



Bibliographic standards and Linked Data. Towards a collaboration between cultural and commercial sectors

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The new scenarios that are arising in the world of the web of data, with the adoption on the part of private and public institutions of new technology for the interlinking of structured data, such as the linked data model, highlights the great potential and possible development of this instrument in the library world. Giving an identity to data – whether open or not – in order to make them interlinkable and interoperable, and establishing links between objects that can be related to each other, aggregated, and reused, means creating added value for data management and, most of all, offering a new service for the citizenry. Thanks to the actions of the Digital Agenda for Europe,¹ the *Guidelines for semantic interoperability through linked open data*² were published. They provide a reference framework for the production of open data that is interoperable between public administrations, thus making data management in the public sector accessible and transparent. In the library sector, relationships with all

¹http://ec.europa.eu/information_society/digital-agenda/index_en.htm.

²http://www.digitpa.gov.it/sites/default/files/CdC-SPC-GdL6-InteroperabilitaSemOpenData_0.pdf



information management actors need to be analyzed and redefined. In particular, collaboration and dialogue between all subjects involved in the information chain of production needs to be promoted, in order to analyse different standards and spur the development of innovative initiatives in the cultural field that can become a key factor for economic and social growth. Among the activities involved in this process, a central role is played by those related to the standards used in the library sector and other commercial sectors, and their integration. The adoption on the part of libraries of data models that are more structured and granular compared to traditional catalogue formats, would help enrich the metadata traditionally used. On the other hand, a comparison of commercial standards with well-established, traditional library, museum, and archival standards would ensure the quality, authoritativeness, and sustainability of data. In keeping with its institutional mission, Istituto Centrale per il Catalogo Unico delle Biblioteche Italiane e per le Informazioni Bibliografiche (ICCU) has always been responsible for elaborating national rules for the documentation of all types of materials, and for the definition and diffusion of international standards, with the goal of achieving interoperability among the various cultural sectors. At the national level, through Committees and Working Groups staffed by experts, including some working in other institutions of the Ministry of Cultural Heritage and Activities, it has disseminated international standards and drafted guidelines for the documentation of cultural heritage. Through the new *Regole italiane di catalogazione* (REICAT) cataloguing code, which is derived from the Functional Requirements for Bibliographic Records (FRBR) model, a data model was obtained that represents bibliographic items in a more granular way. In the National Library Service (Servizio Bibliotecario Nazionale - SBN), the Index database has the bibliographic records structure as a system of "entities-relationships", and

the application of standards and cataloguing rules refer to within Servizio Bibliotecario Nazionale (SBN) has reflected this structure. Thanks to the new SBN Machine Readable Cataloguing (MARC) format, the representation of "entities-relationships" is more complex and flexible; indeed, it is possible to record data on all types of material according to various cataloguing and network participation levels. On the digitalization front, the Institute coordinates the harmonization of national digitization policies and the development of standards for metadata and guidelines for application. The new research and working group on metadata, which sees the participation of museums and archives, has launched the following fields of activity based on linked data:

- recovering SBN's "semantics" through the mapping of SBN-MARC and Resource Description & Access (RDA) elements present in the Open Metadata Registry;³
- analysis of the state of the application of persistent identifiers in the linked data field;
- research on the Schema.org⁴ initiative for the codification of the Resource Description Framework (RDF) query language in HTML pages; this codification allows search engines to "understand" the structure and typology of the documents being indexed;
- strengthening collaborative efforts with the Virtual International Authority File (VIAF), by augmenting the sending of authority records of SBN authors archive;
- the analysis of a crowdsourcing model that uses the contributions of the users of bibliographic services, with the aim of

³<http://metadataregistry.org>.

⁴<http://schema.org>.

enriching the metadata traditionally produced by professional communities;

- at the international level, ICCU coordinates and participates in European projects for the management and accessibility of digital content, including MINERVA, MICHAEL, ATHENA, DC-NET, Europeana, INDICATE, Linked Heritage, WDL, Partage.

Within these projects, standards play a key role, with the elaboration of best practices for the definition of heterogeneous data sets. Within the framework of the Europeana platform,⁵ starting on July 2012, the metadata related to digital objects concerning the European cultural heritage will be presented according to the linked open data model, with a creative commons license, as set out under the Data Exchange Agreement underwritten by the European partners. Collaborations with the public and private sectors include a work with the community of editors to develop a new vocabulary for support, media, and format types, which led to the creation of the RDA/ONIX Framework for Resource Categorization which has merged into the library community, particularly within IFLA's Committees. This work constitutes the broadest grouping framework for the categorization of resources of varying contents and available on all support types used by the various communities. Established with the goal of supporting the needs of libraries and publishers and to facilitate data transfer and dialogue between the communities, this effort has produced a vocabulary of categories upon which the vocabularies of International Standard Bibliographic Description (ISBD). Consolidated edition and the new RDA are based. The controlled vocabularies and the RDA elements are available in the Open Metadata Registry as linked data in RDF. The new descriptive elements for the ISBD Area 0 "Content form and support type" are

⁵<http://www.europeana.eu/portal>.

also published in Italian in the Open Metadata Registry. ICCU is currently studying ways to implement these elements in the SBN Index and the Library Management System. Another successful public-private partnership was established through the European ARROW Plus project, coordinated by the Italian Publishers' Association (Associazione Italiana Editori - AIE), which has developed a distributed system for managing information on authors' rights. ICCU, one of the project's partners, is the "National Contact Point" for Italian libraries. The primary goal of the Linked Heritage⁶ European project is to foster an increase in contribution to Europeana portal from both the public and private sectors. In particular, activities carried out as part of WP4 "Public and Private partnership" focused on analyzing and comparing the metadata used in the two sectors, in terms of defining and sharing metadata models, integrating data from the commercial sector (books, music, film and TV, photography), developing standards and best practices, data mapping and aggregation, licenses and business cases. The issue of integrating standards from various communities and the adoption of models to represent complex data is also tackled in the recommendations set out in the final report of the working groups established by the World Wide Web Consortium (W3C) for the feasibility study for the Library Linked Data Incubator Group. Final report,⁷ published in October 2011. The findings of this working group launched a series of activities whose ultimate purpose is the adoption of the linked data paradigm as an indispensable tool towards an open, interoperable semantic web. Integration with data produced by libraries with other web resources highlights their new role with regards to the broader online information community. Coordination with non-institutional actors involved with production, dissemination, and

⁶<http://www.linkedheritage.eu>.

⁷<http://www.w3.org/2005/Incubator/llid/XGR-llid-20111025>.

access to information, means creating added value to information and providing users with a high quality service, but also adopting a new attitude towards the institutional world's tasks concerning the field of bibliographic control and the promotion and diffusion of culture.

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ABSTRACT: The Central Institute for the Union Catalogue of Italian Libraries and Bibliographic Information (ICCU) is the National Bibliographic Agency for the coordination and dissemination of international standards and cataloguing rules within Italian libraries. Linked Heritage, the European project coordinated by ICCU, will contribute large quantities of new content to Europeana, from both the public and private sectors. The Work Package 4 Public private partnership is working to produce an innovative investigation that highlights the differences between metadata creation in the cultural sector (libraries, museums and archives), compared with the metadata of commercial sector. The work which the Group is carrying out, will point out the different roles and purposes between the public and private sectors: how commercial metadata can enrich the data with more information giving potential benefits and new services to Europeana users, while libraries models and standards provide stability, harmonization and an higher level of granularity of the data in order to facilitate the functions of resource discovery. WP4 Public private partnership will offer an opportunity of producing several metadata mappings. This paper analyzes the enriched information that can be offered beyond the traditional bibliographic description.

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