

Advantages and disadvantages of current reference and digital objects linking models

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Abstract

The aim of this paper is to present advantages and disadvantages of a selection of current reference and digital objects linking models and projects and to explore a possibility for their implementation in the Croatian Internet space too meet the needs of academic community members for easier discovery and delivery of scientific works regardless of their format or storage location.

The advent of digital information resources changed library organization and management intensely. While the initial changes in nature of library material from print to electronic version several decades ago affected few library users, current situation of constant growth in number of electronic publications is quite different. Quantity of electronic resources has increased, and automated and digital libraries as well as commercial publishers are trying to enhance their existing services and develop new ones in order to meet needs of their users for full text scientific material. In 1990s, commercial publishers have started offering services on the Internet as information aggregators whose job is to provide electronic content (usually electronic journals, or their specific parts - articles) in full text, packaged and sold as single product, accessible to users by means of a single user interface and a comprehensive search system. Libraries too offered new strategy for information discovery and delivery in form of digital libraries and their collections and services.

However, the transition between some old information discovery models in libraries and new ones is not easy. For decades, library catalogues have been traditional tools for information discovery in libraries. Modern automated libraries transformed their card catalogues first into online public access catalogues (OPACs), and then to Web public access catalogues (WebPACs) offering means for information discovery by giving access to bibliographic records about information resources, which are part of library holdings. The main problem is that they didn't offer dynamic links between bibliographic records and information objects they had given reference to.

Today, digital libraries are offering digital collections as well as search and retrieval tools as instruments of information discovery and immediate use of discovered information objects, which represents a qualitative step forward in creation of global information grid. However, digital libraries are still outnumbered by automated libraries with WebPACS not offering that kind of service to academic community one

one side, and information aggregators offering their services on commercial basis on the other side exhausting budgets of libraries and scientific projects receiving grants. Since libraries are vital for scientific work, it has become evident that digital libraries must provide additional service of direct linkage from citation/reference to the actual digital information object in full text databases stored locally or on a remote location in another library.

Such digital information objects can be stored on different location regardless of the origin of their creation. To be found, each object must be properly described by metadata accompanied by some kind of information retrieval tool. Users seeking particular information do not need to know about the exact object location or its format, since the main goal of digital libraries is to present all information about information (metadata) and information itself in one unified information space. In such a working environment, user experiences information space unification through the process of discovery and delivery of information objects through one access point. Digital information objects form a data mass (e.g. full text database) with potential for joint and simultaneous use and at the same time objects represent separate entities in a context, which enables rapid linking and delivery on user request.

The whole idea about having one unified information space with information in digital form available to users is related directly to the concept of interoperability. Interoperability is ability of two information systems to communicate with each other and exchange information and ability to provide users with that information. It is a prerequisite for complex information systems such as digital libraries to function properly. It is also one of the main goals in building advanced information systems in general in order to enable them to achieve development level on which users will have opportunity to access information in digital form regardless of their form, storage location or communication protocol.

A number projects working on providing the direct access to scientific works (digitally born or digitized journal articles and monographs) has encountered different problems in connecting heterogeneous information resources and accessing information objects in them (old and new data formats, communication protocols etc.).

There are several such as the SFX (<http://www.sfxit.com>) and the CrossRef (<http://www.crossref.org>), dealing with this type of problem. They offer a framework and/or a backbone for navigation, discovery and delivery of scientific works using citation/references in online publications, online library catalogues, abstracting, indexing, and citation databases in order to reach and deliver full text version of those publications using digital object identifiers - DOIs or some other type of unique object identification. Such an effort requires cooperation between authors, libraries, full text database vendors, publishers and information aggregators. The cooperation is necessary because each of the enumerated contributor categories adds some information to databases holding all information about number of records available, links to publishers offering those documents and number of titles available at the time of discovery. The final outcome of these projects should be digital information objects available in full text at the time of their discovery regardless of their real location.

Can the results from the SFX and the CrossRef influence wider library and scientific community, for instance, in Croatia? Croatian scientific community has several means of accessing information about scientific works but there is no similar model or application for the immediate access to data mass available in digital format scattered across Croatian Internet space. Croatia has a database of information about printed scientific publications called The Croatian scientific bibliography (CSB) available at <http://bib.irb.hr/>. It offers records about printed publications (journals, journal articles, books, proceedings, reports etc.) but it doesn't provide linkage service to the full text versions of scientific works referenced in the CSB database. Furthermore, scientists themselves are creating database records on voluntary basis and the system doesn't offer any advanced tool for creation of more advanced metadata or a linkage solution. Therefore, this paper will try to present advantages and disadvantages of current existing reference and digital objects linking models and to explore possibilities of their application in the Croatian scientific information space. This would provide users with opportunity to find desired information with support of standardized tools and to enhance their working capabilities.

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