Digital Object Identifier: Its Origin, Need and Value - An Overview

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Abstract – **Information is most important assets in today's age. Today information is needed in almost all the sector such as healthcare, education, business, tourism, hospitality, and in so many other domain and field. Information is needed in all type of foundation and establishment regardless of their nature such as Government or private or semi private and Public Private Partnership or PPP or so on. Information is comes to as various format like book, journal, article, map and in other documentary and non documentary form. Digital Object Identifier (DOI) is an important and valuable aspects and mechanism for specific information finding from the Journal, Book or similar document. This is helpful to find out any particular information product from the large documentation sources or information sources. This paper talks about Digital Object Identifier and its basic including importance and value in contemporary scenario.**

Keywords: **Digital Object Identifier, DOI, Intellectual Property Right, Copyright, Information Explosion**

I. Introduction

Information is important name in all most all sectors and it comes with various form and format. Information may be come as Documentary sources or it may be come as Non Documentary Sources. In documentary sources it may be come as a Book, Journal, Newspaper, Map, and Atlas and so on. These Documentary Services   may also come as a physical form or may be as digital form. Further, in digital form too, it may be come as online way or form offline way. In online form a Documentary Sources may be come through the internet, intranet and extranet form; and as far as offline form is concerned, it may be come as HDD, Pen Drive, CD-DVD format depending upon need and uses [02, 03, 05]. The increasing number of information in almost all sectors creates information explosion and this symptom was started during 1970's and 1980's and mainly public

commercialization of internet. This information explosion creates a problem of information overload and thus, today it is very difficult to find out a particular knowledge from the large knowledge world or information base [06]. Thus here Digital Object Identifier plays an important role to find out particular knowledge.

II. Objectives of The Study

The main aim and objective of this study includes but not limited to as follows:

1.   To know about information, information explosion and information overload;

2.   To know about Digital Object Identifier and its basic including its nature and characteristics;

3.   To learn about the structure, identifier and prefix of the Digital Object Identifier, in brief manner;

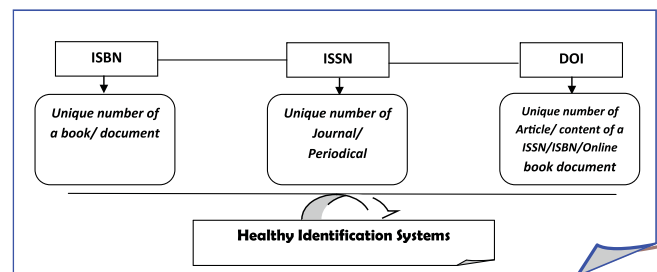4.   To know about the future potential Digital Object Identifier; in brief manner.

Fig. 1 Depicted some related identification number related to Knowledge Product

III. Digital Object Identifier: Basics

Digital Object Identifier stands in short DOI, deals with similar characteristics of ISBN or ISSN. Digital Object Identifier play an important role in the field of Information Science practice and specially in Digital information world;

which includes Digital information collection, selection, organization, processing, management and dissemination. Virtually, it is important to find out a particular digital product and authored document from the large database or internet. In Digital Object Identifier, a unique and special number is assigned and this helps to find out a particular document. It is needed both in information identification and also fulfils aim of the author and fulfils the copyright in true manner [07, 08].

IV. DIGITAL OBJECT IDENTIFIER: ADVANTAGES

The ultimate aim and objective of Digital Object Identifier includes:

* To know and find out a particular product and information from the large database and online mechanism such as internet and intranet;

* To manage contemporary and future information more better way and make healthy information infrastructure;

* Though, ISBN and ISSN are helpful to find out a particular document or book or journal. Virtually, the 13 digit ISBN or 8 ISSN is only deals with the particular book or journal and if we want to find out particular article or research paper then it was too tough and thus concept of Digital Object Identifier was originated to find out particular article or research paper with an unique number from the large database[08, 12, 13];

* It helps in conventional publisher and digital publisher for better information management powered by unique number and search strategy;

* It helps the knowledge world community; such as author, researcher, investigator, publisher, editor and others;
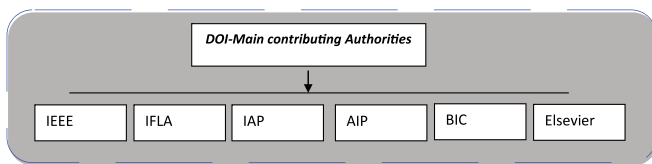

Fig. 2 Depicted Main contributing authorities of DOI at a glance

* To help to find out several information and documents from the www and large database and the types of documents are includes research paper, research review, short communication and so on;

* To fulfill the ultimate aim of an information foundation/ institutions and including authors by presenting intellectual property right.

V. DIGITAL OBJECT IDENTIFIER AND ITS BIRTH

For the development of Digital Object Identifier, so many societies, foundation and people was involved but out of which Association of American Publishers, IFLA, American Institute of Physics, IEEE, Elsevier, International Publisher Association, BIC play an important role. The main advantages of Digital Object Identifier over conventional ISBN/ISSN is that it helps to find out a particular research paper or book chapter while earlier was only able to find out of Book and Journals[14, 19].

The background of Digital Object Identifier was PII or Publisher Item Identification which evolved and proposed during 1995; but ultimately combined efforts of above mention foundation results Digital Object Identifier Foundation to manage content internationally. Virtually, still today this segment is growing and publishers of so many countries are adopting such facilities in this digital publishing management [22, 23].

VI. STRUCTURE, EFFICIENCY AND INTELLECTUAL META DATA

Virtually, Digital Object Identifier is a standard for persistently identifying a piece of intellectual property on a digital network and associating with similar kind of data, metadata is more sophisticated way. Ultimately as it is online manageable and hence helps in additional copyright protection, preserve data integrity as well as prevent privacy.

Ultimately, Digital Object Identifier comes with three main segments which include identifier, directory and database. While identifier is includes prefix and suffix. The following diagram will be helpful to find out the structure of an identifier. The first two digit in Digital Object Identifier called Director Code and given by the Directory Code or Directory Manager. Up to this part is prefix; while rests other are suffix. However, it is important to note that, many publishers are preferred to ISBN in suffix part for some of their purposes [24].

In Digital Object Identifier, only alphanumeric characteristics are used and hence when some on type or check on such number the internet system automatically allow and request to the Directory Manager and after validity of the client requests the publisher website or owner provide the article or research paper directly to the user [21, 24].
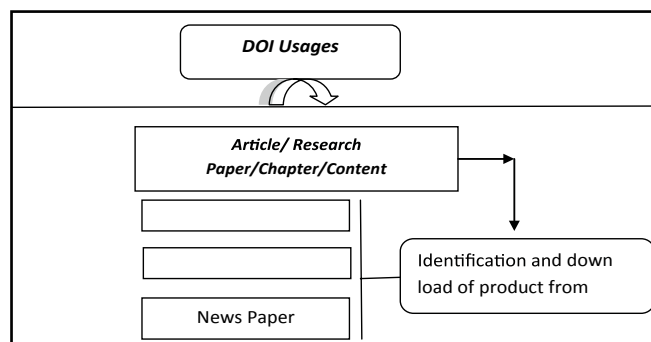
Fig. 3 General uses of DOI in contemporary publication world

Virtually, Meta Data is an important component of Digital Object Identifier and it is comes with series of metadata. Practically, with Meta data in the Digital Object Identifier it is configures not simply as an identifying, string, but take the form of a healthy and sophisticated powerful tool for data storage and exchange. Even, apart from Digital Object Identifier, Meta Data also helps the key for the development of Digital Object Identifier based services [26, 27].

As far as India is concerned, like worldwide trend, publishers are moving towards Digital Object Identifier for better information and content management. Digital Object Identifier is helps to maintain online transaction of all kind including E-Commerce and Digital distribution and so on. Digital Object Identifier is helpful for the following organization and professionals:

- Information Centre;
- Information Networks;
- Libraries;
- Digital Archives;
- Digital Libraries;
- Information Officer;
- Librarian;
- Publishers;
- Researcher and Scientist;
- Universities and research centre and so on.

VII. Findings

1. Digital Object Identifier is comes for better information and content management in the line of ISBN/ ISSN;

2. It is helpful better information and content management;

3. Digital Object Identifier is helpful for information foundation such as Information Centre, Documentation Centre, Data Centre, Information Networks and others, publishers, researcher and scientist;

4. It is helpful for healthy and sophisticated lending and document delivery services, OPAC, and overall information world.

VIII. Conclusion

Internet is an important tool for overall information explosion and information infrastructure development. The information is rising day-by-day. The information in today's age comes with documentary as well as non documentary sources. The documentary sources such as Journal is purely deals with Digital Object Identifier and helps to find out similar documents such as article, research paper, book chapter, reviews, project report, thesis and so on[14, 19]. The information agencies, publishers, researcher and information foundation around the world are moving towards better information and content management. Ultimately, in each and every country, the knowledge industries are need to follow up such system for better knowledge management for contemporary and future scenario[05, 08].

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