Defining university museums' objects for the web

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Introduction

The University of Padua is developing a project to harvest selected data from the databases of the various University's museums and import them into a single repository called Phaidra. From this repository, the selected data can be reused, i.e. directed to Europeana for instance, or made available to the public in other different ways. The project is carried out jointly by the University Library Centre (CAB) and the University Museum Centre.

One of the crucial issues consists in defining what data to harvest i.e., in this case, the minimum necessary fields that can define university heritage objects for the public. Of course, providing filtered data may be regarded as a limit to the freedom and creativity of the public, but the intent here is to present easy-to-consult scientific information. This can be interesting for the broad public and for the specialists of the

different fields, and it can provide a useful working tool for object-based teaching and research in several fields.

A first phase of the project was developed in the years 2014-2015 by the CAB and by three museums of the University-the Museum of Archaeological Sciences and Art, the Museum of Geology and Palaeontology and the Museum of the History of Physics.[1] This first phase is the subject of the present paper.

After a short presentation of the three involved museums and a brief description of the cataloguing system they currently use, we will introduce the University Library Centre and the Phaidra repository. We will then outline the steps of the project that have been achieved as of now and the semantic analysis that was carried out to identify the data to be harvested for archaeological findings, art objects, geological and palaeontological heritage, and scientific instruments. We will finally discuss the strengths and weaknesses of the project and outline further developments.

The museums involved and the cataloguing system in use

Several museums of the University of Padua originated from Antonio Vallisneri's collections, which were donated to the University in 1734. Vallisneri, professor of Practical Medicine at University of Padua, was passionate about naturalistic studies. His collections consisted of archaeological and natural findings, as well as of rare and ancient objects. The donation led the University of Padua to found an impressive Museum of Natural History, later subdivided into several smaller specialised museums, such as the Museum of Archaeological Sciences and Art (MSA) and the Museum of Geology and Palaeontology (MGP), which were further enriched throughout the centuries.[2]

As for the Museum of the History of the Physics (MHP), its history is related to the introduction of Experimental Physics teaching in Padua in 1738. The first holder of the chair, Giovanni Poleni, acquired instruments for research and

teaching, and so did his successors. This gave birth to a prestigious collection of instruments from the 16th century onward.[3]

Concerning the cataloguing system currently adopted by these museums, it is worth underlining that in Italy, cataloguing guidelines for cultural heritage are provided by the ICCD (Central Institute for Cataloguing and Documentation of the Ministry of the Cultural Heritage), which aims at the preservation and promotion of Italian cultural heritage. For every different kind of cultural asset, the ICCD has developed a specific cataloguing template,[4] which collects information according to an organized schema, with descriptive technical details to highlight the cultural value of the asset, geographical information to connect the asset with the territory, and documentary information. Data recording is governed by regulations.

Each cataloguing template has more than 300 fields, some of which are specific to the single discipline, while other fields are common to all templates. The museums involved in the first phase of the project (MSA, MHP, MGP) use four cataloguing templates i.e., respectively, the so-called RA template for archaeological objects, OA for art objects, PST for scientific and technological heritage, BNP for palaeontological heritage. The first three templates deal with artefacts and the last one with natural items.

As for the cataloguing software, all museums of Padua University currently use Artin XML-web system, developed by the CRUI (Conference of Italian Universities Rectors).[5] This database allows to insert data according to ICCD's cataloguing standards. Artin XML-web was originally created to set up a centralised database for all Italian University Museums, thus providing a platform to develop shared projects. The CRUI also intended to transmit the collected data to the ICCD.

The CAB and the Phaidra repository

The University Library System (SBA) includes the library resources and services of the University of Padua.[6] The SBA-coordinated by the CAB-consists of thirty-three libraries and one digital library. The mission of the SBA is to preserve, update and promote the use of the University bibliographic and documentary collections; to guarantee the widest possible e-access to scientific information through the University Digital Library; to support University research and teaching activities.

Phaidra (Permanent Hosting, Archiving and Indexing of Digital Resources and Assets) is the digital collections environment used by the SBA.[7] It is based on Fedora Commons open-source software and is maintained by the Computer Centre of the University of Vienna, with which the University of Padua has been collaborating since 2010. From 2014, Ca' Foscari University and IUAV University of Venice also publish their digital collections in Phaidra. Phaidra's main features are: i) management of large multimedia data collections; ii) long-term archiving of digital objects; iii) description and indexing of digital objects; iv) interoperability through structured metadata; v) multilinguality; vi) permanent links to the digital objects; vi) management of licenses and access rights; vii) enabling web users to access rare and culturally interesting documents.

The project: web access to museums' collections

As we already mentioned, the ongoing project aims at developing a "tool" that harvests data from the different cataloguing templates of Padua University museums' databases and transfer the selected data into the Phaidra repository. The intent is to give accessibility and visibility to the museums' collections in a transversal way, and to provide the public with links between museums' items and the rest of Padua University's heritage (libraries, archives, etc). The three museums involved as of now have worked on the cataloguing templates of archaeological objects, art objects,

geological and palaeontological heritage, scientific instruments (**Fig. 1**).

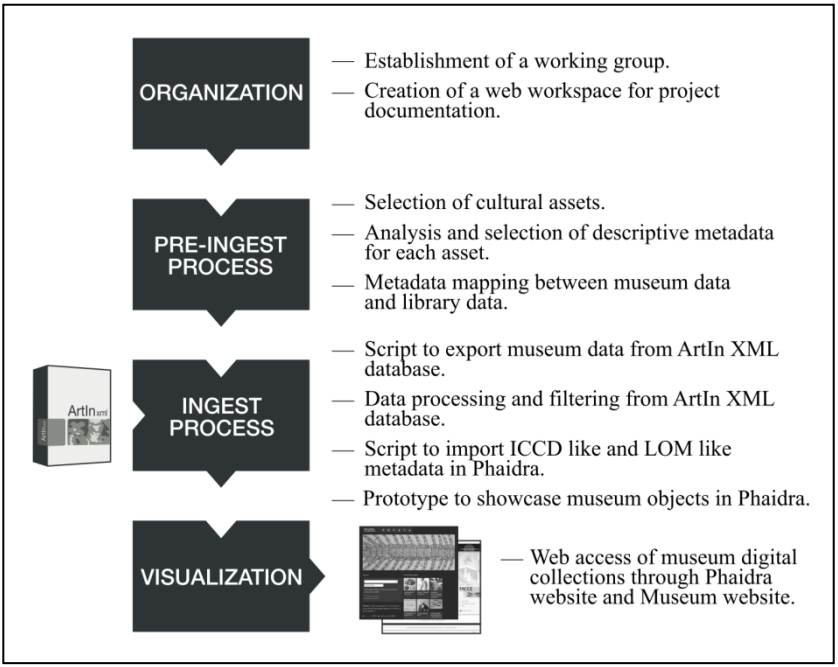

Fig. 1 - The different steps of the project.
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It was of course central to identify the data to be harvested, i.e. the minimum necessary fields that can describe university heritage objects for the public. No standard is defined for short public-oriented cards in Italy nor in other countries, as far as we know. For each cataloguing template, we have defined a set of fields for these public-oriented cards. Some of the selected fields (about one third) are common to all the cards and others are specific, but six main common semantic sections emerged, common to the four cataloguing templates: data about the definition of the object, dating, description,

provenance, access information (catalogue number, name of the museum …), and bibliography.

Detailed information on topics related to administrative matters, security and conservation have been discarded, as well as specific historical data, like historical inventory numbers, details about collections of provenance, etc.

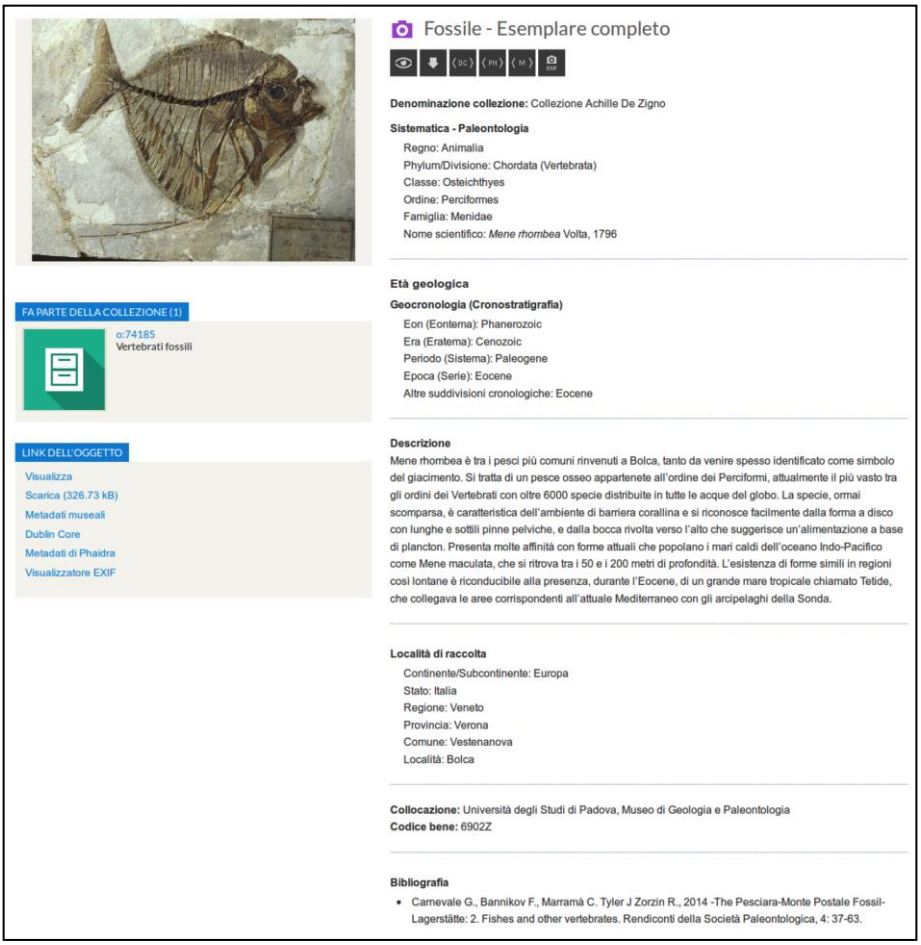

Fig.2 - Example of a public-oriented card for palaeontological heritage. COPYRIGHT, University of Padua

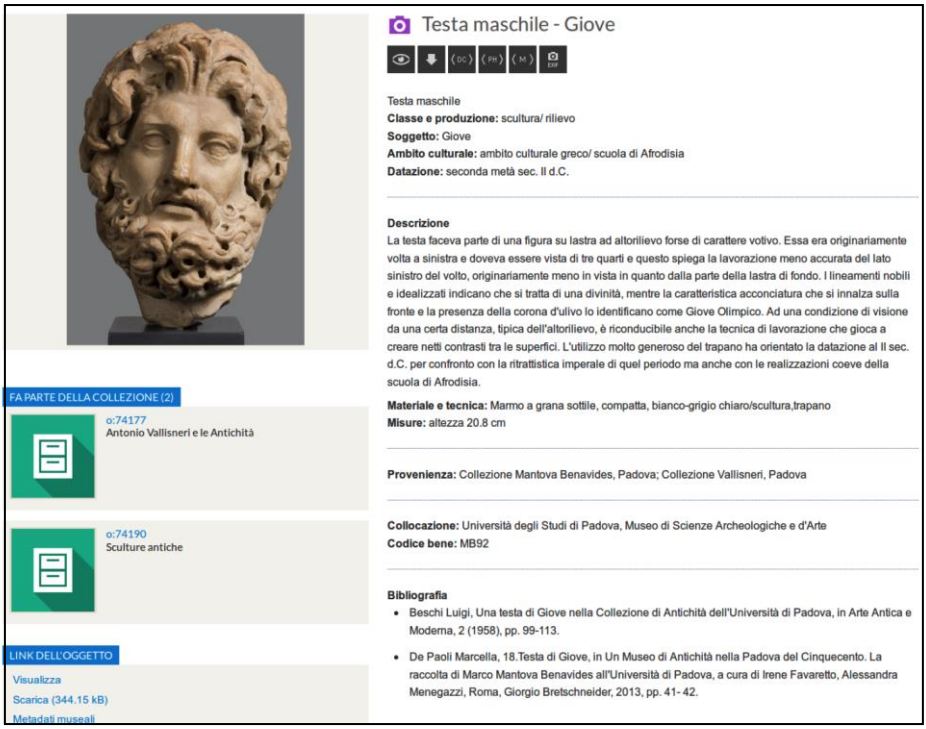

Fig.3 – Example of a public-oriented card for archaeological and art heritage.
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As already mentioned, in Phaidra, the data related to the different museums can be presented in Phaidra in a transversal way and, for instance, a collection called "The eighteenth century in Padua" presents part of the eighteenth-century heritage of the three museums involved in the project.[8]

Strengths and weaknesses, further developments

First of all, we have to say that the cataloguing software proposed used by the museums of the University of Padua is a

proprietary software. Maintaining the data could thus become a problem and a feasibility study is planned to find a sustainable solution.

On the other hand, Phaidra is based on Fedora Commons open source software. It is also very important to point out that the updating of data (transfer from cataloguing databases to Phaidra) occurs in real time. The uploading of museums' data into Phaidra actually does not require any additional work besides the cataloguing activity. This is an important point for the long-term sustainability of the project.

A further step forward has been achieved by the University of Padua in the context of the project: thanks to a specifically developed web application, the digital museum objects in Phaidra will be used for staging virtual online itineraries.[9] Moreover the CAB is testing MOVIO, an open-source software for virtual online exhibitions.[10]

As for the future developments of the project, the work done as of now for four typologies of items will be extended in the next months to the whole heritage of the University of Padua. This will lead to the setting up of a portal presenting the University's heritage.

Furthermore, the project could be easily extended to other Italian university museums. Finally, the definition of a common standard for the web "showcase" of the various museum collections of the University of Padua could be proposed to the ICCD to be adopted at a National level.

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[1] The University of Padua holds eleven museums and several collections (about one million items), coordinated by the University Museum Centre (http://www.unipd.it/musei/en/index.html, accessed 29 February 2016).
[2] http://www.musei.unipd.it/archeologia; http://www.musei.unipd.it/geologia, accessed 29 February 2016.
[3] http://www.musei.unipd.it/fisica, accessed 29 February 2016.
[4] http://www.iccd.beniculturali.it and http://www.iccd.beniculturali.it/index.php?it/473/standard-catalografici (metadata schemas), accessed 29 February 2016.
[5] http://www.liberologico.com/en/default/340/ArtIn-XML.html, accessed 29 February 2016.
[6] SBA - University Library System http://bibliotecadigitale.cab.unipd.it/en/, accessed 29 February 2016.
[7] https://phaidra.cab.unipd.it/ accessed 29 February 2016.
[8] https://phaidra.cab.unipd.it/collections/musei_settecento_a_padova, accessed 29 February 2016.
[9] http://itinerarivirtuali.musei.unipd.it/, accessed 29 February 2016.
[10] http://www.movio.beniculturali.it/index.php?en/1/home, accessed 10 March 2016