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NOT YOUR FATHER'S DOI: NEW APPLICATIONS SHOW WIDER PROMISE

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* As the most active player bringing the Digital Object Identifier (DOI) standard to the content marketplace beyond STM journals, Content Directions is demonstrating - with a growing number of major publishers - that the DOI can readily enable new variations on content business models, more efficient distribution, and potentially new ways to manage and use digital content throughout the internet.

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That the DOI standard has taken seven years to grow beyond its initial base in the relatively rarefied world of STM journals (it is used by the CrossRef facility for reliable cross-publisher linking of electronic journal citations) is understandable. CrossRef is routinely used in scientific and scholarly communities, but enjoys little exposure elsewhere. Even those information industry decision-makers who understand what the DOI is (i.e. a Universal Product Code for content) have needed to then grasp how yet another three-letter standard might be strategically important for their businesses.

In any case, McGraw-Hill's recent announcement that it has completed the first phase of implementing DOIs across its entire Education product line marks the most recent of several developments that suggest growing acceptance within the broader infrastructure of networked premium content. Mainstream contemporary publishers like Thomson/Gale, Penguin Putnam, and Corbis are making the DOI a standard element of their content assets. All have worked with Content Directions, Inc., (CDI) a small New York-based venture established to register and maintain DOIs.

A unique aspect of CDI's approach is a contextual multilinking capability, inherent in the underlying DOI "handle" system (created and operated by CNRI, the same folks who helped shape the internet as we know it) but not previously utilized. Multilinking means that behind each DOI link are cascading menus of alternative paths - to buy the document, find related content, learn about the author, or go in other directions a content "object" might take you. Based on early publisher experience, it turns out that multilinking, combined with the inherent advantages of a permanent identifier, can have significant impact on content distribution, discoverability, business models, and even web-navigation paradigms.

For example, a book publisher like McGraw-Hill can use a multilink to provide different options for purchasing a book (or e-book) online, while at the same time a piece of CDI code on a retailer's site will enable it to "filter out" DOI metadata referring to other booksellers. Other new code, being developed with unnamed aggregators, enables digital syndicators to link to the original DOI-enabled content - removing a step in distribution, and simplifying collections maintenance.

An interesting aspect of publishers' early experience has been the DOI's effect on search engine document rankings. Especially with Google's PageRank system, the multiple links back to a given document tend to drive dramatically higher placement in search results, and therefore, improved discoverability. In the case of one well-known publisher, traffic to its publications via its own web site remained flat or declined slightly over a four-month period. Yet over the same period, traffic

coming via DOIs (as discovered on Google and elsewhere) increased continuously and is now more than three times the volume of traffic from the publisher's site. This occurred without any action to promote the DOIs' existence. While search engines may take steps to normalize the effects of multilinking on rankings, they should also consider that DOI links tend to represent content of special value to users (and potentially to search engines' own business models).

A variety of other DOI-enabled business model variations are also beginning to suggest themselves. Publishers of paid-listings directories (like Martindale-Hubbell, Thomas Register, or Hotel & Travel Index) could offer DOIs as a premium listing element, reliably directing electronic users to the manufacturer's site for purchase or other services. Other e-commerce models could be facilitated by CDI's new ability to track DOI usage, including transactions. The multilinks themselves provide an effective navigational tool, at least for what marketers call "considered" information seeking - they could even remove some of the design pressure on publishers whose web sites are still "usability-challenged." And we wonder if the next application frontier for the DOI might be in work flow settings where multilinks help guide users to "next-up" tasks, tools, and content.

By developing software that essentially automates the registration of new content, inter-relates its associated metadata, and creates "purchasing links" to retailers, CDI has streamlined the implementation process to the point where a publisher's primary task is identifying how DOIs can be deployed most strategically. Its own business model is also evolving: originally premised on per-DOI annual registration fees, revenues now derive from set-up and ongoing service fees tied to factors like volume, metadata complexity, and extent of analysis provided. David Sidman, CEO of CDI, says that sufficient capital has now been raised to see the company through to profitability.

The original architects of the DOI always saw its applicability extending far beyond sci-tech publishing. Now we are beginning to see that potential demonstrated, and the vision of content IDs bringing order to a chaotic digital world seems a bit closer.