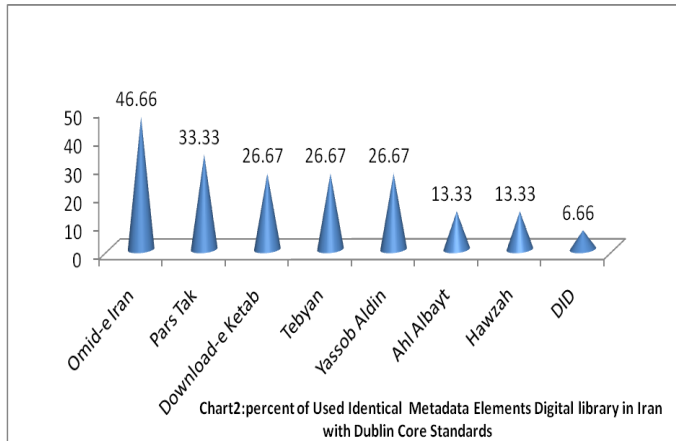
No.	HTML Elements	Dublin Core Elements	Frequency	Percent
1	Title	Title	7	87.5
2	Description	Description	5	62.5
3	Keyword, Classification, Subject	Subject	5	62.5
4	Expire, Rivisit	Date	4	50
5	Creator	Creator	3	37.5
6	Copyright	Rights	2	25
7	Relation	Relation	2	25
8	Language	Language	2	25
9	Source Type	Type	-----	-----
10	Source	Source	-----	-----
11	Format	Format	-----	-----
12	Electronic Address	Identifier	-----	-----
13	Contributor	Contributor	-----	-----
14	Coverage	Coverage	-----	-----
15	Publisher	Publisher	-----	-----

Table 2 determine that just 9 elements (with consideration "Expire" and "Revisit" as 2 elements) of 17 elements applied in digital libraries in Iran adapted with Dublin Core. Also, 7 elements of "Type", "Resource", "Format", "Identifier", "Contribute", "Coverage", and "Publisher", "Title" elements

with 87.5 percent (7 libraries) have the most rate in 5 libraries. "History" element has been used in four libraries (50 percent) and "Creator" in 3 libraries. "Copy rights" and "language" and "relation" elements have been used in 2 libraries.

**Table3:** Rate of Used Metadata Elements Digital library in Iran adapted with Dublin Core Standards

Library Name	Identical Elements with Dublin Core	Frequency
Omid-e Iran	Description, Author, Copyright, Title, Date(Rivisit, Expire), Relation, Keyword	7
Parstech	Title, Keyword, Author, Description, Language,	5
Downloadbook	Author, Description, Keyword, Date(Rivisit)	4
Tebyan	Title, Keyword, Copyright, Relation	4
Yasoob Aldin	Date(Rivisit), Title, Keyword, Description	4
Ahloibait	Title, Description	2
Hawzah	Language, Title	2
DID	Title	1



From table 3 and Chart 2 was determined that "Omid-e Iran" digital library with 7 elements has reach first rank in adaption and 46.66 percent is mapped with Dublin Core standard. "Parstech" library with 5 elements is adapted with this standard and placed in second rank (33.3 percent).

"Downloadbook", "Tebyan" and "Yasoob Aldin", libraries with 26.67 adaption percent placed in third rank of comparison. "Hawzah" and "Ahlolbait" libraries with 13.33 percent placed in fourth range. "DID" digital library with one element placed in fourth rank of adaption with Dublin Core standard.

## 7. RESULT AND DISCUSSION:

Results of consideration in this research showed that digital libraries in Iran do not use any special metadata initiative like Dublin Core. But these consideration shows that all of them use General Meta data elements, that is , metatags in "HTML" language, and this shows that how much managers and designers inform from the importance of metadata. In another researches have been proved the importance of metatags. For example, Saadat (2006) in his research about world national libraries websites resulted that just 56.5 percent of used metadata in national libraries websites are metatags. He said that such results showing that there is rather tendency to use metatag in national libraries web site and this situation say that more than half of designers are inform from metadata benefits. Bahmanabadi research (2005) showed that more than 90 percent of best Persian sites use one kind of metatags more or less. Gilvari and Mehrad (2005) findings shows that among 98 Persian magazines, just 26.9 percent of them use metatags.

"Gills" and "Lawrence"(in Alimohammadi, 2003; Pishva & Majidi 2007) research shows that 34.2 percent of web pages use HTML language metadata. Also, Craven (2000) research shows 56.8 pages apply metatags or Jastram (2006) research on 24000 pages shows major applied of metatags in pages are HTML codes (62.83 percent). 7.42 percent pages include Dublin Core metadata and 44.12 percent cover other metadata Initiatives. All of these studies show that metatags and

metadata applied in web pages header have high importance in organizing of these pages. Even, results of some studies (like Zhang and Jastram, 2006; and Saadat, 2007) are showing more attention of designers to metatags and indicate that there is no significant difference in ranking of pages that use of metatags and metadata in search engines. For example "Mohammad" (2006) in his research resulted that with adding metadata elements, rank of these pages increase in 3 search engines (Altavista, HotBot, info seek). But there isn't significant difference between some that use Dublin Core and in some that use tags. However, there is a lot of research in this field that showing wide usage of metadata initiatives like Dublin Core in some scopes. For example, Guinchard (2002) consider Dublin Core standard rate in libraries and shows that 73 percent of libraries use metadata like Dublin Core.

About applying of elements and adaption rate with Dublin Core, was determined that "title" element with 87.5 percent usage, have the most usage rate among digital libraries. The "description" and "keyword" elements were used in 5 libraries and other elements placed in next ranks. Many studies about this field prove the importance of "title", "description" and "keyword" elements. For example, "Saadat (2007)" in his research showed world national libraries use "title" element more than other elements. In open access magazines, Pishva & Majidi(2007) showed that usage rate of "keywords" and "description" elements are 33.1 and 29.9 percent respectively. "Mohammad" study shows that among 150 web pages that researchers searched by 3 search engine Altavista, Hot Bot and infoseek, 84 percent of pages have "description" and "keyword" elements in "HTML" page. According to present research and Mohammad research, we can understand that applying "description" and "title" elements have a lot of importance for search engine. Also, the rate of applying "history" metatag in pages, in 13 percent and for Dublin Core pages is 45 percent, but in present research, "history" element applied as a "revisit" and "expire" in 50 percent web pages of digital libraries.

Alimohammadi (2004), also studied to determine usage metatags in Iranian websites. He in this research show that just 31.5 percent of websites use "keyword" tags and usage rate of metatags was 24.6 percent, which, these results were equal to 62.5 percent for digital libraries in Iran.

Zhang and jastram (2006) show that "description" and "keyword" elements are the most public elements to organize resources. This publicity proved for digital libraries in Iran. Results from another researches shows that little amount of creators benefit for 5 elements to organize their resources, and another had less benefit, but present study shows that digital libraries in Iran about 62.5 percent libraries benefit from 5 or more elements in designing websites.

## CONCLUSIONS

Digital libraries are products of human thoughts in communication era. Perhaps it is one of symbols in world village opinion of Marshal McLuhan. Continuous communication with many resources in varies frames and virtual pictures without any place and time limitation are attractive in such environments and these attractive are factors of developing these libraries. In Iran, during past several years, we saw many increasing growth in digital libraries, 110 websites that are digital libraries, are witness of this claim. In present research, to compare metadata elements with Dublin Core standard, distinguished those digital libraries in Iran didn't use special metadata designs and metadata elements just limit to HTML metatags and this is a challenge on developing of digital libraries in Iran. It is hoped that digital libraries managers and designers start effective stages to standard more I digital libraries in Iran.

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DID: <http://www.did.ir>  
Yassob Aldin: <http://www.yasoob.com/fa/index.html>  
Parstech: <http://www.parstech.org>  
Tebyan: <http://www.tebyan.net/Library.html>  
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