The use of DOI in eContent value chain

The case of Casalini Digital Division and mEDRA

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The DOI (Digital Object Identifier) is a standard identifier for any intellectual property entity in the Internet. Many applications have been implemented using the DOI and thus people may tend to forget that the first value of the DOI is precisely to be a unique identifier, which facilitates the communication among the IT systems of parties in the trade. On this respect, the longer is the value chain where the DOI acts, the higher is the value of using a standard identifier.

This basic statement is clearly demonstrated in the case of the agreement between mEDRA and Casalini Digital Division[1]. This last is an initiative launched by Casalini Libri: a significant amount of Italian content in humanities sciences (more than 500 monographs and 100 journals) has been aggregated and offered to libraries and individuals. The resource is available on annual subscription to one of three title packages but the individual content are also accessible de-bundled through a pay per download model. The initiative currently involves around 20 Italian publishers that distribute their content through the system, improving the capability of reaching worldwide market, and in the future an increasing number of publishers, including those from other European countries, are expected to participate.


The use of DOI by secondary publishers

Casalini has decided to join the mEDRA system as Early Adopter. This will imply to use the DOI as an identifier within the system. Figure 1 shows the model of the collaboration.

Publishers provide content to Casalini who acts as secondary publisher, aggregating such content and offering it to the university market worldwide. When publishers utilize DOI and ONIX DOI Metadata Schema[2], they are usually able to send ONIX messages to Casalini with descriptive metadata on their products. It is also possible for Casalini to extract metadata from the mEDRA database through DOIs; therefore, publishers may just communicate the list of DOIs to enable Casalini to gather metadata.

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[1] http://digital.casalini.it

[2] see http://www.medra.org/en/schema.htm

Fig. 1 – Use of DOI in the Casalini Digital Division initiative
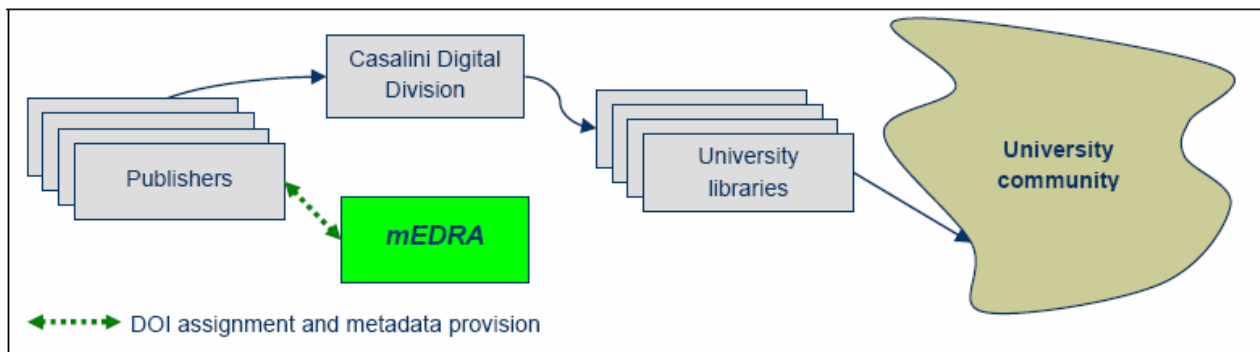
Particularly in the case of small publishers – who are very relevant in the Italian market – the agreement also estabilishes that Casalini will take care of the management of metadata and DOI assignment on behalf of publishers (Figure 2). mEDRA metadata are very basic and actually Casalini adds further metadata to provide value added services, such as search functionalities.

Fig. 2 – DOI registration and metadata management for small publishers
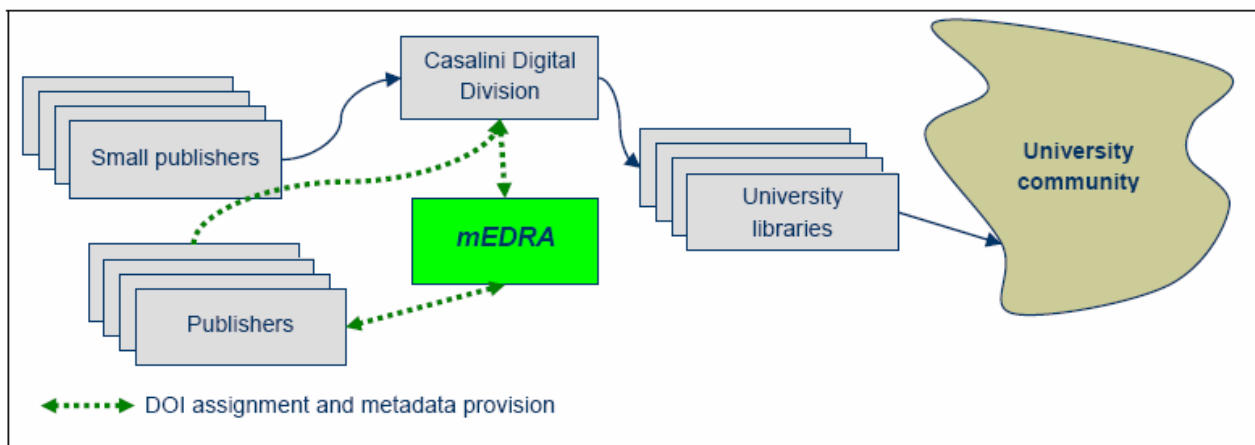
The advantages of the model are:

- Publishers that register directly DOIs and handle metadata using mEDRA schemas are facilitated in accessing the Casalini distribution system using a standard tool that will be also usable for other distribution systems
- Casalini receives data in such a way that reduces its internal costs. The most important aspect is that the adoption of a standard identifier will increase the interoperability of Casalini – which is based on a proprietary software (Mercurio) – with library system. For instance, it will be possible to benefit from any new development related to multiple resolution or in relation to the "appropriate copy" issue[3]

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[3] About choosing the appropriate copy, see http://www.niso.org/DLFarch.html;
about appropriate copy and DOI see http://www.dlib.org/dlib/september01/caplan/09caplan.html#Caplan-Flecker

- Small publishers will receive a more complete service from Casalini that will allow them to join the DOI system at low costs. Many small publishers (both commercial ones and scientific institutions that act as publishers) have not resources and competences to deal with metadata on their own production in effective way. This also limits the possibility of content produced by these publishers to be included in the major bibliographic databases at international level and thus to be reachable by the university world. The use of standard instruments instead of a proprietary schema will enable such publishers to start a path for growing
- The use of ONIX compliant metadata schemas will also enhance the diffusion of ONIX itself within the publishing industry, and particularly within small publishing houses

In other words, the advantage of the use of the DOI in similar cases is the same that using the ISBN along the book commercial chain. Publishers may communicate with different intermediaries using a common language (the DOI system) and a common dictionary (the ONIX tags) and intermediaries do the same with different publishers. This flushes the whole value chain and benefits final users; furthermore, this allows the creation of new businesses and to exploit also marginal demands.

DOI-RAs interoperability as a tool to implement new business for publishers

This last advantage is demonstrated by the second step of the business case. mEDRA is collaborating with CAL[4] to ensure complete interoperability between the two systems. This will allow European publishers registering DOIs through mEDRA to join also CAL services like the "course-pack application". Thanks to this service Australian universities may access a catalogue of digital content with high level of granularity (e.g. book chapters, individual contributions of conference proceedings, etc.), select pieces of content they wish to use in a didactic process creating personalised course-pack for students, negotiate the reproduction rights with CAL and finally print the desired number of copies for the students' use.

Also in this case there is mutual utility in interoperability. Universities would like to access larger catalogues (e.g. an Italian department would be very interested in accessing the Casalini database and possibly further information about Italian content) and publishers are happy to find new sales opportunities if costs are lower than incomes.

The use of unique identification system and interoperable metadata schemas facilitates the enlargement of such business (Figure 3).

The business case that is to be developed involving mEDRA, Casalini and CAL will include:

- mEDRA and CAL ensure interoperability between the metadata schemas at the moment of the DOI registration. This will involve two steps: an accurate mapping between the "descriptive" metadata for monographs and journal articles; and the implementation within mEDRA of the "service" metadata necessary to run the CAL application
- European publishers assigning DOIs through mEDRA will be enabled to access also the CAL application providing only the additional pieces of metadata necessary for the specific application (e.g. some technical information allowing the remote printing of the pdf files)

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[4] Copyright Agency Limited, the Australian RRO become DOI Registration Agency in 2002 (http://www.copyright.com.au)

- At the same time publishers sign a contract with CAL for the "distribution" of their content to Australian universities using the CAL licence model and technology
- Casalini may sign such contract on behalf of the publishers that use its distribution system
- CAL can at this point gather the necessary metadata directly from the mEDRA database, using DOIs to identify and resolve content

Fig. 3 – Description of the value chain for course-packs creation for Australian universities, including European publishers
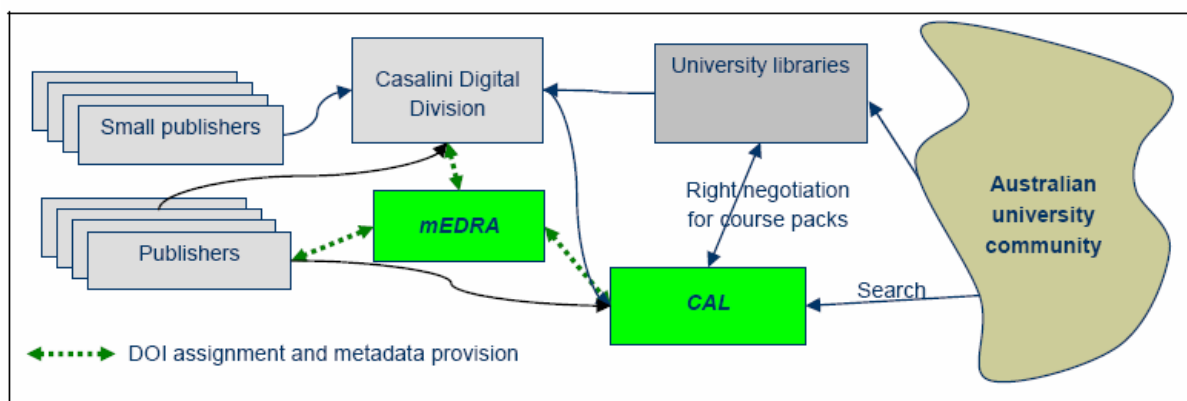
Thanks to this model, publishers may access at reduced costs markets that probably otherwise cannot enter. The model particularly fits the requirements of small publishers that have not the resources to invest appropriately in technologies and marketing for marginal markets.

eContent distribution created at the very beginning the illusion that it would be possible to shorten the value chains to reach the market. However, this objective is reachable only for large publishers. The business case we are analysing shows good reasons that justify a longer value chain: from the demand side, universities have a value from the existence of a single point of access for course-packs where they can find the right information, sign a single licence to access the content and pay to a single provider for all their needs in this field. From the supply side, publishers – particularly if they are small – may take advantages from a standardised management of metadata, and from the capability of an intermediary like Casalini to promote their content to possible customers that otherwise are not accessible.

Possible further development: the DOI as a new business enabler

The two steps described in previous chapters are related to short terms timeframe. Casalini started integrating DOIs into its own system in November 2003 and by March 2004 all content in its database will be DOI assigned. The collaboration between CAL and mEDRA in the terms described above is a 2004 project.

What is important in the model is the scalability to further initiatives. A natural evolution, for instance, may be the localisation of the CAL system in other countries by other RROs (Figure 4).

Fig. 4 – Possible evolution of DOI use for corse-pack production
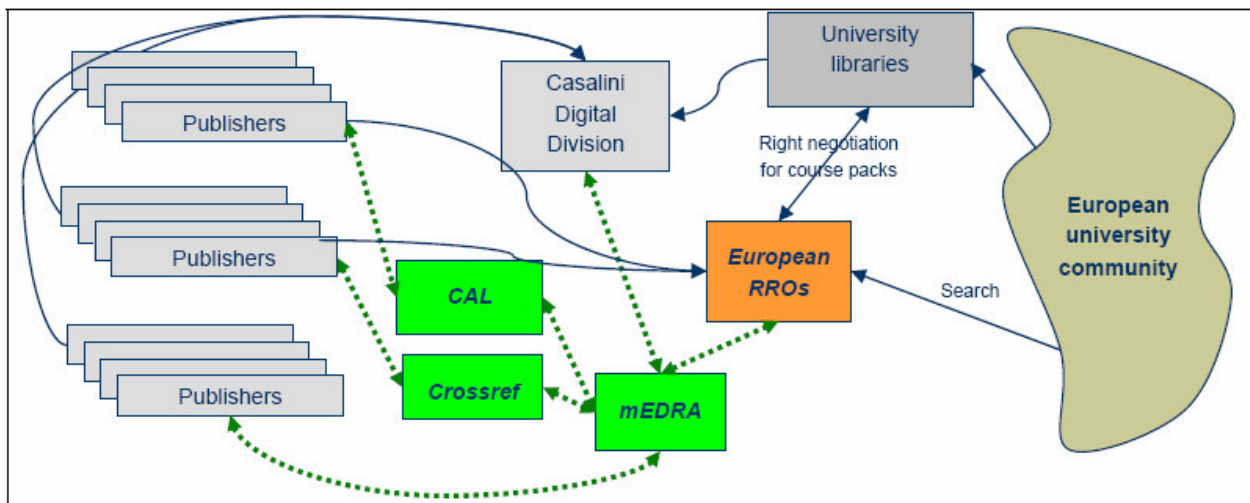
This would be simply the replication in many countries of the model described above. The concrete ways of such replication may be different, depending on the business decisions of the different actors involved.

What is important to underline here is that the DOI may act as a facilitator for such evolution. As far as publishers use the same identification system and interoperable metadata schemas the relation between them and every kind of intermediary (aggregators, RROs, secondary publishers, libraries, etc.) are facilitated.

The other element that the figure emphasises is the position of mEDRA in such new businesses development. mEDRA is designed as a Registration Agency that provide basic services directly related to this role and – on the other side – looks for alliances and partnerships with third parties for specific service development. In this case: to localise the CAL system in Europe is not directly mEDRA intention. It is much more coherent with the mEDRA nature to enable that other RROs will eventually do this – if they wish – adopting the DOI as an identification scheme in this process.