Poster
Using DC Metadata in Preservation Content: The Case of the Italian "Protocollo Informatico"

Anna Rovella	Nicola Ielpo	Assunta Caruso
Università della Calabria	Università della Calabria	Università della Calabria
Via P. Bucci, 87036 Rende (CS), Italy	Via P. Bucci, 87036 Rende (CS), Italy	Via P. Bucci, 87036 Rende (CS), Italy
anna.rovella@unical.it	nicola.ielpo@unical.it	assunta.caruso@unical.it

Keywords: Dublin Core; Metadata; Digital Preservation; Submission Information Package.

1. Introduction

As of October 2015, the digital preservation of the Protocollo Informatico (PI) by the end of the following working day is mandatory for all Italian Public Administrations. The PI is the Digital Records Management System and it plays a strategic role as regards the authenticity of the records. The inclusion of the record in the PI certifies its provenance and acquisition and determines its probative value. Starting from the PI, both embedded and external administrative work flow processes begin. Moreover, the PI register activates all the record's "properties" and "attributes" allowing for its management, such as aggregated records and its relationship with other items, its functional classification, life cycle control, appraisal and long-term preservation, access rights, processes, resources, users and roles.

2. Objectives

The purpose of this poster is to present a Metadata Element Model to support a coherent Submission Information Package (SIP) from a Records Management System to an Open Archival Information System (OAIS).

3. The Italian Digital Preservation Conceptual Model

3.1. Submission Information Packages

The Digital Preservation System must ensure the preservation (according to rules, processes and technologies) of digital information objects and it must guarantee the record's authenticity, integrity, reliability, and access. Information Packages (IP) are the preservation objects which characterize the System, and certify both processes and responsibilities. The Submission Information Package is the information package that the records creator sends to the Digital Preservation System. The strategies used in the creation of a SIP are fundamental in order to coherently transfer objects and information from the PI to the Digital Preservation System. It is clear that the Submission Information Package contains the records and metadata appropriately linked to processes and functional reference models and that SIP quality is closely related to the quality of the Digital Preservation System.

3.2. Metadata

The Submission Package is made up of one or more digital objects and of metadata which permits representation and access over time in a Digital Preservation Ecosystem. This Ecosystem is populated by various stakeholders, each with different responsibilities. The relationship between the information object and metadata allows the Information Package to represent the relationship amongst the objects along with the entities of the environment. The Information Package is characterized by:

a) Content Information;

*DC*PAPERS

Proc. Int'l Conf. on Dublin Core and Metadata Applications 2016

b) Preservation Description Information (PDI, *i.e.* Reference Information, Context Information, Provenance Information, Fixity Information and Access Rights Information).

Preservation Systems help repositories manage diverse metadata and facilitate the exchange of metadata or Information Packages between repositories. Metadata quality is one of the key elements towards the successful application of the System.

3.2.1. Using Dublin Core Metadata

In the light of what has been expressed thus far, we decided to develop a Metadata Element Model using the Dublin Core as a base. This model maps metadata elements to Dublin Core qualified terms, conceived as the backbone of efficiency and as a harmonizing interchangeable bridge between various identifying ways to manage and preserve digital objects and records from various domains.

The choice of the Dublin Core was prompted by its characteristics of simplicity, widespread semantic interoperability towards the preservation repository and metadata crosswalk into other repositories. Moreover, the Italian regulations regarding digital preservation recommend the use of ISO 15836:2003 and the Protocollo Informatico uses the DC Metadata to support records registration. The proposed Metadata Schema extends the Dublin Core also in accordance with the Singapore Framework for Dublin Core Application Profiles. The schema uses logic and structuring which are also typical of other metadata schemas such as ISO2308-1-2:2009, PREMIS (2015), METS, MODS, etc.
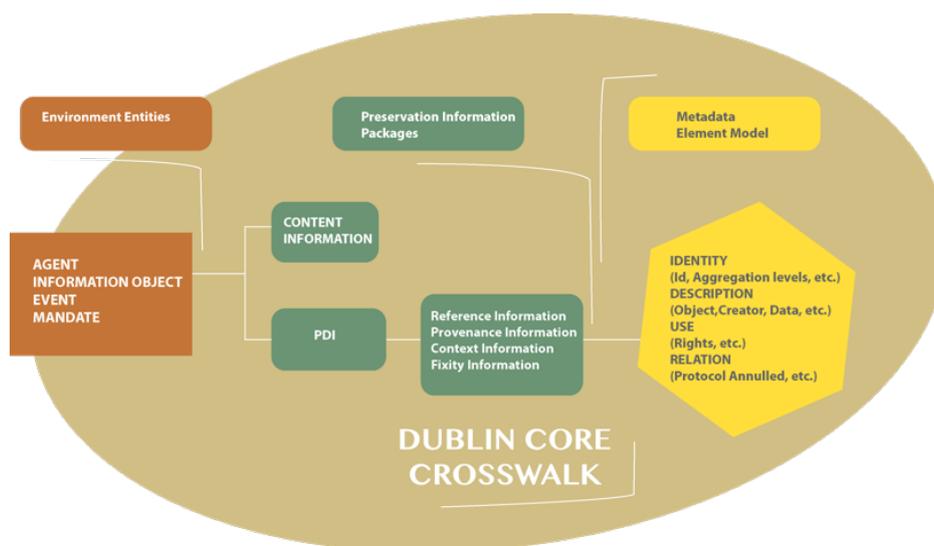

FIG. 1: Conceptual Model.

The graphical representation in (FIG. 1) illustrates the Conceptual Model on which the Metadata Element Model was based and how it interacts with the Dublin Core. The overall structure of the Conceptual Schema shows how metadata represent the Environment Entities and their relationships in Information Packages and characterize the Digital Information Object life cycle within different processes and workflows.

3.2.2. Development of the model

The designed Metadata Element Model consists of two schemas: the first defines the metadata for the administrative record or more generally speaking for information objects (e.g. TABLE 1), the second for the file and aggregated records. Each schema is set up in a hierarchical structure and has variable granularity and extensions by way of authority lists, controlled vocabularies, etc., making the metadata schema sufficiently rich, not only in the element number, but also consistent

DCPAPERS

Proc. Int'l Conf. on Dublin Core and Metadata Applications 2016

enough to describe different characteristics of heterogeneous information objects. In the development of the Model, the combination and use of metadata schemas as well as an analysis of possible problems (incorrect values, incorrect elements, missing information, information loss, inconsistent value representation) have been taken into consideration. The model has been used and evaluated by several domain experts from different Italian regions in the context of a specific agreement between CNR, University of Calabria and ItConsult S.p.a. At the time of writing, the Agency for Digital Italy (AgID) is evaluating the model for its integration into government policy documents. We expect the results of this testing phase to properly evaluate the application and work out any critical issues.

TABLE 1: Example of some elements in Administrative Record Metadata Schema.

ELEMENT	ALLOWED VALUES		DESCRIPTION	CROSSWALK
ID	Alphanumeric string		An unambiguous and persistent reference to the digital information object within a given context.	<dcterms:Identifier>
Creator	Name: String	IPA Code	Compound metadata element for identifying the entity primarily responsible for making the resource. (DCMI Metadata Terms, 2012).	<dcterms:Creator> <dcterms:Identifier>
	Surname: String			
	CodiceFiscale: Alphanumeric string			
	Surname: String			
	CodiceFiscale: Alphanumeric string			
	Surname: String			
	CodiceFiscale: Alphanumeric string			
Rights	RightsType: string		Compound metadata element that defines the type and validity of rights and permissions on record. Possibly associated with controlled list.	<dcterms: RightsType >
	RightsDate: date and time			<dcterms: RightsDate >
	RightsHolder: name, surname, CF, IPA.			<dcterms: RightsHolder>
Timestamp/ Inscription	Data and time		Date and time of record production (UTC).	<dcterms:DateValid>

4. Conclusion and future work

This poster introduces research aimed to design an extensible Metadata Element Model for content preservation within the context of Italian digital administrative records. The goal of the project is to develop, test and promote a standard interchange format for exchanging stored information packages among OAIS-based preservation repositories. In the future, we plan to work on the semantic level by optimizing authority control, with the definition of authority lists for the core elements and to enhance the use of standard vocabularies and make them compatible with the international standards.

References

AgID, Produzione e Conservazione del Registro Giornaliero di Protocollo, 01/10/2015. http://www.agid.gov.it/sites/default/files/documenti_indirizzo/produzione_e_conservazione_del_registro_giornal iero_di_protocollo_0.pdf and Linee Guida sulla Conservazione dei Documenti Informatici, 10/12/2015. http://www.agid.gov.it/sites/default/files/linee_guida/la_conservazione_dei_documenti_informatici_rev_def_.pdf

Reference Model for an Open Archival Information System (OAIS), Recommended Practice, CCSDS 650.0-M-2 (Magenta Book) Issue 2, June 2012. http://public.ccsds.org/publications/archive/650x0m2.pdf.

The Singapore Framework for Dublin Core Application Profiles. http://dublincore.org/documents/singapore-framework/.

ISO 23081-2:2009. Information and documentation - Managing metadata for records - Part 2: Conceptual and implementation issues.

DCMI Metadata Terms, 2012, http://dublincore.org/documents/dcmi-terms/.

PREMIS Data Dictionary for Preservation Metadata, Version 3.0, June 2015. http://www.loc.gov/standards/premis/v3/premis-3-0-final.pdf.

METS Metadata Encoding and Transmission Standard. http://www.loc.gov/standards/mets/.

MODS Metadata Object Description Schema. http://www.loc.gov/standards/mods/.