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The International DOI Foundation

From: Norman Paskin, Managing Agent, International DOI Foundation  
To: Todd Carpenter, Secretariat ISO TC46/SC9  
Date: 30 April 2015  
Re: **Report of the Registration Authority for ISO 26324 (DOI System)**  
for TC46/SC9 Beijing meeting, June 2015

### DOI System statistics

The most recent summary report was prepared 3 March 2015:

- Number of DOIs: **109,824,548 (+18.8%)**
- Number of DOI Prefixes (allocators): **14,512 (+24%)**
- dx.doi.org resolution rate: 187 million per month = **2.25 billion per year (+21%)**
- Short DOIs (an additional service offered by IDF): **22,386,479 (+8.7%)**

All these figures show a significant increase on those reported last year (% change on last year's report shown in parentheses). The 100 millionth DOI was assigned in September 2014, via the Entertainment Identifier Registry, a DOI-based registry of universal unique identifiers for movie and television assets. This significant milestone builds on earlier growth: the ten millionth DOI was assigned in August 2003 via another major Registration Agency, CrossRef, as a persistent, interoperable, and extensible identifier to a technical article in a journal; the millionth DOI was assigned in April 2000.

### DOI brand and marketing

The 2014 DOI Outreach Meeting held in Milan (November) organised by the DOI Registration Agency mEDRA focused on services enabled by DOIs demonstrated by use cases showing applications and external projects within the DOI community. A collection of presentations from the meeting is available at [http://www.doi.org/topics/outreach\\_mtgs.html](http://www.doi.org/topics/outreach_mtgs.html). See also a summary "DOI unveiled", a Smart Book Report on Outreach Meeting 2014 by Paola Mazzucchi, AIE – mEDRA (<http://www.smartbook-tisp.eu/resources/doi-unveiled>)

### Main DOI System developments since last SC9 meeting

#### 1. Technical

- **Multiple Resolution:** Work is under way to develop a Type Registry which will enable relators to be expressed as specific Handle types and so be selected as a multiple resolution request. Following discussion at the winter 2014 DOI strategy



meeting, an internal paper on types and contextual resolution has been prepared and will be discussed at our forthcoming June DOI Strategy meeting; use cases will then be solicited. The aim is that handle types can be rendered, represented or used in different ways according to the context or purpose of application, to ensure interoperability. This work is being done through CNRI and synchronised with other relevant activities, notably the Data Type Registry Working Group of the Research Data Alliance (RDA). Pilot examples from different sectors (science data; legal entity identification; and rights management, the latter in collaboration with IDF and the Linked Content Coalition) are expected in 2015. See also DOI Handbook Chapter 5.6: Expressing Relationships Between DOI Names.

- **Metadata Development:** We have made improvements to the development and management of extensions to the DOI metadata schemas. The schemas were updated with a set of developments to accommodate EIDR requirements. Many of these of course have a broader impact and will offer more scope to other RAs. Some RAs have suggested also mapping DOI metadata (bibliographic) into schema.org (microdata, JSON, etc.) and making these available as additional formats for content negotiation, based on similar work in the ONIX community; this is under consideration.
- **Linked Data:** Following the publication of the revised schema and dictionary, a Linked Data format for expressing the DOI Kernel schema was developed. We are investigating if providing a vocabulary mapping service specifically to support Linked Data might be something which IDF might want to offer as a DOI-based service to the Web/Linked Data community as a way of helping establish IDF/DOI as relevant.

## *2. Improvements to DOI social infrastructure for persistence*

- **DONA Foundation:** The Swiss Foundation to support the Handle System by widening the responsibility for the underlying Digital Object architecture, the DONA Foundation, has been set up ([www.dona.net](http://www.dona.net)). An Executive Director was appointed from January 2015; four designated Multi-Primary Administrators (MPAs) have been appointed, and a shortlist of possibilities as additions to the set of MPAs will be discussed at the next Board meeting in July. The main initial role of the Foundation is to administer and maintain the stable operation of the Global Handle Registry (GHR), authorizing and coordinating the administration of the GHR with multiple parties around the globe known as Multi-Primary Administrators (MPAs). Currently the DOI remains an autonomous client of CNRI (the developer of the Handle System) and is not itself a primary administrator, but has the option to become so: this is currently being assessed as an option. The International DOI Foundation, as a key DOI user, is represented on the board of the DONA Foundation by Norman Paskin
- **Linked Content Coalition:** The International DOI Foundation is part of the Linked Content Coalition. As part of the continued work on metadata interoperability we are now investigating which parts of the metadata technology mappings ontologies should be maintained and managed by LCC, with DOI as one of several users. This is discussed separately in the Ad Hoc Identifier Interoperability report. The DOI Dictionary and schemas, including all the Excel tools and documentation necessary to generate the XML and HTML outputs are already held in escrow as a guarantee of persistence, and provide a back up to the material prepared and managed for IDF by its metadata tools sub-contractor. The escrow versions are not used for day to day operations.

## DOI Registration Agencies

DOI [Registration Agencies](#) are free to offer to their customers unique services built on DOI registration. For updates on individual sectors, refer to the web sites of DOI Registration Agencies (a list is available at [http://www.doi.org/registration\\_agencies.html](http://www.doi.org/registration_agencies.html)).

There are currently 9 DOI Registration Agencies (no change on last year). However a pilot new RA has been initiated (see below) and a further potential RA is under discussion.

- Later this year the International DOI Foundation will begin work with a collaboration of the British Standards Institute (BSI) and the Royal Institute of British Architects Enterprises (RIBAE) on a project to assign identifiers in the Construction Products information sector. This will focus on Information and Documentation in the existing RIBA Enterprises network of retail and service functions established to deliver construction industry professionals effective solutions to their key vocational requirements both within the UK and overseas, and in particular work with the existing BIM (Building Information Modelling) standards, specifications and documents (<http://www.nationalbimlibrary.com/>).

## Identifier Interoperability

**1. Linked Content Coalition** The International DOI Foundation continue to participate in and strongly support the Linked Content Coalition, the framework for a fully interoperable and fully connected standards-based communications infrastructure to help businesses and individuals manage and communicate about content more effectively online (<http://www.linkedcontentcoalition.org/>). For further discussion see the report of the *SC9 Ad Hoc ID interoperability group*.

### 2. EIDR/ISAN/DOI.

EIDR has continued to work towards fuller interoperability with ISAN. The EIDR database (as of March 2015) cross-references almost 80,000 ISAN records. EIDR has provided a subset of these to the RDI project (see <http://www.rdi-project.org/>) for a proof-of-concept rights management application, and is working with the UK Copyright Hub (see <http://www.copyright-hub.co.uk/> and <http://www.pbs.org/mediashift/2015/04/could-the-uks-copyright-hub-provide-a-template-for-simple-rights-use/>) on using these mappings and others in the Hub's full commercial system. Additionally, in November 2014 EIDR and ISAN-UK together launched the UK AV Registration Agency, a 'one-stop shop' that uses a single data submission to provide both EIDR and ISAN services to the wider UK AV industry. ITV, the UK's second-largest broadcaster and long-time ISAN registrant, is the first company to take advantage of this combined service.

**Beijing meeting**

I regret that I am unable to attend the SC9 Beijing meeting; however I have asked Paul Jessop to respond to any discussion on DOI issues and I remain available to answer any queries by e mail.

