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LINKED HERITAGE

Coordination of standard and technologies

for the enrichment of Europeana

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Project Co-ordinator

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Context

WP 3	Terminology
WP Leader	Roxanne Wyns (KMKG) and Marie-Véronique Leroi (MCC)
Task 3.2	Identification of terminologies as used by cultural institutions and private partners
Task Leader	Roxanne Wyns (KMKG) and Marie-Véronique Leroi (MCC)
Dependencies	

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TABLE OF CONTENTS

1 INTRODUCTION

This report is the first deliverable of Work Package 3 (WP3). This work package is dedicated to terminology management and multilingualism within the Linked Heritage project. In this document you will find general and specific information about the objectives and work done by WP3 within the Linked Heritage project. This first deliverable is a best practice report on terminology and provides a state of the art of the terminology resources in use by cultural heritage institutions and the private publishing sector providing digital content through Linked Heritage to Europeana, as well as a reference to some important terminology resources developed or in use by other European projects.

A set of recommendations will be provided on the basis of this state of the art and key issues will be raised.

The Thematic Working Group (TWG) of WP3, the WP leaders and the technical partners have made a thorough analysis of the current situation in terminology management in cultural heritage institutions and the private publishing sector. The results of this state of the art together with the recommendations made on best practice terminology management will be put into practice with the development of a prototype platform that allows the collaborative creation of a network of interlinked multilingual terminologies. The “Implementation” section of this deliverable presents the different steps that are needed to be able to create a network of interlinked multilingual terminologies. This experiment work is based on the structure and formats of Linked Heritage partner terminologies and will together with the best practice recommendations serve as input for the definition of the general and technical specifications of the WP3 prototype Terminology Management Platform (TMP).

The conclusion will present an analysis of the first results of the WP3 activity and provides a detailed work plan of the WP for the coming months.

1.1 BACKGROUND

The Semantic Web and Linked Data are now well known principles of the Web. Applying the rules of the Linked Data has been defined as a priority for the development of Europeana. Although the normalisation of metadata is a work that has been investigated for years, the importance of terminologies to understand and exploit these metadata in a structured way has risen to the foreground thanks to the Linked Data and Semantic Web.

Work package 3 (WP3) is dedicated to terminology and as written in the description of work, its main objective is to explore ways to enhance the Europeana search experience with more relevant and precise results. To achieve this general objective, WP3 has the following specific objectives:

- To explore the state of the art in terminology and terminology management
- To define the general and specific needs in terminology management and terminology interoperability on the web (registration, SKOSification, mapping, alignment of multilingual terms, …) for any kind of content provider (libraries, museums, archives, publishers, …)
- To get the technical needs of Europeana regarding the exploitation of semantically enriched contents for improving their Semantic search engine by feeding them with interoperable terminologies

- To provide a Terminology Management Platform (TMP) taking into account both the specific needs of those who manage daily their terminologies and those who exploit them to provide enriched content

The WP3 of Linked Heritage relies on the legacy of the Work package 4 of the Athena project. The Athena project, an eContentPlus project that started in November 2008 and ended in April 2011, aimed at helping the integration of European museums' digital resources into Europeana. The WP4 of Athena was dedicated to terminology and multilingualism and aimed at providing European museums with recommendations regarding in-house terminology management. The Athena WP4 provided at the end of the project a complete set of recommendations on how to conceive a terminology, how to make it interoperable and how to link it to a network. WP3 of Linked Heritage will apply these recommendations and bring them into practice with the creation of a network of multilingual terminologies and a dedicated Terminology Management Platform.

This work package has been organised to tackle in the best way these two aspects: content management and technical developments for terminology management. Regarding the content management, the work package leaders, namely Roxanne Wyns from the Belgium Royal Museums of Art and History and Marie-Véronique Leroi from the French Ministry of Culture and Communication have established a Thematic Working Group (TWG). The WP leaders were deeply involved in the Athena WP4 activity: Roxanne Wyns was part of the Working group as an expert and Marie-Véronique Leroi was the WP leader. Both have extensive experience with terminology standards.

Institutions that are contributing content (terminologies) to the work package as well as institutions that have a strong interest in and/or need of terminologies are participating in the Thematic Working Group.

Besides the WP leaders and TWG partners, three technical partners are involved in WP3; each technical partner has a specific experience that is relevant and useful for the part they have to develop:

- Instituto Superior Técnico (IST, Portugal) has a strong experience on metadata registry considering its participation in the EuropeanaConnect project where they where responsible for the development of the EuMDR, Europeana Metadata Registry. IST will in this WP adapt a content metadata registry to a terminology metadata registry.

- Digicult (Germany) who is working on the development of xTree, a tool dedicated to the edition and mapping of terminologies expressed in SKOS, will be in charge of the development of the edition part of the Terminology Management Platform.

- Université de Savoie (France) who has a strong knowledge and experience in ontology and terminology creation and software development, is responsible for the technical coordination and final integration of the different components of the Terminology Management Platform.

1.2 ROLE OF THIS DELIVERABLE IN THE PROJECT

This deliverable is the first one of WP3 and can be considered as the basis of the work to be done within this work package by providing a complete state of the art concerning terminologies and

terminology management to serve as input for the development of the prototype Terminology Management Platform.

Here is what is in the Description of Work for this first deliverable:

D3.1) Best practice report - Terminology month 12 -March 2012 Report, public

This deliverable describes the result of the analysis about best practices in multilingual terminologies for cultural applications

Task 3.2. Identification of terminologies as used by cultural institutions and private partners --> Results in D3.1

This task will identify terminologies used by different types of cultural institutions, but also by the publishers and cultural content industries

• For this we will look at already existing studies focusing on the subject of controlled vocabularies:

- Work done in Athena WP4 (Integration of existing data structure into the EDL)? survey identifying all the terminologies used by European museums (Athena Deliverable D4.1):

- offers an overview of the whole situation of terminology use

- offers a first set of recommendations addressed toward the European museums who intend to input their digital objects and descriptions into Europeana (to prefer the use of thesauri, to describe specialised domains, to make the terminology multilingual, to SKOSify them)

- Synthesize the results from these different sources (e.g. Minerva and Athena surveys)

• A complementary survey will have to be made to get a larger overview of the terminologies used in all kinds of cultural cross-domains (libraries, museums, archives, publishers and cultural industries)

Having an extensive overview of the terminology resources in use by European cultural institutions and private publisher companies is needed to be able to start the work on the creation of the network of multilingual terminologies and development of the Terminology Management Platform.

The Athena WP4 made a complete state of the art in its first deliverable[1]. This deliverable provided a general inventory of the terminology resources created and/or available in the cultural European projects and a specific inventory based on a survey the Athena partners answered. As the Athena project was mainly dedicated to European museums meaning that most of the partners responding to the Athena survey were museums, this deliverable will extend the scope of this state of the art providing an overview of the terminologies in use among the Linked Heritage partners, e.g. not only museums but libraries, archives and private sector publishers.

[1] D4.1 Identification of terminology resources in European museums. You can find D4.1 in pdf version at: http://www.athenaeurope.org/getFile.php?id=398. An updated version of the Inventory of resources can also be found at http://www.athenaeurope.org/athenawiki/index.php/Inventory_of_resources

This deliverable will help us to better understand the use of terminology resources among the partners of the Linked Heritage project in all their variety and to better define the workflow and features needed for a Terminology Management Platform.

The results of this deliverable will be made available publicly so any other European projects or Europeana can have an up to date overview of terminology resources in use.

The Athena WP4 used a Wiki addressed to the general public and cultural institutions for presenting all the results of its activity. This Wiki, that we will present in more detail later on, has been adapted to be reused within the Linked Heritage WP3 so the already existing inventory of resources will be updated in the same manner.

1.3 APPROACH

The work carried out in this work package is strongly connected to the work done within the WP4 of Athena. The Athena WP4 launched a very detailed survey in order to get an overview of all the terminologies in use in the European museums. This survey has been revised within the Linked Heritage WP3 with a specific focus on acquiring information relevant for the development of the TMP and sent to all the partners of the project.

The inventory of terminology resources has then been updated on the Linked Heritage WIKI on the basis of the results of the survey.

The LIDO metadata schema is another main outcome of the Athena project. This standard has by now been validated by the ICOM-CIDOC working group[2] and will be used within the Linked Heritage project as the intermediate schema for rich metadata delivery to Europeana. In order to fit cross-domain and not only museum specific needs, the standard is now been analysed by the Linked Heritage library, archive and private publisher partners. The standardisation, translation and extension of the LIDO terminologies to fit the needs of all Linked Heritage content providers are an important part of the work done in WP3. This translation and mapping work will be presented later on in this deliverable. The purpose of this translation and mapping work was to provide expert terminology resources integrated in LIDO which will be very helpful when further connection between the collections and vocabularies and the semantic enrichment of the metadata will be foreseen.

1.4 STRUCTURE OF THE DOCUMENT

This deliverable on terminology best practices consists of three main parts:

A first section is dedicated to the state of the art on terminologies, including definitions and description of the main types of terminology resources. The criteria that were selected to describe the terminologies will also be described. WP3 proceeded according to two methods to perform this state of the art. These two methods and their results will be presented in this first section of this deliverable.

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[2] LIDO v1.0 XML export standard: http://network.icom.museum/cidoc/working-groups/data-harvesting-and interchange/what-is-lido.html

The second section will give some recommendations and key points for best practice terminology management.

The “Implementation” section will demonstrate how the work of WP3 is carried out by putting into practice the state of the art and best practice recommendations on terminology management. This section will introduce the two ongoing key activities of the work package: the elaboration of a network of multilingual terminologies and the development of the Terminology Management Platform. For each of these key activities the methodology and current status of the work will be presented.

The conclusion will analyse the results of this deliverable and present the work plan and upcoming activities of WP3.

2 STATE OF THE ART: IDENTIFICATION OF TERMINOLOGIES

2.1 ABOUT "TERMINOLOGY"

Before getting into details with this deliverable, we need to give some definitions on what we mean when using the word "terminology". Indeed we don't use this word as the discipline which aims to study terms and their use within a specific domain; we use it as a reference to any kind of 'vocabulary'. A vocabulary can be defined as a list of words and phrases in a language[3]. So we use the word 'terminology' with a very generic meaning. There are many different kinds of terminology resources, among them we can find:

- Lexicon
- Dictionary
- Folksonomy
- Glossary
- Classification
- Taxonomy
- Thesaurus
- Controlled vocabulary
- Terminology
- Ontology
- ...

The inventory done in the framework of the project demonstrated that five main types of terminologies are in use. Here are the main kinds of resources organised according to their level of complexity:

- Simple list of terms
- Glossary
- Classification/taxonomy
- Thesaurus
- Ontology

Distinction and gathering of these resource types have been achieved according to the definitions mentioned below. These definitions have been mainly based on the information available in the Minerva report on multilingualism and thesauri[4], Wikipedia, Online Dictionary for Library Information Science and other specific websites mentioned as footer annotations.

2.1.1 Simple list of terms

A simple list of terms is a controlled vocabulary. **A controlled vocabulary** is a list of terms that have been explicitly enumerated. You can find the following definition in the "Online Dictionary for Library

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[3] Vocabulary : http://www.abc-clio.com/ODLIS/odlis_v.aspx

[4] Final Plan for using and disseminating knowledge and raise public participation and awareness Report on inventories and multilingualism issues: Multilingualism and Thesaurus (http://www.minervaeurope.org/publications/multilingualismandthesaurus.htm)

and Information Science[5]: “An established list of preferred terms from which a cataloguer or indexer must select when assigning subject headings or descriptors in a bibliographic record, to indicate the content of the work in a library catalogue, index, or bibliographic database”. This list is controlled by and is available from a controlled vocabulary registration authority. All terms in a controlled vocabulary should have an unambiguous, non-redundant definition. However the simple list of terms generally consists in an alphabetical list of terms of a specific domain without definition or relations between terms. It can also be a list of named entities such as authors’ or persons’ names, location names, etc. It represents the “minimalist” type of terminology resource.

2.1.2 Glossary

A glossary[6] is an alphabetical list of terms of a specific domain where each term has a definition or an explanation. The glossary is defined as follow in the Online Dictionary for Library and Information Science[7]: “An alphabetically arranged list of the specialized vocabulary of a given subject or field of study, with brief definitions, often appearing at the end of a book or at the beginning of a long entry in a technical reference work”. The glossary, despite some common features, is not a dictionary or a lexicon. It often concerns a very specific or technical domain and is generally dedicated to non-experts for giving definition of very technical terms in a simplified way. A glossary can be multilingual.

2.1.3 Classification

Classifications[8] are originally specific to library science and mainly used for cataloguing: a classification is a system of coding and organizing the knowledge. Classification is one of the tools used to facilitate subject access to collections. Thesauri and subject heading systems are other tools facilitating subject access. The main difference between these two tools is that classifications don’t allow assigning an object to several classes while thesauri allow assigning several terms to one object.

The Dewey Decimal Classification (DDC)[9] and the Universal Decimal Classification (UDC)[10] are the most known classification systems in the Information science and documentation world. DDC is more likely to be used as a system of location of resources while UDC which is more expressive than DDC especially with the relations between subjects will be preferred for subject browsing.

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5 Controlled vocabulary: http://www.abc-clio.com/ODLIS/odlis_c.aspx

6 Wikipedia - Glossary: http://en.wikipedia.org/wiki/Glossary
Website of the Centre National de ressources textuelles et lexicales:
http://www.cnrtl.fr/definition/glossaire
Grand dictionnaire Terminologique:
http://www.granddictionnaire.com/BTML/FRA/r_Motclef/index800_1.asp

7 Glossary: www.abc-clio.com/ODLIS/odlis_g.aspx

8 Wikipedia: http://en.wikipedia.org/wiki/Library_classification
Classification: http://www.abc-clio.com/ODLIS/odlis_c.aspx

9 Wikipedia: http://en.wikipedia.org/wiki/Dewey_Decimal_Classification

10 Wikipedia : http://en.wikipedia.org/wiki/Universal_Decimal_Classification
UDC online: http://www.udconline.net/introduction.asp

Classification schemes may be either specialised, e.g. limited to a specific subject, or general, e.g. aiming to cover all subjects equally ('the universe of information').

2.1.4 Taxonomy

The taxonomy[11] is very close to the classification since it is also a system of coding and classification. Originally used to designate classifications in the natural sciences field and also the practice of classification, the word “taxonomy” now refers to a form of classification scheme. In other words, taxonomy could be assimilated to a controlled vocabulary organised into a hierarchical structure. The terms are connected through a parent-child relationship.

As classification and taxonomy are very similar, these two types of resources have been brought together for the needs of this report.

2.1.5 Thesaurus

A thesaurus[12] could be defined as “a networked collection of controlled vocabulary terms”. Thesauri allow connecting the terms via several types of relationships which can be hierarchical, associative, equivalence or definition. This means that a thesaurus uses associative relationships in addition to parent-child relationships. A parent-child relationship is expressed by a Broader Term (BT) /Narrower Term (NT) feature. Associative relationships in a thesaurus such as “Related Term” (RT) (e.g. term A is related to term B) are used to express relationships that are neither hierarchical nor equivalent. Equivalence is expressed by the USE (e.g. preferred term)/ Used For (UF) (e.g. non-preferred term). Additional information such as definition or remark can be included in a Scope Note (SN). The equivalence relationship is especially useful within multilingual thesauri.

Thesauri contain two different types of terms: descriptors and non-descriptors. The descriptors are the terms used for indexing. The non-descriptors refer to all the terms connected to the descriptors through the associative and equivalence relationships mentioned above. Non-descriptors are not used for indexing.

A thesaurus can be either monohierarchical or polyhierarchical: in a monohierarchical thesaurus, a descriptor can be connected to a broader descriptor whereas several broader descriptors can be parent of a descriptor in a polyhierarchical thesaurus.

This horizontal level of relationship makes the main difference between thesaurus and taxonomy.

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[11] Article by Jean Delahousse (Mondeca), Knowledge Mag, n°2, March 2009 : http://www.knowledgeconsult.com/fr/knowledgemag/numero2.html [link checked on 08/17/09]

Wikipedia: http://en.wikipedia.org/wiki/Taxonomic_classification
Taxonomy: http://www.abc-clio.com/ODLIS/odlis_t.aspx

[12] Wikipedia http://en.wikipedia.org/wiki/Thesaurus
Thesaurus: http://www.abc-clio.com/ODLIS/odlis_t.aspx

Construction, testing and management of monolingual and multilingual thesauri are normalised within two ISO standards, namely "*ISO 2788-1986 Guidelines for the establishment and development of monolingual thesauri*" *and* "*ISO 5964 Guidelines for the establishment and development of multilingual thesauri*". A new ISO norm, the *"ISO 25964-1: Thesauri and interoperability with other vocabularies: Thesaurus for information retrieval"*[13], taking into account the technical features and interoperability of a thesaurus has been established in 2011. The second part of this norm dedicated more specifically to interoperability will be published in 2012.

2.1.6 Ontology

Ontology[14] is a formal representation of a set of concepts within a domain and the relationships between those concepts. Ontologies are the main kind of resource used for the Semantic Web or Knowledge management as a knowledge representation. The concepts are linked together by hierarchical relationships in one hand and semantic relationships in another hand.

Here follows the main usual components of ontology:

- Individuals: instances or objects;
- Classes: sets, collections, concepts, types of objects;
- Attributes: aspects, properties, features, characteristics, or parameters that objects (and classes) can have
- Relations: ways in which classes and individuals can be related to another one;
- Function terms: complex structures formed from certain relations that can be used in place of an individual term in a statement
- Restrictions: formally stated descriptions of what must be true in order for some assertion to be accepted as input
- Rules: statements in the form of an if-then (antecedent-consequent) sentence that describe the logical inferences that can be drawn from an assertion in a particular form
- Axioms: assertions (including rules) in a logical form that together comprise the overall theory that the ontology describes in its domain of application.
- Events: the changing of attributes or relations

The CIDOC- Conceptual Reference Model (CRM) is an ISO standard representing cultural heritage information as an ontology.

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[13] ISO 25964-1: http://www.iso.org/iso/fr/catalogue_detail.htm?csnumber=53657

[14] Wikipedia: http://en.wikipedia.org/wiki/Ontology_components
« What are the differences between a vocabulary, a taxonomy, a thesaurus, an ontology, and a meta-model ? », contribution de Woody Pidcock (Boeing company)

The following table summarizes the main features of each resource:

	Description	Structured	Relationship
Simple list of terms	List of terms explicitly enumerated	No (alphabetical)	N/A
Glossary	List of terms with definition or explanation	No (alphabetical)	Definition (equivalence)
Classification/taxonomy	List of terms organised in a hierarchical structure	Yes	Hierarchical
Thesaurus	Networked collection of controlled vocabulary terms	Yes	Hierarchical Associative Equivalence
Ontology	Formal representation of a set of concepts	Yes	Hierarchical Associative Equivalence Definition Semantic

2.2 CRITERIA SET

To be able to arrange the inventory of terminology resources in type groups, Athena WP4 established a set of criteria for analysing terminology resources. The following criteria where used to group terminologies together:

- Kind of terminology
- Multilingualism of the terminology
- Area and dimension of the terminology
- Production of the terminology
- Data format of the terminology
- Kind of terminology users

We decided to stick to the same analysis framework for the Linked Heritage WP3 survey of terminology resources, following these criteria in order to proceed with the presentation of the results. A summery of the Athena survey results are provided in point 2.3 because of the high relevance of these results for the work in Linked Heritage WP3 (many Athena partners are also partner in Linked Heritage and their terminology situation then is still largely representative for today's situation).

Presented below are the six criteria that determine the analysis:

2.2.1 Kind of terminology

It appeared in the Athena WP4 inventory of resources that a thesaurus is the kind of resource that is mostly in use in by the European museums. Thesauri offer a list of terms with hierarchical and/or associative relations. A thesaurus is an excellent compromise between a complicated and elaborated ontology and the simple list of terms without any relations between the terms.

So among the criteria set, we focus mainly on the terminology resources that are a thesaurus because of their richness allows an easier concept alignment when mapping between terminologies.

2.2.2 Multilingualism of the terminology

Although, cultural institutions commonly use monolingual terminologies because it is easier to create a network of terminologies, we will focus on multilingual resources if possible. They have the advantage that other project partners might understand the second language (often this is English) to allow mapping between terminologies.

According to the number of languages and the languages available, experiments could be done in order to test the Terminology Management Platform.

2.2.3 Area width and dimension of the terminology

The study within Athena shows that a correlation exist between on the one hand the number of terms in a terminology, and whether the application area (domain, subject) of the terminology is broad or narrow. Roughly speaking, it might be possible that a too large area fosters the multiplication of terms used for its description, hence the decrease of their efficiency because of the intimidating mass of possible choices they represent to characterize a reality.

2.2.4 Production of the terminology

The production method of the terminology is also of interest for our inventory since thesauri are created most of the time according to some specific norms/standards. You can refer to the Athena WP4 D4.1 to get a brief description of these norms. We already mentioned the new norm ISO 25964-1 which is for the working Linked heritage WP3 the main reference for creating and making a thesaurus interoperable.

Many terminology resources are also adapted from another kind of terminology. For example some institutions that use a thesaurus can decide to move from a thesaurus to an ontology. In this case they will precise that the ontology was made from the thesaurus, which will have an impact on the final form of the ontology.

Another common phenomenon is the adaption of a reference terminology to the institution's needs. Indeed an institution may want to use for example the terminology from the Getty Institute, but may also need to translate/adapt it to its own language or add/modify terms according to its usual indexing/retrieval process. It is important for us to know which terminology was used as a to build the new terminology described.

2.2.5 Data form of the terminology

It is now well acknowledged that a terminology has to be available in the SKOS format in order to be able to be integrated into Europeana. Indeed, the SKOS format is an interoperability format that has been defined in order to formalise in a normalised way thesauri and classifications.

The survey taught us that most of the institutions are not acquainted with the use of such standard formats and most often use spreadsheets or texts files. In the best case they might be able to export their terminologies in an XML file.

Guidelines to help cultural heritage institutions with the preparations needed for SKOSification of their terminologies have been established within the Athena project. A special focus will be given to terminologies that are already available in SKOS format, but also to those terminologies prepared according to the basic principles of SKOS in order to allow easier mapping when the TMP becomes available.

2.2.6 Kind of terminology users

Europeana is an aggregator, understood as an access portal to the collections data. In other words, it means that the content published on the Europeana portal is dedicated to both the professionals and the general public. Multilingualism and data structuring by using terminologies has a strong impact on the information retrieval. Having knowledge of the by the terminology targeted user (generic, professional user,…) will help us to better define the technical features and functionalities of the Terminology Management Platform (TMP).

2.3 THE ATHENA INVENTORY OF RESSOURCES

As mentioned higher, the results of the original Athena survey are still of relevance for the work on the development of the TMP and Linked Heritage terminologies as many Athena partners are also partner in Linked Heritage and their terminology situation then is still largely representative for today's situation. For this reason, a short evaluative summery is provided below. These results are taken into consideration when working on the technical specifications and functionalities of the TMP.

The Athena WP4 proceeded according to two methods in order to make the state of the art on terminology resources. The first method consisted in identifying European projects dealing with terminology and multilingualism within their project organisation. Addressing a specific survey to the partners of the Athena project was the second method adopted to make the inventory of terminology resources.

2.3.1 Terminology and multilingualism in European projects

The question of vocabularies or the availability of SKOS formats for the sharing of these vocabularies can't be avoided when it relates to European projects and having a common understanding at European level. These projects have been investigated in order to see to what extent they use or manage monolingual or multilingual terminologies and in which exhange formats they are available. Then an inventory of terminology resources available at European level has been done.

European projects such as MICHAEL[15] or HEREIN[16] have been studied regarding multilingual terminology resources. Some other projects have also been investigated as they offered some tools or a technical consideration of terminology. Projects such as EuropeanaConnect[17] or CACAO[18] have been studied in this second perspective.

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15 MICHAEL, Multilingual Inventory of Cultural Heritage in Europe : http://www.michael-culture.org
16 HEREIN, European HerItagE Network : http://thesaurus.european-heritage.net
17 EuropeanaConnect: http://www.europeanaconnect.eu

Some major terminology resources elaborated at European level and mostly in use in European institutions were also listed. The case of a terminology resources such as GEMET can be mentioned as it is multilingual with several levels of hierarchy. Other resources such as RAMEAU, LCSH or SWD are also valuable as these three resources were mapped together in the framework of a European project, MACS[19].

The VIAF[20] Virtual International Authority File is also a major resource for author/creator(s) names. It results from the cooperation of the Library of Congress (LC), the Deutsche Nationalbibliothek (DNB), the Bibliothèque nationale de France (BNF) and OCLC. It has recently became an OCLC service.

2.3.2 Athena survey and results

The second method consisted in a specific survey addressed to the European museums partners of the Athena project. The questionnaire was inspired by the questionnaire form defined within the Minerva project which had a strong focus on multilingualism. This questionnaire had the following seven sections:

- Basic and contact information for the terminology
- Organisation's website (particularly any multilinguality)
- Detailed information about the terminology
- Use of the terminology
- Multilinguality of the terminology
- Availability of the terminology
- Audience for the terminology

A total of a 105 terminology resources were gathered thanks to this survey. The results of the survey have been analysed according to the criteria set described above in point 2.2. A detailed overview of the survey can be foun in Athena WP4 *D4.1 Identification of existing terminology resources in museums*[21]. These results where also integrated on the WIKI and will be updated during the Linked Heritage project[22].

Among the terminologies gathered in the framework of the survey, it appeared that 40% of them were thesauri, i.e. the major kind of terminology resources used in European museums. Only 30% of these resources were multilingual. About the third criteria, the area width of the terminology, we figured out that there may be a correlation between the dimension of the terminology and the area width

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18 CACAO, Cross- language Access to Catalogues And On-line libraries : http://www.cacaoproject.eu

19 MACS : https://macs.hoppie.nl/pub

20 VIAF: http://viaf.org

21 D4.1 Identification of existing terminology resources in museums : http://www.athenaeurope.org/getFile.php?id=398

22 Inventory of resources from Athena and Linked Heritage: http://www.athenaeurope.org/athenawiki/index.php/Inventory_of_resources

(domain/subject covering) of the terminology. Usualy the larger the terminology, the larger the number of domains covered by the terminology appeared to be.

The survey confirmed that for the fourth criteria, production mode of the terminology, European museums use reference terminologies (such as Getty terminologies, Library of Congress lists,…) and adapt these to take into account the cultural heritage institutions' specific needs (precision of the terminology, language, …) in the most simple and economic way.

All the results and outcomes of the Athena project have been recorded in a WIKI[23] focusing on terminologies, multilingualism and best practice recommendations on terminology management. This Wiki has been then adapted for the Linked Heritage project as the work of Linked Heritage WP3 is a direct legacy of the Athena WP4 and the concrete achievement of the recommendations and theory established within Athena.

2.4 LINKED HERITAGE WP3 SURVEY

As described above, the WP4 survey launched in the Athena project resulted in an extensive overview of terminology resources in use by European museums. The results of the Athena survey can still be considered as a valuable input for the work in this project, but an additional survey was certainly needed. In first place, because the Linked Heritage consortium doesn't consist solely out of museums, but also includes archives, libraries and partners from the private publishing sector. An insight in the terminology resources used by all kinds of cross-domain content providers, and more specifically in those of the content providers participating in the Linked Heritage project, was certainly needed for finalising the design of the Terminology Management Platform (TMP).

An additional survey on terminology resources was launched by this WP in month 7 (October 2011) of the project. The aim of the survey was to collect information about terminology resources used by the partners of the Linked Heritage project to describe the object metadata with the intention to integrate these results into the inventory of resources.

Here are presented the questionnaire, the followed protocol and the results.

2.4.1 Presentation of the survey

A single questionnaire has been set up for this survey, addressing all Linked Heritage content providers. The questions were based on the surveys launched in the Minerva and Athena projects and completed and improved with specific questions suggested by our technical partners for the results to serve as input for the development of the prototype platform for terminology management (TMP). The survey was first provided to the consortium partners in a PDF version to enable them to gather all the needed information before filling in the online form on Survey Monkey, a web-based survey solution[24].

[23] http://www.athenaeurope.org/athenawiki/

[24] The complete questionnaire can be found in Annex 7.1 Survey form

The Linked Heritage consortium includes 38 representatives from 20 European countries representing all key stakeholder groups in the Europeana ecosystem. This includes several ministries and responsible government agencies, content providers and aggregators, several partners from related ecosystem projects such as EuropeanaConnect, Athena and Arrow, and a number of leading research institutes and technical developers. Although the survey was mainly meant for content providers, other partners were also contacted for them to distribute the survey to their content partners as well. Partners were asked to complete one survey for each separate terminology.

20 countries have been contacted to fill in this survey. 15 countries answered the survey, some of them referring to the survey they filled in as partner in Athena and providing additional information in completion (table of countries in Annex 6.2.1). 5 countries have not answered yet, also because this consortium includes a number of technical developers and experts, like IST from Portugal, who will not be delivering content to the project and therefore cannot fill in the survey on terminologies. Moreover some aggregators pointed out that they needed more time gathering information on terminology resources from their different content providers. We will try to gather this information from them later on in the project in order to complete the results and the inventory of resources on the Linked Heritage WIKI.

For the time being we have gathered information about 21 terminologies which were added to the "Inventory of resources" section on the WP3 WIKI. Gathering all of the answers and trying to analyse and interpret them in a consistent way wasn't easy because of incompletes and lack of homogeneity of the answers. This might be due to:

- The ambiguity of some questions of the WP3 questionnaire that might not be understood as we thought;
- The different levels of expertise and knowledge on terminologies of the people who have kindly answered the questionnaires.

We will therefore keep consulting the content providers in order to get more knowledge and material to serve as input for the work in WP3 and the development of the technical specifications of the TMP (D3.2). Some partners were already asked to provide some additional information, but often the answer was fairly simple, informing us that they used only simple term lists or no controlled terminologies for their metadata creation at all. None the less thanks to this specific survey in combination with the Athena results we have identified and updated a large set of terminology resources used by the cultural heritage sector. Complementary to the Athena survey results we also gathered information from archival and publishing instances, providing us some insight in the use of vocabularies in the entire GLAM sector.

In the section "Inventory of resources" on the Linked Heritage WP3 WIKI, a complete overview of the terminologies can be found[25]. We have kept only those terminologies in the list where we have the rights to make them public, so terminology resources like the Getty terminologies are not included in this section even though it was mentioned by several partners that they use them. When available, the inventory also provides a link to the online site where the terminology can be downloaded or

[25] Overview of terminology resources: http://www.athenaeurope.org/athenawiki/index.php/Inventory_of_resources

consulted. Only general information on terminologies is included on the WIKI[26], classified according to four criteria:

- If the terminology is a thesaurus
- If the domain is specialised
- If the terminology is multilingual
- If it is SKOSified

2.4.2 Results and analysis

As mentioned before, the results of the Linked Heritage survey are rather limited because many of the content providers were previously partner in Athena and had already provided the information in that project. Another reason seems to be that a significant number of content providers don't use in-house terminologies for the description of their metadata. However we hope to gather some additional data during the lifetime of the project. These results will then be included in the inventory of resources of the Linked Heritage WP3 WIKI.

The survey was divided into 5 main sections:

- Basic and contact information for the terminology including name of terminology, version and date of terminology, owner of terminology
- Questions on multilingualism of the terminology
- Detailed information about the terminology such as type of terminology, description and application domain, size, supported features
- Availability of the terminology, format, software used
- Questions regarding the use and audience for the terminology, access and retrieval, IPR, distribution costs

The summery of the results of the Linked Heritage survey are here structured in a compliant manner:

Basic information

The results of the survey made it apparent that very few content providers maintain a professional versioning system, creation and publication date for their terminologies. Only 9,5% of terminologies had a versioning number. This situation is mainly due to the fact that most terminologies where created for own use and these are continuously updated according to internal demand.

[26] Additional information on the terminologies can be requested from the WP leaders

Multilingualism of the terminology

When looking at the multilingual state of terminologies, 47,6% are described as being multilingual opposed 52,3% monolingual. When comparing this outcome to the results of the Athena survey carried out almost 3 years ago, only 30% was listed as multilingual. However we should in this case take into account that the amount of new terminologies we received in this survey is a lot lower than was the case in Athena. But never the less the results point out that once translation work is started, a certain effort can be detected by content providers to provide a full and professional translation of the entire terminology by domain specific experts. When you look at the numbers, only 20% of multilingual terminologies have only partial translations, 30% are fully bilingual and 50% are fully trilingual. All multilingual terminologies have English as their second or third language, confirming the conclusion made in Athena WP4 that English could best play the role of pivot language for all countries.

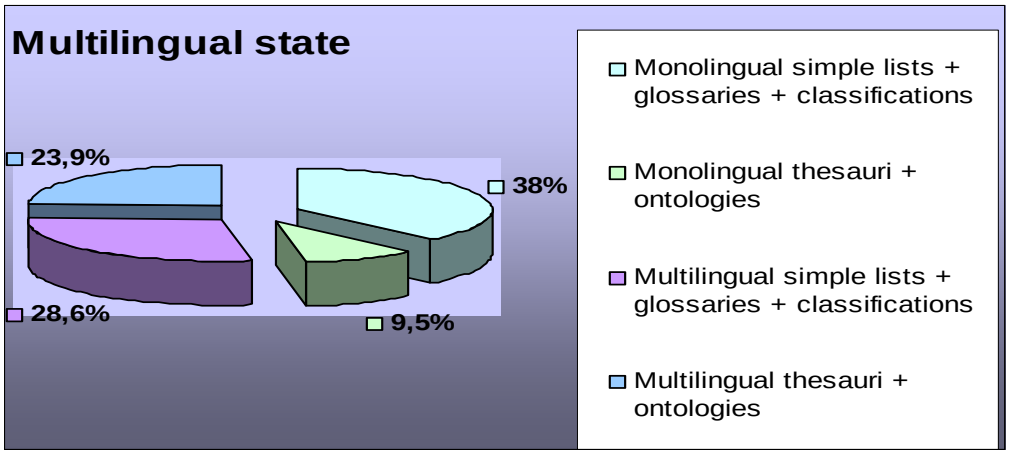


Figure 1: Multilingual state in the Linked Heritage WP3 survey

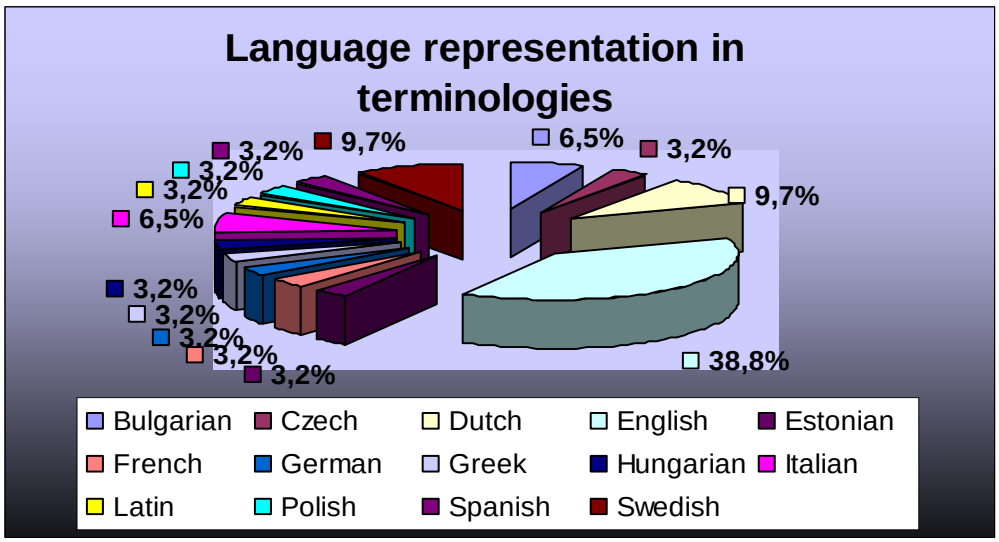


Figure 2: Language representation in the Linked Heritage WP3 survey

Here are some examples of terminologies illustrating the multilingual state:

Title	NAD-Termkatalog
Kind of resource	Glossary
Country	Sweden
Language(s)	Swedish
Descriptions	Managed by the Riksarchivet and created in collaboration with the departments within Swedish National Archives. Used for the description of archive items
Dimension	501 - 1000
URL	www.nad.ra.se/top.aspx?page=static/dataleverant.html

Title	KÖZTAURUSZ
Kind of resource	Thesaurus
Country	Hungary
Language(s)	Hungarian
Descriptions	Universal thesaurus of National Széchényi Library, public libraries, scientific and technical libraries
Dimension	Over 10000
URL	Previous version on http://mek.oszk.hu/adatbazis/thes.htm The new version is currently being tested.

Title	EDR terminology
Kind of resource	Glossary
Country	Italy
Language(s)	Latin 100% - Italian 100% - English 100%
Descriptions	EDR is a project linked to the Corpus Inscriptionum Latinarum and under the patronage of the AIEGL (Association International d'Epigraphie Grecque et Latine). The terminologies focus on Ephigraphy, Archeaology, Ancient history
Dimension	11 - 100
URL	http://www.edr-edr.it/English/Guida_consult_en.php http://www.edr-edr.it/Italiano/Guida_consult_it.php http://www.edr-edr.it/Download/EDR%20-%20Manuale%20v.1.pdf

Title	RMAH Object name thesaurus
Kind of resource	Thesaurus
Country	Belgium
Language(s)	French 100% - Dutch 100% - English 100%
Descriptions	The Royal Museums of Art and History object name thesaurus focuses on art and archaeology. Model based on the Art and Architecture Thesaurus.
Dimension	1001 - 5000
URL	www.carmentis.be

Detailed information concerning the terminology

Types of terminologies

Among the terminologies included in this survey, most of them are considered to be thesauri. The simple list terms, glossaries and classification/taxonomies are almost evenly divided. The use of

simple lists or glossaries instead of thesauri seems particularly the case for archival and library instances though this is hard to confirm with the limited amount of results we got back.

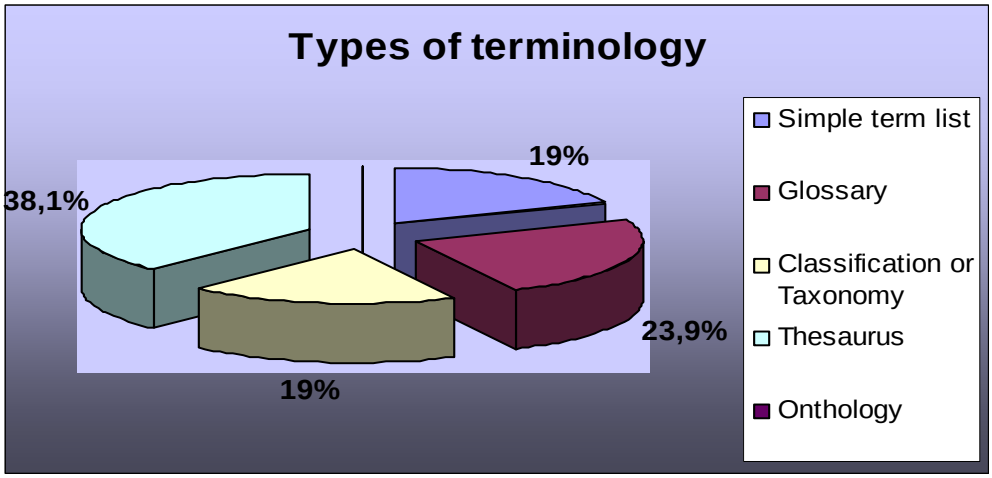


Figure 3 : Types of terminologies in the Linked Heritage WP3 survey

Here is an example of glossary type of terminology:

Title	Genre for Performing Arts
Kind of resource	Glossary
Country	Czech Republic
Language(s)	Czech 100% - English 100%
Descriptions	This thesaurus is managed by Arts and Theatre Institute of the Czech Republic and focuses on performing arts for the description of the metadata
Dimension	11 - 100
URL	http://db.divadelni-ustav.cz/inscenace.aspx?langw=en

Dimension of the terminologies

Only 18 partners answered the question on the amount of terms the surveyed terminologies contain. The inconsistency of these results makes is even more difficult to make a proper analysis of the results and we will therefore only state that the multilingual thesauri contain the highest amount of terms and the simple term lists the least amount of terms which is perhaps not that much of a surprise because of the rich hierarchical broader – narrower – related structure which is characteristic a thesaurus.

Here is an example of a thesaurus containing between 1001 and 5000 terms, which makes it one of the bigger terminologies:

Title	RMAH Geographical Reference thesaurus
Kind of resource	Thesaurus
Country	Belgium
Language(s)	French 100% - Dutch 100% - English 100%
Descriptions	The Royal Museums of Art and History Geographical Reference thesaurus contains both political and geographical entities from 5 continents due to the diverse collection managed by the RMAH.

Dimension	1001 - 5000
URL	www.carmentis.be

Reference standard used for production of the terminology

Again, the answer to the question which standards where used as a reference to create the terminology wasn't consistently answered. The majority answered "Other standards", mostly national or in-house. The second biggest group used the AAT as a basis. ISO 5964 and ANSI/NISOZ39.10-1993 came in third place.

Here you can find an example of a terminology based on the AAT:

Title	Thésaurus de la dénomination Palissy
Kind of resource	Thesaurus
Country	France
Language(s)	French
Descriptions	This thesaurus is managed by the Ministry of Culture and Communication (France). It applies to description domains Architecture, decorative arts, furniture,
Dimension	1001 - 5000
URL	The new version will be published in 2012

Multilingual translation manner

Regarding the production of the multilingual terminologies, 80% of the listed terminologies have been translated by a specific domain expert and 20% by professional translators. Although it looks like in these cases, domain experts might have been meant as well. When combining the results with those from Athena, it becomes apparent that automatic translation tools aren't used and that human interpretation and translation is still valued most for this kind of work.

Here is an example of a terminology translated by a domain specific expert where one language was used as a reference for translating the terms in the other language(s):

Title	Tesaurus d'art i arquitectura
Kind of resource	Thesaurus
Country	Spain (Catalonia)
Language(s)	Catalan 100% - Spanish 100% - English 100%
Descriptions	Currently a specialist team performs the translation of the AAT thesaurus. Terminology standardization is done with the collaboration of Termcat, the centre for terminology in the Catalan language. It is expected to have system ready by 2012 to get Catalan cultural institutions involved in the maintenance of the thesaurus
Dimension	Over 10000
URL	On the web by 2012

Availability of the terminology and data format

One of the main problems cultural institutions face when wanting to share their terminologies with the community, is the lack of knowledge and tools needed to export and publish these terminologies in an interoperable and Europeana compliant format like SKOS. Again the results from this survey show that most terminology resources aren't published on the web and when published, they are not available in an interoperable format.

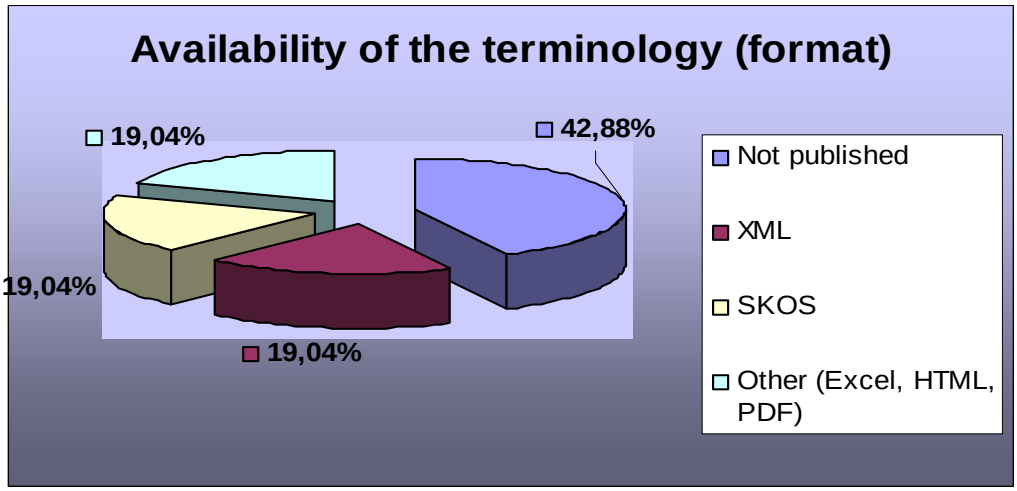


Figure 4: Format of terminology

Here is an example of a terminology consultable through the online catalogue of the institution and freely available on demand, but only in excel of word format:

Title	RMAH Material and Technique thesaurus
Kind of resource	Thesaurus
Country	Belgium
Language(s)	French 100% - Dutch 100% - English 100%
Descriptions	The Royal Museums of Art and History Material and Technique thesaurus is mainly based on the AAT and covers several application domains.
Dimension	501 - 1000
URL	www.carmentis.be

Use and audience for the terminology

All surveyed partners mentioned that their terminologies are dedicated to both professional audiences and general audiences. If these terminologies are representative for the sector, one can conclude that generally terminologies are designed and used to take into account the general public without losing their professional value.

Here is an example of a thesaurus dedicated to both professional and more general audiences:

Title	MDA Archaeological Object Thesaurus
Kind of resource	Thesaurus
Country	United Kingdom
Language(s)	English 100%
Descriptions	Thesaurus maintained by Collections Trust and English Heritage on object names for the description of archaeological objects
Dimension	1001 - 5000
URL	Contact Collections Trust

2.4.3 Conclusion

Unfortunately we had to work with limited amount of partner answers, which makes it difficult to generalize the results. However, if we compare the results of this survey with those from the Athena survey, one might conclude that the situation in terminology management is indeed much the same as it was in Athena. Most cultural institutions still have a big effort to make to adapt their terminologies to an interoperable format to comply with Europeana regulations. The most apparent reason for this limited availability terminologies in exchangeable formats is that the sector doesn't have the tools, the in-house knowledge, not the economic means to share these kinds of resources. In most European projects, the focus was always directed on metadata standards. Only recently, with the attention turning towards data enrichment and multilinguality of content, more effort has been made towards interoperability and exchange of terminology resources. With the development of the Linked Heritage Terminology Management Platform we hope to provide solutions for the specific problems the sector encounters.

3 RECOMMENDATIONS

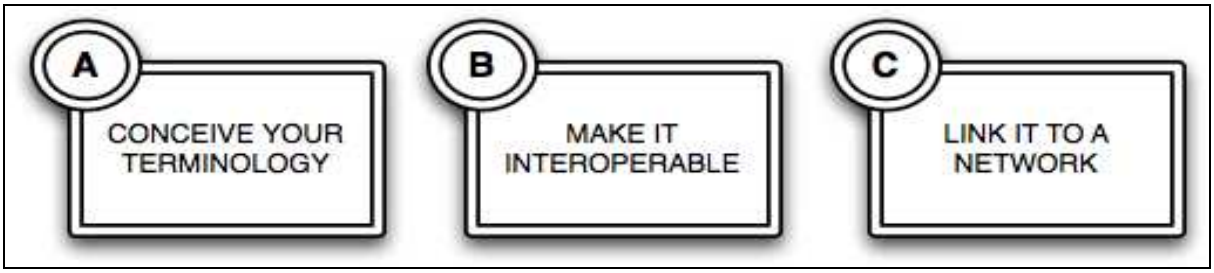
The main outcome of the Athena WP4 activity consisted in elaborating recommendations addressed to the European Museums. We give here a short reminder of these recommendations that we have updated thanks to the larger scope of the Linked Heritage project. These reviewed recommendations are of high importance for the finalisation of the technical specifications of the WP3 Terminology Management Platform.

The conclusion made consequently to the analysis of the survey results make it clear that monolingual in-house terminology resources are a reality that we can't ignore at European level.

Thus these recommendations take into account this reality and give guidelines to institutions so they can keep their in-house terminologies adapted to their needs and means and however make it compliant with the requirements of the Semantic Web.

These recommendations have been published as a booklet "Your terminology as a part of the Semantic Web: recommendations for design and management" within the Linked Heritage project. You can find a detailed presentation of these recommendations with examples and tools in this booklet which is both available in printer and digital form[27].

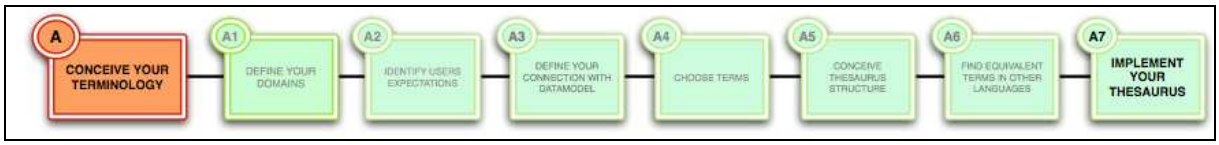
We structured the recommendations according to the main stages corresponding to the "lifetime" of a terminology resource. The following schema presents you these main stages:



3.1 CONCEIVE YOUR TERMINOLOGY

The first one "Conceive your terminology" gives the main considerations and requirements to keep in mind to create in the best way a terminology resource, ie as recommended a thesaurus. Here are the tasks inherent to this first step:

[27] "Your terminology as a part of the Semantic Web: recommendations for design and management" available on http://www.linkedheritage.org/getFile.php?id=244



3.1.1 A1 : Define your domains

This step is important to define the overall strategy of the terminology. If the domain of a terminology is too large it won't be efficient for the descriptions of collections. On the contrary if a terminology is too specialised and focused on one domain, another terminology might be useful because this one is too limited because too specific. The definition of the domains covered by your cataloguing and indexing process is then important to create the general structure and hierarchy of the terminology.

3.1.2 A2 : Identify your user's expectations

The target of the terminology is important as well. Indeed a terminology aiming at professionals only will be much more accurate than a one aiming at the general public. It is therefore important to define at the conception step if the terminology will be used only for cataloguing and indexing used by professionals or if the general public will also use the terminology to access the collections of the institutions. This could be also important regarding the choice of the license for the terminology.

3.1.3 A3 : Define your connection with the datamodel

Institutions use terminology for describing a collection or an object. This description is generally ruled by a datamodel. Some fields of this datamodel require terms from a controlled vocabulary. At the conception step it is important to define which fields of the datamodel will use the terminology in order to settle the domains and terms of the terminology.

3.1.4 A4 : Choose the terms for the semantic description of your digital resources

This task is consequent to the previous ones. Indeed the choice of the terms depends on the domain(s) covered by the terminology, the users that will be using the terminology and the fields from the datamodel that require a controlled vocabulary. This task is crucial both for indexing process and retrieval of information and but not definitive as a terminology almost like languages needs evolution through the time.

3.1.5 A5: Organise your terms into a thesaurus structure

As the thesaurus is the kind of terminology that we recommend, a logical recommendation is to organise terms and domains within a thesaurus structure. The more a term is connected to another one the more your terminology will be exploitable by human users and machines as well. Thesaurus offer both hierarchical and associative relationships. Exploiting in the best way these features can improve the efficiency of the terminology.

3.1.6 A6: Find equivalent terms in other languages

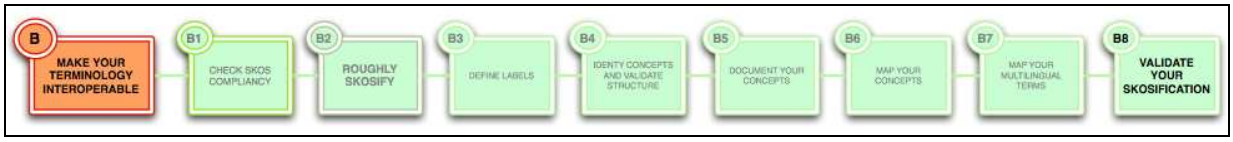
Very few terminologies described in the survey results are multilingual. Some countries dealing with several official languages have to provide multilingual content, then multilingual terminologies as well. One best practice would be to enrich a terminology with equivalent terms in other languages even if it is not something mandatory according to the policy of the country. Reference terminologies and other terminologies corresponding to the domains and available in the terminology registry could be used to proceed with this multilingual enrichment.

3.1.7 A7: Implement your thesaurus

The final task for the conception stage is the technical implementation of the thesaurus. Indeed the technical format (Spreadheet, XML, database, …) has to be defined here in order to make the thesaurus technically available. Several norms exist in order to cover the whole process of conception of a terminology but the latest one ISO 25964-1 that we already mentioned is the most adapted as it takes into account the technological reality of the institutions. After this serialization process, the terminology can be integrated into the collections/objects' management system.

3.2 B : MAKE IT INTEROPERABLE

The second stage consists in making a terminology interoperable. This consists mainly in SKOSifying, e.g. converting into SKOS the thesaurus that was technically implemented in the previous stage.



3.2.1 B1: Evaluate how far SKOS is compliant with your terminology features

The first task is to define is SKOS is the most convenient format for the kind of terminology you may have. Indeed an authority file with author names may need a more appropriate format such as FOAF.

So there must be an evaluation of the benefits using SKOS without losing any information or implying wrong information or inferences because of the SKOS datamodel.

3.2.2 B2: Roughly SKOSify your terminology

Here is the SKOSification task. We suggest to roughly SKOSify as some tools exist and help to proceed automatically with the SKOSification of a thesaurus. By rough SKOSification we mean an automatic process for converting a terminology into SKOS. A detailed SKOSification would be the one validated by the human expert. The Terminology Management Platform (TMP) of Linked Heritage will have a dedicated module for the SKOSification so this step could be done with the least cost and mean possible.

3.2.3 B3: Define with precision the labels expressing concepts

This task is directly correlated with the task A4 : Choose your terms. Indeed the terms of the thesaurus will be the labels expressing the concepts. So this task must be done with attention since the SKOS datamodel has some requirements regarding the labels and their languages. You can refer to the second deliverable of the Athena project, 'D4.2 Guidelines for mapping into SKOS, dealing with translations'[28] to get more detailed information on SKOS and precise guidelines helping for SKOSification.

3.2.4 B4: Identify your concepts and validate the structure

This task results from the transition from a descriptor/term based resource to a concept-based kind of resource. Indeed with the thesaurus terms were descriptors, keywords used for description but according to the SKOS model, these terms and descriptors become labels expressing concepts. This little difference of perception may imply some modification in your modeling. This is why the concepts of a terminology have to be identified in order to consolidate the organisation of the concepts of the terminology.

The question of the persistent identifiers in order to give a unique identifier to each concept of a terminology has been raised several times in the framework of the Thematic Working Group. This unique identifier is required by the principles of the Semantic Web and Linked Data. Therefore we strongly recommend to use a persistent identifier system for the identification of concepts within a terminology.

You can refer to the booklet that was published in the framework of the Athena WP3 (Workpackage dedicated to the standards) on 'Persistent identifiers: recommendations'[29].

3.2.5 B5: Ensure the documentation of concepts

As we already mentioned it, a terminology will evolve through time as the language evolves as well. This is why it is important to keep track of the details and information that might be useful for an obsolete label or to remove the ambiguity between two identical labels expressing two different concepts. SKOS offers a large choice of notes in order to ensure the documentation of the concepts. Elements inherent to the language issue (orthography, grammar, …) can be recorded here.

3.2.6 B6: Map your concepts

This task is correlated with the A5 task (A5: Organise your terms into a thesaurus structure). Indeed for that task, the general structure and organization of terms within the thesaurus have been defined. Then the mapping of concepts is a refinement stage of this structure thanks to the features of SKOS. This mapping can be done through the possible hierarchical (*skos:broader, skos:narrower*) or associative (*skos:related*) relationships.

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[28] D4.2 Guidelines for mapping into SKOS, dealing with translations : http://www.athenaeurope.org/getFile.php?id=684

[29] Persistent identifiers: recommendations : http://www.athenaeurope.org/getFile.php?id=779

3.2.7 B7: Map your (multilingual) terms

As the mapping of the concepts has been done in the framework of the previous task, the mapping of terms can be done. It mainly consists in arranging the labels. This task is particularly important for the multilingualism as the mapping of terms can help enriching the terminology with multilingual labels. This task is correlated with the A6: find equivalent terms in other languages. It is about transposing these equivalencies in the SKOS structure of the terminology respecting its datamodel and keeping all the relevant information of your thesaurus.

3.2.8 B8: Validate your SKOSification

The benchmark done in the framework of the Athena WP4 showed that several tools exist for the validation of the final SKOS output of the terminology. The simplest one is Pool Party[30] which can proceed with a syntax validation online from an RDF file uploaded from a local repository. The upcoming SKOSification module of the TMP will perform this validation of the SKOS consistency on the go with the SKOSification process.

3.3 C : LINK IT TO A NETWORK

This last stage is the one which allows an institution to publish a terminology and make it available to the Web. As the previous stage ensured the interoperability and the SKOSification of the terminology, this one is fully compliant with the principles of the Semantic Web and the Linked data. This final stage gives the final recommendations to make the terminology part of the Semantic Web by linking it to existing networks of terminologies.

3.3.1 C1: Definition of metadata on your terminology

This task intends to give the basic information about the terminology so it can be searched and retrieved easily within a terminology registry. Indeed the first step to link a terminology to a network of terminologies is to provide a description of it especially the date of creation, the authors, the domains covered by the terminology. Usually the fields of the Dublin Core are relevant and complete enough to provide quality metadata of the terminology. The terminology registry of the TMP will also provide a metadata form so institutions when uploading their terminology can feed the terminology registry with the terminology and its metadata.

[30] Pool Party : http://poolparty.punkt.at/

3.3.2 C2: Identification of resources for mapping

This task consists in identifying all the terminology resources that could be mapped with the terminology just created. It supposes to browse terminology registries and find resources that cover the same domains for enriching your own terminology with missing concepts or ensuring multilingualism with equivalent terms in other languages. Another use case can also be the integration of a related domain in your terminology if it is in the same language than your terminology. This task is connected to the A1: Define your domains and A2: Define your users' expectations since other terminology resources can help achieving these tasks.

3.3.3 C3: Mapping with other resources

This task has a direct reference to the B3: Define with precision the labels expressing your concepts and B6: map your concepts. Indeed this task is about finding manually or automatically all the concepts that could be relevant to be integrated or just mapped with because these are concepts from the same domain, or concepts from a domain that is not the same but related or because the concepts are expressed in several languages and the terminology can then be enriched and become multilingual.

In this perspective, you can notice that the use of a unique and persistent identifier is crucial for the mapping of two different terminology resources.

3.3.4 C4: Validation of the interoperability

This validation step as the B8: Validate your SKOSification is the final task to get a terminology interoperable and part of a network of terminologies. The only way to check and validate the interoperability is its integration within a search engine and making queries and then test all the semantic inferences that could done through the semantic mapping done thanks to the SKOSification and the mapping.

The Terminology Management Platform intends to provide all the necessary features for these stages of the terminology especially for ensuring the interoperability and providing the needed mapping features. As a search and visualization interface will be developed the SKOSification and interoperability would be easily validated within a same user interface.

4 IMPLEMENTATION

WP3 aims to explore ways on how to enhance the Europeana search experience through a more precise search and more relevant search results. This could be achieved by feeding the Europeana portal with content descriptions that are expressed in a compliant manner and use specific terminologies designed according to the principles of the semantic web.

When metadata is ingested in the Europeana portal, the relation between objects/works that existed in the content providers' local database, disappear almost completely. Moreover a single search in the Europeana portal will no longer obtain all results because the user is usually searching for a concept expressed in a single natural language or specific wording. For example, users searching through the Europeana portal in Dutch will only retrieve objects/works that have Dutch descriptions. No relation with the same type of objects/works expressed in another language exists. Content that was previously homogeneously stored in the content providers' database has become heterogeneous by bringing it together with content from different sources, expressed in different languages and terminologies. It would therefore be necessary to create links between concepts of the same meaning, regardless of the language they were expressed in. The creation of a network of interlinked terminologies might be the solution for this problem. By connecting concepts coming from different sources, expressed in different languages but with the same semantic meaning, it is possible to bring a series of monolingual vocabularies together in a network of multilingual semantically enriched terminologies. This connection between concepts would allow the user to retrieve the information he wants by one single monolingual search.

It was identified within the project that extensive monolingual and sometimes even multilingual terminologies already exist on content providers' level as they are used to describe the objects/works in a standardised way[31]. Many of these terminologies could probably serve as valuable input for the Europeana portal, both to keep the richness of the original content and to use it to connect it to similar content by making it part of a network of interlinked data. However, the problem is that at this stage very few content providers have the technical skills and financial resources available to be able to provide their in-house terminologies in a Europeana compliant format (SKOS) for future integration. WP3 of the Linked Heritage project wishes to help content providers to overcome this barrier by reducing the large gap between the actual situation of terminology management in cultural institutions, and the skills and means necessary to have an effective ingestion of both metadata and associated terminologies into Europeana.

To facilitate the future delivery of terminologies to Europeana, a tool is needed that allow contents providers to input, organise and map their in-house terminologies in a straightforward manner in order

[31] D4.1 Identification of terminology resources in European museums. You can find D4.1 in PDF version at: http://www.athenaeurope.org/getFile.php?id=398. An updated version of the Inventory of resources can also be found at the Linked Heritage WP3 WIKI: http://www.athenaeurope.org/athenawiki/index.php/Inventory_of_resources

to make them available in the standard terminology exchange format SKOS[32]. WP3 has the main task of designing a prototype Terminology Management Platform (TMP) that will allow the creation of a network of interlinked multilingual terminologies. WP3 will also educate partners in terminology management procedures by assisting them in the experimental use of the TMP workflow, providing them guidelines and manuals, and by organising workshops.

WP3 will also work on the creation of in-progress new reference terminologies that can be used for the projects envisaged enrichment experiments.

To achieve these objectives, WP3 will work during the lifetime of the project on terminologies in close consultation and collaboration with the WP3 thematic working group (TWG) to test, refine and validate the workflow, the envisaged TMP and the collaboratively created terminologies. WP3 will also keep close contacts with WP2 "Linking Cultural Heritage Information" in order achieve an optimized combined work effort for improved outcomes in the data enrichment experiment. As a result of this collaboration, a combined mailing list was set up for WP2 and WP3 (lh-wp2-wp3@linkedheritage.org). Other means of communication for the TWG in the discussions on the technical developments of the platform and collaborative creation of terminologies are Skype, the Linked Heritage Terminology WIKI[33], and of course the physical working group meetings mainly hosted around the same time as the plenary meetings in order to bring as many partners as possible together.

The section below describes in more detail the work done in the past months by the WP3 thematic working group:

- The status of the work on Linked Heritage terminologies
- From Athena to Linked Heritage: The use of the results of Athena WP4 and new input to develop TMP (benchmark steps implementation)
- Drafting the architecture for the Terminology Management Platform (TMP)

4.1 LINKED HERITAGE TERMINOLOGIES

One of the main tasks of WP3 is the creation of multilingual terminologies with the purpose of:

- Testing the workflow defined as best practice methodology in the collaborative creation and completion of semantically enriched networks of terminologies
- Creating an experimental platform for Linked Heritage partners to put the theory on best practice terminology management into practice. This learning environment will help to reduce the large gap in knowledge and skills characteristic of today's situation of terminology management in most cultural heritage institutions

[32] D4.2 Guidelines for mapping into SKOS, dealing with translations. You can find D4.2 at: http://www.athenaeurope.org/getFile.php?id=684. More information on the SKOS format can be found on the W3C website: http://www.w3.org/2004/02/skos/

[33] The WIKI was created in the framework of WP4 of the Athena project and is now continued through Linked Heritage (http://www.athenaeurope.org/athenawiki/index.php/Main_Page)

- Providing enriched terminologies as input for Europeana to facilitate the semantic exploitation of content descriptions, enabling improved search and retrieval of content

At the WP3 meeting organised on the 21st of June 2011 at the National Széchényi Library in Budapest, the overall strategy of the work on terminologies was decided by the TWG (this group meeting also included the WP leader and core members from WP2)[34]:

- WP3 will create a network of different terminologies mapped together, with a first experiment mapping to be done with different terminologies on object name. Strategy: start small, having the network of terminologies grow during the project. This will allow the WP to set up a first workflow on import and alignment of terminologies coming from different sources and provided in different languages. This early experiment even before the platform is finished will provide valuable input for the technical partners in the development of the TMP.

- Start the work with the tools already at our disposal. Although the entire envisaged architecture of the TMP is planned to be ready in a first version by month 18 of the project, some components like the editing and mapping tool (Xtree component, DigiCult server) already exists and can be used to proceed with the work on terminologies. Partner terminologies not available in a SKOS compatible format will in this experimental stage be imported by the technical partner to overcome the technical barrier. Partners can thenstart mapping their terminologies to the selected reference terminology and to eachother.

- WP3 will assist WP2 in Linked Data experiment by creating or completing enriched multilingual LIDO terminologies. Translating LIDO terminologies into different European languages and providing scope notes for a better clarification of the LIDO concepts, will provide partners a better insight in terminology lists like event types and will allow them to make a more exact metadata mapping to LIDO, which will then result in a higher quality of metadata delivery to Europeana.

In consultation with the TWG and WP2 work has been done so far on the following terminologies:

- LIDO terminologies:
- Multilingual LIDO event type terminology
- Multilingual LIDO actor role terminology
- Network of multilingual object name thesauri

4.1.1 LIDO Event type terminology

The decision of the TWG to work on the creation of a multilingual event type terminology is closely related to the adoption of the LIDO standard by the Linked Heritage consortium. To give an idea of the

[34] Minutes and presentation of the Budapest meeting can be found at: http://www.athenaeurope.org/athenawiki/index.php/Documents_WP3#Technical_meeting.2C_Budapest.2C_Hungary_21_June_2011

necessity and importance of this terminology, we first provide the reader with a short introduction to the LIDO standard.

At the start of the Linked Heritage project the consortium agreed to adopt the LIDO standard as the intermediate schema for the transformation of the content providers' metadata to the Europeana format ESE/EDM. The LIDO standard was originally developed within the framework of the Athena project, building on validated international standards like Spectrum, CIDOC-CRM, Museumdat, CDWA-lite, etc[35]. LIDO is able to support a full range of information about all kinds of objects/works in a multilingual environment, ideal for the enrichment experiments envisaged by WP2 and WP3 in this project. Furthermore the standard has officially been validated by the ICOM-CIDOC Data Harvesting and Interchange working group and is fully compatible with the Europeana Semantic Elements (ESE) standard and the newly adapted Europeana Data Model (EDM) which is also based on the CIDOC-CRM standard.

An important part of its design of the LIDO standard is that it uses the concept of events from the CIDOC CRM standard[36]. This means that an object/work is described according to the types of events that have taken place during the lifetime of the object/work, containing for each particular event information about when (date), who (actor), what (material)/how (technique) and where (place). This information is represented in a structured way with the event type element describing the nature of the event associated with an object or work, e.g.: the event production can give information on who produced the object, where the object was produced, when it was produced and how or in what material it was produced. The event types play a crucial role in this structuring of data and the standard recommends recording the event type value using a controlled vocabulary.

The following list of event type concepts, based on the main events from CIDOC CRM, is suggested in the LIDO specification documentation[37]:

LIDO Element eventType	
Acquisition	Part addition
Collecting	Part removal
Creation	Performance
Designing	Planning
Destruction	Production
Excavation	Provenance
Exhibition	Publication
Event (non-specified)	Restoration
Finding	Transformation
Loss	Type assignment
Modification	Type creation
Move	Use

[35] On LIDO:
http://www.linkedheritage.eu/index.php?en/177/training-material-targeted-to-linked-heritage-content-providers#6
http://www.athenaeurope.org/getFile.php?id=786
http://network.icom.museum/cidoc/working-groups/data-harvesting-and-interchange/what-is-lido.html

[36] On CIDOC CRM: http://www.cidoc-crm.org/

[37] LIDO specification documentation, Element eventType *How to record*, p. 52: http://www.lido-schema.org/schema/v1.0/lido-v1.0-specification.pdf

Order

Table 1 : Lido Event type terminology

This event type list was adopted by the TWG and the following issues were identified by the group:

- The event type list is only available in English. When content providers deliver their data directly in a LIDO XML format instead of using the Linked Heritage ingestion tool for the transformation of their data to LIDO, they usually specify the event type value in their own language[38]. As a result the same event type concept expressed in a different natural language can't be linked to the English value. By translating the basic list of 25 event type terms, data would remain compatible. Moreover a translation of the terms might provide a better insight to the content providers having to select one of the event type terms for English is rarely their native language

  ⇒ The TWG therefore agreed that a translation of the LIDO event type terminology into the different partner languages would be of great value for the consortium and the Linked Data enrichment experiment

- The LIDO standard documentation doesn't provides scope notes or definitions for the event type terminology concepts. Many partners vouched the need to have scope notes for each of the existing events to understand the full coverage in meaning of the each event

  ⇒ The TWG agreed to work on the creation of scope notes for the LIDO event type terminology. These scope notes should refer back to the E5 Event subclasses of the CIDOC CRM standard from which many of the LIDO events are taken. For those events not covered in the CRM standard, the AAT will be considered as a source

- The current list of 25 event type concepts might not cover all of the possible events needed by the Linked Heritage community for the description of their objects and works

  ⇒ The TWG will explore the need of adding new event types to the current proposed terminology. This can only be done after scope notes have been created for each event type concept to understand the full coverage of its meaning to prevent duplication of types

Status of the work

The event type terminology is now translated into 18 languages with the help of the Linked Heritage consortium partners:

LIDO Element eventType translations	
Bulgarian	Irish
Catalonian	Italian
Czech	Latvian

[38] About the Linked heritage aggregator tool (MINT): http://www.linkedheritage.eu/index.php?en/177/training-material-targeted-to-linked-heritage-content-providers#3. The Linked Heritage ingestion tool provides a drop down list of the event types. Content providers can only select an English value.

Dutch	Polish
English	Portuguese
Estonian	Russian
Greek	Slovenian
Hebrew	Spanish
Hungarian	Swedish

Table 2 : Lido event Type translations

The multilingual terminology was then created and completed in the editing part (xtree, DigiCult server) of the TMP[39]:

- A preferred lexical label for each natural language was assigned to each event type concept
- For some languages additional alternative labels, e.g. for synonyms, were also added[40]

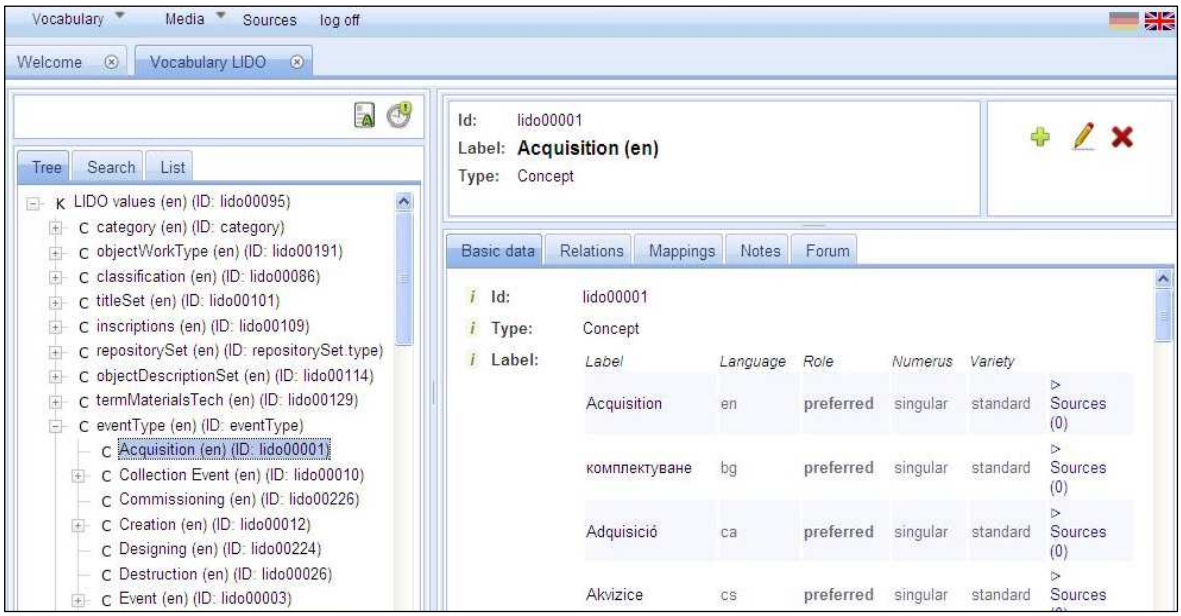

Figure 5: Event type terminology as organised in TMP editing and mapping tool

At the WP3 meeting organised at CitiLab in Barcelona on the 24th of November, the thematic working group validated the terminology[41]. The event type terminology was then published on the web and can

[39] More information on the architecture of the TMP and the editing/mapping tool can be found below in section 4.3 of this deliverable

[40] From more information on Preferred and Alternative lexical labels view SKOS primer section 2.2.1 and 2.2.2 on http://www.w3.org/TR/2009/NOTE-skos-primer-20090818/#secpref.

[41] The WP leader presentation of the Barcelona meeting can be found at: http://www.athenaeurope.org/athenawiki/index.php/Documents_WP3#Technical_meeting.2C_Barcelona.2C_Spain.2C_24_November_2011

be found at http://lido.vocnet.org/eventType. A paper version is included in this deliverable in Annex 6.4.1 of this document.

During the Barcelona meeting the TWG also discussed the need of adding some new event type concepts in completion of the existing list. It was agreed that this would be useful, but before new types could be added, scope notes for the existing list where needed so as to define the coverage of the existing event type concepts. A specific working group was set up for this purpose with one partner, Ram Shimony from the Department of Museums and Visual Arts (Digital Heritage UK), volunteering to take the lead.

The final scope notes will be added to the concepts in the editing tool of the TMP according to the following procedure:

- For exact matches with CRM classes like "Acquisition":
    - Literally copy the CRM scope note as is, refer to CRM source, and select source type "External Definition"
    - Additionally to the CRM scope note, add the by the TWG rephrased version as a separate note with type "Annotation". This will be a simpler version, allowing content providers with no prior knowledge to the CRM standard to instantly understand the concepts meaning
- For the event types with no exact match in CRM, the AAT will be looked at as a possible source for the remaining concepts. If there is a matching AAT concept that is an actual event, the AAT note will be added to the concept with the reference as being an external source type. If not, and it is only a close match, a by the TWG rephrased version will be added, pointing to the AAT concept as the source.

The task force led by Ram Shimony has prepared well defined and readable scope notes ready to be added to the concepts in the TMP. A reference is already made back to the CRM and AAT for each of the concepts.

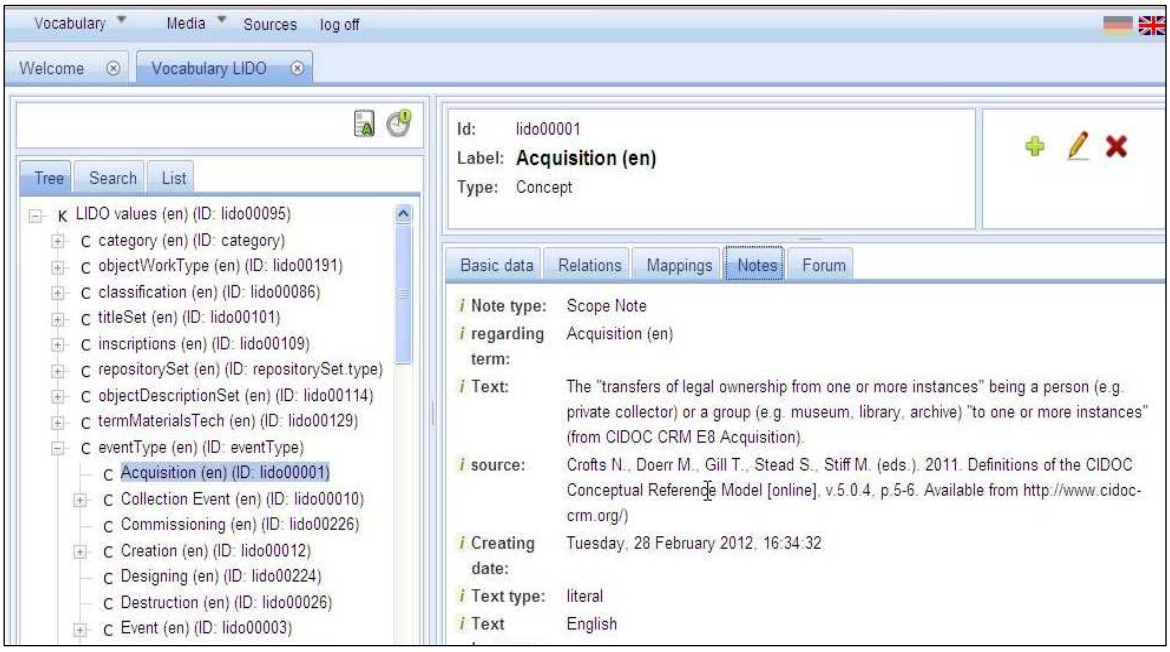

Figure 6 : Example of scope note entry in TMP for LIDO Event Type terminology

4.1.2 LIDO actor role terminology

As mentioned before, the use of published controlled vocabularies for many of the metadata elements is highly recommended by the LIDO standard. The LIDO event type terminology was the first to be developed in this framework. Together with the WP2-WP3 thematic working group it was evaluated that for the data enrichment experiment envisaged within the Linked Heritage project, the creation of an actor role terminology to be used for controlled data input for the LIDO “roleActor” element would be extremely valuable to have. The LIDO element “roleActor” defines the role that the actor played in a certain event, e.g. painter, printer, woodcutter, for the event production. This type of information attached to an actor makes it possible to create a connection between actors of the same type role when creating Linked Data. By translating the actor role terminology it also becomes easier to map actor names from the different data sets and provided in different languages with more certainty. For example when the actor in an English dataset with name “Anthony van Dyck” has the role of “painter” in the event “production”, it can be said that he is probably the same person as “Antoon van Dyck” with role “schilder” in the event “productie” in a Dutch metadata set. By providing the concepts painter and production in multiple languages, connections can be made with more certainty.

There are already some good actor role terminologies available on the web that can be reused for this purpose. Two particular terminologies where suggested by the TWG:

- The MARC code list for relators provide by the Library of Congress: http://id.loc.gov/vocabulary/relators.html

Relator terms and their associated codes designate the relationship between a name and a bibliographic resource. The relator codes are three-character lowercase alphabetic strings that serve as identifiers. Either the term or the code may be used as controlled values[42].

The MARC list has the advantage that it already had concept scope notes and is available in SKOS RDF/XML versions which allows an automated import into the TMP. However, it is very library-oriented.

- Getty's Union List of Artist Names (ULAN) - Online role list: http://www.getty.edu/research/tools/vocabularies/ulan/index.html or directly http://www.getty.edu/vow/ULANRolePopup

  Some of the actor roles used in particular for the description of museum content can probably be taken from the ULAN role list of the Getty institute. The problem with this terminology is that it doesn't have concept scope notes and the list is not available in an open exchange format.

- DigiCult actor role list:

  This list is already in use by some of the German partners, but is very general.

Source	lang@en	lang@de	lang@nl
DigiCult	Architect	Architekt	Architect
DigiCult	Client	Auftraggeber	Klant
DigiCult	Author	Autor	Auteur
DigiCult	Sculptor	Bildhauer	Beeldhouwer
DigiCult	Printer	Drucker	Drukker
DigiCul DigiCult	Print shop	Druckerei	Drukkerij
DigiCult	Photographer	Fotograf	Fotograaf
DigiCult	Graphic artist	Grafiker	Graficus
DigiCult	Editor	Herausgeber	Hoofdredacteur
DigiCult	Creator	Hersteller	Maker
DigiCult	Artist	Künstler	Kunstenaar
DigiCult	Collotype print shop	Lichtdruckerei	Collotype drukkerij
DigiCult	Lithographer	Lithograf	Lithograaf
DigiCult	Painter	Maler	Schilder
DigiCult	Etcher	Radierer	Etser
DigiCult	Engraver	Stecher	Graveur
DigiCult	Publisher	Verlag	Uitgeverij

[42] The Library of Congress > Authorities & vocabularies > Marc relators: http://id.loc.gov/vocabulary/relators.html

DigiCult	Publisher	Verleger	Uitgever
DigiCult	Surveyor	Vermesser	Landmeter
DigiCult	Draftsman	Zeichner	Ontwerper

Table 3 : DIgicult actor list

Status of the Work

The work on the actor role terminology has recently commenced. The MARC relators SKOS RDF/XML terminology will be imported automatically into the TMP. From the other two lists, additional roles will be selected and added manually to the TMP, creating an extensive actor role terminology of about 250 à 300 concepts. The most important roles in Linked Heritage context will be flagged for priority translation by the consortium partners. Partners will be requested to add their translations directly in the TMP. To make the work more manageable for the partners, translations will be requested in batches of 50 concepts. This will be the first grand scale use of the TMP. Each partner providing translations will be assisted in the use of the platform. This assistance will happen using mail, Skype, and by providing guidelines and user manuals such as the "Guide to semantic mapping" (Annex 7.3). A hands-on workshop is also planned in the near future for the LH consortium. The date still has to be decided and depends largely on the progress of the technical developments made.

4.1.3 Network of multilingual object name thesauri

This work package will develop a prototype of a Terminology Management Platform (TMP, described in section 4.3) that will allow the creation and completion of a network of interlinked terminologies. The functional and technical specifications of the TMP environment are due by month 18. Though the technical partners have started working on the technical specifications and 1st developments are already in process, it will take some time to get a working prototype ready. Because the project also intends to deliver a network of Linked Heritage partner thesauri as a result of the work done in WP3, the TWG decided at the Budapest WP3 meeting to start an experimental work with the tools available. This experimental work would provide more insight in the available terminologies, their structure and formats, but also in the partners' skills in terminology management. This information could help us to refine the envisaged workflow as described in section 4.2 of this deliverable.

The following decisions were taken at the WP3 Budapest meeting[43]:

- The strategy to start small and gradually add more terminologies to the network was adopted. In the first experiment phase, some partners will start and map their own terminology on object names to a selected English reference thesaurus. It was agreed that a mapping of matching

[43] Minutes and presentation of the Budapest meeting can be found at: http://www.athenaeurope.org/athenawiki/index.php/Documents_WP3#Technical_meeting.2C_Budapest.2C_Hungary_21_June_2011

concepts will start from the hierarchical top levels of the terminology down to maximum 3 levels of narrower terms in a first stage to keep the scale of the work manageable.

A total of three terminologies were selected for this first semantic mapping experiment:

- *The British Museum object name thesaurus* was selected as the WP3 reference thesaurus for object names. This thesaurus was chosen by the TWG because it is fairly complete and rich enough to deal with description of Linked Heritage content. One of the biggest advantages is that this thesaurus is free to use with permission of the British Museum, unlike some licensed paid thesauri like the Getty AAT. Our UK partner from Collections Trust agreed to contact the British Museum to obtain the thesaurus in XML RDF format

- *The object name thesaurus from partner KMKG*, hierarchically structured and available in 3 languages (French, Dutch, English). This thesaurus is stored and managed in the thesaurus management module of the professional collection management system MuseumPlus (Zetcom), but as is the case for most cultural institutions is not available in a standard exchangeable format like XML. It can only be exported in Excel (Annex 7.4.2)[44]

- *The object name thesaurus on archaeological object from ICCU-ICCD* in Italian, managed in Excel (Annex 7.4.2)[45]

As explained in detail in section 4.3, the TMP schema exists out of three crucial parts. Each different section takes care of a specific part in the envisaged workflow:

- The main part being the graphical user interface, SKOSification and alignment tool (UdS Server)

- The terminology registry (IST Server)

- The editing and manual mapping (Xtree, DigiCult Server)

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[44] KMKG object name thesaurus: Title: KMKG-MRAH_Nom de l'objet
Version: Version 1 (November 2011)
Coordinator: Eva Coudyzer (IT-Digitisation service - KMKG-MRAH)
Rights holder: KMKG-MRAH

[45] ICCU-ICCD object name thesaurus:
Title: Scheda RA – Reperti Archeologici - Thesaurus per la compilazione del campo OGTD – Definizione dell'oggetto
Version: Versione 0.1 (aprile 2009)
Coordinator: Maria Letizia Mancinelli (ICCD-Servizio beni archeologici)
Collaborazione tecnico-scientifica (ricerche e stesura del vocabolario): Maria Teresa Natale
Rights holder: ICCD

Xtree, the editing and mapping functionality of the TMP developed by our German technical partner DigiCult, was already available in a German version on http://xtree.digicult-verbund.de/. For integration with the TMP, an English interface of Xtree was developed and released in December 2011. Although not integrated with the other two components of the terminology management environment yet, it could already be put in use for the semantic mapping experiment.

The use of the mapping and editing tool at this early stage required some creativity since Xtree doesn't provide the possibility to import terminologies in a CSV format for SKOSification as this is a foreseen functionality of the UdS Server. Since both KMKG and ICCU-ICCD terminologies are not available in SKOS, a master excel file was designed to allow semi-automatic imports of the thesauri into Xtree.

Master excel file structure

- Column A (mandatory): Numeric ID attributed in your system to the concept. When no ID is available, this should be added manually to be able to distinguish the hierarchical structure when importing the thesaurus

- Column B (mandatory): For adding the preferred term in a natural language. Only one prefLabel per natural language is allowed[46]. The language should be defined by adding the language code after the @[47]

- Column C: Multiple languages for the same concept can be added by repeating the prefLabel column, changing the language code after @

- Column D: For adding alternative terms (e.g. synonyms) in a certain language. Multiple altLabels are allowed for a single language. In that case repeat the column. When more languages are added, the language code should be changed after @[48]

- Column E (mandatory): Contains the ID of the broader concept. So ID **2** Aérophone **has broader** concept ID **1** Instrument de Musique etc.:

    - Instrument de musique
    - Aérophone
    - Aérophone libre
    - Instrument à anche libre

    …

[46] From more information on prefLabel view SKOS primer section 2.2.1 on http://www.w3.org/TR/2009/NOTE-skos-primer-20090818/#secpref

[47] A list of the ISO 636 3-letter language codes can be found at: http://www.w3.org/WAI/ER/IG/ert/iso639.htm

[48] From more information on altLabel view SKOS primer section 2.2.2 on http://www.w3.org/TR/2009/NOTE-skos-primer-20090818/#secpref.

- Column F: For adding the concept scope notes

A	*B*	*C*	*D*	*E*	*F*
ID	prefLabel@fra	prefLabel@eng	altLabel@eng	**broader**	**SN**
1	Instrument de musique				
2	Aérophone			1	
3	Aérophone libre			2	
4	Instrument à anche libre			3	
5	Accordéon			4	
6	Accordéon à bouche			5	
7	Corne (à anche libre)			4	
…	…				

Table 4 : Usage example of master excel file for automated import. KMKG and ICCU-ICCD terminologies added in Annex 7.4.2.

Status of the work

A manual was prepared for the partners as guidance on how to perform semantic mappings using the TMP editing and mapping tool Xtree (Annex 7.3). The mapping of the KMKG and ICCU terminologies to the British Museum (BM) object name thesaurus has started. The idea is to try to map as many concepts as possible to the BM object name thesaurus. Secondly a mapping could also be made between the two partner thesauri when no matching concept is found in the BM thesaurus, but is available in one of the partner terminologies. In this case it will be easier to map to the KMKG thesaurus because it's multilingual and has scope notes for some of the concepts.

This first experimental phase will result in a network of interlinked object name thesauri, available in a standard format SKOS, in English, French, Dutch and Italian. More Linked Heritage partners will then be invited to join the semantic mapping process with the goal to extend this network of object name terminologies and to improve the TMP functionalities based on their experiences.

4.1.4 Future work on terminologies

WP3 will in the coming year continue the work on the LIDO terminologies (completion, translation, editing) and the enlargement of the network of interlinked partner vocabularies. Though the prototype of the TMP is not due before month 18 in a first version and month 24 in a final version, we will gradually use those parts coming to our disposal to continue the collaborative work on terminologies, educating the partners in the practical use of the platform. This will help partners to become acquainted with terminology management procedures and to provide the WP leaders and technical partners with valuable input in the user friendliness of the developed TMP and defined workflow.

Linked Heritage partners will be assisted in the use of the TMP by the WP leaders and the TWG. More user manuals will be provided and a first workshop on the use of the TMP for the creation and edition of terminologies will be organised soon, possibly in May during the plenary session in Stockholm.

4.2 FROM ATHENA TO LINKED HERITAGE

In order to properly understand the context of the work we are doing in this WP on terminologies and the decisions we take in the development of the TMP, it is important to point out the influence and experiences gathered from sister projects like MultiMatch, Minerva and especially the Athena project. In the best practice framework of Athena WP4 “Integration of existing data structures into Europeana”, relevant stakeholders and content providers from museums and other cultural institutions from all over Europe where brought together to evaluate and develop new best practice workflows and integration tools to create harmonised access to their content. Athena WP4 explored the practices in the field of terminologies adopted by European museums (to be compared with those used in other sectors of cultural heritage and in cross-domain portals), in order to make recommendations on how to achieve their semantic interoperability with the structure of Europeana. The work mainly focussed on multilingual issues by surveying existing multilingual terminologies and tools with the objective to find economically affordable ways for alignment between terminologies in an attempt to create a network of multilingual terminologies to be made available in an interoperable format. The SKOS format (Simple Knowledge Organisation System) was identified as the most suitable format to be used for this work. It is mainly thanks to the results of analysis and comparison of existing terminology resources, cultural heritage experiences, technical solutions, and recommendations made in the Athena project that Linked Heritage can now move a step forward towards practical prototype implementation. However, while the Athena project never moved out of theoretical level, Linked Heritage will use the results and bring the theory into practice with the development of the TMP and the creation of a network of multilingual vocabularies.

4.2.1 Defined workflow for the collaborative creation of terminologies

By gathering experiences from museums and other heritage domains, we identified the most logical process and functional needs related to the management, semantic interoperability and enrichment of terminologies. In doing this, the project identified some use cases and set up a benchmark. The Terminology Management Platform will follow the same structural workflow for the collaborative creation of multilingual thesauri and vocabularies presented here:

Benchmark

The work on the use cases made it clear that first of all a workflow specification was needed for a collaborative production and moderation of cultural heritage terminologies. With the help of the expert working group on terminologies and the uses cases defined earlier on, the following workflow was considered:

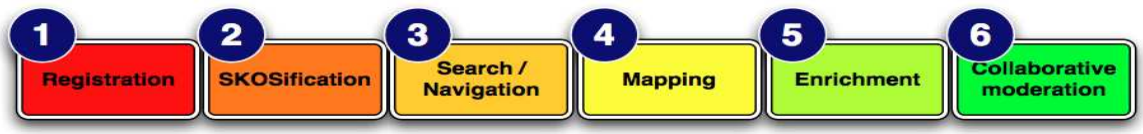

Figure 7 : Benchmark - workflow[49]

This defined workflow helped to evaluate existing tools, interfaces and methods that might be suitable for this work[50]. Unfortunately none of the evaluated tools could actually manage the entire process as shown above. Some of the tools came close, offering search and navigation, as well as semantic mapping and enrichment in a collaborative environment. But there was no complete software environment available offering the possibility for cultural heritage institutions to upload, register and SKOSify the terminologies first, before proceeding to the next steps. This was exactly the point of failure in the workflow of existing tools, because most cultural heritage institutions use own in-house reference terminologies and haven't got the available resources for managing them in a standard interoperable format such as SKOS. It is here that Linked Heritage goes beyond the work done in Athena with the purpose to develop a prototype of a tool able to deal with the different steps of the defined workflow and thus to lessen the economical efforts the institution has to make when wanting to share the terminology in an exchangeable format to the community and Europeana.

Identification of needs

In ATHENA, the WP4 study (D4.1 Identification of terminology resources in European museums) has confirmed that a lot of European museums use an in-house non-standard terminology to describe their collections and objects. The cost implied by a reference terminology or specific needs (language, domain,…) are the main reasons for this choice. This means that these museums have a strong effort to make for expressing their descriptions with a reference terminology fitting with Europeana regulations, because the latter asks for these terminologies to be expressed in SKOS and multilingual if possible.

4.2.2 Beyond Athena: New input for the TMP Development

The work done in WP4 of the Athena project resulted in the proposed solution to design and the implement an integrated software environment for terminology management, enabling any institution to manage its terminology according to Europeana ingestion rules.

In Linked Heritage this proposed solution will become reality with the development of a prototype of a Terminology Management Platform (TMP) for the cultural heritage sector to collaboratively create a network of interlinked multilingual terminologies in a Europeana compliant format (SKOS). In the development of this platform, the expertises of four technical partners are brought together in a combined effort to create an integrated environment for terminology management. This approach of combining expertises and integrating existing tools into a single web environment, allows us to select and combine best practice technological features in a time and cost efficient way.

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[49] For more information on the use cases: http://www.athenaeurope.org/athenawiki/index.php/Process_and_issues

[50] For more information on the benchmark and evaluated terminology tools: http://www.athenaeurope.org/athenawiki/index.php/Benchmark

4.3 DRAFTING THE ARCHITECTURE FOR THE TERMINOLOGY MANAGEMENT PLATFORM (TMP)

Considering the outcomes from the Athena Benchmark and the first tasks achieved within Linked Heritage WP3, here are the identified features for the TMP:

- To be a web service: For collaborative work online
- To have a user-friendly GUI: Adapted for a non-expert use in European museums, lirabries and archives
- To combine open-source components: Such a service must stay independent of proprietary codes and formats
- To be logically structured with an intuitive Workflow: The user must find which actions to do according to his/her needs
- To be flexible enough to be adapted to new standards: What if SKOS is updated in a new version or evolving towards an ontology description?

At the thematic working meeting organised in Budapest, both technical partners and content providers sat together discussing the proposed environment for the first time. In a second technical meeting with technology providers from University of Savoie (UdS), DigiCult (Xtree), Instituto Superior Técnico (IST) and National Technical University of Athens (NTUA) the technical features where refined and the results of the meeting where validated[51].

This short summery presents the different building bricks that will be brought together in a single web service with the delivery of the TMP prototype in Month 18 of the project (D3.2):

1. Authentication, linked with Linked Heritage ingestion tool (NTUA server)

The TMP authentification system will connect to the User Management section of LH Ingestion Server (NTUA) in order to allow single user authentification and connection/exchange of administrative organisation information between the different systems.

2 entry points:

- From Linked Heritage metadata ingestor (NTUA) to TMP (Link with the collaborative user management within xTree)
- From TMP to MINT ingestion tool

2. Register a terminology in the Terminology Registry (IST server)

All terminologies uploaded, created, adapted, mapped in the TMP will be registered and stored in

[51] Technical meeting organised in Rome, Italy, 27 September 2011. Minutes in reserved area: working packages, WP3 Terminology

the terminology registry.

- File formats: XML, XLS, TXT,…
- Metadata format: Mainly based on Dublin Core
- Storage in RDF database
- ID for terminology (URI,…)
- Search by concept
- A connection with terminology management platform will allow to exchange terminologies between systems in an automated way (web service will connect terminology registry, terminology management platform and xTree editing and mapping tool)

3. Skosification tool (UdS server)

- After upload of the terminology into the terminology registry, the terminology is transferred to the SKOSification tool
- Skosification of terminologies from original source format XML, CSV, … will be possible
- A connection to a validator system (W3C) will allow to check the validity of SKOS transformation
- The transformed terminology is then again registered in the terminology registry

4. Edition and manual mapping (Xtree, DigiCult server)

Edition:

- Import of SKOS terminology from TMP and from terminology registry (when original source is already in SKOS) into the Editing and mapping part will be fully automated
- Possible to add scope notes
- Possible to add concept, labels
- Mapping intra-terminology: one concept is close to another (skos: close match, exact match,…)
- Collaborative management (forum, workflow)
- Edited terminology is registered again in the terminology registry

Semantic mapping:

- The terminology is mapped to the reference terminology (or later on to the network of terminologies)
- This mapping will happen both in xTree and in TMP (UdS server), the later mainly for automatic mapping of concepts
- The mapped terminology (URI's) is registered in the terminology registry
- Use cases:
    - Domain mapping
    - Language mapping
    - Concept mapping: specialisation of a terminology

5. Automated mapping and Search and Navigation (UdS service)

Univ. Savoie will provide interface for TMP for search and navigation to access to the content SPARQL queries to terminology registry

This schema presents the different modules that are currently being developed by technical partners IST, UdS, DigiCult and NTUA. Each module will be brought together to form a single webservice being the Terminology Management Platform (TMP). The Thematic Working Group is involved in testing and defining its functionalities. A section of the WP3 WIKI is dedicated for the collaborative work on the

writing of the technical specifications: http://www.athenaeurope.org/athenawiki/index.php/TMP. **The results of this work will be presented in detail in Deliverable 3.2 in month 18 (September 2012) of the project.**

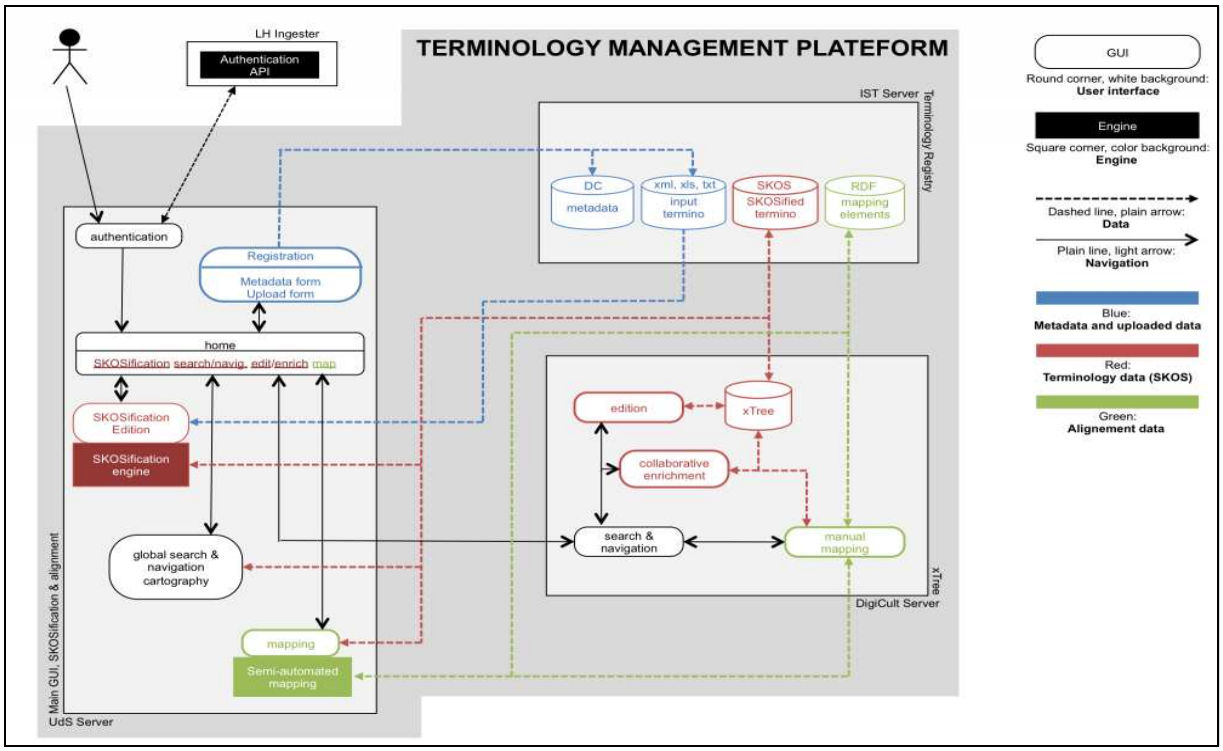


Figure 8 : Global schema of TMP[52]

[52] http://www.athenaeurope.org/athenawiki/index.php/Global_schema_of_the_TMP

5 CONCLUSION

This work package has achieved a great deal in the past twelve months with the work on LIDO terminologies to support the Linked Data Enrichment experiment, the first semantic mapping between an international reference terminology and two Linked Heritage partner terminologies, and especially with the design of the technical functionalities of the Terminology Management Platform (TMP). The later was especially a difficult process, because different technological visions and tools had to be brought together in a single web service.

In this deliverable we have:

- Given a background of the work carried out in WP3 and explained in detail the general and specific objectives of the WP
- Identified the state of the art in terminology management and terminology resources
- Provided a summary of the Athena WP4 survey and results in comparison with the Linked Heritage WP3 survey and results
- Provided a set of recommendations and guidelines on best practice terminology management, standardization and SKOSification
- Presented the Linked Heritage booklet “Your terminology as part of the semantic web. Recommendations for design and management”
- Described in detail the implementation stadium of the work on terminologies
    - LIDO Terminologies
    - Network of multilingual object name thesauri
    - The future work on terminologies
- Outlined the evolution from Athena to Linked Heritage and the integration of Athena results in the design and development of the TMP
- Presented briefly the different steps envisaged for Linked Heritage terminology management and the drafting of the architecture for the TMP

5.1 RESULTS

In the past twelve months of the project, this work package maintained intensive contacts with both technical and thematic working group. The physical meetings organised at regular intervals, combined with the set up of different mailing list and the organisation of Skype meetings helped us achieve the results reported in this deliverable.

✓ ***Set-up of the thematic working group on terminologies:***

- Started in July 2011
- Currently 28 partners
- From 20 organisations and 14 countries, including experts from outside the consortium (among them partners from Belgium and Serbia)
- Set up of the thematic working group mailing list. Because most of the people where also part of WP2, a combined mailing list was created: lh-wp2-wp3@linkedheritage.org

✓ ***Thematic working group meetings and technical partner meetings:***

- Pre-Kick-off meeting in Paris, 28th of February 2011 (WP leaders, Technical partners Univ. Savoi & IST, Dedale, CT): A First general brainstorming between the WP leaders and partners

- Kick-off meeting in Rome, 29th of April 2011 (TWG/Technical): Official launch of the project with entire consortium. Brainstorming session with some partners to define 1st scope of the work terminologies

- WP3 meeting in Budapest, 21st of June 2011 (TWG/Technical): Alignment of the different technical visions and presentations by technical partners IST, Univ. Savoie and DigiCult. Planning of the work ahead, building the thematic working group, preparing the survey on terminology management needs identification, …

- WP3 Technical meeting in Rome, 27th of September 2011 (Technical): Defining of the technical architecture for the TMP. Defining of the coming actions and responsibilities.

- WP3 meeting in Barcelona, 24th of November 2011(TWG): Presentation of first draft of TMP, work on Linked Heritage terminologies, TWG actions for the coming months, preparation of D3.1

- WP3 Technical SKYPE meeting, 27th of January 2012 (Technical): Discussion on API for authentication, WIKI collaborative space, general schema of TMP, demo on platform, domain names

✓ ***Linked Heritage Terminologies:***

- Creation of a SKOSified LIDO event type terminology:
  - 25 concepts
  - Translation into 18 languages
  - Registered in TMP editing and mapping part
  - Output available on http://lido.vocnet.org/eventType
  - Creation of concept scope notes

- LIDO Actor role terminology:
  - Combining the MARC code list for relators (Library of Congress) with additional actor roles from the Getty Union List of Artist Names role list
  - Importing these lists into the TMP

- Preparation of translation work of actor role terms by TWG

- Creating a network of different multilingual terminologies mapped together:
  - First experiment mapping will be done with different terminologies on object names (lido:objectWorkType)
  - Strategy: Start small, having the network of terminologies grow during the project…
  - British Museum Object Name thesaurus was selected by TWG (WP3 meeting Budapest) as the English reference terminology to start from
  - First experimental input and mapping in xTree by 2 LH partners (KMKG & ICCU-ICCD)

✓ ***Survey on terminologies and analysis of results:***

- To collect information about the terminology recourses used by Linked Heritage partners
- To get a clear overview of the current situation of terminology management and the standard formats used
- 20 countries have been contacted, partners from 15 countries answered the survey
- Results where compared with the conclusions made in Athena WP

✓ ***Defining the technical architecture for Terminology Management Platform:***

- Workflow of terminology management defined
- Outline of technical architecture TMP defined
- Roles and responsibilities of the 3 technical partners (+NTUA) defined
- With the technical schema definition ready, work has started on the writing of the technical specifications of the different modules of the TMP

✓ ***Wiki set-up as a collaborative environment***

- For technical partners to discuss and write technical specifications
- To gather and give access to information on terminology standards and work done in WP3

✓ ***Set of recommendations gathered in the WP3 booklet "Your terminology as part of the semantic web. Recommendations for design and management"***

- Publication dedicated to cultural institutions that are expected to make their digital resources retrievable on Europeana

- Recommendations are taking into account the reality of their specific technical and economic situation

✓ ***Domain name set up for Terminology Management Platform web service:***

- Together with the Technical project coordinator it was agreed to use the domain name www.culture-terminology.org for the location of the online web service accessing the different modules of the TMP

- A general domain name related to the topic rather than attached to the project might in the end me more valuable for reasons of sustainability and openness of the platform

- Visually the platform will be connected to Linked Heritage and the MINT Ingestion tool

5.2 IMPACT

The work done as described in this deliverable allows us to continue with the practical implementation of the TMP and the integration of the different technical modules into a single web service. The design of the technical schema of the platform was crucial for all technical partners and now that this part is done and agreed upon, they can continue writing the technical specifications out in detail.

WP3 will in the coming year continue the work on LIDO terminologies (completion, translation, editing) and the enlargement of the network of interlinked partner vocabularies. Though the prototype of the TMP is not due before month 18 in a first version and month 24 in a final version, we will gradually use those parts coming to our disposal to continue the collaborative work on terminologies.

After producing a first set of guidelines on how to design and manage terminologies to make them part of the semantic web, we will continue educating the partners in the design and management of terminologies as well as later on in the practical use of the platform. More user manuals will be provided and a first workshop on the use of the TMP for the creation and edition of terminologies will be organised.

The active participation and input of the thematic working group has been extremely valuable for the work done so far and shows the interest of the community in the subject of terminology management. We therefore hope to continue this intense collaboration during the remainder of the project and will gradually ask more partners to get involved in the collaborative mapping experiment of Linked Heritage terminologies. Furthermore we will also try to involve external partners in the work we are doing in order to get some fresh insights in the problems of terminology management in the European cultural heritage sector.

5.3 WORKPLAN

In the next twelve months this work package still has a huge effort to make, but we are on track and feel confident on making the deadlines. Two more deliverable will be expected after D3.1:

- **D3.2** Functional and Technical specification of the terminology management system chosen (Month 18, September 2012)

- **D3.3** Terminology Management Platform (Month 24, March 2014): This deliverable consists out of a working prototype of the TMP, including the delivery of a mapped network of cross-domain multilingual Heritage terminologies

With the delivery of D3.3 this WP will achieve a big project milestone (MS6 in DoW, delivery of functional prototype of the Terminology Management Platform). In order to make this deadline, a tight schedule is maintained including several actions appointed to persons responsible for completing the task. We are now moving on from the design stage of the TMP into practical implementation stage. Each technical partner has already started writing his part of the technical specifications (D3.2, due in month 18 in first draft). For this collaborative work we have set up a dedicated space on the Linked Heritage WIKI[53] where the specifications will gradually be completed in the coming 6 months.

Not only WP leaders and technical partners have a lot of work ahead. The TWG will be consulted during the continuous developments of the platform, but most importantly they will be asked to continue the collaborative work on the creation of networks of interlinked partner terminologies. The work that has already started on a small scale with a dedicated working group experimenting with semantic mapping, will then be opened up to more partners to collaborate in.

A huge amount of work is still ahead of us and to make this work more manageable and straightforward on whom is responsible for what task, a detailed action list is given below describing the work of the coming months for technical partners, WP leaders, and TWG:

1. **Description of the technical functionalities of the TMP**

   Responsible partners: Each technical partner has to define and describe in detail the technical functionalities and specifications of his own component in the TMP:

   - Technical partner NTUA has already provided us with the details and parameters for the authentication API
   - IST has to provide specifications on the Terminology Registry part
   - Digicult on the Edition and semantic mapping module
   - Univ. Savoie for search and navigation, automated mapping and entire integration of the different web modules in a single user interface
   - WP leaders for overall coordination of the work

   First draft ready by April 2012
   Specifications to be delivered in September 2012 (**D3.2**)

2. **Common graphical user interface**

[53] Discussions on TMP can be found at http://www.athenaeurope.org/athenawiki/index.php/TMP

Responsible: Univ. Savoie
First draft ready by May 2012

3. **Work on Linked Heritage terminologies:**

Responsible: WP leaders for coordination, thematic working group and Linked Heritage consortium in general

April 2012: Basic terminologies imported into TMP
May 2012: Start of translation work coordination activities
Semantic mapping of Linked Heritage partner terminologies to British Museum object name thesaurus
23-25 May 2012: Validation of the work on terminologies at TWG meeting in Stockholm (Event type scope notes, selected actor role resources, selection of next terminology set for object name network, selection of reference terminology on places,…)

4. **Presentation and tutorial of prototype TMP at plenary meeting and WP meeting, Stockholm**

Responsible: WP leaders. Specifications and first functionalities needed from technical partners
23-25 May 2012

5. **First version of TMP**

Responsible:
- Univ. Savoie for technical coordination
- Digicult for integration of xtree
- IST for development of Terminology Registry

First version of TMP ready in June 2012

6. **Deliverable D3.3. – Milestone 6: Terminology management & Terminology Registry final version & final specifications**

Responsible:
- Univ. Savoie
- IST
- Digicult
- KMKG, MCC

Draft version ready by January 2013
Final delivery March 2013 (month 24)

APPENDIX: DEFINITIONS OF TERMS AND ABBREVIATIONS

Glossary of terms and abbreviations used in the document

- **IST** – Instituto Superior Técnico (Portugal)
- **KMKG** – Koninklijke Musea voor Kunst en Geschiedenis / Royal Museums of Art and History (Belgium)
- **LIDO** – Lightweight Information Describing Objects
- **MCC** – Ministery of Culture and Communication (France)
- **NTUA** – National Technical University of Athens (Greece)
- **SKOS** – Simple Knowledge Organisation System
- **TMP** – Terminology Management Platform
- **TWG** – Thematic Working Group
- **UdS** – University of Savoie (France)

6 ANNEX

6.1 SURVEY FORM

LINKED HERITAGE	**WP3 | SURVEY** **TERMINOLOGY**

What is in the survey?

The survey has 5 sections:

1 Basic and contact Information for the terminology
2 Multilinguality of the terminology
3 Detailed information about the terminology
4 Availability of the terminology
5 Use and Audience for the terminology

Who should fill in the survey?

This digital version (an RTF document or a PDF document) of the survey has been sent to partners and can be used to gather all the needed information from content providers before using the on-line form.

Partners may:

a) Talk to the provider (for example on the phone or in person) in order to fill in forms on their behalf.
b) Send copies of the digital version of the form to the content providers in their country to fill in.

Some questions are very specific to terminologies and you may need to contact relevant persons to answer those questions.

What is being surveyed?

The aim of this survey is to collect information about terminology resources used by the partners of the Linked Heritage project to describe the object metadata. The results of the survey will be integrated in the WP 3 Deliverable 3.1.

One survey should be filled in for each terminology.

For questions about the survey contact: Marie-Véronique Leroi marie-veronique.leroi@culture.gouv.fr, Roxanne Wyns r.wyns@kmkg-mrah.be

TERMINOLOGY used by the Organisation

Please fill in this section of the survey for each terminology used by your organisation.
The following fields are the basic information required for each terminology.

Basic and Contact Information

1. Name given to the terminology:

2. Version:

3. Publishing date of this version of the terminology:

4. Updating: how frequent is the terminology updated?

5. Owner of the terminology:

a. Administrator/contact person:
b. Email for the contact person:
c. Phone of the contact person:
d. Fax of the contact person:

[This question should be filled only once if the same contact person is in charge of several terminologies]

6. Contributors (people and/or organizations):

Multinguality of the terminology

7. Multilingualism

- **Is your terminology multilingual?**

☐ Yes ☐ No

If yes:

- **Please list the languages which the terminology is available in and indicate the proportion of each language:**

For example: French – 60%
English – 30%

%
%
%
%
%

- **Which tools or resources were used to make the terminology multilingual?**

a. Non expert human translation ☐
b. Domain specific expert ☐
c. Use of Semantic Mapping
(for example to AAT) ☐
d. Automatic translation ☐
e. Other ☐
If other please specify:

- **Did you use one of the languages as a reference for translating the terms in the rest of the languages or did you produce each language version separately and then align the different language versions?**

Detailed Information on the terminology

8. Type of terminology (tick only one box):

a. Simple term list ☐
b. Glossary ☐
c. Thesaurus ☐
d. Ontology ☐
e. Classification or Taxonomy ☐

9. Domains (description domain / application domain):

[by description domain we mean the subject area covered by the terms of the terminology; by application domain we mean the scope of the terminology. For example if you use mineralogy terms for describing archaeology collections: the description domain would be mineralogy and the application domain would be archaeology]

- **Description Domain(s):**

☐ Archeology	☐ Law	☐ Medecine – Pharmacy	☐ Religion	
☐ Architecture	☐ Economics	☐ Music	☐ Science and technology	
☐ Contemporary art	☐ Ethnology	☐ Furniture	☐ Political Science	
☐ Decorative arts	☐ Genealogy	☐ Seaside Heritage	☐ Sport	
☐ Performing arts	☐ Geography	☐ Industrial Heritage	☐ Town planning	
☐ Fine arts	☐ History	☐ Rural Heritage		
☐ Cinema et audio-visual	☐ Local History	☐ Landscape		
☐ Demography	☐ Literature	☐ Philosophy		
☐ Other : ……..				

- **Application Domain(s):**

☐ Archeology	☐ Law	☐ Medecine – Pharmacy	☐ Religion	
☐ Architecture	☐ Economics	☐ Music	☐ Science and technology	
☐ Contemporary art	☐ Ethnology	☐ Furniture	☐ Political Science	
☐ Decorative arts	☐ Genealogy	☐ Seaside Heritage	☐ Sport	
☐ Performing arts	☐ Geography	☐ Industrial Heritage	☐ Town planning	
☐ Fine arts	☐ History	☐ Rural Heritage		
☐ Cinema et audio-visual	☐ Local History	☐ Landscape		
☐ Demography	☐ Literature	☐ Philosophy		
☐ Other : ……..				

10. How many terms (lexical units) are contained in this terminology?

10 or less ☐
Between 11 and 100 ☐
Between 101 and 500 ☐
Between 501 and 1000 ☐
Between 1001 and 5000 ☐
Between 5001 and 10000 ☐
10001 or more ☐

11. Which thesaurus features are supported?

a. Narrower term / Broader term ☐
b. Related term (or 'See also') ☐
c. Use/Used for (or 'See') ☐
d. Use OR ☐
e. Use AND ☐
f. Top term ☐
g. Other relations ☐
h. Note (skos:note : change Nnote, scope note, editorial note, example, history note, ….) ☐
i. Other (special) notes: use notes, date of entry ☐
j. Semantic mapping (close match, exact match, broad or narrow match) ☐
k. Identification/URI ☐

Availability of the terminology

12. How is the terminology available?

a. Paper copy version ☐
b. CD Rom ☐
c. Local Network ☐
d. Commercial Database Provider ☐
e. On the Web ☐
Please provide the URL (Web Address):

13. Specific operating system, software or encoding for using the terminology (for example Flash player, MAC OS, UTF-8, …)

14. Is this terminology available in the following forms?

a. XML ☐
If yes, please specify (Getty XML, Zthes, Vocnet, ...):

b. SKOS ☐
c. RDF ☐
d. OWL ☐
e. Other ☐
If other, please specify:

Use and Audience for the terminology

15. Specific context. Please indicate the target audiences that are expected to be able to use the terminology:

Professional users		General users	
-from libraries	☐	- libraries audience	☐
-from archives	☐	- archives audience	☐
-from museums	☐	- museums audience	☐
-for continuous professional development		- pupils	☐
-other	☐	- teachers	☐
If other, please specify	☐	- students	☐
		- professors	☐
		-other	
		If other, please specify:	

16. Rights

Free to use the terminology or incorporate it in your application	☐	
Free to change and use an altered version	☐	
Free to distribute altered versions	☐	
Free to distribute unaltered	☐	
Free to use the terminology browsing tools (if applicable)	☐	
A redistributed or modified terminology has the same rights	☐	
A reference to the copyright owner is required	☐	

17. Costs for obtaining or using the terminology

Minimal (free downloadable or only distribution costs) ☐
A small fee (e.g. less than 100 euro) ☐
Commercially-priced ☐
Additional information on costs:

18. Standards

3. Which standards were used in creating the terminology?

a. ISO 2788 ☐
b. ISO 5964 ☐
c. ISO 25964 ☐
d. ANSI/NISO Z39.10-1993 ☐
e. Model based on the Art and Architecture Thesaurus ☐
f. Other ☐
If other, please specify:

4. Can you explain the reasons that led you to chose this (/these) standard(s) or not to chose any?

19. Tools:

1. What are the tools you use for managing your terminology?

2. How do you erase or add or modify a term?

3. If your terminology has a hierarchy, how do you manage the connections between the terms? Do you follow a certain protocol to add, erase or connecting terms?

20. Is this terminology recognized at a national or international level?

For example: German national authority list or W3C, OASIS…

☐ Yes ☐ No

If yes, please give detail:

If your terminology is not available on line, please send us a digital copy of it.

6.2 RESULTS OF THE WP3 SURVEY

6.2.1 Countries represented in the survey results

Partner country	N°of terminologies	Additional remark
Belgium	3	
Bulgaria	2	
Cyprus	1	Development Terminology in progress
Czech Republic	1	
Estonia	1	
France	1	
Germany	1	CP uses AAT[54]
Greece	1	
Hungary	1	
Ireland	0	CP CL responded that they use no terminology
Italy	2	
Poland	1	
Spain (Catalonia)	1	
Sweden	3	
UK	2	Plus one UK partner, Editeur, responded that they use no terminology
Total	**21**	

6.2.2 Details of presented terminologies

Title	Art and Architecture Thesaurus (AAT)
Kind of resource	Thesaurus
Country	International
Language(s)	German 100% - English 100%
Descriptions	Partner TIB-LUH uses a translated version of the AAT
Dimension	?
URL	http://www.getty.edu/research/tools/vocabularies/aat/index.html

Title	Auktoritetsregistret
Kind of resource	Glossary
Country	Sweden
Language(s)	Swedish

[54] Content provider TIB-LUH uses the Getty Arts and Architecture thesaurus http://www.getty.edu/research/tools/vocabularies/aat/index.html . This terminology can't be used for the Linked Heritage experiment because of the license cost. It remains however an important reference for museum object descriptions and its structure and functionalities will be considered in the design of the TMP.

Descriptions	Managed by the Riksarchivet and created in collaboration with the departments within Swedish National Archives. Used for the description of archive items
Dimension	Over 10000
URL	www.nad.ra.se/search_auth.aspx

Title	EDR terminology
Kind of resource	Glossary
Country	Italy
Language(s)	Latin 100% - Italian 100% - English 100%
Descriptions	EDR is a project linked to the Corpus Inscriptionum Latinarum and under the patronage of the AIEGL (Association International d'Epigraphie Grecque et Latine). The terminologies focus on Ephigraphy, Archeaology, Ancient history
Dimension	11 - 100
URL	http://www.edr-edr.it/English/Guida_consult_en.php http://www.edr-edr.it/Italiano/Guida_consult_it.php http://www.edr-edr.it/Download/EDR%20-%20Manuale%20v.1.pdf

Title	ERR terminology
Kind of resource	Simple term list
Country	Estonia
Language(s)	Estonian
Descriptions	Terminology used for the description several description domains like architecture, decorative arts, audiovisual material,…
Dimension	?
URL	http://www.pictures-bank.eu/tezaurus/index_pl.html

Title	Free keywords
Kind of resource	Simple term list
Country	Poland
Language(s)	Polish
Descriptions	Terminology used for the description of audiovisual material
Dimension	101 - 500
URL	N/A

Title	Genre for Performing Arts
Kind of resource	Glossary
Country	Czech Republic
Language(s)	Czech 100% - English 100%
Descriptions	This thesaurus is managed by Arts and Theatre Institute of the Czech Republic and focuses on performing arts for the description of the metadata
Dimension	11 - 100
URL	http://db.divadelni-ustav.cz/inscenace.aspx?langw=en

Title	KÖZTAURUSZ
Kind of resource	Thesaurus
Country	Hungary
Language(s)	Hungarian

Descriptions	Universal thesaurus of National Széchényi Library, public libraries, scientific and technical libraries
Dimension	Over 10000
URL	Previous version on http://mek.oszk.hu/adatbazis/thes.htm The new version is currently being tested.

Title	MARC 21 Bibliographic
Kind of resource	Classification/Taxonomy
Country	Bulgaria
Language(s)	Bulgarian - English
Descriptions	Managed by CL-BAS, focused on literature
Dimension	11 - 100
URL	N/A, Only in paper copy version

Title	MDA Archaeological Object Thesaurus
Kind of resource	Thesaurus
Country	United Kingdom
Language(s)	English 100%
Descriptions	Thesaurus maintained by Collections Trust and English Heritage on object names for the description of archaeological objects
Dimension	1001 - 5000
URL	N/A

Title	NAD-Termkatalog
Kind of resource	Glossary
Country	Sweden
Language(s)	Swedish
Descriptions	Managed by the Riksarchivet and created in collaboration with the departments within Swedish National Archives. Used for the description of archive items
Dimension	501 - 1000
URL	www.nad.ra.se/top.aspx?page=static/dataleverant.html

Title	PICO Thesaurus (PICO is the acronym for “Portale della Cultura Italiana On-line”)
Kind of resource	Thesaurus
Country	Italy
Language(s)	Italian 100% - English 100%
Descriptions	The PICO Thesaurus is organised in four main categories, derived from the four "High level elements of DC Culture, defined by the Aquarel project and approved by the MINERVA project (MINERVA Handbook): Who, What, Where, When.
Dimension	501 - 1000
URL	http://www.culturaitalia.it/pico/thesaurus/4.3/thesaurus_4.3.0.skos.xml

Title	RMAH Geographical Reference thesaurus
Kind of resource	Thesaurus
Country	Belgium

Language(s)	French 100% - Dutch 100% - English 100%
Descriptions	The Royal Museums of Art and History Geographical Reference thesaurus contains both political and geographical entities from 5 continents due to the diverse collection managed by the RMAH.
Dimension	1001 - 5000
URL	www.carmentis.be

Title	RMAH Material and Technique thesaurus
Kind of resource	Thesaurus
Country	Belgium
Language(s)	French 100% - Dutch 100% - English 100%
Descriptions	The Royal Museums of Art and History Material and Technique thesaurus is mainly based on the AAT and covers several application domains.
Dimension	501 - 1000
URL	www.carmentis.be

Title	RMAH Object name thesaurus
Kind of resource	Thesaurus
Country	Belgium
Language(s)	French 100% - Dutch 100% - English 100%
Descriptions	The Royal Museums of Art and History Object name thesaurus is mainly based on the AAT and is used to describe a diverscollection
Dimension	1001 - 5000
URL	www.carmentis.be

Title	Social History and Industrial Classification (SHIC)
Kind of resource	Classification/Taxonomy
Country	United Kingdom
Language(s)	English 100%
Descriptions	Classification on the subject of social
Dimension	101 - 500
URL	N/A

Title	Social History and Industrial Classification (SHIC)
Kind of resource	Simple term list
Country	Cyprus
Language(s)	Greek 100%
Descriptions	Terminology developed by the Science and Technology in Archaeology Research Center (STARC) of the Cyprus Institute
Dimension	N/A
URL	Thesaurus under construction, Ready by 2013?

Title	Terminology managed by Bulgarian Ministry of Culture
Kind of resource	Simple term list
Country	Bulgaria
Language(s)	Bulgarian - English 15%
Descriptions	Terminology covering Architecture, archaeology, ethnology, history and local

	history
Dimension	11 - 100
URL	N/A

Title	Tesaurus d'art i arquitectura
Kind of resource	Thesaurus
Country	Spain (Catalonia)
Language(s)	Catalan 100% - Spanish 100% - English 100%
Descriptions	Currently a specialist team performs the translation of the AAT thesaurus. Terminology standardization is done with the collaboration of Termcat, the centre for terminology in the Catalan language. It is expected to have system ready by 2012 to get Catalan cultural institutions involved in the maintenance of the thesaurus
Dimension	Over 10000
URL	On the web by 2012

Title	Thésaurus de la dénomination Palissy
Kind of resource	Thesaurus
Country	France
Language(s)	French
Descriptions	This thesaurus is managed by the Ministry of Culture and Communication (France). It applies to description domains Architecture, decorative arts, furniture,
Dimension	1001 - 5000
URL	The new version will be published in 2012

Title	Topografiregistret
Kind of resource	Glossary
Country	Sweden
Language(s)	Swedish
Descriptions	Terminology on geography and history, managed by the Riksarchivet and created in collaboration with the departments within Swedish National Archives. Used for the description of archive items
Dimension	Over 10000
URL	www.nad.ra.se/top.aspx?page=static/dataleverant.html

Title	Universal Decimal Classification
Kind of resource	Classification/Taxonomy
Country	International (UDC Consortium)
Language(s)	English
Descriptions	Terminology on literature
Dimension	?
URL	UCD consortium, mail@udcc.org

6.3 XTREE MANUAL

This manual was developed to assist content providers participating in the first object name mapping experiment in anticipation of the first prototype development of the TMP. The Xtree manual will eventually be integrated in the complete TMP user rmanual.

A guide to semantic mapping between terminologies in Xtree

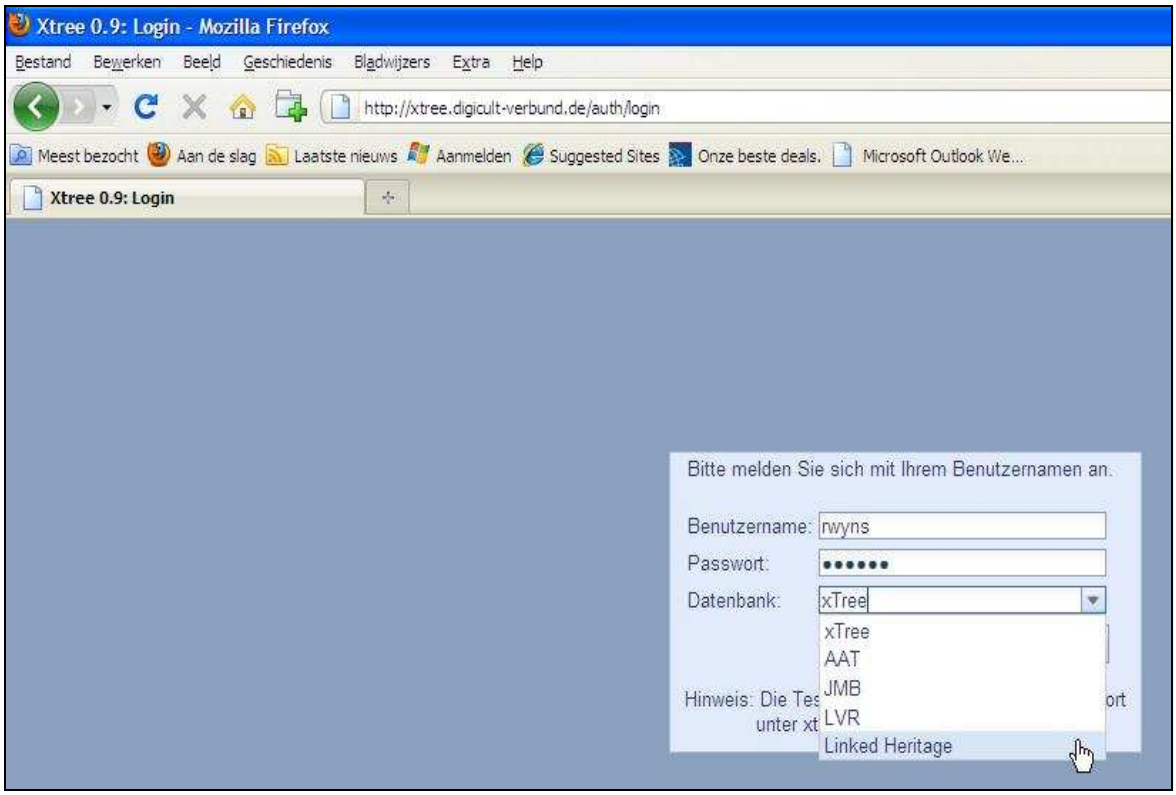
Draft 0.1 – 2012-02-07
URL Xtree 0.9
http://xtree.digicult-verbund.de/

1. Authentification

For login request, contact Roxanne Wyns (r.wyns@kmkg.be) and Marie-Véronique Leroi (marie-veronique.leroi@culture.gouv.fr)

1) Enter you username in **Benutzername**
2) Enter you password in **Passwort**
3) Select Linked Heritage from drop down list **Datenbank**
4) Click **OK**

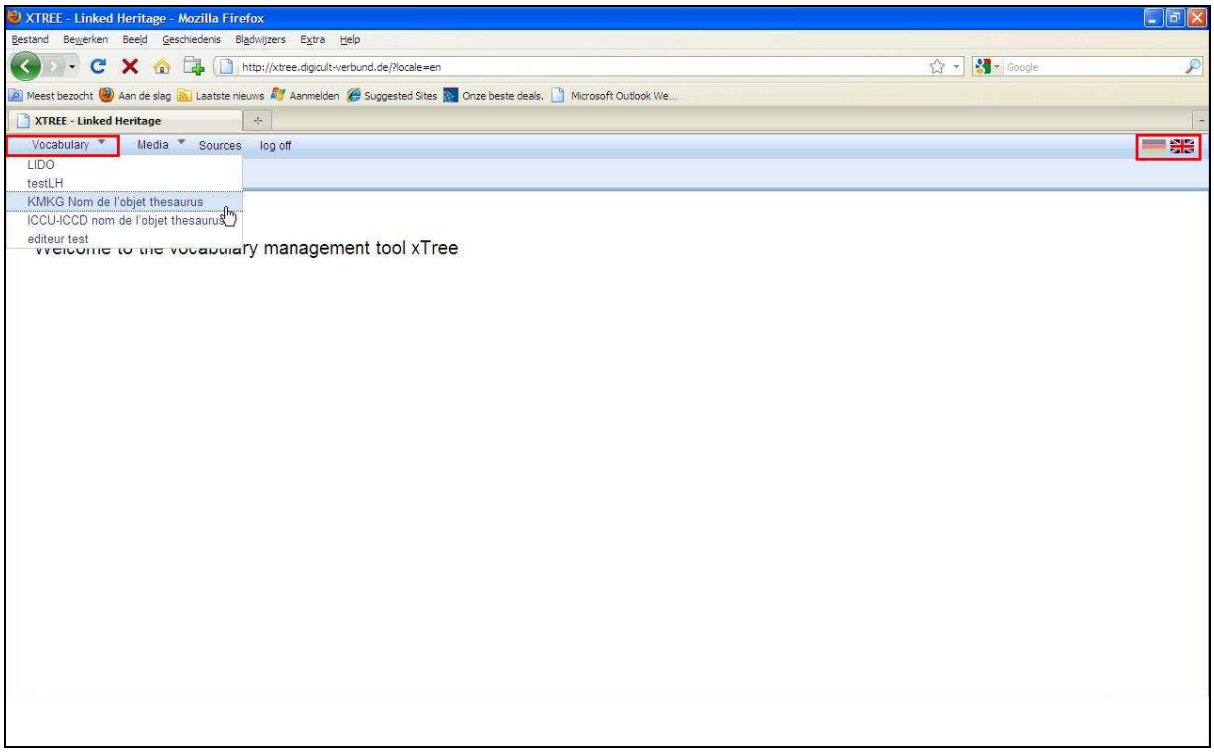
Login



2. Welcome screen

1. The Xtree interface is available in German (main language) and English. You can switch languages by clicking on the flags  in the upper right corner.
2. Select the vocabulary you want to look at or work on in the menu at the upper left corner.
    - When clicking on **Vocabulary** a drop down list will appear with all the Linked Heritage vocabularies uploaded in Xtree[55].
    - Rights are managed as such that you can consult all Linked Heritage terminologies, but have only full control over your "own" terminology.

Welcome screen



3. Consultation mode

3.1 Vocabulary browsing

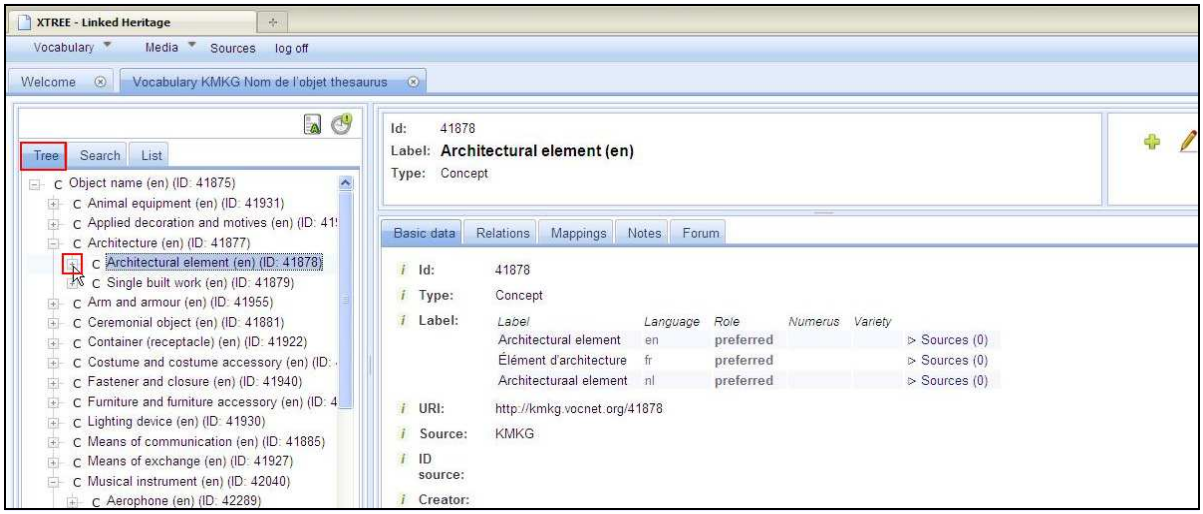
[55] At this moment the list still includes some entries for testing purposes (testLH and Editeur test). The testLH entry can be used by users to get acquainted with the system.

To upload a new vocabulary, contact Roxanne Wyns (r.wyns@kmkg.be) and Marie-Véronique Leroi (marie-veronique.leroi@culture.gouv.fr).

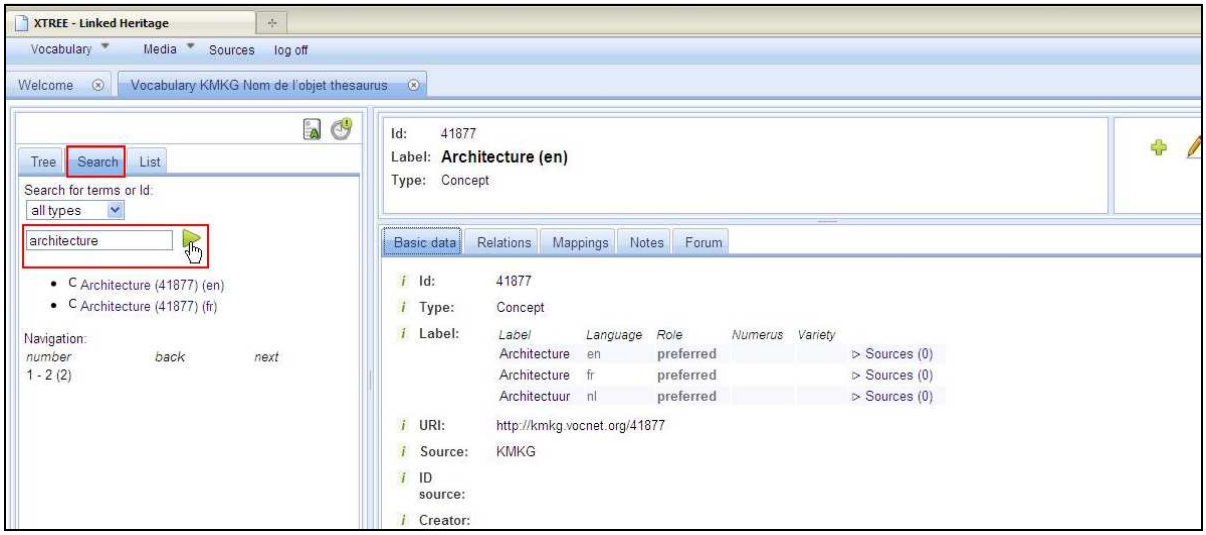
There are multiple ways to browse through a vocabulary in search of a concept or term by selecting one of the following tabs:

1) **Tree** view navigation: Push the sign left of the node entry to go deeper into the hierarchy.
2) **Search** for a term or ID[56]: Type in the term you are looking for and push the green arrow . Use asterisk to search on a partial word (e.g. “archi*” to find all terms starting with this string, or “*archi*” to get e.g. “landscape of architecture”).
3) **List** (alphabetic): Click on **+** or **–** at the bottom of the list to navigate through alphabetic list.

Tree view navigation

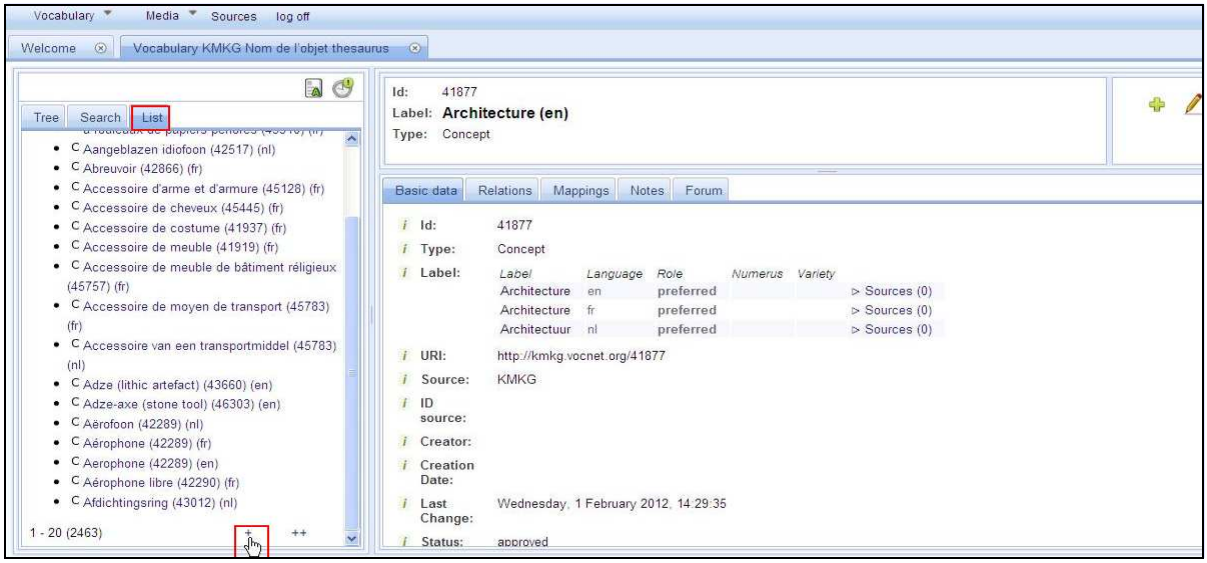


Search for a term or ID



56 The default is an exact string search

Alphabetic list

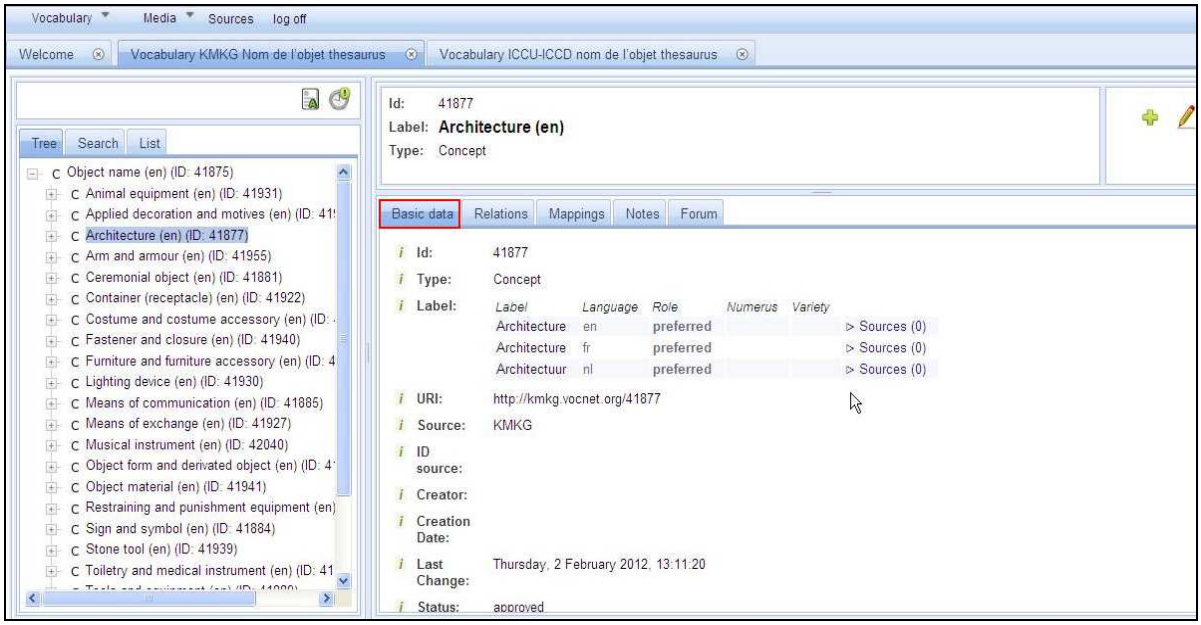


3.2 View concept information

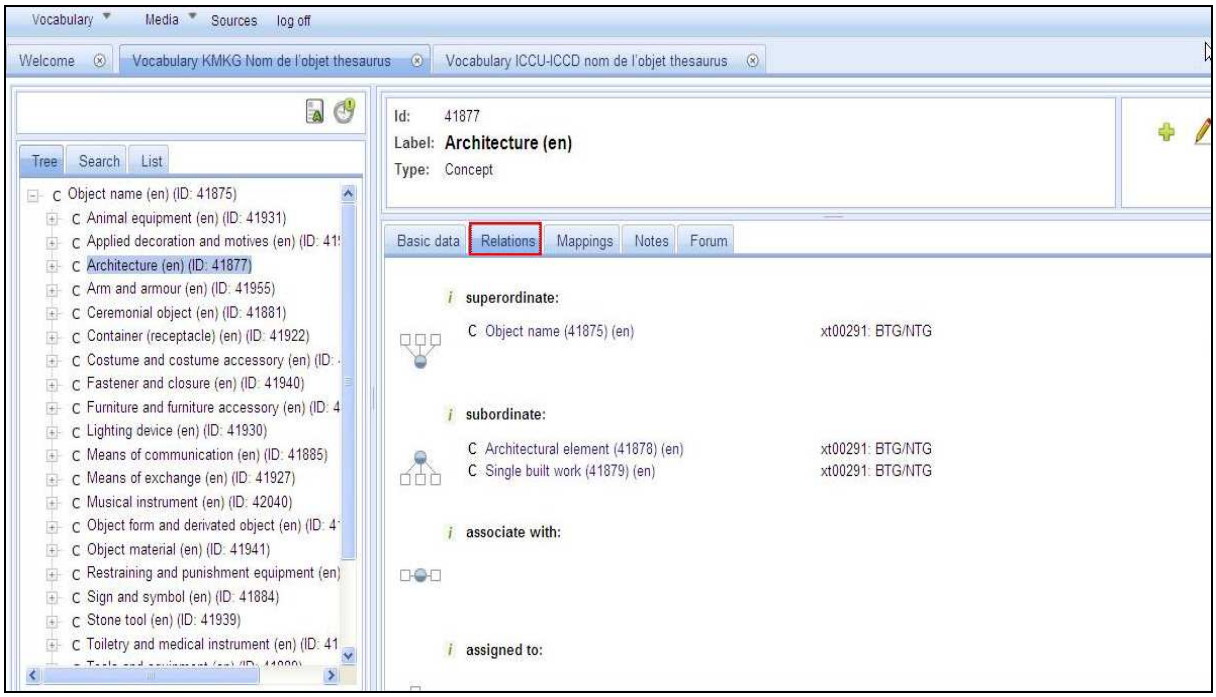
Select a concept in the tree, e.g. Architecture.
5 different tabs show in the right window:

1. **Basic data**: ID, labels, URI, Source,…
2. **Relations**: To concepts and categories, e.g. superordinate, subordinate, associate with,…
3. **Mappings**: For semantic mappings between multiple vocabularies
4. **Notes**: For additional information on the concepts, e.g. definitions, scope notes
5. **Forum**: To discuss with partners on concept level, e.g. level of match between mappings

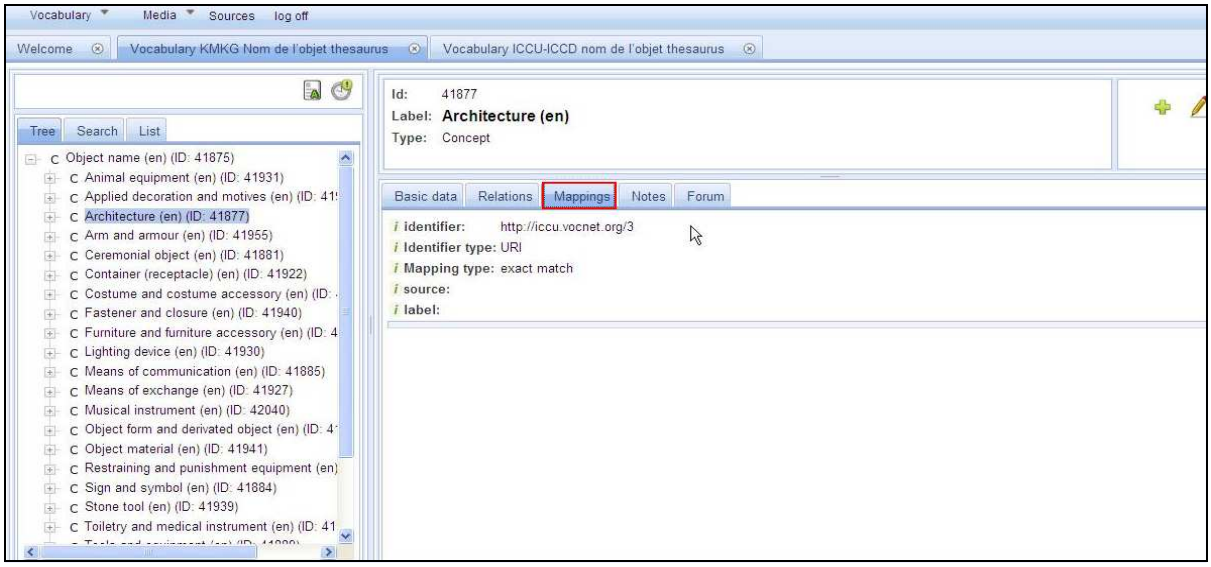
Basic data



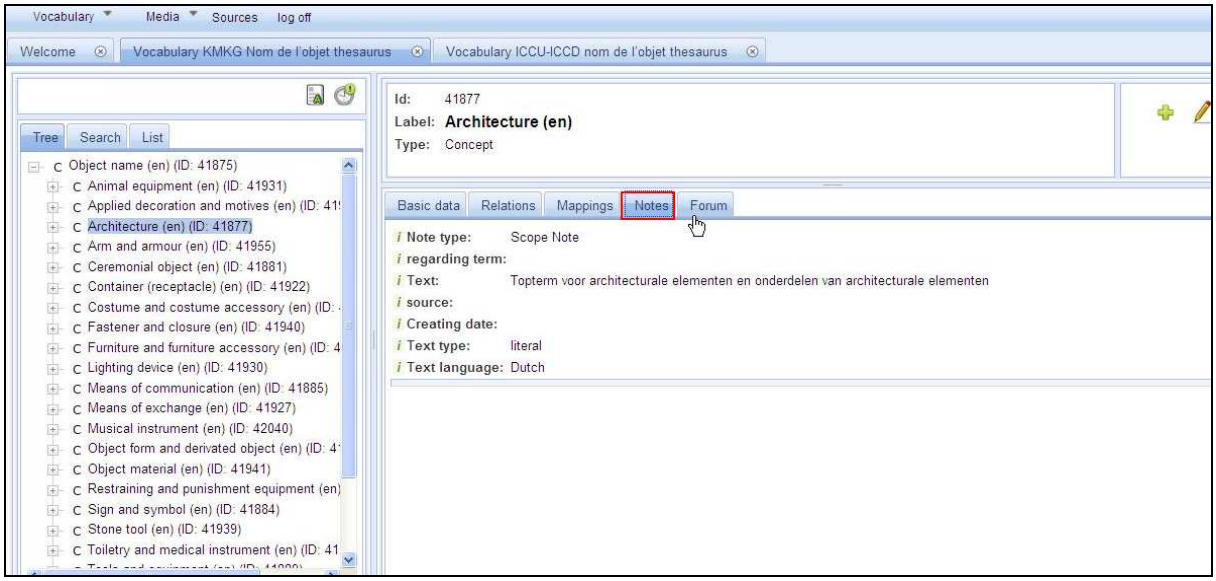
Relations



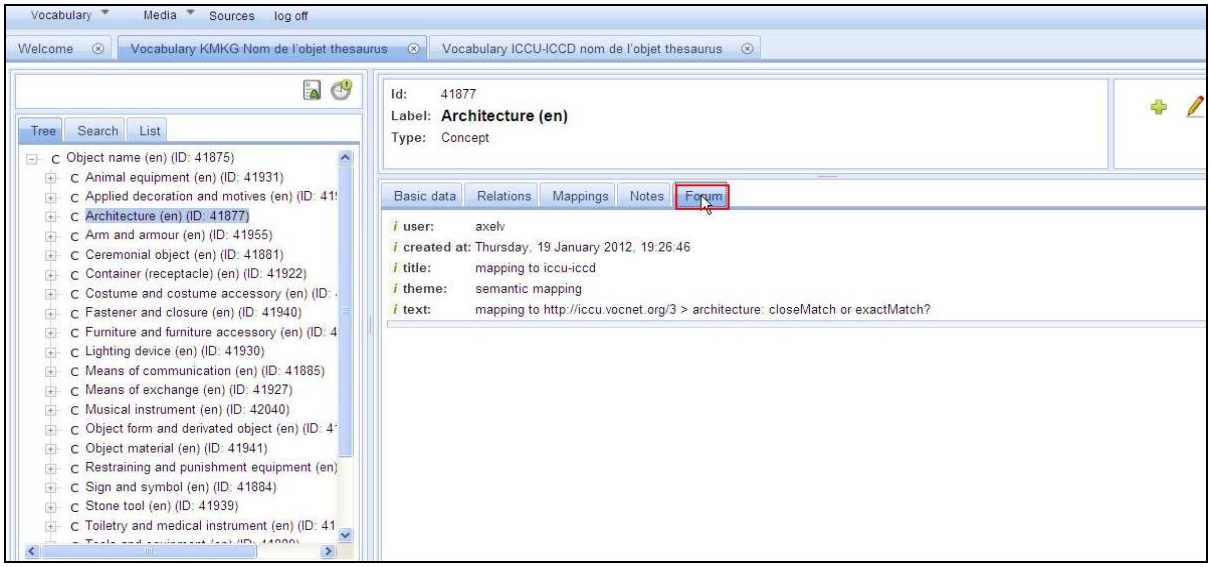
Mappings


Vocabulary
Media
Sources
log off
Welcome
Vocabulary KMKG Nom de l'objet thesaurus
Vocabulary ICCU-ICCD nom de l'objet thesaurus
Tree
Search
List
Object name (en) (ID: 41875)
Animal equipment (en) (ID: 41931)
Applied decoration and motives (en) (ID: 41
Architecture (en) (ID: 41877)
Arm and armour (en) (ID: 41955)
Ceremonial object (en) (ID: 41881)
Container (receptacle) (en) (ID: 41922)
Costume and costume accessory (en) (ID:
Fastener and closure (en) (ID: 41940)
Furniture and furniture accessory (en) (ID: 4
Lighting device (en) (ID: 41930)
Means of communication (en) (ID: 41885)
Means of exchange (en) (ID: 41927)
Musical instrument (en) (ID: 42040)
Object form and derivated object (en) (ID: 4
Object material (en) (ID: 41941)
Restraining and punishment equipment (en)
Sign and symbol (en) (ID: 41884)
Stone tool (en) (ID: 41939)
Toiletry and medical instrument (en) (ID: 41
Id: 41877
Label: Architecture (en)
Type: Concept
Basic data
Relations
Mappings
Notes
Forum
identifier: http://iccu.vocnet.org/3
Identifier type: URI
Mapping type: exact match
source:
label:

Notes


Vocabulary
Media
Sources
log off
Welcome
Vocabulary KMKG Nom de l'objet thesaurus
Vocabulary ICCU-ICCD nom de l'objet thesaurus
Tree
Search
List
Object name (en) (ID: 41875)
Animal equipment (en) (ID: 41931)
Applied decoration and motives (en) (ID: 41
Architecture (en) (ID: 41877)
Arm and armour (en) (ID: 41955)
Ceremonial object (en) (ID: 41881)
Container (receptacle) (en) (ID: 41922)
Costume and costume accessory (en) (ID:
Fastener and closure (en) (ID: 41940)
Furniture and furniture accessory (en) (ID: 4
Lighting device (en) (ID: 41930)
Means of communication (en) (ID: 41885)
Means of exchange (en) (ID: 41927)
Musical instrument (en) (ID: 42040)
Object form and derivated object (en) (ID: 4
Object material (en) (ID: 41941)
Restraining and punishment equipment (en)
Sign and symbol (en) (ID: 41884)
Stone tool (en) (ID: 41939)
Toiletry and medical instrument (en) (ID: 41
Id: 41877
Label: Architecture (en)
Type: Concept
Basic data
Relations
Mappings
Notes
Forum
Note type: Scope Note
regarding term:
Text: Topterm voor architecturale elementen en onderdelen van architecturale elementen
source:
Creating date:
Text type: literal
Text language: Dutch

Forum



4. Editing mode

4.1 Main symbols

- Add
- Edit
- Delete
- Cancel
- Save

4.2 Create a new entry

1. Add a new concept to your vocabulary: click sign in upper right corner or by a right mousse click on a concept in the tree
2. Complete Basic data[57]:
   - **Label:**
     - *Label*: enter term of phrase in a natural language
     - *Language*: define the language of the lexical label
     - *Role*: define if the lexical label is
       - Preferred: the preferred lexical label assigned to a concept. Can only be used 1 time per language
       - Alternative: e.g. for synonyms, near-synonyms, abbrevations, acronyms,…

[57] Only the basic functionalities are explained in this document. More information can be obtained by pointing your mousse arrow at the *i* in front of each entry field. A pop-up will give you additional information on the meaning of the fields.

        - Hidden: e.g. for misspelled words. The hidden label is meant to be accessible to applications performing text-based indexing and search operations. The hidden label is not visible, it is meant to redirect the user to the alternative label.
    - *Numerus*: define if term is
        - Singular
        - Plural
        - Undefined
    - *Variety*: possible to define if lexical label is
        - Standard
        - Short form
        - Regional variety
        - Specialised terminology
        - Restricted language
        - Official language
        - Vernacular

    More lexical labels can be added to the same concept by clicking on 

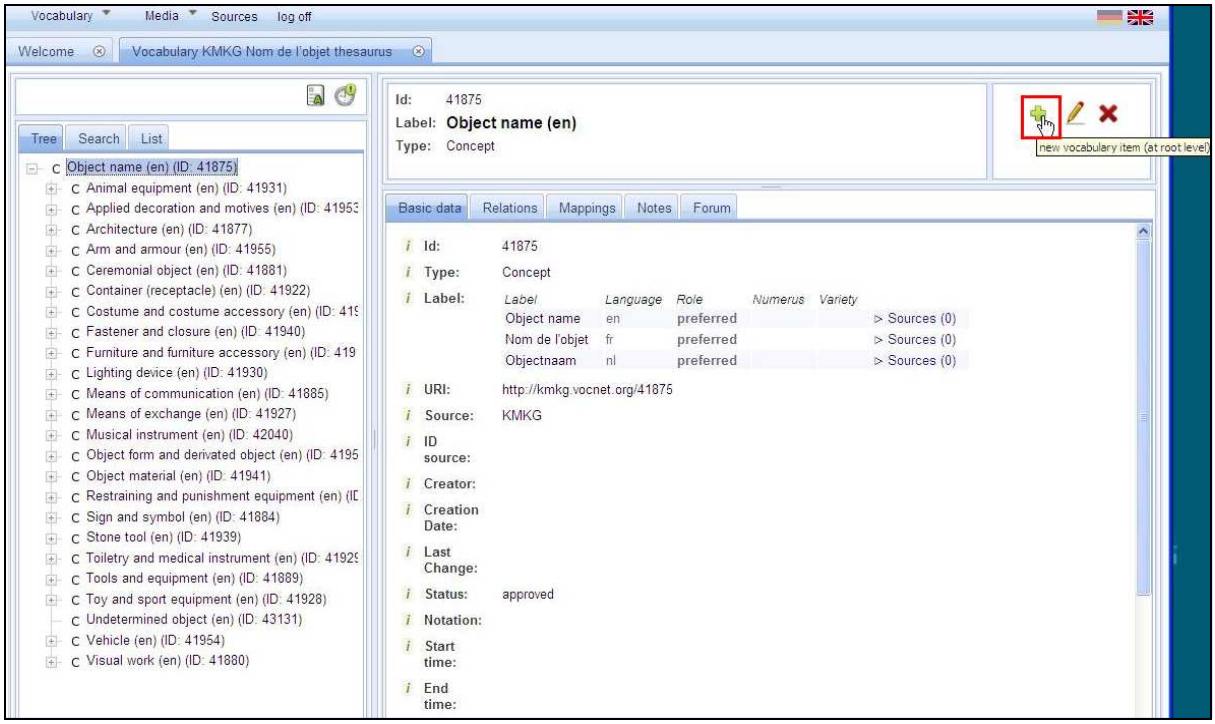
    .
    ! Note that the notion of preferred label implies that the conceptual resource can only have one such preferred label per language tag.
    Multiple alternative and/or hidden labels can be given per natural language.

    Status: define if the new concept is a

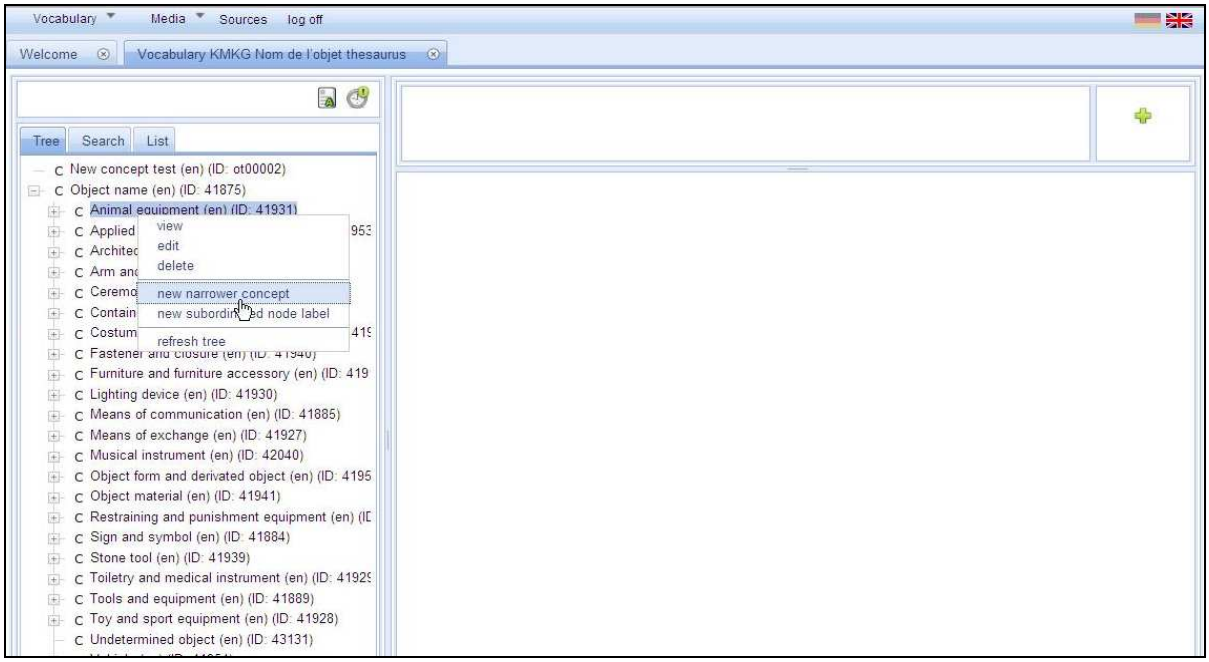
        - Candidate
        - Approved
        - Deprecated
        - In process

3. Save new concept in upper right corner 

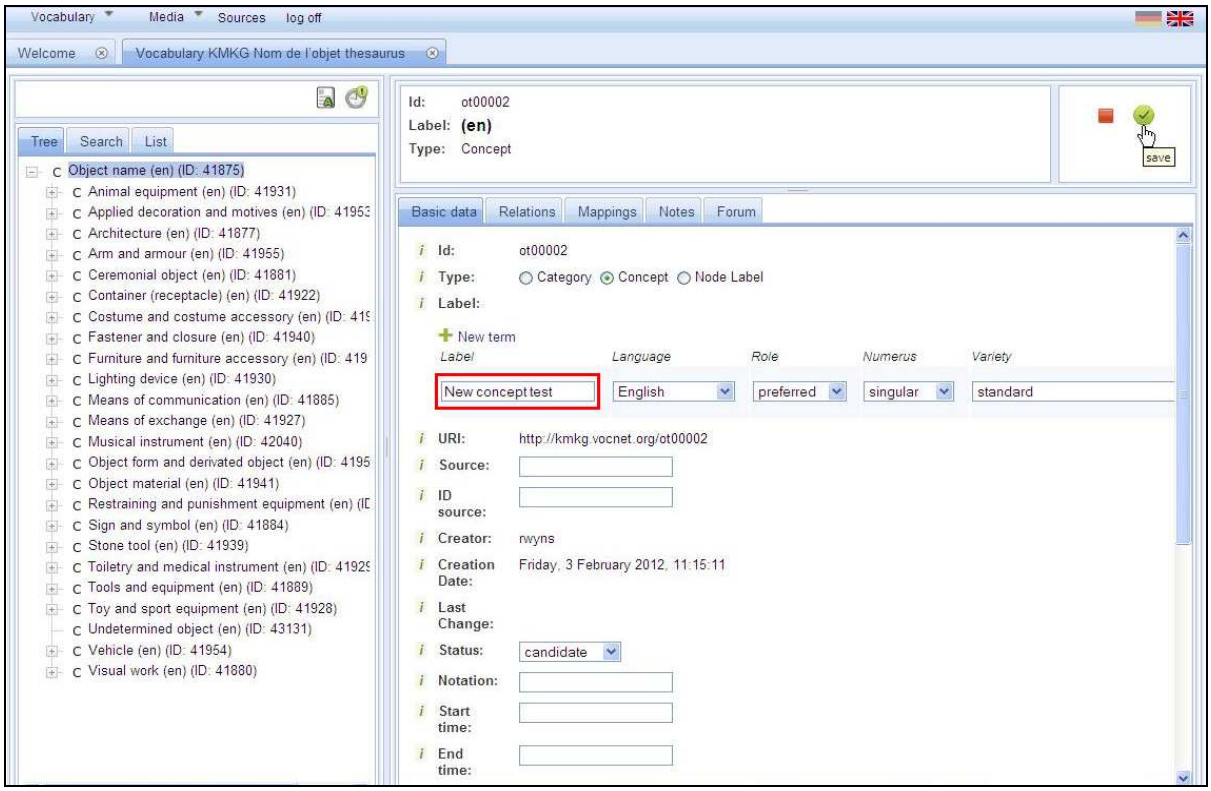
Add a new concept (by click on green plus sign)



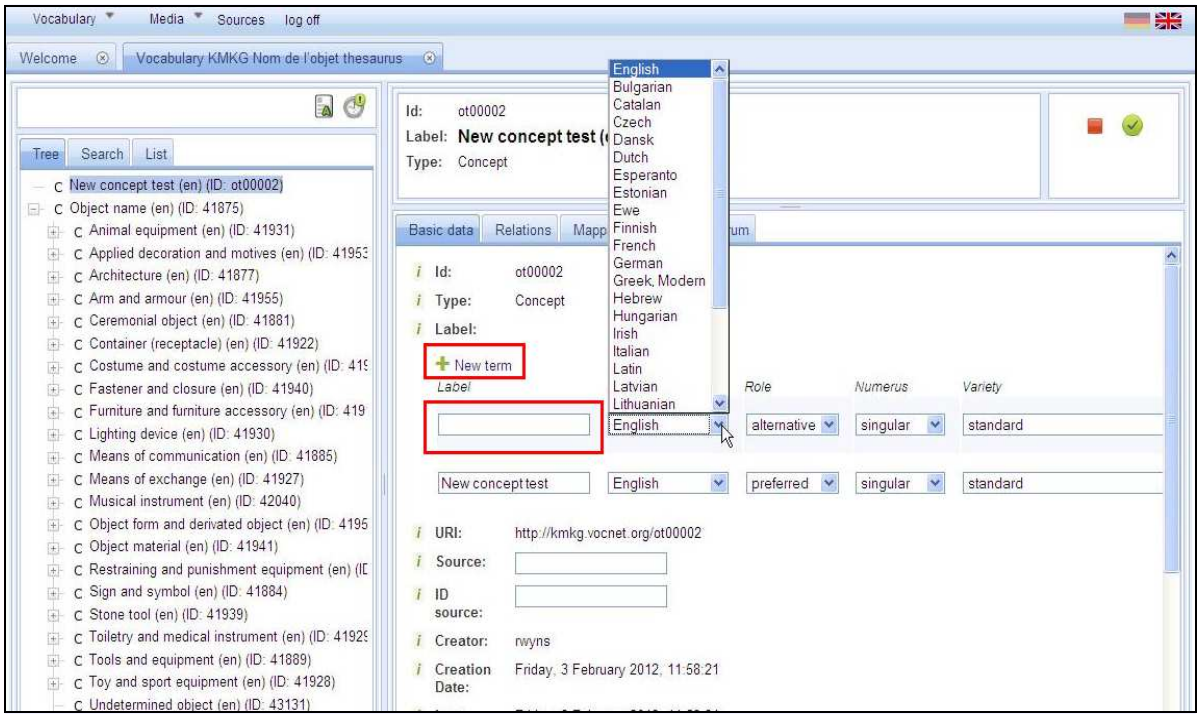
Add a new concept (by right click on mouse)



Enter lexical label



Entermultiple lexical labels



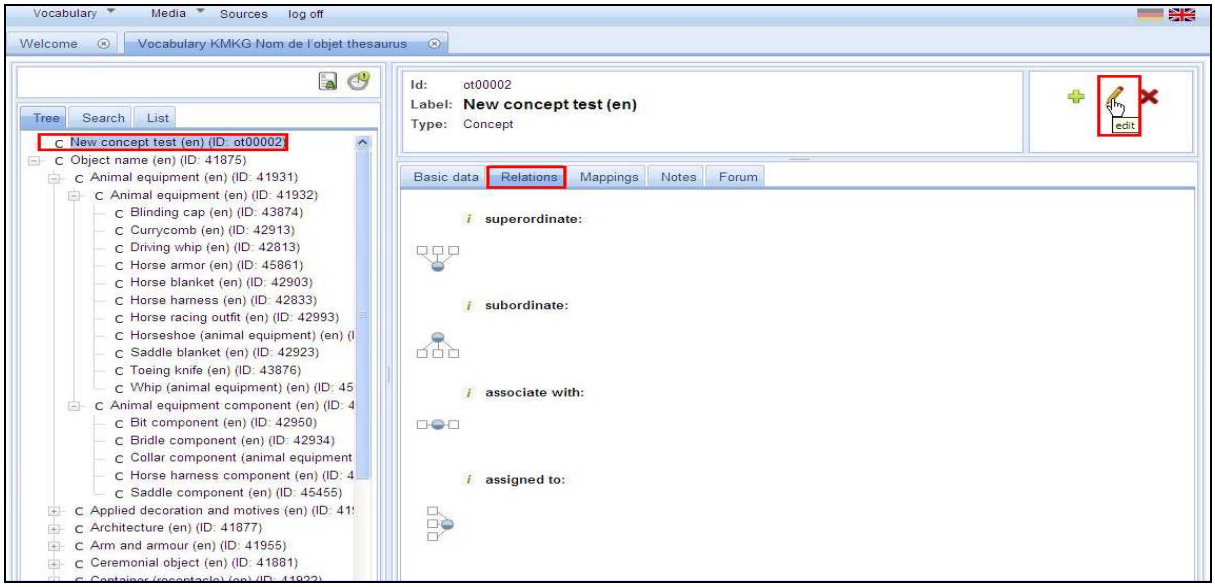
4.3 Define semantic relations to other concepts within the same vocabulary

Semantic relations play a crucial role in defining the meaning of a concept. The meaning of a concept is not only defined by the natural language words but also by the position of the concept in relation to other concepts in the vocabulary.

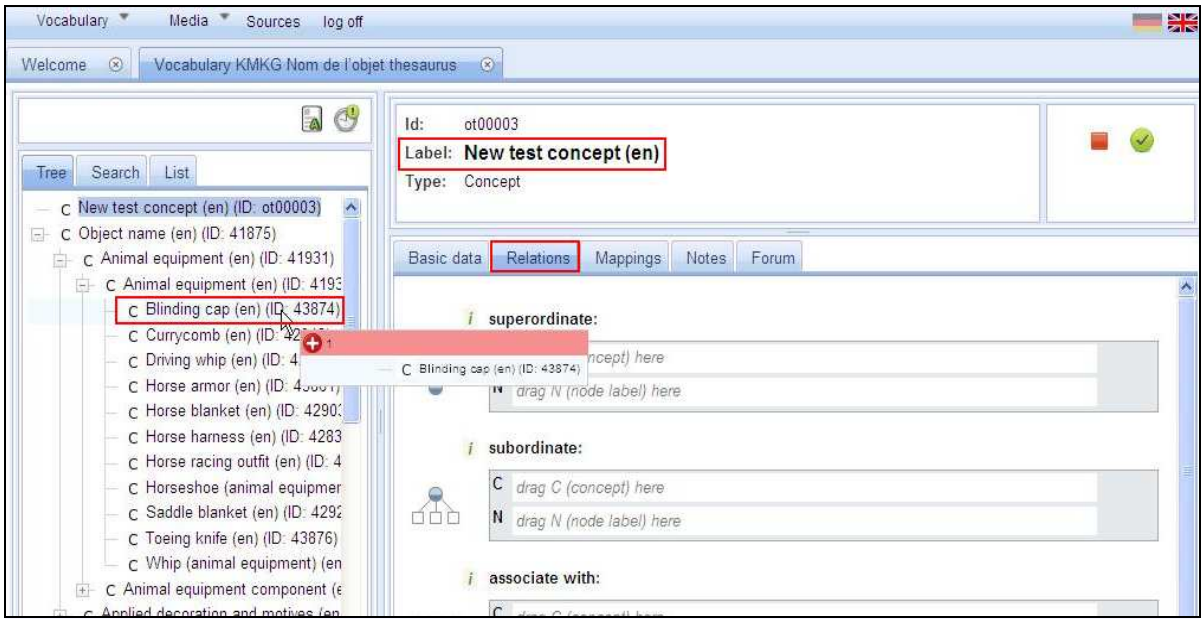
To define the semantic relation of a concept to another concept in the tree:

1. Select the (new) concept to be repositioned in the tree
2. Click the tab Relations
3. Click edit  in the upper right corner of the screen. Relations will appear.
4. Click on a concept in the tree and drag it to the relation of choice for the previously selected concept:
    - **Superordinate**: This relationship comprises broader concepts as well as superordinate categories and node labels. This implies that the subject of the statement is a more specific concept that has a broader concept with a more generic in meaning.
    - **Subordinate**: This relationship comprises narrower concepts as well as subordinate categories and node labels
    - **Associate with**: This relationship comprises related concepts and see-also-references between categories
    - **Assigned to**: A concept assigned to a category. Note: This relationship is not a logical super-/subordination
5. When the dragged concept turns from red to green, release concept and the relation is added. More relations to the same concept can be added in a single edit
6. Click on  to save relations

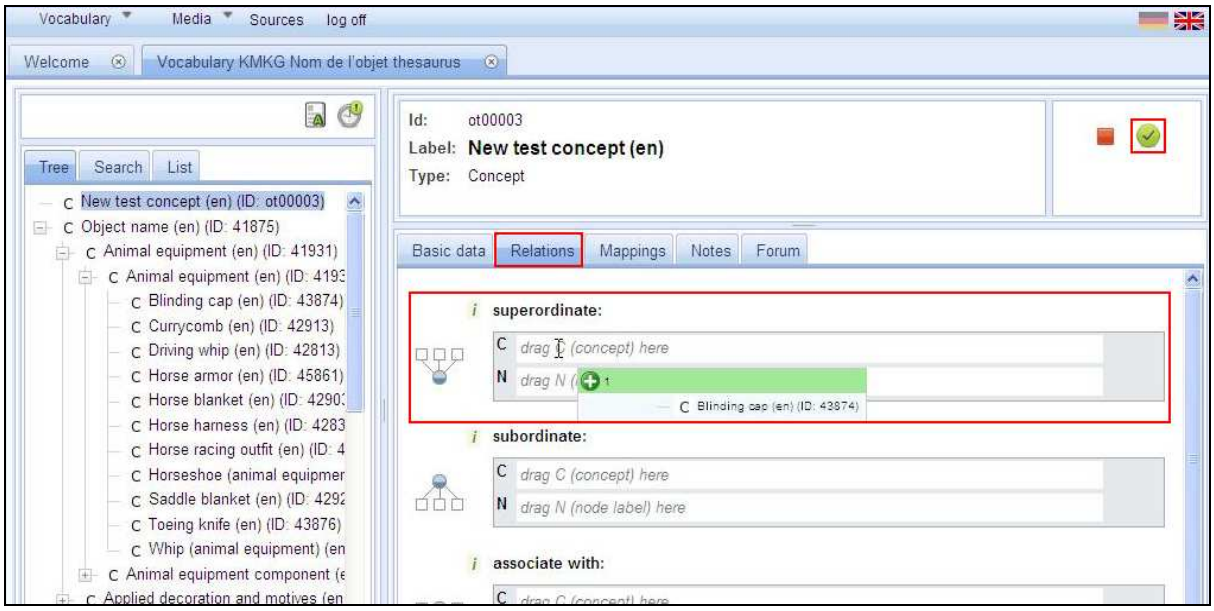
Define relations to other concepts



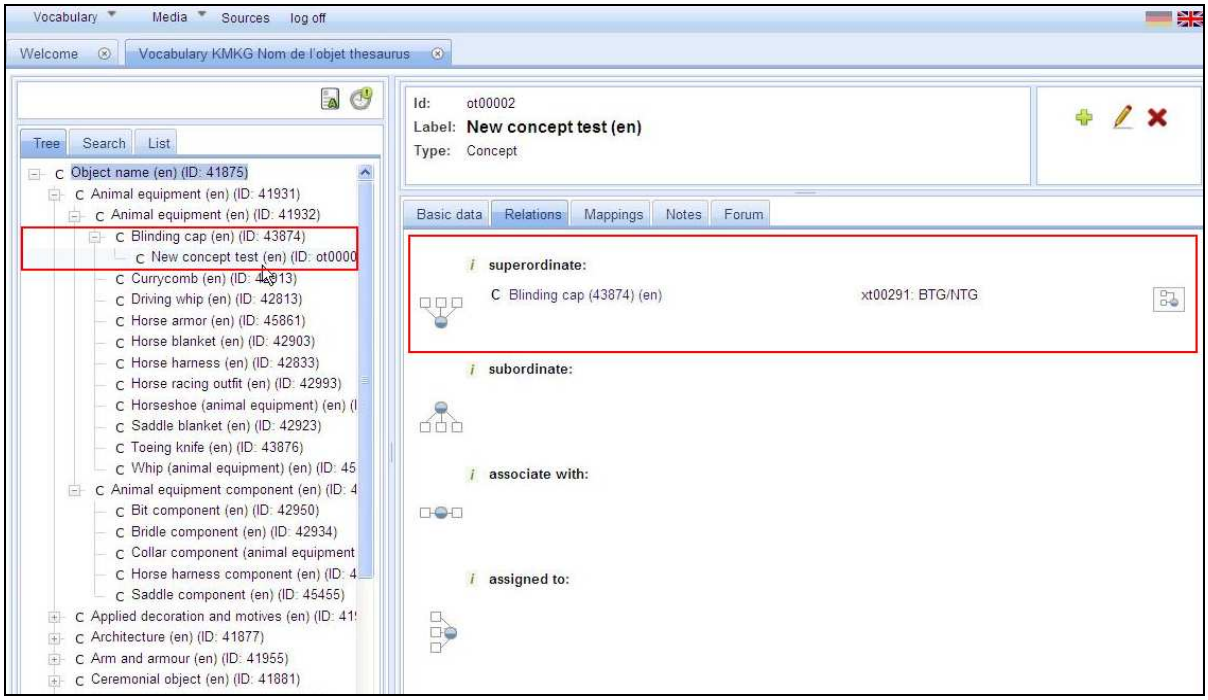
Select and drag concept to relation of choice



Drop concept (when green) to relation of chose and save


Vocabulary
Media
Sources
log off
Welcome
Vocabulary KMKG Nom de l'objet thesaurus
Tree
Search
List
New test concept (en) (ID: ot00003)
Object name (en) (ID: 41875)
Animal equipment (en) (ID: 41931)
Blinding cap (en) (ID: 43874)
Currycomb (en) (ID: 42913)
Driving whip (en) (ID: 42813)
Horse armor (en) (ID: 45861)
Horse blanket (en) (ID: 4290
Horse harness (en) (ID: 4283
Horse racing outfit (en) (ID: 4
Horseshoe (animal equipmer
Saddle blanket (en) (ID: 429
Toeing knife (en) (ID: 43876)
Whip (animal equipment) (en
Animal equipment component (
Applied decoration and motives (en
Id: ot00003
Label: New test concept (en)
Type: Concept
Basic data
Relations
Mappings
Notes
Forum
superordinate:
drag C (concept) here
drag N (node label) here
Blinding cap (en) (ID: 43874)
subordinate:
drag C (concept) here
drag N (node label) here
associate with:

Concept is repositioned in tree

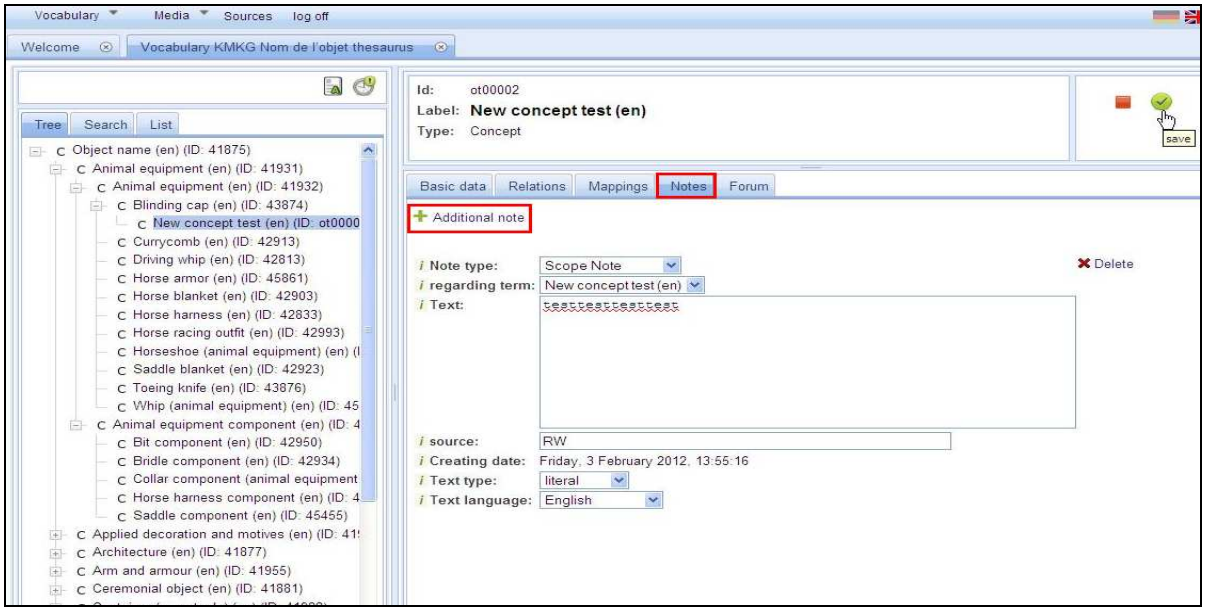


4.4 Add notes to concept

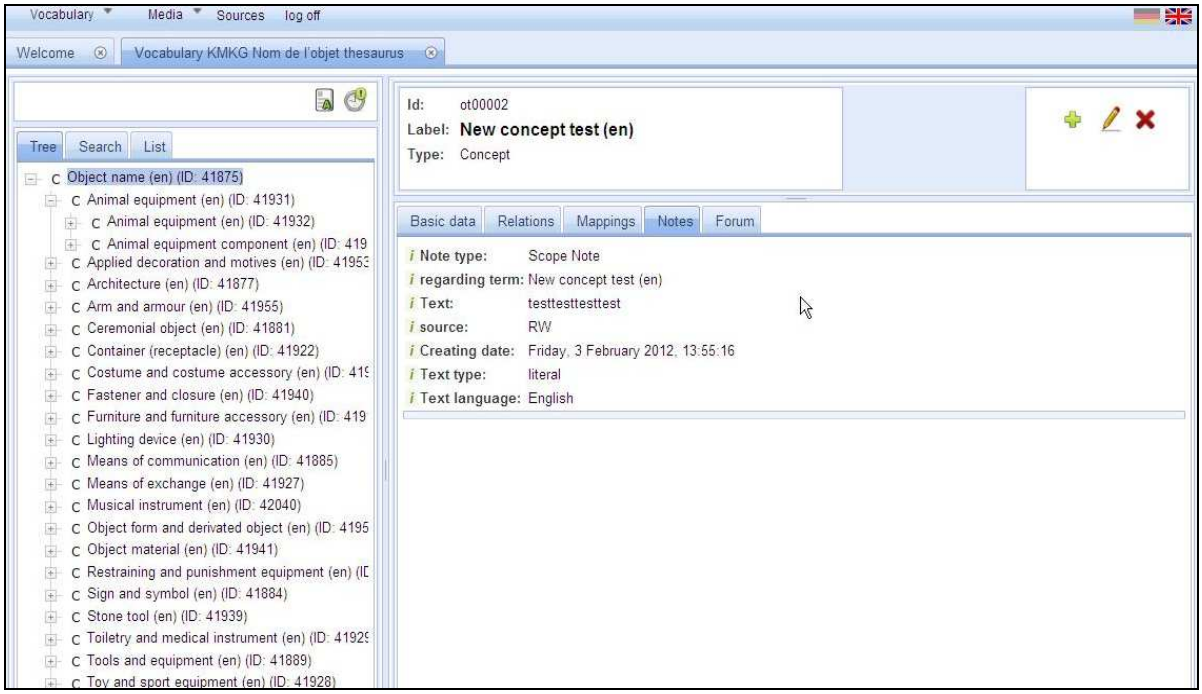
To add notes of different kinds (e.g. Scope note, Definition, Annotation) to a selected concept:

1. Select tab Notes and click edit in the upper right corner of the screen.
2. Click on Additional note (more than one additional note can be added)
3. Enter information and save

Add notes (Scope notes, Definitions, Change note,…)



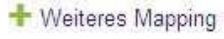
Concept notes



4.5 Semantic mapping between vocabularies

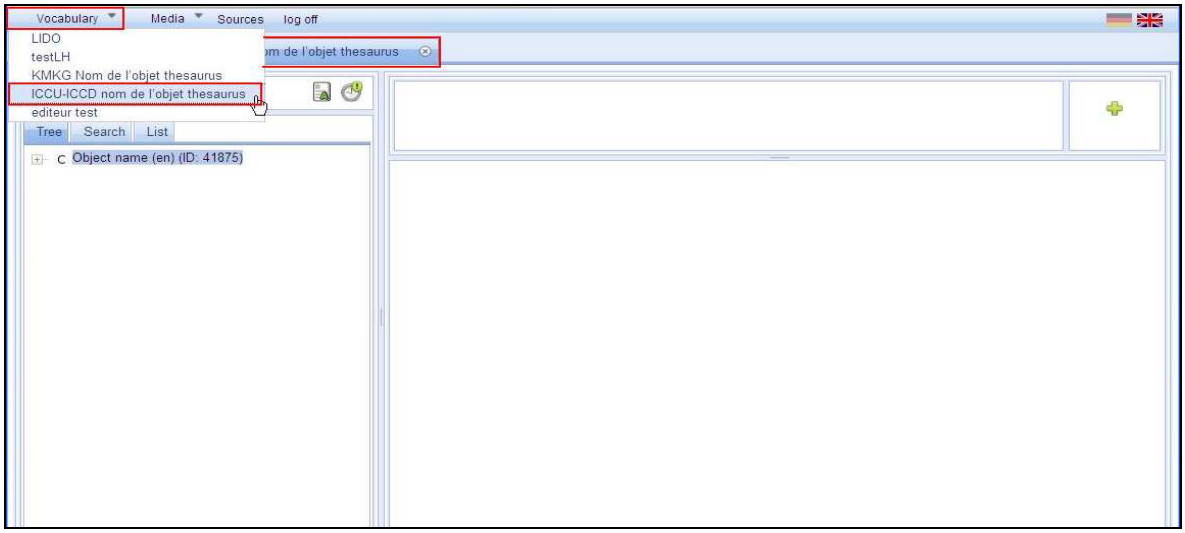
To connect a concept from one vocabulary to a matching concept in another vocabulary:

1. Open the vocabularies you want to connect to each other in **Vocabulary**
2. Select the concept in your vocabulary you want to map

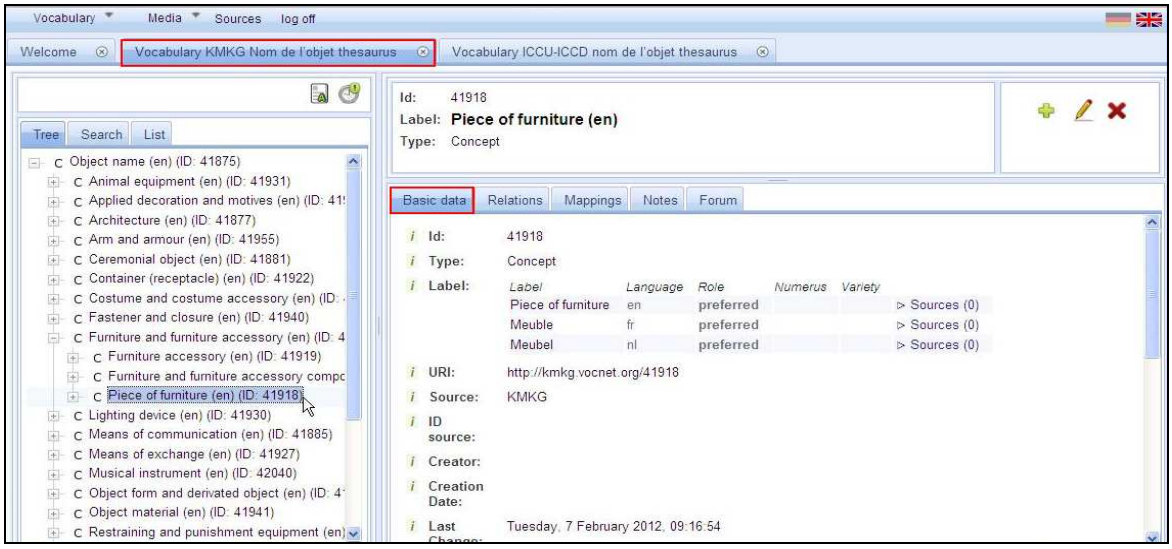
3. Go to the other vocabulary and search for a matching concept[58]:
    - By browsing through the tree
    - By using the search function. For searching on a partial word, use asterisk (e.g. *furniture*).
4. When finding a 'matching' concept, copy the **URI** in basic data and go back to the concept in your vocabulary
5. Open the mapping tab and click on edit and create a new mapping for the selected concept by clicking on Additional mapping  in the mapping tab
6. Complete mapping information:
    - **Identifier**: Paste the URI from the matching concept in this field
    - **Identifier type**: Select URI
    - **Mapping type**:
        - Exact match: Exact equivalence, identical in meaning and capable of functioning as a preferred term (e.g. adminstration = administración)
        - Close match: Same general concept, although the meaning of these terms are not precisely identical (e.g. crown property ≅ patrimonio nacional)
        - Broad match: The concept of the target schema you want to map to has a broader meaning than your vocabulary concept (e.g. Obelisk < Monument)
        - Narrow match: The concept of the target schema you want to map to has a narrower meaning than your vocabulary concept (e.g. Animal > Mammal)
        - Related match: Associate relationship between two concepts
7. Save changes

Open multiple vocabularies

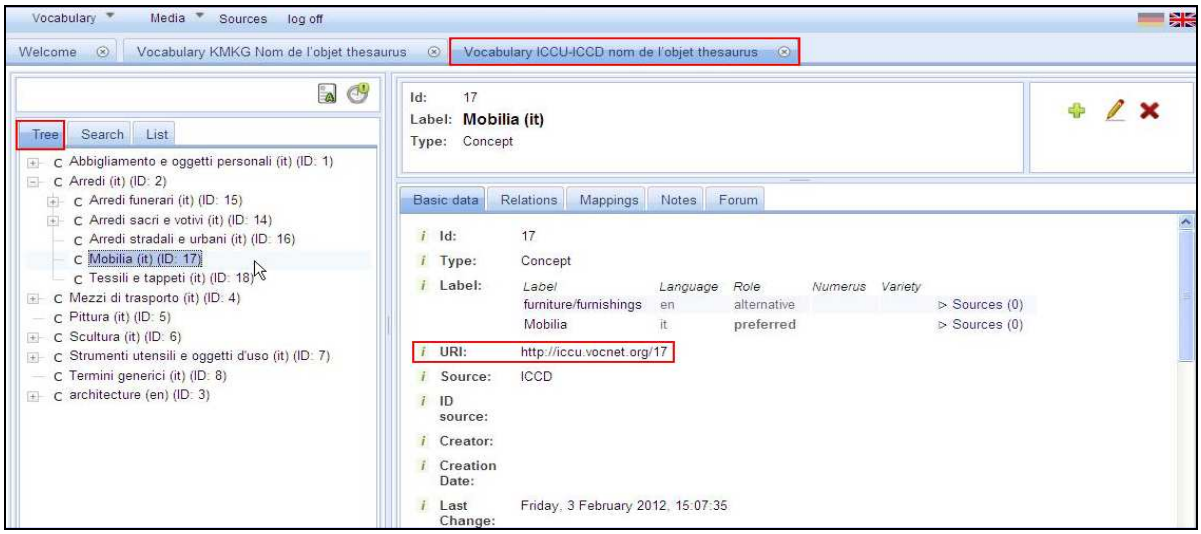
[58] To find a matching concept you need to take into account the natural languages of the vocabulary you want to map to. If the vocabulary is only available in Italian, you won't be able to find a match in English. Therefore it is better to always make your terminology bilingual (e.g. with English as the pivot language). In this way people can map to your vocabulary more easily. If the concepts are only in one language and you still want to try to make a mapping, you can use of Google translate and/or other online dictionaries in combination with the Forum (see point 5) to discuss with your colleagues the correctness of the mapping



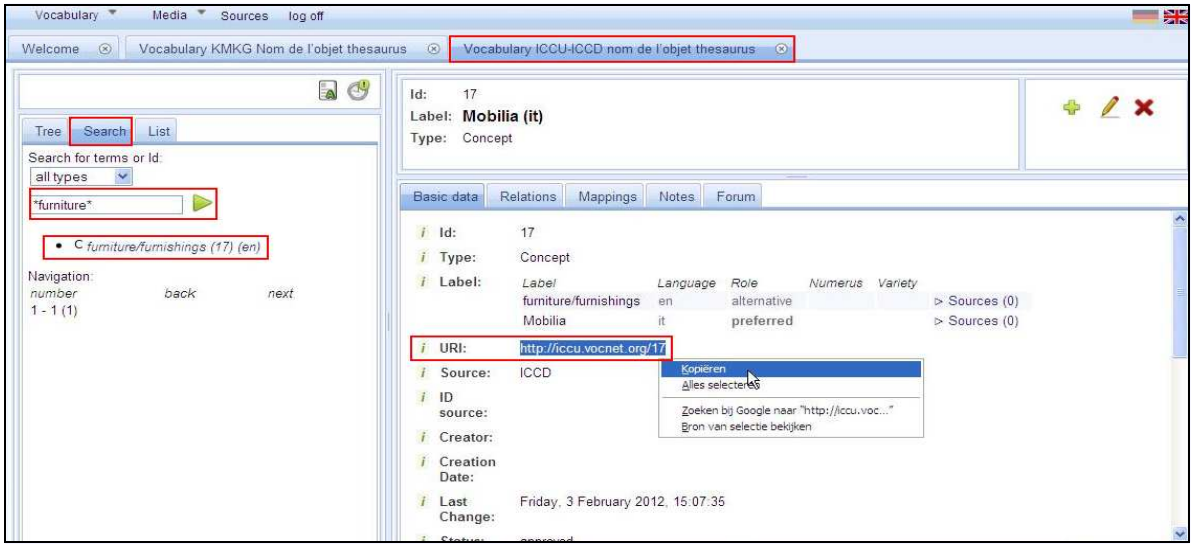
Select concept from own vocabulary



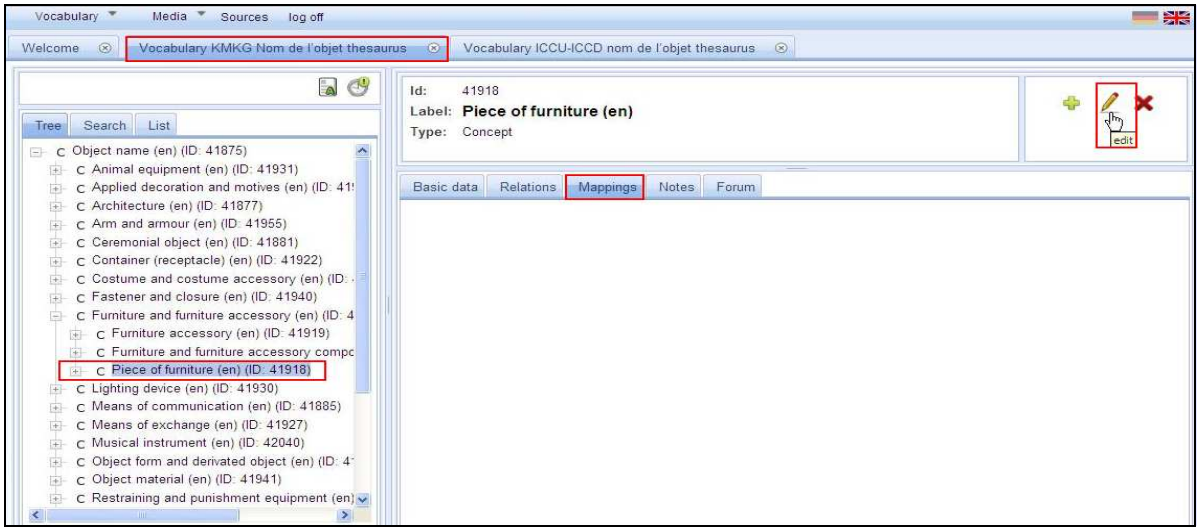
Search for matching concept in other vocabulary - Browse through the tree



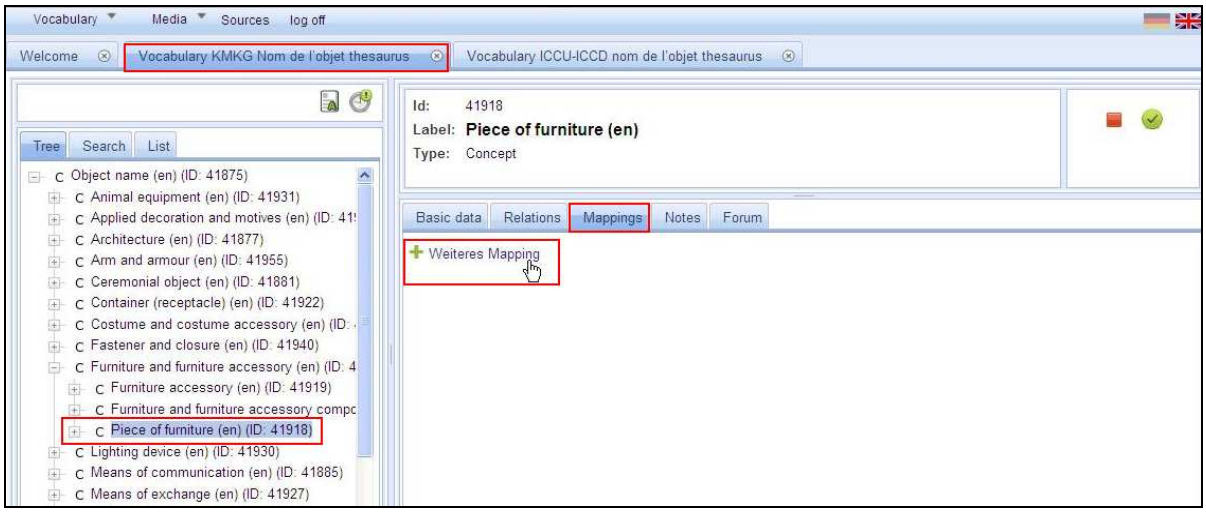
When finding a matching concept, copy URI



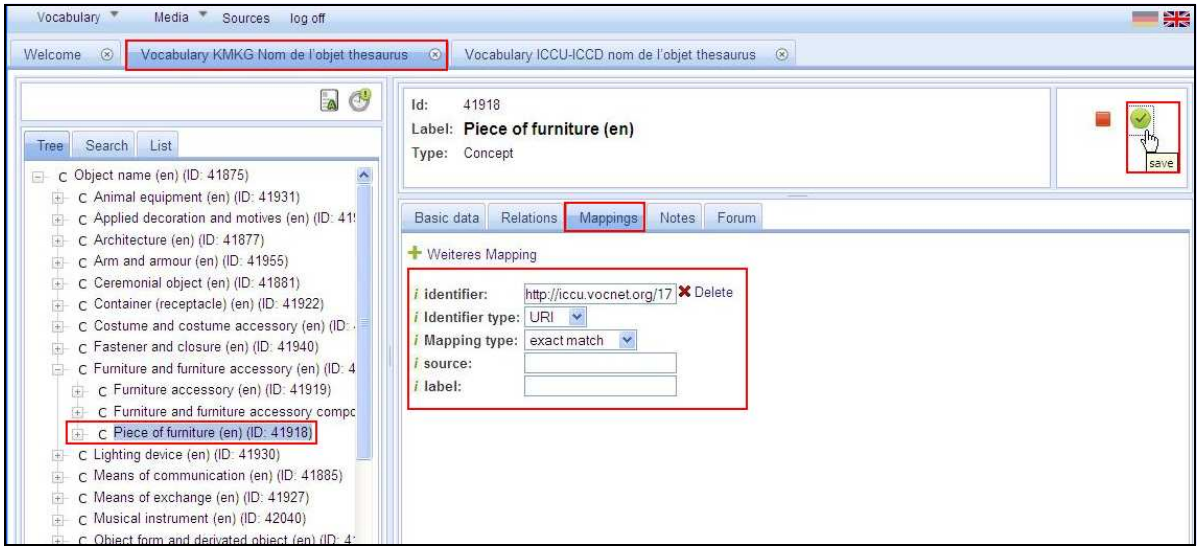
Select mapping tab and edit in own vocabulary



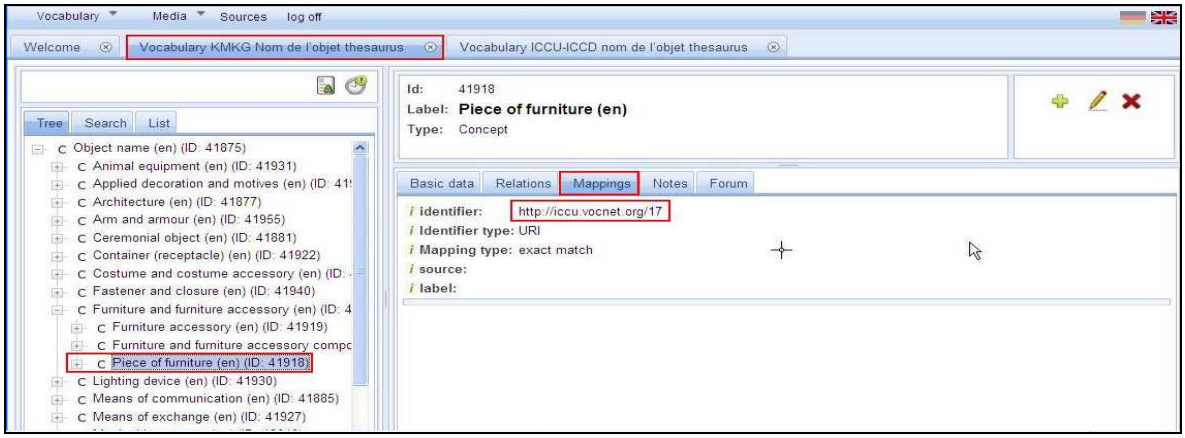
Add a new mapping



Paste URI in identifier, set types and save mapping



Concept Piece of furniture (Vocabulary KMKG) is mapped to concept Mobilia (Vocabulary ICCU-ICCD)



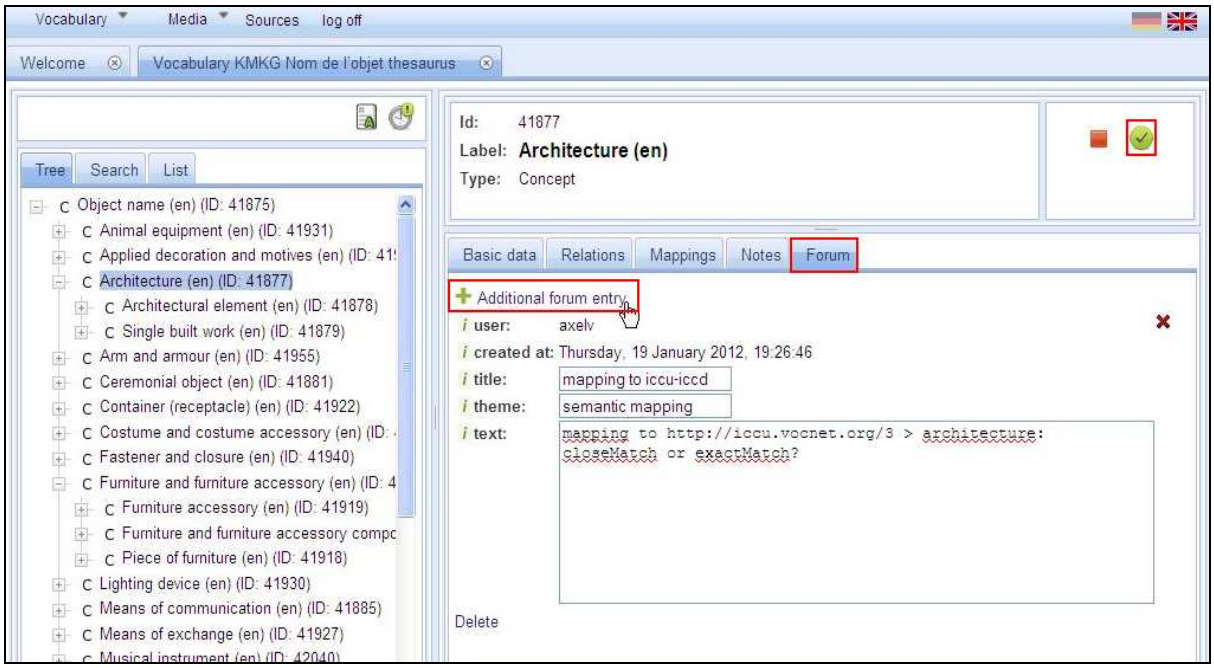
5. Forum

The forum can be used to discuss the work being done in Xtree (e.g. comments on mappings between vocabularies, comments on scope notes, on relations to other concepts, etc.)

To add a forum discussion on concept level:

1. Click on the concept and open Forum tab
2. Click on the editing pencil
3. Create (additional) forum entries Additional forum entry or edit/delete existing entry
4. Save changes

Add a new forum entry and save



6.4 TERMINOLOGIES

6.4.1 LIDO Event type Terminology

listType: **eventType**, Found Concepts: 25
URI: http://terminology.lido-schema.org/eventType

C	about	**lido00001**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Erwerbung
	prefLabel@en	Acquisition
	prefLabel@pl	Pozyskanie
	prefLabel@sv	Accession
	prefLabel@pt	Aquisição
	prefLabel@lv	Iegūšana
	prefLabel@it	Acquizione
	prefLabel@ga	Sealbhú
	prefLabel@hu	Beszerzés
	prefLabel@el	απόκτηση
	prefLabel@et	Hõive
	prefLabel@cs	Akvizice
	prefLabel@bg	комплектуване
	prefLabel@he	רכישה
	prefLabel@ru	приобретение
	prefLabel@sl	Pridobivanje
	prefLabel@ca	Adquisició
	prefLabel@es	Adquisición
	prefLabel@nl	Verwerving
	prefLabel@fr	Acquisition
	altLabel@et	Andmehõive
	altLabel@ru	комплектование
	altLabel@nl	Acquisitie
	semMapping	E8 | Acquisition Event | CIDOC-CRMv4.2.5a
C	about	**lido00012**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Geistige Schöpfung
	prefLabel@en	Creation

	prefLabel@pl	Utworzenie
	prefLabel@sv	Kreation
	prefLabel@pt	Criação
	prefLabel@lv	Veidošana
	prefLabel@it	Ideazione
	prefLabel@ga	Cruthú
	prefLabel@hu	Létrehozás
	prefLabel@el	δημιουργία
	prefLabel@et	Loomine
	prefLabel@cs	Vytvoření
	prefLabel@bg	създаване
	prefLabel@he	יצירה
	prefLabel@ru	создание
	prefLabel@sl	Kreacija
	prefLabel@ca	Creació
	prefLabel@es	Creación
	prefLabel@nl	Vervaardiging
	prefLabel@fr	Creation
	altLabel@en	Conception
	altLabel@en	Create
	altLabel@pt	Criar
	altLabel@lv	Radīšana
	altLabel@it	Ideare
	altLabel@ga	Cruthúchán
	altLabel@el	δημιουργώ
	altLabel@et	Looma
	altLabel@bg	творба
	altLabel@bg	създавам
	altLabel@bg	творя
	altLabel@he	צורלי
	altLabel@sl	Ustvarjanje
	altLabel@fr	Créer
	semMapping	E65 | Creation | CIDOC-CRMv4.2.5a
C	about	**lido00026**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Zerstörung
	prefLabel@en	Destruction
	prefLabel@pl	Zniszczenie
	prefLabel@sv	Destruktion

	prefLabel@pt	Destruição
	prefLabel@lv	Sairšana
	prefLabel@it	Distruzione
	prefLabel@ga	Scrios
	prefLabel@hu	Megsemmisítés
	prefLabel@el	καταστροφή
	prefLabel@et	Hävitus
	prefLabel@cs	Zničení
	prefLabel@bg	деструкция
	prefLabel@he	יסההר - להרוס
	prefLabel@ru	разрушение
	prefLabel@sl	Uničenje
	prefLabel@ca	Destrucció
	prefLabel@es	Destrucción
	prefLabel@nl	Vernietiging
	prefLabel@fr	Destruction
	altLabel@lv	Sagraušana
	semMapping	E6 | Desctruction | CIDOC-CRMv4.2.5a
C	about	**lido00003**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Ereignis
	prefLabel@en	Event
	prefLabel@pl	Wydarzenie
	prefLabel@sv	Händelse
	prefLabel@pt	Evento
	prefLabel@lv	Pasākums
	prefLabel@it	Evento
	prefLabel@ga	Ócáid
	prefLabel@hu	Esemény
	prefLabel@el	συμβάν
	prefLabel@et	Sündmus
	prefLabel@cs	Akce
	prefLabel@bg	събитие
	prefLabel@he	אירוע
	prefLabel@ru	событие
	prefLabel@sl	Dogodek
	prefLabel@ca	Esdeveniment
	prefLabel@es	Evento
	prefLabel@nl	Gebeurtenis

	prefLabel@fr	Événement
	altLabel@lv	Notikums
	altLabel@bg	изява
	altLabel@nl	Evenement
	semMapping	E5 | Event | CIDOC-CRMv4.2.5a
C	about	**lido00033**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Ausgrabung
	prefLabel@en	Excavation
	prefLabel@pl	Pozyskanie w wyniku prac wykopaliskowych
	prefLabel@sv	Utgrävning
	prefLabel@pt	Escavação
	prefLabel@lv	Izrakumi
	prefLabel@it	Scavo
	prefLabel@ga	Gochaltán
	prefLabel@hu	Feltárás
	prefLabel@el	ανασκαφή
	prefLabel@et	Väljakaevamine
	prefLabel@cs	Exkavace
	prefLabel@bg	разкопки
	prefLabel@he	חפירה
	prefLabel@ru	раскопки
	prefLabel@sl	Izkopavanje
	prefLabel@ca	Excavació
	prefLabel@es	Excavación
	prefLabel@nl	Opgraving
	prefLabel@fr	Fouille
C	about	**lido00009**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Verlust
	prefLabel@en	Loss
	prefLabel@bg	загуба
	prefLabel@ca	Pèrdua
	prefLabel@cs	Ztráta
	prefLabel@el	απώλεια
	prefLabel@es	Pérdida
	prefLabel@et	Kaotus
	prefLabel@ga	Cailleadh
	prefLabel@he	אבידה

	prefLabel@hu	Veszteség
	prefLabel@it	Perdita
	prefLabel@lv	Zudums
	prefLabel@nl	Verlies
	prefLabel@pl	Zagubienie
	prefLabel@pt	Perda
	prefLabel@ru	утеря
	prefLabel@sl	Izguba
	prefLabel@sv	Förlust
	prefLabel@fr	Perte
	altLabel@et	Kahju
	altLabel@lv	Zaudējums
	altLabel@ru	утрата
C	about	**lido00006**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Bearbeitung
	prefLabel@en	Modification
	prefLabel@pl	Modyfikacja
	prefLabel@sv	Modifiering
	prefLabel@pt	Modificação
	prefLabel@lv	Modifikācija
	prefLabel@it	Modifica
	prefLabel@ga	Mionathrú
	prefLabel@hu	Módosítás
	prefLabel@el	τροποποίηση
	prefLabel@et	Muutus
	prefLabel@cs	Úprava
	prefLabel@bg	модификация
	prefLabel@he	שינוי
	prefLabel@sl	Sprememba
	prefLabel@ru	изменение
	prefLabel@ca	Modificació
	prefLabel@es	Modificación
	prefLabel@nl	Modificatie
	prefLabel@fr	Modification
	altLabel@ga	Bunathrú
	altLabel@et	Täiustus
	altLabel@he	תיקון ,התאמה,
	altLabel@nl	Aanpassing

	semMapping	E11 | Modification | CIDOC-CRMv4.2.5a
C	about	**lido00223**
	inScheme	http://terminology.lido-schema.org
	prefLabel@en	Move
	prefLabel@de	Objektbewegung
	prefLabel@bg	премести
	prefLabel@ca	Trasllat
	prefLabel@cs	Přesun
	prefLabel@el	κίνηση
	prefLabel@es	Traslado
	prefLabel@et	Teisaldamine
	prefLabel@ga	Bog
	prefLabel@he	הזזה
	prefLabel@hu	Mozgatás
	prefLabel@it	Spostamento
	prefLabel@lv	Kustība
	prefLabel@nl	Verplaatsting
	prefLabel@pl	Przeniesienie
	prefLabel@pt	Mover
	prefLabel@ru	перемещение
	prefLabel@sl	Prenos
	prefLabel@sv	Förflyttning
	prefLabel@fr	Changement
	altLabel@ca	Desplaçament
	altLabel@et	Nihutamine
	altLabel@ga	Bogadh
	altLabel@he	העתקה
	altLabel@lv	Pārvietošana
	altLabel@ru	движение
C	about	**lido00008**
	inScheme	http://terminology.lido-schema.org
	prefLabel@en	Part addition
	prefLabel@de	Erweiterung
	prefLabel@bg	частично добавяне
	prefLabel@ca	Afegiment de part
	prefLabel@cs	Přidání části
	prefLabel@el	προσθήκη τμήματος
	prefLabel@es	Adición de parte
	prefLabel@et	Osa lisamine

	prefLabel@ga	Páirtaguisín
	prefLabel@he	ה חלקיתהוספ
	prefLabel@hu	Rész hozzáadása
	prefLabel@it	Aggiunta parziale
	prefLabel@lv	Daļas pievienošana
	prefLabel@nl	Gedeeltelijke toevoeging
	prefLabel@pl	Dodanie części
	prefLabel@pt	Adição de parte
	prefLabel@ru	добавление части
	prefLabel@sl	Delni dodatek
	prefLabel@sv	Tillskott
	prefLabel@fr	Ajout de partie
	altLabel@de	Ergänzung
	altLabel@et	Osa liitmine
	semMapping	E79 | Part Addition | CIDOC-CRMv4.2.5a
C	about	**lido00021**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Teilentfernung
	prefLabel@en	Part removal
	prefLabel@pl	Usunięcie części
	prefLabel@sv	Avlägsnande
	prefLabel@pt	Remoção de parte
	prefLabel@lv	Daļas noņemšana
	prefLabel@it	Rimozione parziale
	prefLabel@ga	Aistriú coda
	prefLabel@hu	Rész eltávolítása
	prefLabel@el	αφαίρεση τμήματος
	prefLabel@et	Osa eemaldamine
	prefLabel@cs	Odstranění části
	prefLabel@bg	частично премахване
	prefLabel@he	הסרה חלקית
	prefLabel@ru	удаление части
	prefLabel@sl	Delna odstranitev
	prefLabel@ca	Eliminació de part
	prefLabel@es	Eliminación de parte
	prefLabel@nl	Gedeeltelijke verwijdering
	prefLabel@fr	Suppression de partie
	semMapping	E80 | Part Removal | CIDOC-CRMv4.2.5a
C	about	**lido00030**

	inScheme	http://terminology.lido-schema.org
	prefLabel@en	Performance
	prefLabel@de	Aufführung
	prefLabel@pl	Wykonanie
	prefLabel@sv	Uppträdande
	prefLabel@pt	Desempenho
	prefLabel@it	Performance
	prefLabel@hu	Teljesítmény
	prefLabel@el	απόδοση
	prefLabel@et	Jõudlus
	prefLabel@lv	Veikšana
	prefLabel@cs	Představení
	prefLabel@bg	представление
	prefLabel@he	ביצוע
	prefLabel@ru	исполнение
	prefLabel@sl	Prireditev
	prefLabel@ca	Representació
	prefLabel@es	Representación
	prefLabel@nl	Uitvoering
	prefLabel@ga	Léiriú
	prefLabel@fr	Performance
	altLabel@lv	Izpildīšana
	altLabel@et	Sooritamine
	altLabel@ga	Taibhiú damhsa
	altLabel@ga	Taibhiú ceoil
	altLabel@ga	Reacaireacht
C	about	**lido00032**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Planung
	prefLabel@en	Planning
	prefLabel@bg	планиране
	prefLabel@ca	Planificació
	prefLabel@cs	Plánování
	prefLabel@el	προγραμματισμός
	prefLabel@es	Planificación
	prefLabel@et	Planeerimine
	prefLabel@ga	Pleanáil
	prefLabel@he	תכנון
	prefLabel@it	Progettazione

	prefLabel@lv	Plānošana
	prefLabel@nl	Planning
	prefLabel@pl	Planowanie
	prefLabel@pt	Planeamento
	prefLabel@ru	планирование
	prefLabel@sl	Načrtovanje
	prefLabel@sv	Planering
	prefLabel@fr	Programmation
C	about	**lido00007**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Herstellung
	prefLabel@en	Production
	prefLabel@pl	Produkcja
	prefLabel@sv	Produktion
	prefLabel@pt	Produção
	prefLabel@lv	Izgatavošana
	prefLabel@it	Produzione
	prefLabel@ga	Táirgeadh
	prefLabel@hu	Gyártás
	prefLabel@el	παραγωγή
	prefLabel@et	Tootmine
	prefLabel@cs	Produkce
	prefLabel@bg	продукция
	prefLabel@he	ייצור
	prefLabel@ru	призводство
	prefLabel@sl	Izdelovanje
	prefLabel@ca	Producció
	prefLabel@es	Producción
	prefLabel@nl	Productie
	prefLabel@fr	Production
	altLabel@et	Produktsioon
	altLabel@ga	Táirgeacht
	semMapping	E12 | Production | CIDOC-CRMv4.2.5a
C	about	**lido00034**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Restaurierung
	prefLabel@en	Restoration
	prefLabel@pl	Konserwacja
	prefLabel@sv	Restaurering

	prefLabel@pt	Restauro
	prefLabel@lv	Restaurācija
	prefLabel@it	Restauro
	prefLabel@ga	Athchóiriú
	prefLabel@hu	Restaurálás
	prefLabel@el	συντήρηση
	prefLabel@et	Taastamine
	prefLabel@cs	Obnovení
	prefLabel@bg	реставрация
	prefLabel@he	רפאות
	prefLabel@ru	реставрация
	prefLabel@sl	Restavriranje
	prefLabel@ca	Restauració
	prefLabel@es	Restauración
	prefLabel@nl	Restauratie
	prefLabel@fr	Restauration
	altLabel@et	Ennistamine
C	about	**lido00029**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Umgestaltung
	prefLabel@en	Transformation
	prefLabel@bg	трансформация
	prefLabel@ca	Transformació
	prefLabel@cs	Transformace
	prefLabel@el	μετατροπή
	prefLabel@es	Transformación
	prefLabel@et	Muundamine
	prefLabel@ga	Claochlú
	prefLabel@he	שינוי צורה
	prefLabel@hu	Átalakítás
	prefLabel@it	Trasformazione
	prefLabel@lv	Pārveidošana
	prefLabel@nl	Transformatie
	prefLabel@pl	Transformacja
	prefLabel@pt	Transformação
	prefLabel@ru	трансформация
	prefLabel@sl	Transformacija
	prefLabel@sv	Förändring
	prefLabel@fr	Transformation

	altLabel@et	Teisendamine
	altLabel@lv	Transformācija
	altLabel@nl	Omzetting
	semMapping	E81 | Transformation | CIDOC-CRMv4.2.5a
C	about	**lido00023**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Typuszuweisung
	prefLabel@en	Type assignment
	prefLabel@pl	Przypisanie typu
	prefLabel@sv	Kategoribestämning
	prefLabel@pt	Atribuição de tipo
	prefLabel@lv	Tipu piešķiršana
	prefLabel@it	Assegnazione del tipo
	prefLabel@ga	Rangú de réir cineáil
	prefLabel@hu	Típus hozzárendelés
	prefLabel@el	τύπος ανάθεση
	prefLabel@et	Tüübi määramine
	prefLabel@cs	Přiřazení typu
	prefLabel@bg	вид задача
	prefLabel@he	סיווג
	prefLabel@ru	присвоение типа
	prefLabel@sl	Določitev tipa
	prefLabel@ca	Assignació de tipus
	prefLabel@es	Asignación de tipo
	prefLabel@nl	Soort opdracht
	prefLabel@fr	Affectation de type
	semMapping	E17 | Type Assignment | CIDOC-CRMv4.2.5a
C	about	**lido00013**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Typusdefinition
	prefLabel@en	Type creation
	prefLabel@pl	Utworzenie typu
	prefLabel@sv	Kategorisering
	prefLabel@pt	Criação de tipo
	prefLabel@lv	Tipu radīšana
	prefLabel@it	Creazione del tipo
	prefLabel@ga	Cruthú cineálacha
	prefLabel@hu	Típus létrehozás
	prefLabel@el	τύπος δημιουργία

	prefLabel@et	Tüübi loomine
	prefLabel@cs	Tvorba typu
	prefLabel@bg	вид творба
	prefLabel@he	יצירת סוג
	prefLabel@ru	создание типа
	prefLabel@sl	Kreiranje tipa
	prefLabel@ca	Creació de tipus
	prefLabel@es	Creación de tipo
	prefLabel@nl	Soort vervaardiging
	prefLabel@fr	Création de type
	altLabel@lv	Tipu veidošana
	semMapping	E83 | Type Creation | CIDOC-CRMv4.2.5a
C	about	**lido00011**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Gebrauch
	prefLabel@en	Use
	prefLabel@pl	Użycie
	prefLabel@sv	Användning
	prefLabel@pt	Utilização
	prefLabel@lv	Lietošana
	prefLabel@it	Uso
	prefLabel@ga	Úsáid
	prefLabel@hu	Használat
	prefLabel@el	χρήση
	prefLabel@et	Kasutus
	prefLabel@cs	Použití
	prefLabel@bg	употреба
	prefLabel@he	שימוש
	prefLabel@ru	использование
	prefLabel@sl	Uporaba
	prefLabel@ca	Ús
	prefLabel@es	Uso
	prefLabel@nl	Gebruik
	prefLabel@fr	Utilisation
	altLabel@de	Wurde genutzt
	altLabel@de	Nutzung
C	about	**lido00002**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Fund

	prefLabel@en	Finding
	prefLabel@pl	Odnalezienie
	prefLabel@sv	Upptäckt
	prefLabel@pt	Procura
	prefLabel@lv	Atradums
	prefLabel@it	Scoperta
	prefLabel@ga	Fionnachtain
	prefLabel@hu	Megtalálás
	prefLabel@el	εύρεση
	prefLabel@et	Leid
	prefLabel@cs	Nález
	prefLabel@bg	намиране
	prefLabel@he	מציאה
	prefLabel@ru	находка
	prefLabel@sl	Najdba
	prefLabel@ca	Descobriment
	prefLabel@es	Descubrimento
	prefLabel@nl	Vondst
	prefLabel@fr	Découverte
	altLabel@en	Find
	altLabel@de	Funde
	altLabel@pt	Procurar
	altLabel@it	Scoprire
	altLabel@el	βρίσκω
	altLabel@et	Leidma
	altLabel@bg	намери
	altLabel@he	למצוא
	altLabel@fr	Découvrir
C	about	**lido00010**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Sammelereignis
	prefLabel@en	Collecting
	prefLabel@pl	Dołączenie do kolekcji
	prefLabel@sv	Samling
	prefLabel@pt	Coleccionar
	prefLabel@lv	Kolekcionēšana
	prefLabel@it	Raccolta
	prefLabel@ga	Ag bailiú
	prefLabel@hu	Gyűjtés

	prefLabel@el	συλλέγοντας
	prefLabel@et	Koondav
	prefLabel@cs	Shromažďování
	prefLabel@bg	колекциониране
	prefLabel@he	איסוף
	prefLabel@ru	сбор
	prefLabel@sl	Zbiranje
	prefLabel@ca	Col·lecció
	prefLabel@es	Colección
	prefLabel@nl	Verzameling
	prefLabel@fr	Collecter
	altLabel@en	Collection Event
	altLabel@en	Field Collection
	altLabel@en	Collection
	altLabel@ga	Bailiú
	altLabel@et	Kogumine
	altLabel@ru	коллекционирование
	altLabel@ca	Recol·lecció
	altLabel@es	Recolección
	altLabel@nl	Collectie
C	about	**lido00224**
	inScheme	http://terminology.lido-schema.org
	prefLabel@en	Designing
	prefLabel@bg	дизайн
	prefLabel@ca	Disseny
	prefLabel@cs	Projektování
	prefLabel@el	σχεδιάζοντας
	prefLabel@es	Diseño
	prefLabel@et	Kavandamine
	prefLabel@ga	Ag dearadh
	prefLabel@he	עיצוב
	prefLabel@hu	Tervezés
	prefLabel@it	Disegno
	prefLabel@lv	Projektēšana
	prefLabel@nl	Ontwerp
	prefLabel@pl	Zaprojektowanie
	prefLabel@pt	Desenhar
	prefLabel@ru	проектирование
	prefLabel@sl	Oblikovanje

	prefLabel@sv	Formgivning
	prefLabel@fr	Conception
	prefLabel@de	Entwurf
	altLabel@en	Design
	altLabel@bg	разрабоване
	altLabel@bg	разработвам
	altLabel@el	σχεδιάζω
	altLabel@et	Disain
	altLabel@ga	Dearadh
	altLabel@pt	Desenho
	altLabel@sl	Oblika
	altLabel@fr	Concevoir
C	about	**lido00225**
	inScheme	http://terminology.lido-schema.org
	prefLabel@en	Exhibition
	prefLabel@de	Ausstellung
	prefLabel@pl	Wystawienie
	prefLabel@sv	Utställning
	prefLabel@pt	Exibição
	prefLabel@lv	Ekspozīcija
	prefLabel@it	Mostra
	prefLabel@ga	Taispeántas
	prefLabel@hu	Kiállítás
	prefLabel@el	έκθεση
	prefLabel@et	Näitus
	prefLabel@cs	Výstava
	prefLabel@bg	изложба
	prefLabel@he	תצוגה - תערוכה
	prefLabel@ru	выставка
	prefLabel@sl	Razstava
	prefLabel@ca	Exposició
	prefLabel@es	Exposición
	prefLabel@nl	Tentoonstelling
	prefLabel@fr	Exposition
	altLabel@lv	Izstāde
	altLabel@ru	экспонирование
C	about	**lido00226**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Auftrag

	prefLabel@en	Commissioning
	prefLabel@pl	Zamówienie
	prefLabel@sv	Ordning
	prefLabel@pt	Ordem
	prefLabel@lv	Kārtība
	prefLabel@it	Ordinamento
	prefLabel@ga	Ord
	prefLabel@hu	Rendelés
	prefLabel@el	ταξινόμηση
	prefLabel@et	Järjestama
	prefLabel@cs	Objednávka
	prefLabel@bg	поръчай
	prefLabel@he	סדר
	prefLabel@ru	заказ
	prefLabel@sl	Naročilo
	prefLabel@ca	Encàrrec
	prefLabel@es	Encargo
	prefLabel@nl	Bestelling
	prefLabel@fr	Ordre
	altLabel@en	Order
	altLabel@lv	Secība
	altLabel@et	Järjestus
C	about	**lido00227**
	inScheme	http://terminology.lido-schema.org
	prefLabel@de	Provenienz
	prefLabel@fr	Provenance
	prefLabel@pl	Proweniencja
	prefLabel@sv	Proveniens
	prefLabel@pt	Proveniência
	prefLabel@lv	Izcelšanās
	prefLabel@it	Provenienza
	prefLabel@ga	Bunáitíocht
	prefLabel@hu	Eredet
	prefLabel@el	προέλευση
	prefLabel@et	Päritolu
	prefLabel@cs	Provenience
	prefLabel@bg	произход
	prefLabel@he	מוצא
	prefLabel@ru	происхождение

	prefLabel@sl	Provenienca
	prefLabel@ca	Procedència
	prefLabel@es	Procedencia
	prefLabel@nl	Eigendom
	prefLabel@en	Provenance
	altLabel@lv	Izcelsme
	altLabel@et	Algupära
	altLabel@he	מוצאות
	altLabel@nl	Bezitting
	altLabel@fr	Origine
C	about	**lido00228**
	inScheme	http://terminology.lido-schema.org
	prefLabel@en	Publication
	prefLabel@de	Veröffentlichung
	prefLabel@pl	Publikacja
	prefLabel@sv	Publikation
	prefLabel@pt	Publicação
	prefLabel@lv	Izdošana
	prefLabel@it	Pubblicazione
	prefLabel@ga	Foilsitheoireacht
	prefLabel@hu	Nyilvánosságra hozatal
	prefLabel@el	δημοσίευση
	prefLabel@et	Avaldamine
	prefLabel@cs	Publikování
	prefLabel@bg	публикация
	prefLabel@he	פרסום
	prefLabel@ru	публикация
	prefLabel@sl	Objava
	prefLabel@ca	Publicació
	prefLabel@es	Publicación
	prefLabel@nl	Publicatie
	prefLabel@fr	Publication
	altLabel@lv	Publicēšana
	altLabel@ga	Foilseachán
	altLabel@et	Publikatsioon
	altLabel@bg	издание

6.4.2 Object name thesauri

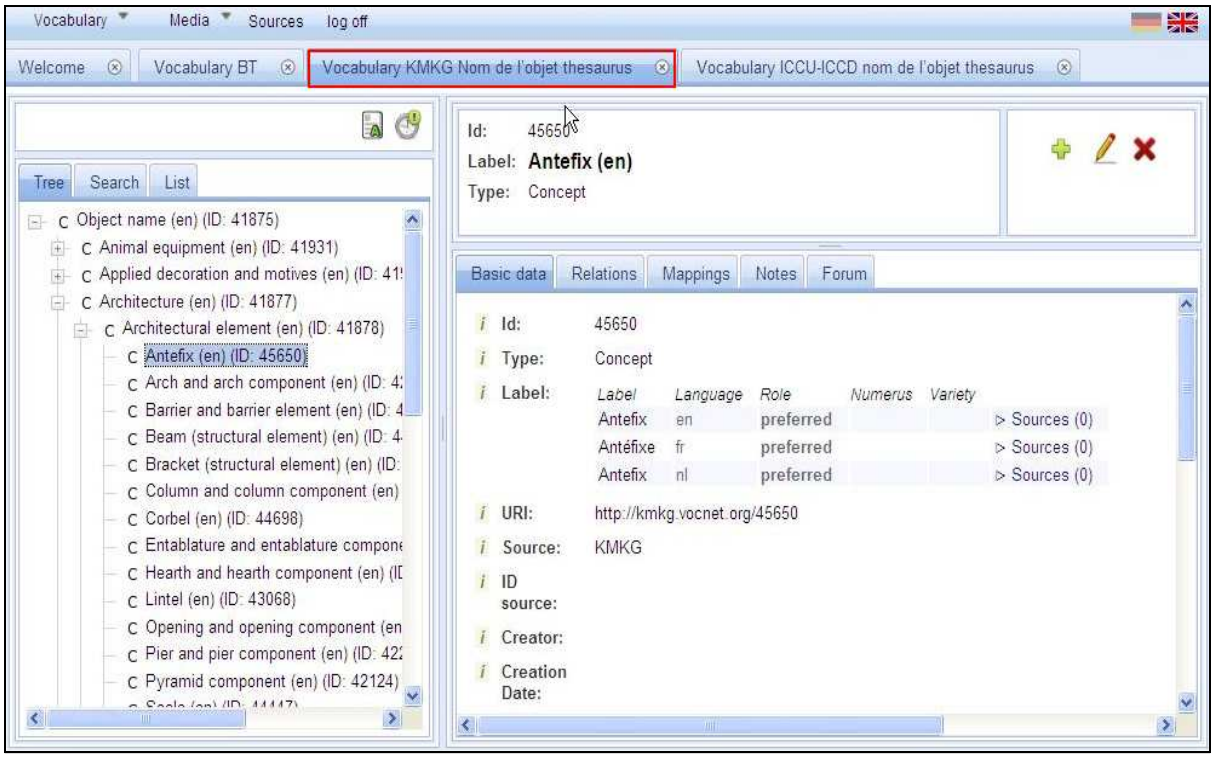
A. RMAH Object name thesaurus

Title: KMKG-MRAH_Nom de l'objet
Version: Version 1 (November 2011)
Thesaurus manager: Eva Coudyzer (IT-Digitisation service - KMKG-MRAH)

Exaple of original import format: RMAH Object name thesaurus in Excel format

ID	prefLabel@fra	prefLabel@nl	prefLabel@eng	broader
41875	Nom de l'objet	Objectnaam	Object name	
41877	Architecture	Architectuur	Architecture	41875
41879	Construction	Bouwwerk	Single built work	41877
45278	Composant de bâtiment	Deel van een gebouw	Building division	41879
46319	Construction funéraire	Funerair bouwwerk	Funerary structure	41879
42134	Monument	Monument	Monument	41879
41878	Élément d'architecture	Architecturaal element	Architectural element	41877
45650	Antéfixe	Antefix	Antefix	41878
42194	Arc et composant d'arc	Boog en boogonderdeel	Arch and arch component	41878
44470	Bracon	Korbeel	Bracket (structural element)	41878
44436	Cheminée et composant de cheminée	Haard en haardonderdelen	Hearth and hearth component	41878
42191	Colonne et composant de colonne	Zuil en zuilonderdeel	Column and column component	41878
42124	Composant de pyramide	Onderdeel van een pyramide	Pyramid component	41878
44698	Corbeau	Kraagsteen	Corbel	41878
42215	Élément de surface et composant de surface	Oppervlakte-element en onderdeel van oppervlakte-element	Surface element and surface element component	41878
42220	Entablement et composant d'entablement	Entablement en entablementonderdeel	Entablature and entablature component	41878
44494	Grillage et composant de grillage	Hekwerk en hekwerkonderdeel	Barrier and barrier element	41878
43068	Linteau	Latei	Lintel	41878
41985	Mur et composant de mur	Muur en muuronderdeel	Wall and wall component	41878
42204	Ouverture et composant d'ouverture	Opening en openingsonderdeel	Opening and opening component	41878

Example of imported RMAH thesaurus in editing and mapping module of TMP



B. ICCU-ICCD Object name thesaurus

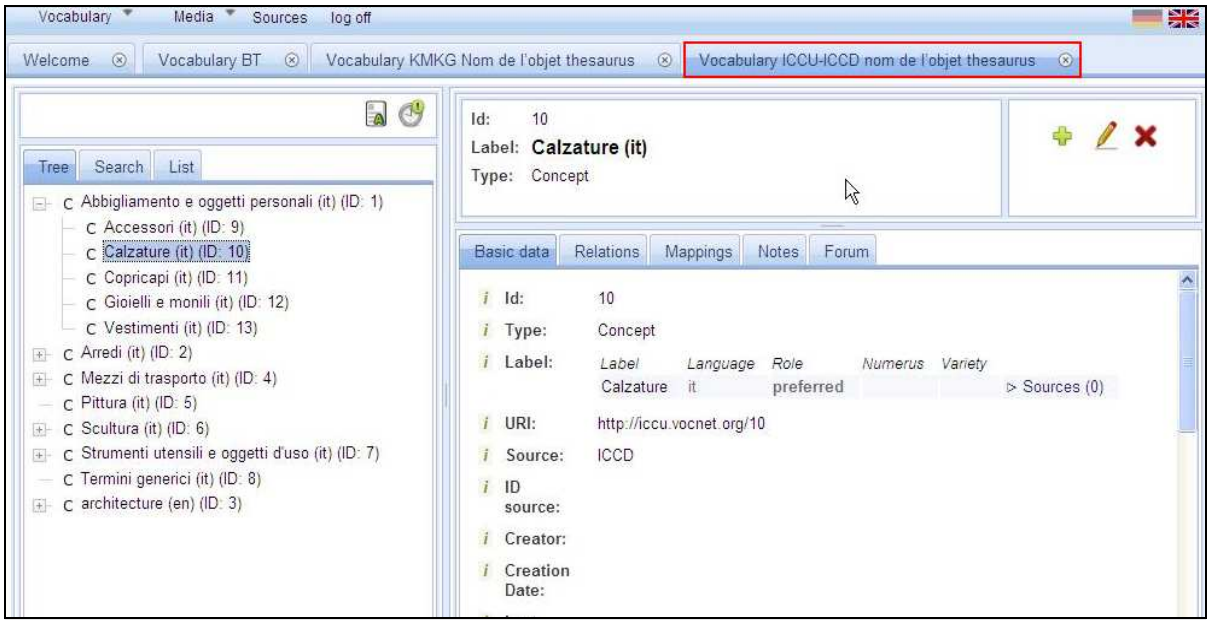
Title: Scheda RA – Reperti Archeologici Thesaurus per la compilazione del campo OGTD – Definizione dell'oggetto
Version: Versione 0.1 (aprile 2009)
Coordinamento: Maria Letizia Mancinelli (ICCD-Servizio beni archeologici)
Collaborazione tecnico-scientifica (ricerche e stesura del vocabolario): Maria Teresa Natale

Example of original import format: ICCU-ICCD Object name thesaurus in Excel format

ID	prefLabel@it	prefLabel@eng	altLabel@en	broader
1	Abbigliamento e oggetti personali		costume	
2	Arredi			
3	Edilizia		architecture	
4	Mezzi di trasporto		transport/carrier	
5	Pittura			
6	Scultura		sculpture	
7	Strumenti utensili e oggetti d'uso		artefact	
8	Termini generici			
9	Accessori			1

10	Calzature	1
11	Copricapi	1
12	Gioielli e monili	1
13	Vestimenti	1
14	Arredi sacri e votivi	2

Example of imported ICCU-ICCD thesaurus in editing and mapping module of TMP



C. BRITISH MUSEUM Object name thesaurus

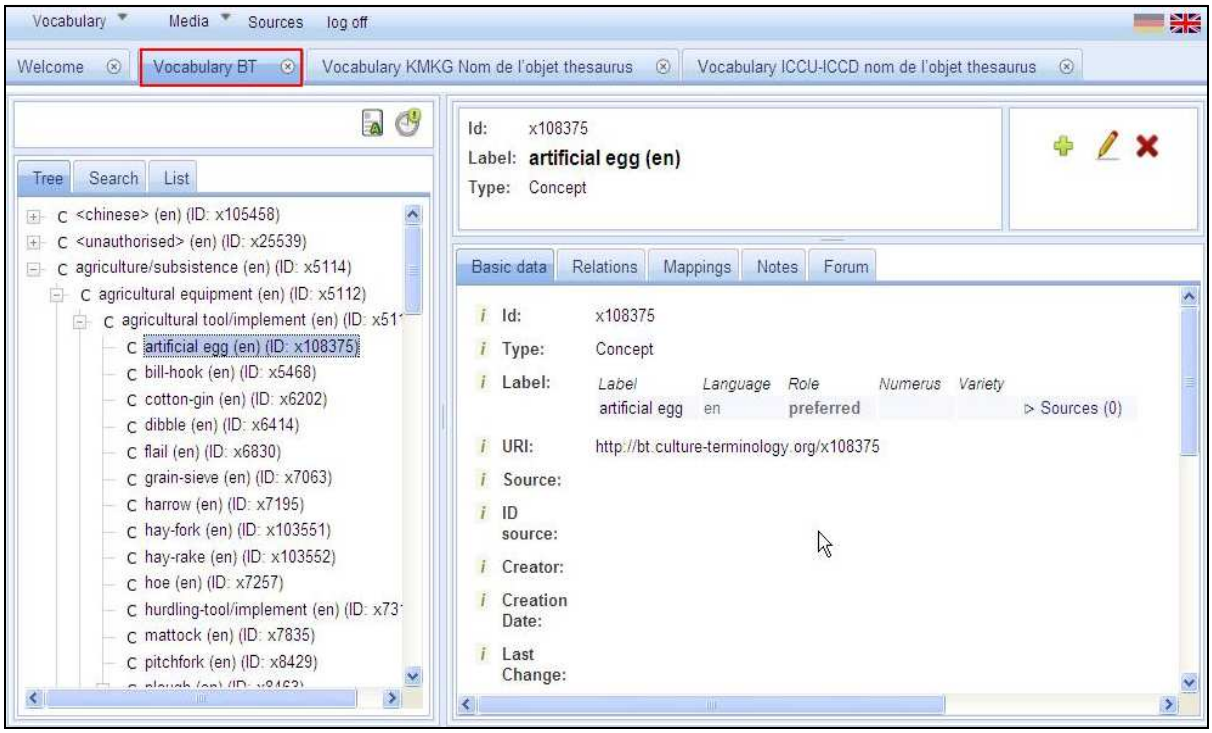
The British museum agreed to deliver the object name thesaurus in SKOS format for the WP3 semantic mapping experiment. We agreed that this thesaurus will not be published without former notification.

Title: British Museum Object Name Thesaurus
Coordniator: British Museum
Contact: Collections Trust

Original import format: Example of BM in SKOS RDF format

rdf:RDF>
–
<rdf:Description rdf:about="http://collection.britishmuseum.org/id/thesauri/x10000">
<rdf:type rdf:resource="http://www.w3.org/2004/02/skos/core#Concept"/>
<ns2:broader rdf:resource="http://collection.britishmuseum.org/id/thesauri/x9696"/>
<ns2:broader rdf:resource="http://collection.britishmuseum.org/id/thesauri/x9999"/>
<ns2:inScheme rdf:resource="http://collection.britishmuseum.org/id/thesauri/object"/>
<ns2:prefLabel>weaving-batten</ns2:prefLabel>
</rdf:Description>

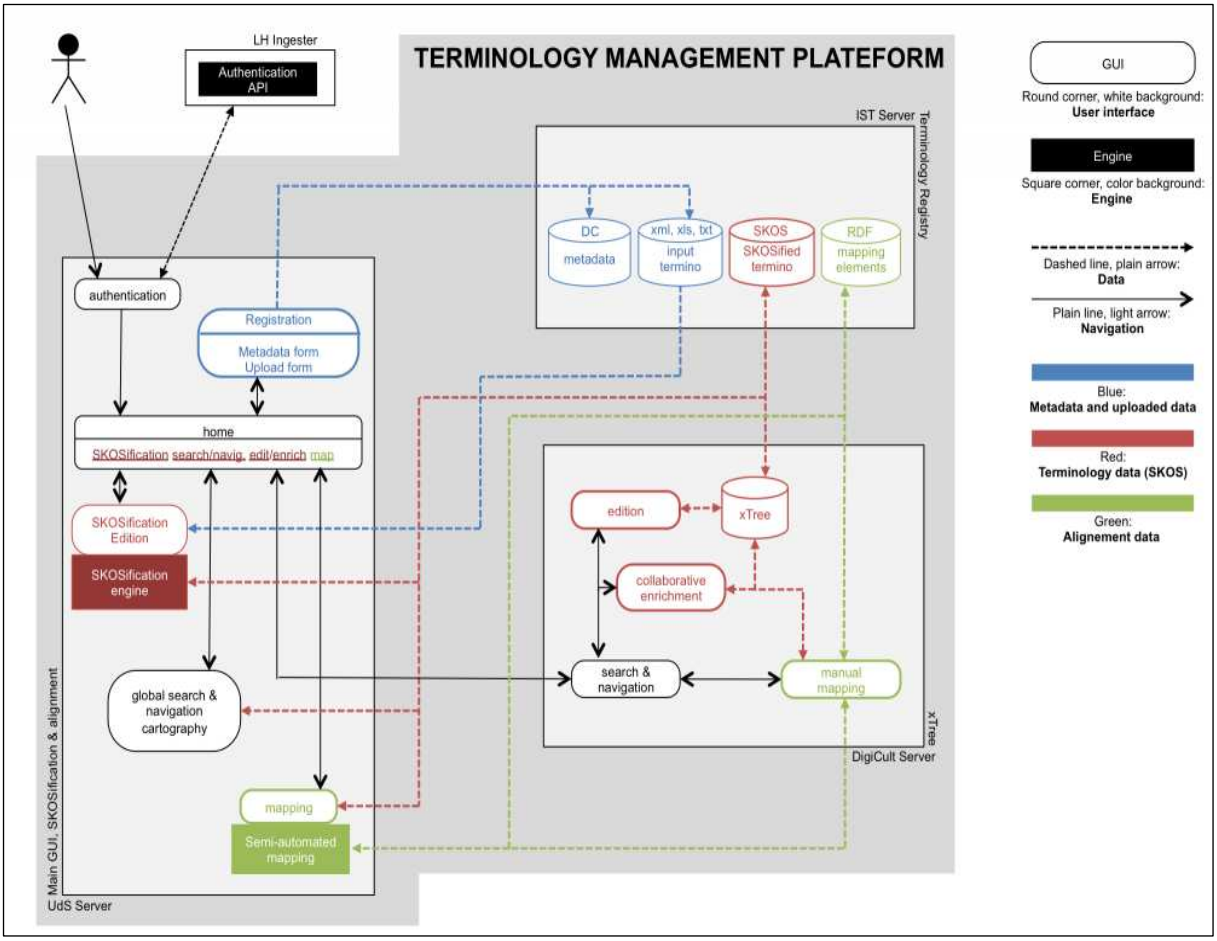
British Museum thesaurus in editing and mapping module of TMP



6.5. TMP

The Terminology Management Platform is fully under development. The consortium agreed to use www.culture-terminology.org/import/ as the dedicated webspace.

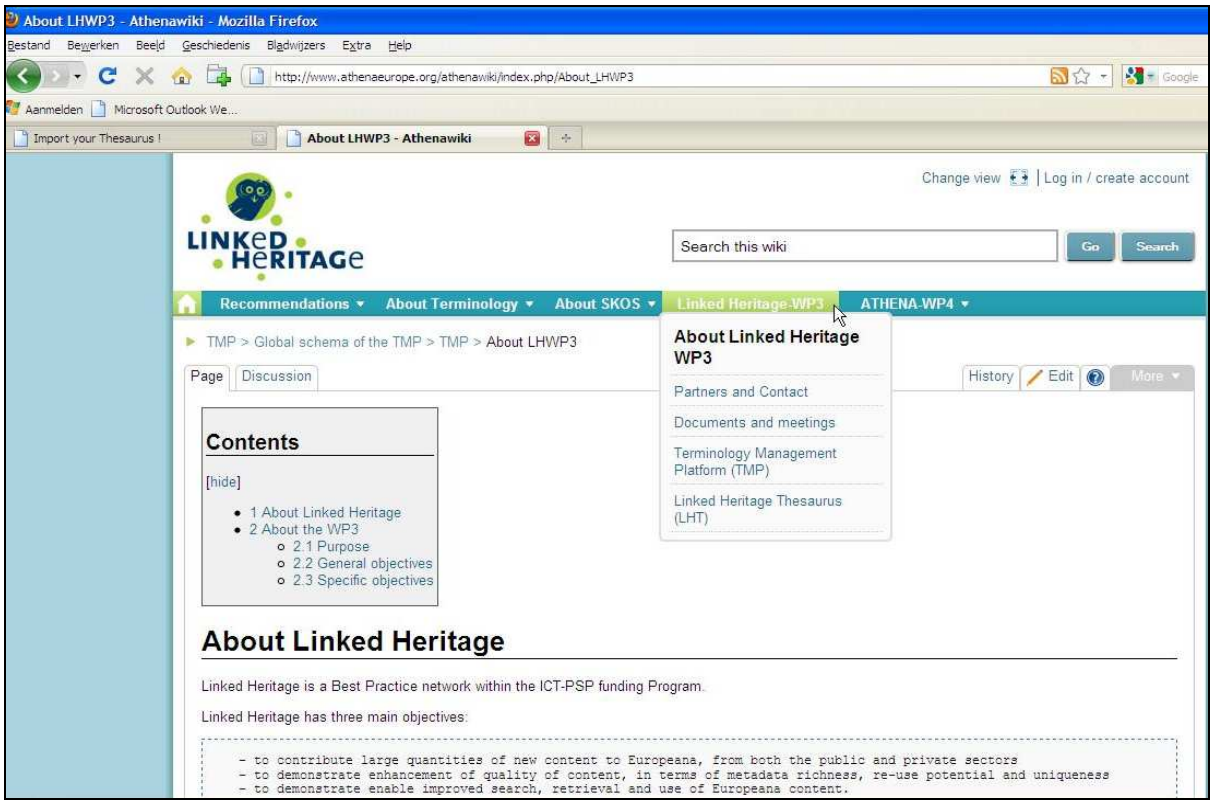
Global Schema of the Terminology Management Platform (TMP) as envisaged by technical WP3 partners



6.6 WIKI

WIKI for collaborative work on terminology resources and standards, TMP discussions, …

http://www.athenaeurope.org/athenawiki/index.php/About_LHWP3



http://www.athenaeurope.org/athenawiki/index.php/TMP