DOI — how to make information pay and what this means for us

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If it's not there already, DOI will shortly be coming to a piece of information near you. DOI is the digital object identifier software which assigns a unique code to any kind of digital content, regardless of physical location or ownership. DOIs will be implanted by the original copyright owner in digital text, audio, video, image or software files or, importantly, parts thereof.

The DOI code operates like a sophisticated ISBN. The first part of the code will identify the original copyright owner/publisher of the material. This will not change even if the rights are transferred. Publishers register with the International DOI Foundation and pay around $US1000 for their code prefix. The second part of the code is the unique identifier of the work or a part of the work, as the publisher chooses.

The DOI Foundation is US-based and has varying degrees of membership. Members include the Association of American Publishers, whose president Patricia Schroeder spoke at ALIA's 2002 conference, a large group of mostly research and educational publishers like Elsevier Science, John Wiley, McGraw-Hill and Springer Verlag, and the US Copyright Clearance Centre. OCLC appears to be the member closest to library services. Adobe is a non-voting member. Microsoft is, of course, on the Foundation's Board.

Australia's Copyright Agency Ltd is one of the Foundation's copyright agency members and is about to trial the DOI system in educational material in Australia. The Securities Institute of Australia, which offers professional education from beginning to advanced levels to those who work or wish to work in the finance, investment and securities industry, will be using DOI software for the management of their material.

Ms Schroeder spoke about the opportunities which the DOI system is already providing to US educational publishers and institutions in the collection and delivery of educational course material to students at all levels.

According to the Foundation [http://www.doi.org], DOI is interoperable with metadata schemes such as Dublin Core, MARC and ONIX. DOI codes can be incorporated into web pages like other links or connect the user with other DOI tagged pieces of information. Publishers will use them to send the browser off to a database or places where you are able to buy or reproduce copies.

DOI technology is the magic bullet which publishers have been looking for to make digital information pay. Of itself it does not prevent copying or require purchase, but a unique-code tracking system for copyright information is an essential part of digital rights management and for pay-per-view or other automatic charging schemes. Inevitably DOI will speed up changes in the way people access information and how libraries and information services acquire, organise, store and disseminate it to their users or other libraries. Like all new technology, it brings benefits, challenges and concerns.

Copyright owners will be able to track and charge for all uses of their material.

Creators, even if they don't hold copyright, will be able to defend their moral rights more effectively, by monitoring the acknowledgement of their authorship and the integrity of the content.

Information seekers will be able to identify and access what they need more quickly, especially if the DOIs are linked to metadata cataloguing, subject databases or online publisher or bookshop outlets.

Library and information services, especially those concentrating on current material, will be able to package and deliver information for their users more efficiently. Assessment of resource acquisition, organisation and storage will be fine-tuned because librarians, indeed anyone, will be able to buy the bits of information needed, without acquiring information which may never be used. Expensive processing and storage will be reduced. DOI will assist the formation of virtual libraries.

Cost of access to information will increase and opportunities for free use will diminish. For example, the *Copyright Act* permits libraries to copy and deliver, under the usual restrictions such as fair dealing, amounts of digital information not commercially available within a reasonable time. If the digital information is available as a whole, but the part asked for is not separately available for purchase, the library may use the *Copyright Act* library provisions, ss 49 and 50, to reproduce and communicate it digitally.

DOI-tagged information, however, will be immediately commercially available, in whole or in parts as the publisher chooses. It will also be easier to sell in parts, and all those 'et al' authors will come into their own.

The present balance of copyright law will change in favour of the copyright owner. The library and information sector will need to adjust its policy responses to promote yet again funding of the information needs of our community, especially the

economically disadvantaged, to ensure that everyone benefits from potentially greater accessibility of information. DOI also facilitates breaches of the privacy of library and information service clients in their pursuit of knowledge and research.

This is a publisher-driven system. Their priorities are reward for commercial activity. Questions of consistency of treatment and preservation of DOI-based collections of material will arise.

The library and information profession will have a responsibility to provide or contribute to the best solutions for these problems.

The history of the development of DOI starts with the same source as the development of the internet, the United States Department of Defence. The Defence Advanced Projects Research Agency and the National Science Foundation fund a think-tank called the Corporation for National Research Initiatives (CNRI) whose president is Robert E Kahn, one of the developers of the internet.

CNRI developed a method for identifying digital content called the Handle system, based on the internets domain name service. The DOI publisher's prefix is the 'handle' which enables the digital tracking of the 'information object'.

A number of competitors to this system emerged, including a Japanese university software development and the Open Archival Information System (OAIS) on which the National Library's Pandora digital information preservation project is modelled.

The Japanese competitor was persuaded to join the DOI project. OAIS, however, a system devised under the auspices of the Consultative Committee for Space Data Systems, was seen by publisher advocates of DOI as a real challenge, perhaps because its academic and research sponsors did not prioritise the commercialisation of the information captured — if any reader has further background on this it would be interesting to know more.

David Worlock, writing for the Electronic Publishing Services Ltd in November 2001, suggested that the publishing backers of DOI: 'probably need to increase their efforts — and DOI funding — if the risk of the Open Archival Information System (OAIS) becoming the archival standard for academic research article retrieval is to be contained. Going widely into related metadata standards is surely a good strategy in these circumstances, but publishers must be aware of the fact that they are not setting the pace or controlling events in setting the parameters which will decide how visible and usable their content will be in a networked society.' [David Worlock, *Setting the standards for e-learning.* http://www.epsltd.com/UpdateNotes/]

The publishers obviously took Mr Worlock's advice. Those interested in finding out more about the DOI project will find a host of organisations and enough obscure initials and abbreviations to baffle even our profession.

As content owners increase control of their property, we need to identify ways in which we can keep the copyright balance, even if in small incremental steps. For example, we should argue for the law to relax its strictness on requiring the permission of untraceable copyright owners for the use of their material. The Council of Australian University Librarians called four years ago for a mechanism which made it possible to use works whose copyright owner is unknown or cannot be traced, (with the proviso that if the owners were later found, they would be acknowledged and equitably remunerated). This is a small suggestion for legislative amendment in the review of the *Copyright Act.*   ▪