**Digital Object Identifiers**

The Digital Object Identifier (DOI) is an alpha-numeric string that uniquely identifies a digital object on the Internet and facilitates its retrieval and trading. The system of DOI is developed by the International DOI Foundation based in Washington, DC, and Geneva.

**Need**

Development of the DOI system began in 1996 when content creators and technologists jointly recognized that information and entertainment objects could not be commercially distributed on the Internet unless there was a common system of unique identification for those objects. These early stakeholders envisioned an unambiguous, machine-readable identifier that could be used for all electronic communications and transactions involving content throughout its life cycle, including its creation, editing, publication, distribution, and archiving.

**Digital Objects Covered**

The digital objects covered by the DOI system include articles, books, images, bibliographies, research data, videos, charts, tables, audio and other electronic files.

**International DOI Foundation**

The International DOI Foundation (IDF), the authority administrating the DOI system is a not-for-profit organization. The Foundation was set up by the Association of American Publishers, which joined forces with the International Publishers Association and the International Association of Scientific Technical and Medical Publishers. It supports the needs of the intellectual property community in the digital environment by developing and promoting of the DOI System as a common infrastructure for content management. The Foundation governs the use of DOIs and the IDF is governed by its members, through an elected board. Members of the Board represent a wide cross section of organizations interested in the management of intellectual property in the network environment. The Board is responsible for all aspects of management of the DOI System, particularly policy formulation and standards maintenance. Board members include Elsevier, John Wiley & Sons, Springer.

**Structure of DOI**

A DOI is an alphanumeric string and it contains two components: the prefix and the suffix separated by a forward slash (“/”). The prefix, also known as the “Publisher ID”, is assigned by a DOI registration agency to the publisher. All prefixes begin with “10” (this is to distinguish a DOI from other alphanumeric coding systems), followed by a period (“.”) and then a number designating the organization or publisher. For example, Oxford University Press is 10.1093; Elsevier is 10.1016; and IEEE is 10.1109. The suffix, also known as the “Item ID”, is assigned by the publisher and can be made up of any alphanumeric sequence of characters as long as each object can be uniquely identified. The length of the number can reach 128 characters and it is case-insensitive and may incorporate any printable characters.

An existing standard identification system number, such as ISBN or ISSN, may be incorporated in a DOI by using as the suffix. Here is an example of incorporating ISBN into DOI: the ISBN is 0071381317 for the electronic version of the book “21 Leaders for the 21st Century -- How Innovative Leaders Manage in the Digital Age” by Fons and Charles published by McGraw-Hill and the DOI for this eBook is 10.1036/0071381317 (10.1036 represents McGraw-Hill).

The DOI can also be applied at any level of “granularity” or any file types (such as text, image, or audio-video). For a publisher, it can be applied to a whole book and also to every chapter, every illustration, photograph or table. In the case of music, it can identify a CD collection, as well as every individual track. As an example, the DOI for Mona Lisa (painting) by Leonardo da Vinci is 10.1219/10223954.

The suffix directory database (the DOI repository) is maintained by the publisher. Once a DOI is registered and assigned, it will not be changed during its lifetime even if the ownership and location of an object change. This makes DOIs permanent and persistent identifiers.

**The Central DOI Directory**

Since digital content may change the location or ownership over the time, a central DOI depository directory has been used for DOI system. The DOI directory serves as the middleman between user and the information content holder/publisher. When DOI system was first launched, the IDF itself was maintaining the directory. Due to the expansion and development of the DOI names, IDF established Registration Agencies (RA) for managing the directory. Each RA has a geographical basis and each RA will be required to become a member of the IDF under the Registration Agency category of membership. The current registration agencies include CrossRef, Office of Publications of the European Union and R. R. Bowker.