

A Basic Comparative Framework for Evaluation of Digital Identifier Systems

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ABSTRACT: *In recent years, with the development of digital environment, one of the concepts that has been particularly important is digital identification of objects in this environment by digital identifier systems. The main objective of this study is to answer this important and basic question: How and on what framework can distinguish a digital object identifier system from other identifier systems? To achieve this goal, a comparative framework which consisted of 7 main characteristics of digital identifiers in three major domains (namely identifier features, digital coverage and comprehensiveness of scope) was proposed. Two major characteristics of the proposed framework are its inclusiveness and considering the differences between the uniqueness and persistency notions in general and in the digital environment. Then, an illustrative comparison of 23 well-known worldwide identifiers was carried out. Results of this study revealed that six identifier systems of DOI, Handle, UCI, ARK, URN and PURL can be regarded as the best choices of digital identifiers in public areas identified in the digital space and four identifier systems of ORCID, MIRIAM, ISNI and NBN are the best options to be used in certain specialized areas. These results can help information technology specialists to identify and effectively use of digital identifier systems in actual and potential practical areas.*

Subject Categories and Descriptors

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1. Introduction

Digital object is a data structure whose principal components are digital materials or data plus a unique identifier for that material (Kahn and Wilensky, 2006). In other words, the so-called digital object can be used for any form of intellectual property appeared to be applied in the digital environment (IDF, 2015). In general, two main elements in the identification of digital objects are metadata and identifier (Arms, 2001).

Up to now, several definitions have been proposed for identifiers. For example, Kunze (2003) introduces an identifier as the association between one string and one thing. Using the term “one” for an identifier and for identified entity is what attracted the attention in all the definitions. This indicates a need for one-to-one relationship between an identified entity and identifier. This one-to-one relationship can be called uniqueness (Coyle, 2006). On the other hand, an identifier should not be changed and is not changeable (Clarke, 1994; Campbell, 2007). Paskin (1999) states that an identifier should have an unlimited lifetime, even if the existence of identified entity is wiped out. He called this characteristic “persistency”. Therefore, it can be said that uniqueness and persistency are the most important intrinsic characteristics of an identifier.

Now, an object with digital identity is referenced by the URL (Kunze, 2003). Over time, some risks of using the