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ATHENA

Identification of existing terminology resources in museums

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¹ OJ L 79, 24.3.2005, p. 1.

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0. Executive summary

This deliverable takes place within the WP4. It is concerned with the identification of existing terminology resources in museums.

The deliverable is structured as follows:

- **Executive Summary:** A short summary of the deliverable
- **Introduction:** Explaining the context of the whole workpackage in which the deliverable stands, the goals, the different tasks to accomplish, the planning to respect
- **Methodology:** how the work has been done : state of the art and survey
- **Identification of terminologies: state of the art:** A presentation of the different projects and initiatives in which there is a strong concern on terminology ; for each project a synthesis of the main results and outcomes relevant for the WP4 is provided; most of all this state of the art can provide examples of implementation of terminology (methodology, tools, resources) useful for the WP4
- **Identification of terminologies: specific survey in European museums:** Presentation of the results of the specific survey carried out especially for this deliverable (results coming from the analysis of all the information collected from European museums about the terminologies they use); this survey has been done in parallel with the state of the art, and it complements it with specific information focused on the implementation of terminology in museums
- **Recommendations:** a first set of recommendations for the museums about the production and the use of terminology, in order to enable their integration into Europeana. These recommendations are based on a synthesis of the conclusions drawn from the two previous parts.
- **Workplan:** A revised workplan for the next steps of WP, with milestones for the two other tasks to be achieved.
- **Annex:** detailed elements from the survey in European museums, namely the whole set of identified terminologies

1. Introduction

This deliverable is the first one planned within the Athena WP4: integration of existing data structure into Europeana.

As mentioned in the Description of Work:

“WP4 intends to develop and broaden the integration of all kinds of resources used by museums and other heritage domains in the multilingual EDL, and in particular to focus on terminologies and semantic tools. It will work on the thesauri and multilingual issues, taking into account results of the Multimatch project and work done by Europeana. It will be also responsible for aligning the thesauri in use by Museums and to publish them in SKOS-based thesaurus. WP4 will also work on the integration of terminologies and thesauri and of existing multilingual tools. WP3 and WP4 will have to work closely in order to syntactically and semantically align metadata schemata and thesauri used by the ATHENA partners in a common (minimum) standard thus facilitating the alignment with Europeana and other European and national access points.

WP4 will provide by the end of the project:

- Analysis and comparison of existing dictionaries, terminologies thesauri, classifications, taxonomies etc. used by museums in a cross-domain perspective, to be compared with the ones adopted by the other sectors of cultural heritage, in order to facilitate their harmonisation and integration into Europeana;
- analysis and comparison of existing or possible multilingual tools (thesauri, cross language retrieval tools, technical solutions...) to access resources available in museums and other cultural heritage institutions;
- recommendations for data providers in order to facilitate semantic integration of their content into Europeana and proposals for the next developments of Europeana. It will work jointly with the “Europeana: the European digital library network” (thanks to the participation of the Stichting European Digital Library and the Michael Culture AISBL) and the MultiMatch projects, and also the recommendations provided by the Interoperability Expert Group chaired by the European Commission.”

2. Methodology

2.1 Objectives

The overall objective of this deliverable is to identify the terminology resources used by European museums. In order to achieve this objective, the work has been divided in two main tasks: a state of the art and a specific survey.

2.1.1 State of the art

The state of the art parses a set of existing projects and initiatives in which a strong concern for terminology issues has been identified. The analysis of each of them has allowed us to pick up among their results and experiences what can enrich our own study about the use of terminologies within the museums. Even if these projects and initiatives were not always related to museums' world, nonetheless we have considered we could benefit from them. Our goal was to identify all the information sources we have to consider to find the terminology resources. Then, since these projects concern other domains than museums' one, we have particularly paid attention to the methodologies and the tools employed in these projects to produce or to align terminologies.

2.1.2 Specific survey

Then, for the specific survey, in order to get information about the terminologies that the museums can use in the different countries involved in the project, we have set up an online questionnaire. For technical and practical reasons, this questionnaire is independent of the one proposed within the WP3 as it has been decided on last 13th -14th January 2009 at the joint meeting organized in the Hague with Athena and EuropeanaLocal partners. Here each partner having relationship with content providers has been asked to answer the questionnaire, terminology per terminology. Then an analysis of all the results has been done in order to point out trends, habits, interesting practices. This has allowed to see better how far the existing terminologies fits with Europeana requirements.

Thanks to these two main tasks and their respective results, a common conclusion has been produced. This takes into account the WP4 specific survey and a part of all the information sources we have identified through the state of the art. A common grid of analysis has been applied over the two set of data, even if we preliminary assumed that the two surveys could not provide same kind of information. The conclusions of the two surveys are complementary, the conclusion of the deliverable proposes complementary recommendations.

2.2 Scope (About “terminology”)

So far we used the word “terminology” in order to mention the resources used by the museums for describing their collections, this word “terminology” might be ambiguous. Indeed, strictly speaking, “terminology” is a discipline which aims at studying terms and their use within a specific domain; but a “terminology” could refer to the resource resulting from this discipline as well. However, “terminology” is the most generic and clear word to mention the different existing types of resources, namely:

- Lexicon
- Dictionary
- Folksonomy
- Glossary
- Classification

- Taxonomy
- Thesaurus
- Controlled vocabulary
- Terminology
- Ontology
- ...

The type of resource is highly connected to its purpose: in other words, an information retrieval tool and a knowledge management tool won't use the same kind of resources:

- Some of the resources mentioned above (e.g. lexicons and dictionaries) are mainly dedicated to linguistic concerns, not for a specific domain, and for the use of human beings only. Lexicons and dictionaries deal with words and not with terms.
- Some other resources such as folksonomy are directly managed by non-expert users in order to improve access to the information in a collaborative way.
- The other resources mentioned (e.g. classification, thesaurus, ontology) are more formal, presented as alphabetical lists or networks of terms and they could be specific to a domain. These resources can be used by computational programs for different purposes such as indexing or translating but are also meant to be handled by experts of a domain. Most of these resources deal with terms or concepts rather than words.

Thus a first part of this inventory phase was to define the different kinds of resources that are in use in the museums. Considering this, we have raised five main types of resources organised according 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 thesauri¹, Wikipedia and other specific websites mentioned as footer annotations.

2.2.1 Simple list of terms

The simple list of terms could be assimilated to a controlled vocabulary. A **controlled vocabulary** is a list of terms that have been explicitly enumerated. 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 could be also a list of named entities such as authors' or persons' names, location names... It represents the "minimalist" type of resource.

¹ 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>)

2.2.2 Glossary

A glossary¹ is an alphabetical list of terms of a specific domain where each term has a definition or an explanation. 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 could be multilingual.

2.2.3 Classification

Classifications² 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 another tool 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)³ and the Universal Decimal Classification (UDC)⁴ 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.

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

2.2.4 Taxonomy

The taxonomy⁵ 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, the word "taxonomy" now refers to a form of classification scheme. In other words, taxonomy could be assimilated to a controlled vocabulary organized 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.

¹ 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

² Wikipedia : http://en.wikipedia.org/wiki/Library_classification

³ Wikipedia : http://en.wikipedia.org/wiki/Dewey_Decimal_Classification

⁴ Wikipedia : http://en.wikipedia.org/wiki/Universal_Decimal_Classification
UDC online: <http://www.udconline.net/introduction.asp>

⁵ 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

2.2.5 Thesaurus

A thesaurus¹ 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 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.

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*” (see section 2.4 for further details).

2.2.6 Ontology

An ontology² 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 an 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

¹ Wikipedia : <http://en.wikipedia.org/wiki/Thesaurus>

² 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)

- *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.

Martin Doerr, the lead developer of CIDOC/CRM, makes a distinction between three different types of ontologies¹:

- Core ontologies for “schema semantics” that is CIDOC
 - Ontologies for “categorical data” – more for reference and agreement than for reasoning
- Factual background knowledge

The following table summarizes the main features of each resource:

	Description	Structured	Relationship
Simple list of terms	List of terms explicitly enumerated	No (alphabetical)	/
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
Ontology	Formal representation of a set of concepts	Yes	Hierarchical Associative Equivalence Definition Semantic

2.3 Criteria set

The deliverable purposes were to make an inventory of the terminologies which are used today in the European museums. Even if in the WP4 workflow recommendations are not expected yet, this report has been set up according to what these recommendations could be soon. All the analysis of the amount of the terminologies that have been listed is oriented toward the next steps of the WP4 about SKOS and multilingualism. Both parts 3.2 and 4.2 respect this approach in a symmetric way. There are results that a set of criteria structures specifically. In order to help the reading of the parts 3.2 and 4.2, here is the presentation of the set of six criteria which determines the analysis.

¹ <http://www.delos.info/files/pdf/DELOS%20Multimatch%202007/CIDOC%20CRM.pdf> , page 5

2.3.1 Kind of terminology

As detailed upper in the part 2.3, there are different kinds of terminology we have to consider. Their features enable them to satisfy more or less efficiently the retrieval and the multilingualism of the data. In a nutshell, we can say that terminologies without relations between the terms (e.g. simple list of terms, glossary) hardly comply with what is required for enabling a multilingual access to the collections data. On the contrary, terminologies with relations are more fit (e.g. classification, thesaurus, ontology). Namely, although thesaurus is known to be not so easy to use, it appears as the "minimal" kind of terminology to employ for the museums who intend to integrate their collections data into Europeana portal. Thesaurus offers a good compromise between all the constrains about access and difficulty to use. Thus we specifically focus below on the state of thesaurus use in the European museums as we consider thesaurus as the very kind of terminology to recommend in a general way in the integration process into Europeana.

2.3.2 Multilingualism of the terminology

Multilingualism is one of the tricky Europeana requirements addressed toward the candidate terminologies. The study of the multilinguality must help us to assess how much a strong policy of guidance will be welcome about it. Such guidance does not concern only the relevance of multilingualism within a more and more globalised world mixing so different cultures. To want does not systematically guarantee to be able. This is why the guidance does concern the technical issue of multilingualism with advice and protocol. Here the goal is to show good ways to make terminology multilingual and eventually compliant with the technical input process of Europeana.

2.3.3 Area width and dimension of the terminology

A bit of experience shows that a correlation may exist between on a one hand the terms number of a terminology, and on the other hand how the application area 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. The study results must help to better understand this correlation, and to define relevant recommendations.

2.3.4 Production of the terminology

Since within the WP4 we intend to produce guidance for the museums who want to refine or to create an appropriate terminology ready to integrate the Europeana input process, a state of the art about the production of terminology must be useful. This further WP4 study shall investigate the existing tools and methodologies, notably for the production of multilingual terminology. Nevertheless, for the time being, the current survey may provide preliminary information allowing us to assess how much the guidance will be detailed and advising for that issue.

As mentioned in the 2.3 section, especially in the description of thesaurus, there are several standards¹ which provide normalized guidelines for the elaboration and the management of monolingual or multilingual thesauri. We present here in a few words three of these ISO standards which are the most widely in use:

¹ <https://xmdr.org/standards/cmeps/Thesaurus%20Standards%20Relationships.html>

- *ISO 2788:1986: Guidelines for the establishment and development of monolingual thesauri* This standard (recognized by the International Organization for Standardization) consists of recommendations for the establishment and development of consistent indexing practice within an organization or a consortium. The standard assumes that indexing is being done by humans using natural language to select indexing terms. It is most suitable for cataloguing and descriptive metadata. The standard only deals with monolingual thesauri and is based on the use of preferred terms or indexing terms and non-preferred terms or synonyms.
- *ISO 5964: 1985: Guidelines for the establishment and development of multilingual thesauri* This ISO standard extends the scope of ISO 2788 to cover particular considerations for multilingual thesauri development for the establishment of consistent indexing practice within an organization or consortium. Like ISO 2788, the standard assumes that indexing is being done by humans using normal language, and is based on the concept of preferred terms or indexing terms and non-preferred terms or synonyms.

The standard covers general problems, language problems and management decisions required when establishing a multilingual thesaurus. It considers the issues of vocabulary control, establishing equivalent terms across different languages, relationship between terms, display of terms and relationships, form and contents and organization of work.

- *ANSI/NISO Z39.19-2003: Guidelines for the Construction, Format, and Management of Monolingual Thesauri*
This Standard presents guidelines and conventions for the contents, display, construction, testing, maintenance, and management of thesauri. It covers all aspects of constructing thesauri including extensive rules and guidelines for term selection and format, the use of compound terms, and establishing and displaying various types of relationships among terms. This standard focuses on monolingual thesauri; it has been revised in 2005 in order to extend its scope to controlled vocabularies e.g. lists of controlled terms, taxonomies, thesauri.

2.3.5 Data form of the terminology

Among the tricky requirements for the integration of collections data into Europeana portal, one concerns the data model of the candidate terminologies. Indeed a terminology has to be SKOS-compliant to be accepted into the Europeana input process. Thus we focus below on the state of the already SKOSified terminologies within the European museums. This must help us to assess how much the guidance we intend to produce shall detail this issue of SKOSification.

2.3.6 Kind of terminology users

Europeana is an aggregator, understood as an access portal to the collections data. In other words, it means that what the portal displays is dedicated to the professionals and the general public as well. Like multilingualism, information retrieval is an important issue which has an impact on the form the data are structured through. The current survey must help us to assess how much the guidance then shall detail this issue of end-user-oriented structuring of terminology.

2.4 Warnings about the results

The conclusions of the deliverable must be considered with attention, especially those coming from the WP4 survey, at least as long as a definitive refinement of the document happens. Indeed the set of questionnaire answers we have gotten by now does not provide a homogeneous base for the analysis. We have identified several limitations we invite the reader to take into account. These limitations are indicated when necessary all along the analysis results provided within the document.

Roughly speaking, the whole base of information we have set up is not complete and homogeneous yet. The lack of homogeneity is due to both:

- The ambiguity of some questions of the WP4 questionnaire that might not be understood as we thought
- The difference of expertise levels of the people who have kindly answered the questionnaires

We dealt with this problem considering that certain information might be unreliable. So we have asked precisions and we have modified a bit the answers. However we cannot say now that everything is clear. Hence we prefer to warn the reader about a problem we are aware of.

Finally, we also have to warn that all the figures and descriptions given in this deliverable are those we collected by end July 2009. The deliverable will require a refinement when new data are ingested to the existing results of our survey. We already know that at least one refinement will be necessary to integrate all the information we get from partners in the last week of August and September.

3. Identification of terminologies: state of the art

This part of the deliverable provides a list of projects and initiatives in which a strong concern for terminology issues has been identified. Indeed, as it is mentioned in the Description of Work of the WP4, capitalizing on the work already done in the framework of other European projects or organisations is one of the directions we followed for the needs of this report and for guiding our reflexion for the workflow of this WP.

We identified a number of European projects which focus on multilingualism or semantic interoperability or take into consideration these issues on the workflow of their activities. In the first section of this chapter, we present the European projects that we identified as relevant for our work. The second part of this chapter will be dedicated to a synthetic presentation and description of terminology resources identified during this phase of investigation.

3.1. Terminology and multilingualism in European projects

Any work done at European level in any field raises at a moment the issue of understanding and multilingualism by and for citizen from all over Europe. Many of the achieved or ongoing European projects do not stand as an exception to this fact. We identify some of these projects on the basis of their description in order to define to what extent their tasks and activities meet our goals and work.

We identified and organised the list of these projects on the basis of the following criteria:

- Scope of the projects: museum-oriented, library-oriented or other scoped projects.
- Concern on multilingualism: this points out if the multilingualism is one of the main focus and purpose of the project or if this is an outcome that has been dealt with during the project.
- Output of the projects: among the projects which have a strong concern on terminology and multilingualism, we make a distinction between those aiming at setting up a technical platform and those working on a new terminology resource or mapping between existing resources.

Considering these criteria, we make the distinction between two kinds of projects:

- projects aiming to build new terminology resources or to create cross-links between existing terminologies;
- projects aiming to produce a technical implementation (platform, webservices, toolkit, ...) of terminology resources in order to facilitate multilingual access.

3.1.1 Terminology resources

Here are presented the European projects which were investigated and relied on as sources of information in order to identify terminology resources.

- **Athena – The WP3 survey**
<http://www.athenaeurope.org/>

As we said upper, within the Athena project, another questionnaire has been proposed to the partners of the project by the WP3. This questionnaire intended to list the collections that will be provided by the institutions to Europeana and also collect information on the standards and terminology used for describing these collections.

More details on the results of this survey could be found on the deliverable 3.1 “Report on existing standards applied by European museums”. Some of the main standards and

terminologies used in the museum were already pointed out in this report (see the section on terminology standards of the D3.1 report - p.67)

- **EuropeanaLocal**

<http://www.europeanlocal.eu/>

This project funded by the eContentPlus program aims at establishing simple, efficient and sustainable processes through which local and regional institutions can easily make their content available to Europeana during and after the project. It will adopt and promote the use of Europeana's infrastructures, tools and standards, as specifications emerge - especially OAI-PMH repositories and Europeana Metadata Application Profiles initially, but moving forward to semantic web technologies later. As mentioned upper, a joint meeting Athena – EuropeanaLocal was organized in order to avoid duplication of content and to share outcomes from these projects.

A survey similar to the one achieved by the Athena WP3 has been carried out toward the EuropeanaLocal project partners in order to collect information on content providers, collections, standards and terminology. The outcomes of this survey have also been considered within this report. Some of the resources described in the next section have been partly identified within the results of this survey.

- **European HERitage Network (HEREIN)**

<http://thesaurus.european-heritage.net/>

Herein is IST funded project of the IV FWP Telematics Application Programme. The multilingual thesaurus attached to the HEREIN project intends to offer a terminological standard for national policies dealing with architectural and archaeological heritage.

This terminological resource is intended to help the user of the website when surfing through the various national reports put on line. Thanks to its standardized vocabulary, and to the scope notes appended to each term (which form the resource material), the multilingual thesaurus gives access, through one concept, to different national experiences or policies whose specific designation, administrative structure, and development, provide an overview of the wide-ranging extent of European cultural diversity.

- **MACS**

<https://macs.hoppie.nl/pub/>

MACS is a project sponsored by CENL, the Conference of European National Librarians. It aims to produce both a link management system and a significant amount of cross-linked data to facilitate multilingual access via subject headings to library collections. Multilingual search is made possible thanks to the equivalence links created between the three indexing languages used in these libraries: SWD (for German), RAMEAU (for French), and LCSH (for English). Topics (headings) from the three lists are analysed to determine whether they are exact or partial matches, of a simple or complex nature. The end result of this ongoing project will be neither a translation nor a new thesaurus but a mapping of existing and widely used indexing languages.

- **Michael – Multilingual Inventory of Cultural Heritage**

<http://www.michael-culture.org>

The MICHAEL and MICHAEL Plus projects, funded by the eTen programme, aim at giving multilingual access to the digital cultural heritage in Europe.

The MICHAEL project which was complete in 2008 provided the following technical results:

- The MICHAEL data model for multilingual digital cultural heritage inventories

- An open source technical platform for national
- Interoperability protocols for national instances to contribute data to the European service
- European MICHAEL search portal
- Methodology and model which is easy to deploy in additional countries.

Each participating country use its own terminology which is mapped to the European one. The multilingual thesauri developed within MICHAEL have been built on the basis of the UNESCO thesauri and ISO standards.

3.1.2 Multilingual tools

Here are presented the projects which have as a result a technical platform or toolkit enabling semantic web and multilingual features.

- **EuropeanaConnect**

<http://www.europeanaconnect.eu/>

EuropeanaConnect is an eContentPlus funded project which overall objective is to develop key components for the enhancement and improvement of Europeana. Two phases of this project workplan have a major focus on multilingual issues.

These two phases consist in creating the Europeana semantic layer and implementing multilingual access to content.

The WP1 is in charge of achieving this first phase and will create a repository of harvested semantic resources (such as vocabularies and classification schemes) from the Libraries, Museums and Archives community which will be used as the primary level of user interaction with Europeana. It will deploy a mechanism to ingest semantic material into this repository, convert these data into Europeana semantic representations (mostly based on the SKOS standard), and semantically enrich Europeana content by mapping it to these semantic representations.

The second phase led by the WP2 will implement the solutions which are needed to provide true multilingual access to the content of Europeana. These will allow Europeana information and objects to be searched and presented independently of the language of both the searcher and the object descriptions. The WP2 will deliver a multilingual infrastructure, consisting of

- the Europeana Language Resources Repository for translation and mapping,
- multilingual mapping of subject metadata schemas and other controlled vocabularies
- (for controlled and precise translations), and a suite of translation modules or services (for integration with the general search and retrieval infrastructure).

The Athena WP4 will work in cooperation with these two WP.

- **MultimediaN N9C Eculture project**

<http://e-culture.multimedien.nl/>

This project funded within the Dutch Bsik-program consists in the development of a set of e-culture demonstrators providing multimedia access to distributed collections of cultural heritage objects. The demonstrators are intended to show various levels of syntactic and semantic interoperability between collections. One of these demonstrators is the AnnoCultor tool which was use in the Europeana semantic search engine prototype, e.g. the Thought Lab that we will detail later on.

The online demo-platform¹ allows the users to test the technology used in the Thought Lab prototype. Users have the possibility to search, browse and annotate collections of artworks

¹ <http://e-culture.multimedien.nl/demo/session/search>

from several museums and also to browse some thesauri already available in a SKOS version. The following thesauri could be browsed through the web interface : Getty AAT, Getty TGN, Wordnet 2.0.

Experience from this project on the technical point of view will be of interest for the next phase of the WP4 workplan.

- **Europeana – Semantic Search Lab**

<http://www.europeana.eu/portal/thought-lab.html>

The research prototype of a semantic search engine for Europeana has been implemented within the Thought Lab of Europeana which was the new technologies and functionalities experimental platform. The prototype's interface is currently available in English, French and Dutch. The search engine contains data of the Rijksmuseum Amsterdam the Musée du Louvre in Paris, and the Rijksbureau voor Kunsthistorische Documentatie (Netherlands Institute for Art History) in The Hague.

The prototype of this semantic search engine relies on the AnnoCultor tool developed in the framework of the MultimediaN project.

- **CACAO – Cross-language Access to Catalogues And On-line libraries**

<http://www.cacaoproject.eu/>

Cacao is an eContentPlus funded project aiming at helping individual citizen and librarians to access, understand and navigate multilingual textual digital libraries and Online Open Access Catalogue content.

Cacao will deliver a non-intrusive infrastructure to be integrated with current library catalogues and digital libraries. This infrastructure will rely on the coupling of sound Natural Language Processing (NLP) techniques with available information retrieval systems and tools for facilitating the maintenance of multilingual resources. A test platform is accessible on-line¹.

- **MultiMatch - Multilingual/Multimedia Access To Cultural Heritage**

<http://www.multimatch.org/>

MultiMatch is a project funded within the FP6 program. Its aim is to enable users to explore and interact with online accessible cultural heritage content, across media types and languages boundaries. MultiMatch is developing a multilingual search engine specifically designed for access, organization and personalized presentation of cultural heritage information.

The MultiMatch search engine has implemented the following features:

- crawling of the Internet and material institutions in the cultural heritage field to collect text and multimedia data,
- semantic web encoding of the retrieved information,
- interaction with the users to improve the definition of the collected information.

MultiMatch technology is being used by another European project: the European Film Gateway².

- **HILT - High-Level Thesaurus Project**

<http://hilt.cdrl.strath.ac.uk/>

¹ <http://www.cross-library.com:8080/cacaoUI/>

² <http://www.europeanfilmgateway.eu/>

The High-Level Thesaurus Project (HILT) is a project funded by the UK Joint Information Systems Committee (JISC) which ended in February 2009. It aims to research, investigate, pilot, and develop solutions for, problems pertaining to cross-searching multi-subject scheme information environments, as well as providing a variety of other terminological searching aids. Several tools have been developed in the framework of this project: demonstrators¹ and toolkit have been built to test this multilingual and cross-domain search. One of the demonstrators allow to search a term through several terminology resources such as the Dewey Decimal Classification (DDC) or the Art and Architecture Thesaurus (AAT).

- **STAR - Semantic Technologies for Archaeological Resources**

<http://hypermedia.research.glam.ac.uk/kos/STAR/>

STAR² is an AHRC³ funded project, in collaboration with English Heritage and the Royal School of Library and Information Science Denmark, applying semantic and knowledge-based technologies to the digital archaeology domain. The project aims to develop new methods for linking digital archive databases, vocabularies and the associated grey literature, exploiting the potential of a high level, core ontology and natural language processing techniques.

The project which is ongoing till 2010 has developed an initial set of semantic web services, based upon the SKOS thesaurus representations. These services⁴ provide term look up in vocabularies known to the system, browsing and semantic concept expansion.

- **digiCULT Museen SH**

<http://digicult.museen-sh.de/index.php?p=P>

digiCULT Museen SH is a German project funded within the Regional Programme 2000 of the Provincial Government of Schleswig-Holstein. It is sponsored by the European Fund for Regional Development (EFRE).

The objective is to include the recorded object data in national and international cultural databases. To this end, tools and vocabulary of knowledge management and data exchange are to be further developed.

One of the measure adopted by the project is to support for preparation of thesauri and subject classifications, tests for the inclusion of normative data.

- **STERNA - Semantic Web-based Thematic European Reference Network Application**

<http://www.sterna-net.eu/>

STERNA (Semantic Web-based Thematic European Reference Network Application) is a Best Practice Network project supporting the objectives of the European Digital Library by pioneering the integration of semantically enriched digital resources in the natural sciences and history field. It is partly funded by the European Commission through the eContentPlus Program.

STERNA is based on the state-of-the-art semantic web technologies which have been developed, and tested in the RNA project (<http://www.rnaproject.org>). The basic architecture allows distributed querying of content at member sites based on metadata in RDF (Resource

1 http://hilt4.cdlr.strath.ac.uk/hilt_srw.cgi

2 <http://www.methodsnetwork.ac.uk/resources/casestudy13.html>

3 Arts and Humanities Research Council

4 http://reswin1.isd.glam.ac.uk/STAR/SKOS_WS_EH/SKOS_WSClient.htm

Description Framework) format and/or reference structures represented in SKOS (Simple Knowledge Organisation System) format.

In addition, the infrastructure will provide to institutions a set of web-based tools and data mining procedures to semantically enrich their content (manually adding or automatically extracting metadata) and additional web-based tools to link and integrate their collections and content items with the digital resources of other providers via their reference structures.

3.2 Description of terminology resources

In the previous section were presented several European projects which have an interest or a strong concern on terminologies. During this phase of investigation we identified a number of terminology resources which are of real interest for this report and for the next steps of the WP4 working plan.

These resources have been identified from the results of inventory phase initiated by these projects or resources associated to the projects. As said before, some of the resources were identified thanks to the results of the EuropeanaLocal and Athena WP3 surveys. Some other resources were identified as associated resources to the projects listed in the previous section.

The 44 resources identified are presented and described here according to their multilinguality and from the more specific to the more generic.

- **Multilingual terminologies:**

Title	Système descriptif de l'illustration (thésaurus de l'iconographie chrétienne - Sancti)
Kind of resource	Thesaurus
Country	France
Language(s)	French, English, Italian
Description	Thesaurus for the identification and description of scenes and figures of the Christian iconography; connections with the iconographic classifications IconClass and Réau. Specific for art and art history area. Managed by the Ministry of Culture and Communication (MCC/DAPA) Used as an internal index and information retrieval tool for the national heritage databases (Mémoire, Mérimée, Palissy) Available in PDF
Dimension	1001-5000
URL	http://www.culture.gouv.fr/culture/inventai/extranet/sysdesc.htm

Title	Système descriptif de l'architecture (thésaurus de la dénomination)
Kind of resource	Thesaurus
Country	France
Language(s)	French, English, Italian
Description	Thesaurus for the identification and description of elements of architecture. Connections with the terms used in the AAT and Royal Commission on the Historical Monuments of England ¹ . Specific for art and art history area. Managed by the Ministry of Culture and Communication (MCC/DAPA) Used as an internal index and information retrieval tool for the national heritage databases (Mémoire, Mérimée, Palissy) Available in PDF
Dimension	1001-5000
URL	http://www.culture.gouv.fr/culture/inventai/extranet/sysdesc.htm

Title	PACTOLS (Peuples et cultures, Anthroponymes, Chronologie relative, Toponymes, Œuvres, Lieux, Sujets) Thesauri
Kind of resource	Thesaurus
Country	France
Language(s)	French, English, Italian, German, Spanish
Description	Polyhierarchical thesaurus for the description of peoples and cultures, anthroponyms, chronology, toponyms, works, places and subjects. Specific for archaeology and ethnology area. Used as internal index and information retrieval tool for the Frantiq databases (databases on Antiquity sciences) Available as RTF files. Ongoing research project for SKOSifying these thesauri.
Dimension	Over 10000
URL	http://frantiq.mom.fr/html/pactols/pactols_doc.html

Title	The Multilingual Egyptological Thesaurus
Kind of resource	Thesaurus
Country	International
Language(s)	English, Dutch, German, French, Italian, Spanish And Portuguese
Description	Multilingual thesaurus for the description of museum objects. Specific to the archaeology area. Managed by the Centre for Computer-aided Egyptological Research (CCER) in the Global Egyptian museum (Netherlands). Used as an internal index and information retrieval tool for the catalogue of the museum; multilingual search (translation module) and thesaurus
Dimension	5001-10000
URL	http://www.ccer.nl/apps/thesaurus/index.html

¹ <http://www.english-heritage.org.uk/>

Title	Michael Terminology lists
Kind of resource	Thesaurus
Country	International
Language(s)	English, Czech, German, Estonian, Greek, French, Italian, Latvian, Dutch, Finnish, Bulgarian, Hungarian, Swedish, Slovenian, Spanish, Polish
Description	Terminology lists with thesaurus features for describing collections of the cultural heritage field. Based on the Unesco thesauri for the subject headings. Mainly use for indexing and web browsing of the collections on the portal. Available in XML format.
Dimension	501-1000
URL	http://www.michael-culture.org

Title	Herein thesaurus
Kind of resource	Thesaurus
Country	International
Language(s)	English, Spanish and French, Bulgarian, Polish, Romanian, Greek, Lithuanian and Slovenian
Description	Multilingual thesaurus managed by the partners of the European Heritage Network Specific to the architectural and archaeological heritage area. Browsing interface and multilingual search enabled.
Dimension	101-500
URL	http://thesaurus.european-heritage.net/sdx/herein/thesaurus/consult.xsp

Title	Cultural Policies Thesaurus (Boekman Stichting)
Kind of resource	Thesaurus
Country	The Netherlands
Language(s)	Dutch, English
Description	Bilingual thesaurus on art and cultural policies. Managed by the The Boekman Foundation. Mainly for the use of Library professionals and users but also policy organisations. Available in PDF, machine-readable format can be asked.
Dimension	1001-5000
URL	http://www.boekman.nl/documenten/thes_english.pdf

Title	ILO (International Labor Organisation) Thesaurus
Kind of resource	Thesaurus
Country	International
Language(s)	French, English, Spanish
Description	Thesaurus on work and labour. Managed by the The International Labor Organisation. Mainly used for indexing and information retrieval in the Labordoc, catalog of the ILO library. Development of terminological database ILOTERM (http://www.ilo.org/iloterm/)
Dimension	1001-5000
URL	http://www.ilo.org/thesaurus/defaulten.asp http://www.ilo.org/public/english/support/lib/tools/aboutthes.htm

Title	GEMET, the GEneral Multilingual Environmental Thesaurus
Kind of resource	Thesaurus
Country	International
Language(s)	Basque, Bulgarian, Dutch, Finnish, French, German, Hungarian, Italian, Norwegian, Portuguese, Russian, Slovenian, Spanish, Danish, Slovak, Swedish and Greek
Description	General thesaurus on energy and environment area. Managed by the European Environment Agency (EEA) and its Network (Eionet). First developed as a general and multilingual thesaurus and updated constantly with specialised terminologies. Web-browsing and multilingual search enabled. Available for download in SKOS, RDF format.
Dimension	5001-10000
URL	http://www.eionet.europa.eu/gemet

Title	Population multilingual thesaurus (POPIN Thesaurus)
Kind of resource	Thesaurus
Country	International
Language(s)	English, French, Spanish
Description	Multilingual thesaurus on population, demography and administrative issues. Managed by the Committee for International Cooperation in National Research in Demography (CICRED). Specific for the demography area. Available for download in PDF format.
Dimension	1001-5000
URL	http://www.cicred.org/OLD2004/thesaurus/INTEGRAL/index_f.html

Title	TESE - Thesaurus for Education Systems in Europe
Kind of resource	Thesaurus
Country	International
Language(s)	Czech, Dutch, English, Estonian, Finnish, French, German, Greek, Italian, Latvian, Lithuanian, Polish, Portuguese, Rumanian, Spanish and Turkish
Description	Based on the redesign of the EUDISED (European Documentation and Information System for Education), multilingual thesaurus for Information Processing in the Field of Education Managed by the Education Audiovisual & Culture Executive Agency and the Eurydice network. Specific for the education area. Web-browsing and multilingual search enabled. Available for download in
Dimension	1001-5000
URL	http://eacea.ec.europa.eu/portal/page/portal/Eurydice/TESEHome

Title	UNESCO thesaurus
Kind of resource	Thesaurus
Country	International
Language(s)	English, French, Spanish, Russian
Description	General and multilingual thesaurus. Encyclopaedic coverage. Mainly used in subject analysis and retrieval of documents and publications in the fields of education, culture, natural sciences, social and human sciences, communication and information. Web-browsing The thesaurus can be purchased in CD-ROM
Dimension	5001-10000
URL	http://databases.unesco.org/thesaurus

Title	EuroVoc
Kind of resource	Thesaurus
Country	International
Language(s)	Spanish, Czech, Danish, German, Greek, English, French, Italian, Latvian, Lithuanian, Hungarian, Dutch, Polish, Portuguese, Slovak, Slovene, Finnish, Swedish, Bulgarian, Romanian and Croatian
Description	Multilingual thesaurus covering the fields in which the European Communities are active. Mainly for the use of professionals (European institutions (the European Parliament, the Office for Official Publications of the European Communities, the national and regional parliaments in Europe)) and general users. Designed as a terminological database. Managed by the EuroVoc steering committee. Available for download in PDF format and XML.
Dimension	5001-10000
URL	http://europa.eu/eurovoc/

Title	Inter-Active Terminology for Europe (formerly Eurodicautom)
Kind of resource	Thesaurus
Country	International
Language(s)	Bulgarian, Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hungarian, Irish, Italian, Latvian, Lithuanian, Maltese, Polish, Portuguese, Romanian, Slovak, Slovenian, Spanish, Swedish
Description	General thesaurus with an Encyclopaedic coverage Designed as a terminological database. Managed by the the Translation Centre for the Bodies of the European Union in Luxembourg. Web-browsing and multilingual search enabled.
Dimension	Over 10000
URL	http://iate.europa.eu/

- **Monolingual terminologies:**

Title	Système descriptif des objets mobiliers – Thesaurus de la dénomination
Kind of resource	Thesaurus
Country	France
Language(s)	French
Description	Thesaurus for the description of movables objects: elements of architecture, stained glass, furniture, objects, musical instruments, scientific instruments, industrial machinery and vessels. Specific for art and art history area. Managed by the Ministry of Culture and Communication (MCC/DAPA) Used as an internal index and information retrieval tool for the national heritage databases (Mémoire, Mérimée, Palissy) Available in PDF
Dimension	1001-5000
URL	http://www.culture.gouv.fr/culture/inventai/telechar/sysdesc_objets_de_c1999.pdf

Title	Thesaurus iconographique : système descriptif des représentations (Thesaurus
Kind of resource	Thesaurus
Country	France
Language(s)	French
Description	Thesaurus for the description of iconographic representation. Specific for art and art history area. Managed by the Ministry of Culture and Communication (MCC/DAPA) Used as an internal index and information retrieval tool for the national heritage databases (Mémoire, Mérimée, Palissy) See the thésaurus de l'iconographie chrétienne - Sancti
Dimension	1001-5000
URL	Garnier (François), <i>Thesaurus iconographique : système descriptif des représentations</i> , Paris, Le Léopard d'or, 1984.

Title	"Ackerbaugeräte-Systematik" (Spengler, W. Eckehart)
Kind of resource	Thesaurus
Country	Germany
Language(s)	German
Description	Thesaurus for the description of instruments in the agricultural area. Used as indexing and information retrieval tool for the museums Managed by the museumsvoabular.de initiative. The thesaurus can be downloaded in XML after registering on the website. Mainly for the use of museums.
Dimension	1001-5000
URL	http://museum.zib.de/museumsvoabular/documents/ackerbau.pdf

Title	Thesaurus der Zeitmessgeräte (Calldewey's Handbuch der Uhrentypen)
Kind of resource	Thesaurus
Country	Germany
Language(s)	German
Description	Thesaurus for the description of timing devices (watches and clocks) Managed by the museumsvocabular.de initiative. The thesaurus can be downloaded in XML after registering on the website. Mainly for the use of museums.
Dimension	101-500
URL	http://museum.zib.de/museumsvocabular/index.php?main=download&ls=9&co=we&ln=en

Title	Gefäßtypologie (Landesstelle für die nichtstaatlichen Museen in Bayern)
Kind of resource	Thesaurus
Country	Germany
Language(s)	German
Description	Thesaurus for the description of household vessels. Used as indexing and information retrieval tool for the museums collection; Managed by the museumsvocabular.de initiative. The thesaurus can be downloaded in XML after registering on the website. Mainly for the use of museums. A demo web-service is available for browsing the thesaurus and associated collections objects.
Dimension	101-500
URL	http://museum.zib.de/museumsvocabular/index.php?main=download&ls=9&co=we&ln=en

Title	Möbeltypologie (Westfälisches Museumsamt / Landesstelle für die nichtstaatlichen Museen in Bayern)
Kind of resource	Thesaurus
Country	Germany
Language(s)	German
Description	Thesaurus for the description of movable objects. Managed by the museumsvocabular.de initiative. The thesaurus can be downloaded in XML after registering on the website. Mainly for the use of museums.
Dimension	101-500
URL	http://museum.zib.de/museumsvocabular/documents/systematik-moebel.pdf

Title	Thésaurus pour la description et l'indexation des archives locales anciennes, modernes et contemporaines (formerly Thesaurus W)
Kind of resource	Thesaurus
Country	France
Language(s)	French
Description	Thesaurus for the description and indexing of historic and contemporary archives documents. Managed by the French national archives. Mainly for the use of archives. The thesaurus is available in SKOS format.
Dimension	1001-5000
URL	http://www.archivesdefrance.culture.gouv.fr/gerer/classement/normes-outils/thesaurus/

Title	Terminology from national archives: topographic thesaurus
Kind of resource	Thesaurus
Country	Sweden
Language(s)	Swedish
Description	Thesaurus of administrative, ecclesiastical, judicial and military territorial divisions in Sweden. Managed by the National archives of Sweden Mainly for the use of archives.
Dimension	5001-10000
URL	http://nad.ra.se/static/termlistor.html

Title	Swedish subject headings - Authority files in Libris
Kind of resource	Thesaurus
Country	Sweden
Language(s)	Swedish
Description	Swedish subject heading is a database containing keywords from three different controlled substance word lists for the indexing of all types of materials. They can be used separately or together: Swedish subject headings (SAO), Thesaurus for graphic materials (TGM), Barnämnesord (Children Subjects, list of terms for indexing of literature for children and adolescents). Managed by the National Library of Sweden. Based on the guidelines of the IFLA and LCSH Authority File. Mainly for the use of libraries.
Dimension	Over 10000
URL	http://www.kb.se/katalogisering/Svenska-amnesord/om/

Title	RAMEAU - Répertoire d'autorité matière encyclopédique et alphabétique unifié
Kind of resource	Thesaurus
Country	France
Language(s)	French
Description	Subject headings authority file based on the list of authorities established by the Library of the Laval University in Quebec itself derived from the Library of Congress Subject Headings. Encyclopaedic coverage. Managed by the French national library (BnF) Cross-links between the LCSH and SWD authority files within the MACS project. Mainly for the use of libraries. Web-browsing Available in SKOS.
Dimension	Over 10000
URL	http://catalogue.bnf.fr/jsp/recherche_autorites_rameau.jsp?nouvelleRecherche=O&host=catalogue

Title	Toponyms ISOC Online Thesaurus
Kind of resource	Thesaurus
Country	Spain
Language(s)	Spanish
Description	Thesaurus for the normalization of the geographic locations' names. Managed by Institute of Documentary Studies on Science and Tecnology. Mainly dedicated to the Social sciences and humanities and natural sciences area. Web-browsing
Dimension	Over 10000
URL	http://thes.cindoc.csic.es/index_TOPO_esp.html

Title	Standard-Thesaurus Wirtschaft (STW)
Kind of resource	Thesaurus
Country	Germany
Language(s)	German
Description	The Standard Thesaurus Economics STW is an ordered collection of concepts and their terms in the economics and environment area. Based on the European activity classification NACE (Nomenclature générale des activités économiques dans les Communautés Européennes - General Classification of Economic Activities within the European Communities) Managed by the GENIOS company. Web-browsing
Dimension	5001-10000
URL	http://www.genios.de/thesaurus/

Title	Thesaurus Motbis
Kind of resource	Thesaurus
Country	France
Language(s)	French
Description	Thesaurus for the educational area. This thesaurus was monohierarchical till 2008 and is now polyhierarchical. The web interface allows the users to propose a new descriptor. Encyclopaedic coverage. Managed by the SCÉRÉN - CNDP, Services Culture, Éditions, Ressources pour l'Éducation Nationale, Centre National de Documentation Pédagogique (National Center for Educational Documentation) Web-browsing
Dimension	Over 10000
URL	http://www.motbis.fr/

Title	Hasset (Humanities and Social Science Electronic Thesaurus)
Kind of resource	Thesaurus
Country	UK
Language(s)	English
Description	Thesaurus on social science with an Encyclopaedic coverage. Managed by the UK Data Archive. This thesaurus will be the basis for the multilingual thesaurus European Language Social Science Thesaurus (ELSST). Based on the UNESCO thesauri. Web-browsing.
Dimension	1001-5000
URL	http://www.data-archive.ac.uk/search/hassetSearch.asp

Title	ERIC (Education Resources Information Centre) Thesaurus
Kind of resource	Thesaurus
Country	USA
Language(s)	English
Description	Thesaurus of terms related to the education and research area for indexing the collections of the Education Resources Information Centre. Managed by the Education Resources Information Centre. Used as an indexing and information retrieval tool for the library catalogue. The thesaurus also lists the obsolete terms for helping the user refine his search. Web-browsing
Dimension	501-1000
URL	http://www.eric.ed.gov/ERICWebPortal/Home.portal?_nfpb=true&_pageLabel=Thesaurus&_nfls=false

Title	Library of Congress Name Authority File (LCNA)
Kind of resource	Classification or Taxonomy
Country	International
Language(s)	English
Description	Name authority File: The LCNA authority file can be downloaded in MARC format and be integrated in local library system for free. Mainly for the use of libraries. Encyclopaedic coverage Used as indexing tool for libraries.
Dimension	Over 10000
URL	http://authorities.loc.gov/

Title	Library Congress Subject Headings (LCSH)
Kind of resource	Classification or Taxonomy
Country	International
Language(s)	English
Description	Subject headings authority File: The LCSH authority file can be downloaded in MARC format and be integrated in local library system for free. Mainly for the use of libraries Encyclopaedic coverage. Used as indexing tool for libraries.
Dimension	Over 10000
URL	http://authorities.loc.gov/

Title	Universal Decimal Classification (UDC)
Kind of resource	Classification or Taxonomy
Country	International
Language(s)	English, Bulgarian, Portuguese, ...
Description	Subject headings authority File, Mainly for the use of libraries Encyclopaedic coverage. Used as indexing tool for libraries.
Dimension	Over 10000
URL	http://authorities.loc.gov/

Title	Standard Occupational Classification (SOC) – Bureau of Labor Statistics (USA)
Kind of resource	Classification or Taxonomy
Country	International
Language(s)	English
Description	Authority File: universal occupational classification system. It is used by federal agencies collecting occupational data, providing a means to compare occupational data across agencies. Specific to the work and labour area. Managed by the Bureau of Labor Statistics (USA) Used as indexing and information retrieval tool by Federal statistical agencies. Web-browsing
Dimension	501-1000
URL	http://www.bls.gov/soc/#classification

Title	Subject Heading Authority File SWD
Kind of resource	Classification or Taxonomy
Country	Germany
Language(s)	German
Description	Subject headings authority File: The subject headings cover all fields of knowledge and are classified by ISO country code, ISO language code and SWD Subject Groups. Managed by the Deutsche Nationalbibliothek (German National Library) in cooperation with other libraries Mainly for the use of libraries Encyclopaedic coverage. Cross-links between RAMEAU and LCSH within the MACS project. Used as indexing tool for libraries.
Dimension	Over 10000
URL	http://www.d-nb.de/eng/standardisierung/normdateien/swd.htm

Title	Regensburger Verbundsystematik RVK
Kind of resource	Classification or Taxonomy
Country	Germany
Language(s)	German
Description	Subject headings authority File from the Regensburg University Library: There is a working group on classification issues, working in various libraries. This authority file is also used in Austria. Mainly for the use of libraries. Encyclopedic coverage.
Dimension	501-1000
URL	http://www.bibliothek.uni-regensburg.de/rvko_neu/

Title	RKD Artists
Kind of resource	Classification or Taxonomy
Country	The Netherlands
Language(s)	Dutch
Description	Artists' Name authority file: RKDartists is a database with details about Dutch and foreign artists (in the broadest sense of the word) from around 1200 to the present. Managed by the Netherlands Institute for Art History (RKD). Used as an indexing and information retrieval tool for the databases of the RKD.
Dimension	Over 10000
URL	http://www.rkd.nl/rkddb/(eikux055uj5fqyyapcq0erfu)/default.aspx

Title	Terminology from national archives: iconographic classification
Kind of resource	Classification or Taxonomy
Country	Sweden
Language(s)	Swedish
Description	Classification of the different types of iconographic documents in the archives. Managed by the national archives of Sweden. Used for the internal organization of the archives, training and functioning.
Dimension	101-500
URL	http://nad.ra.se/static/termlistor.html

Title	Authority database of The National Library of Latvia
Kind of resource	Classification or Taxonomy
Country	Latvia
Language(s)	Latvian
Description	Subject Heading authority file managed by the National Library of Latvia. Mainly for the use of libraries. Encyclopedic coverage. Used as an indexing and information retrieval tool for
Dimension	1001-5000
URL	http://195.13.129.34:8991/F/VG437IKUQ384N5K12NQTIX1J8G2K5EFA5VSG3VKLQDKUNU54PL4-00985?func=option-update-ling&P_CON_LNG=ENG

Title	Official place and county names Name and official number of municipalities in Norway, published by Statistics Norway
Kind of resource	Classification or Taxonomy
Country	Norway
Language(s)	Norwegian
Description	Geographic names authority file managed by the Statistics Norway office.
Dimension	101-500
URL	http://www.ssb.no/

Title	Polska Klasyfikacja Tematyczna (Polish Thematic Classification)
Kind of resource	Classification or Taxonomy
Country	Poland
Language(s)	Polish
Description	Subject headings authority file managed by the Ministry Of Scientific Research And Information Technology.
Dimension	1001-5000
URL	http://kbn.icm.edu.pl/pub/kbn/docs/pkt.html

Title	Terminology from national archives: physic and material for archives
Kind of resource	Glossary
Country	Sweden
Language(s)	Swedish
Description	Glossary of terms related to material, techniques and storage facilities for archival documents and media. Specific to the archives area. Managed by the national archives of Sweden
Dimension	501-1000
URL	http://nad.ra.se/static/termlistor.html

Title	Allgemeines Künstlerlexikon (AKL) (Artists of the world)
Kind of resource	Simple list of terms
Country	Germany
Language(s)	German
Description	The <i>Allgemeines Künstlerlexikon (AKL)</i> is a name authority file. Designed as <i>International Database of Artists</i> . Managed by the Walter de Gruyter Publisher. The content of this online database can be purchased for integration as internal authority file for artists' names
Dimension	Over 10000
URL	http://www.degruyter.de/cont/fb/km/kmAklEn.cfm

Title	Personennamensdatei Deutsche Nationalbibliothek (PND)
Kind of resource	Simple list of terms
Country	Germany
Language(s)	German
Description	Name authority file: all names of persons important for descriptive and subject cataloguing as well as for national cataloguing projects are brought together. The PND is the reference file for international co-operation in the area of creating personal names headings. Managed by the Deutsche Nationalbibliothek (German National Library) in cooperation with other libraries Mainly for the use of libraries.
Dimension	Over 10000
URL	http://www.d-nb.de/eng/standardisierung/normdateien/pnd.htm

Title	Museofile, Répertoire des musées français (Museums names)
Kind of resource	Simple list of terms
Country	France
Language(s)	French
Description	Organisation Authority file: list of all the French Museums at national or local level Managed by the French ministry of Culture and Communication. Used as a reference for indexing and information retrieval purposes.
Dimension	1001-5000
URL	http://www.culture.gouv.fr/documentation/museo/pres.htm

The analysis and description of these resources are presented on the basis of the criteria set introduced in the section 2.4.

3.2.1 Kind of terminology

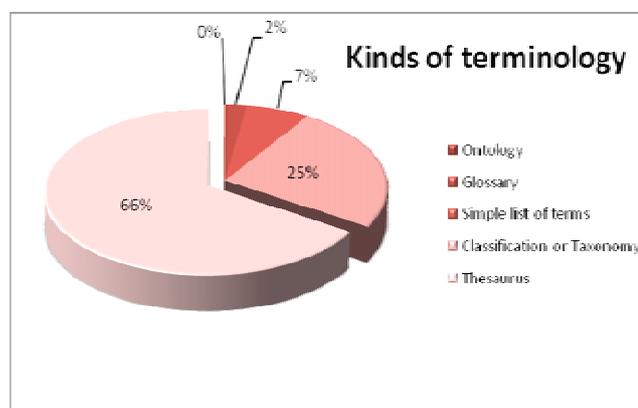
Among the 44 terminology resources identified, 29 of them are thesauri; 11 resources are classification or taxonomy: this means that 91% of these resources are structured and present at least a parent-child relationship. It is possible to note that almost all the classifications listed are monolingual: the use of this kind of terminology can be explained by the need of a structured controlled vocabulary which would be more elaborated than a simple list of terms but less expressive than a thesaurus.

Most of the classifications identified are person and organisation, name or geographic name authority files. The Universal Decimal Classification (already mentioned in the 2.3 section) (<http://www.udcc.org/>) is an example of classification which is not multilingual but is available in several languages, namely in Bulgarian and in Portuguese. The French Authority language Rameau (<http://guiderameau.bnf.fr/>) has been adapted in a Romanian version (<http://www.bibnat.ro/>).

None of the resources are ontologies. Nevertheless, during this investigation phase, we noticed the willing of some authorities to make evolve consolidated thesauri toward ontologies. It is the case for example of the PACTOLS thesauri

(<http://frantiq.mom.fr/html/pactols/>). These thesauri on archaeology, ethnology and anthropology are currently under SKOSification in order to be compliant with ontologies format.

Kinds of terminology	Number of terminologies	%
Simple term list	3	7
Glossary	1	2
Classification or Taxonomy	11	24
Thesaurus	29	67
Ontology	0	0
Total	44	100,0

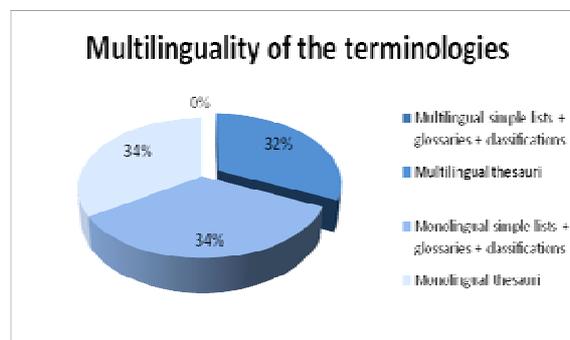


3.2.2 Multilinguality of the terminology

Even if some resources are available in several versions as evocated above, we do not consider these resources as multilingual terminologies as the equivalences/translations of terms do not appear in the resource itself.

In order to be consistent with this principle, we consider that some of the terminologies available in several languages are not multilingual if we consider them separately. For example, the three subject headings authority files, namely SWD (German Subject heading authority files <http://www.d-nb.de/standardisierung/normdateien/swd.htm>), LCSH (Library of Congress Subject Headings : <http://authorities.loc.gov/>) and RAMEAU (<http://guiderameau.bnf.fr>), have been mapped in the framework of the MACS project in order to have respectively equivalences in the three languages: German, English and French. Considering this, it appears that 66% of the terminologies are monolingual: only 14 terminologies among the 44 identified resources, e.g. 34% are multilingual.

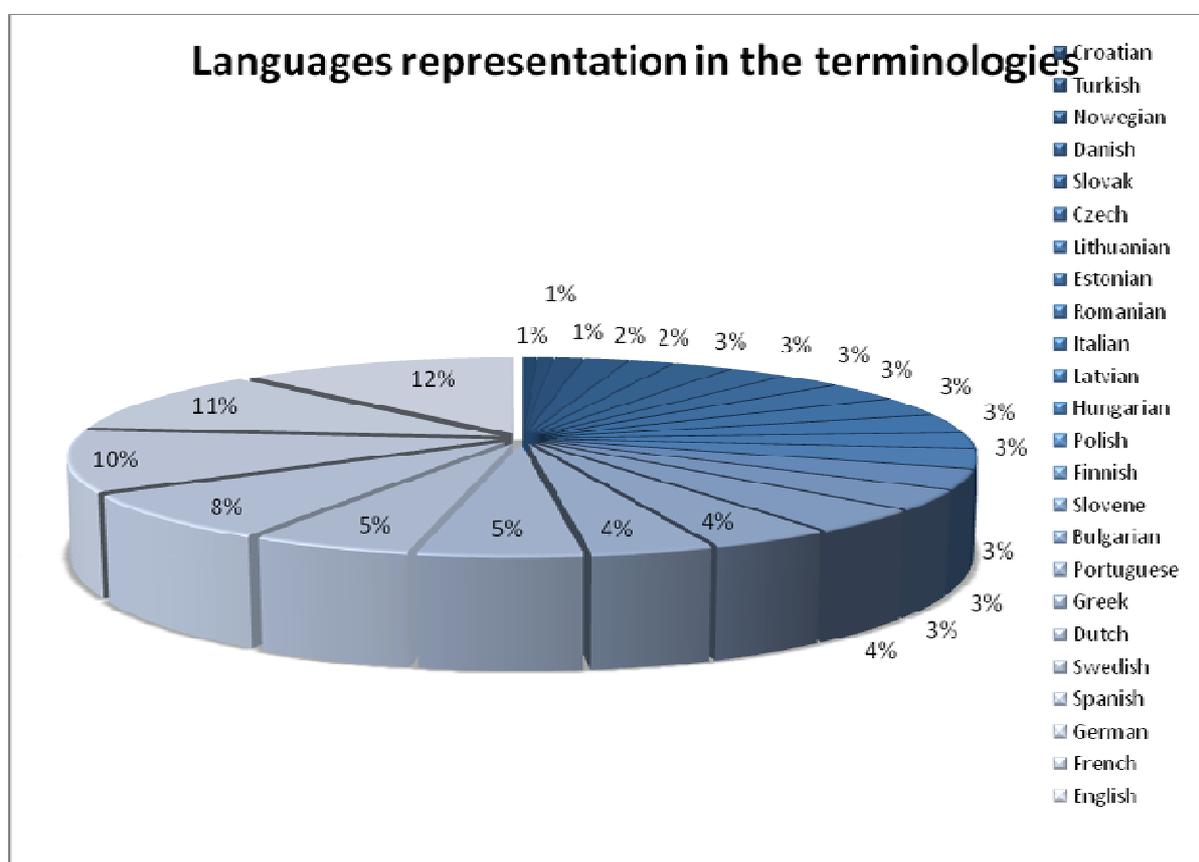
Multilinguality state	Quantity	%
Monolingual simple lists + glossaries + classifications	15	34
Monolingual thesaurus	15	34
Multilingual simple lists + glossaries + classifications	0	0
Multilingual thesaurus	14	32
Total	44	100,0



It is also particularly relevant to notice that some of the thesauri have been designed to be strictly multilingual. Indeed these thesauri take care of having available all their descriptors in each language whereas the number of non-descriptors can vary from a language to another. The Thesaurus for Education Systems in Europe (TESE) (<http://eacea.ec.europa.eu/portal/page/portal/Eurydice/TESEHome>) is an example where

each descriptor in one language has its equivalent in 15 other European languages. Eurovoc (<http://europa.eu/eurovoc/>) which is another European thesaurus applies the same policy for the 23 official languages of the European Union.

15 % of the resources are thesauri produced in a European context and then available in more than 5 languages. In addition to the two mentioned above, we could also stress the following European thesauri which fit in this situation but are not only dedicated to professionals and users from European institutions (European Parliament,...) : MICHAEL, Multilingual inventory of cultural heritage in Europe (<http://www.michael-culture.org>) makes its content available in 16 languages for the description of the digital collections and for the browsing webpages as well. The HEREIN thesaurus (<http://thesaurus.european-heritage.net/sdx/herein/thesaurus/consult.xsp>) is available in 9 languages and offers a browsing interface in 3 languages.



This graph gives an idea of the languages that are represented in the terminology resources independantly from the ratio aspect.

3.2.3 Area width and dimension of the terminology

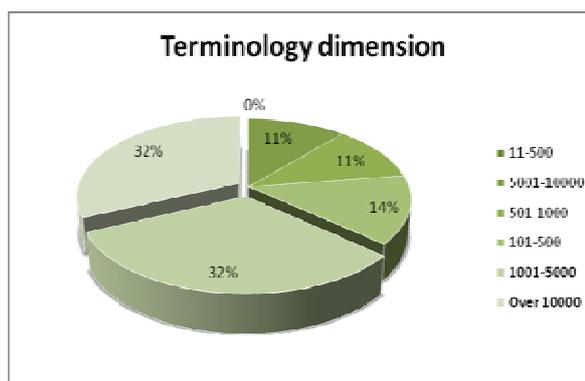
A significant number of terminologies (34%) list more than 10.000 terms. In the case of thesaurus type resource, only the number of descriptors has been taken into account: this means that the non-descriptors (e.g. associative, equivalent or related terms) haven't been considered to define the dimension of the terminology. This information raises the impact of this very high percentage.

No terminologies contain less than 100 terms; 31 % of the terminologies have an important number of terms but still can be relevant for professionals, e.g. between 1001 and 5000 terms. The terminologies with 5001 to 10.000 terms represent only 11%.

In the framework of this section, these figures can intend to show that there might be a correlation between the area covered by the terminology and its dimension.

The area of the terminologies could explain in a way the high number of terminologies with an important number of terms. Indeed, most of these resources have a very general coverage and are presented as encyclopaedically or multidisciplinary.

Dimension (number of terms)	Number of terminologies	%
11 - 100	0	0
101 - 500	6	14
501 - 1000	5	11
1001 - 5000	14	32
5001 - 10000	5	11
over 10000	14	32
Total	44	100



3.2.4 Production of the terminology

Most of the sources we investigate give an introduction to their terminology resource explaining how it was built and how it is maintained and overall how to use it. Our major point with this criterion is to observe if the resource has been produced on the basis of the ISO standards presented in the section 2.4 or if it is the result of an adaption or a reuse of other existing resources.

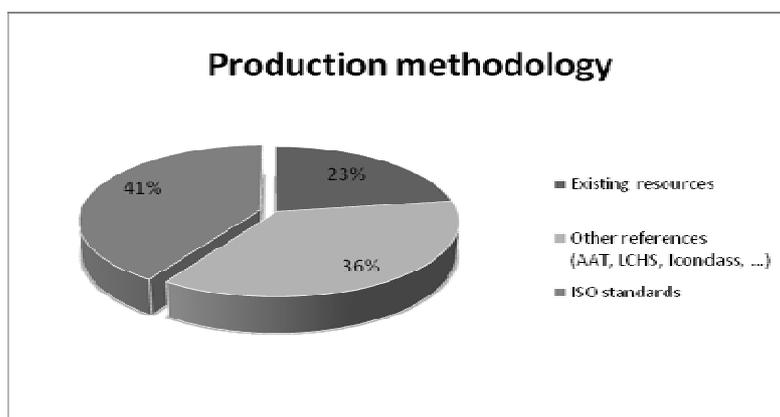
Information on the production methodology is also closely connected to the purpose of the resource and the associated tools that could reuse the resource.

So far, complementary information for some of the resources will be investigated more in depth especially for the resources where the production methodology hasn't been established clearly or could be interesting for the next steps of the WP4 working plan.

The table below shows that the production methodology has to be defined and checked for more than the half of the identified resources. The 50% of terminologies where the reference standard is unknown invite to consider the following figures with caution and confirm the necessity to a more detailed investigation on this point.

Reference standards	Number of terminologies	%
ISO 2789 a/o ISO 5964 a/o ANSI/NISO Z39.10-1993	9	21
Other references: AAT base, LCHS, Iconclass, ...	8	18
Other existing resources (UNESCO databases, ...)	5	11
Other, unknown reference	22	50
Total	44	100

However, the following graph gives a representation of the reference standards that were used for producing the terminology. The percentages have been calculated on the basis of the 22 terminologies giving information on their production methodology.



Here are some figures we can assess on the basis of this available information.

20% of the identified resources have been elaborated on the basis of the ISO standards giving guidelines for the construction of monolingual or multilingual thesauri. In some cases, the production methodology relies on the national adaption of these standards. For example, the International ISO 2788-1986 has been adapted as a British standard 5723:1987 and this standard was used to produced the HASET thesaurus (Humanities and Social Science Electronic Thesaurus : <http://www.data-archive.ac.uk/search/hassetSearch.asp>).

It is important to note that these references are not exclusive: many of the terminologies have combined the use of the ISO standards to the reuse of existing resources. The HASET thesaurus, for example, has been built on the basis of the UNESCO thesauri in conformity with the national British standard mentioned above.

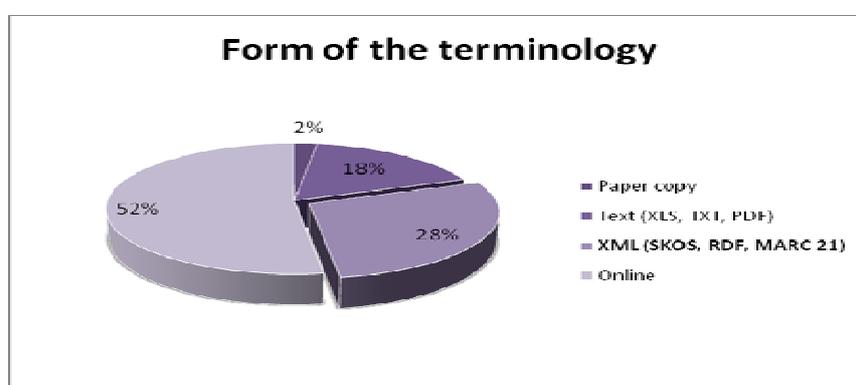
Complementary information and investigation will help to confirm that terminologies how different their purpose or their coverage may be are based on normalised standards or international references which are adapted in order to fulfil the specific needs and expectations of the terminology producing authority.

3.2.5 Data form of the terminology

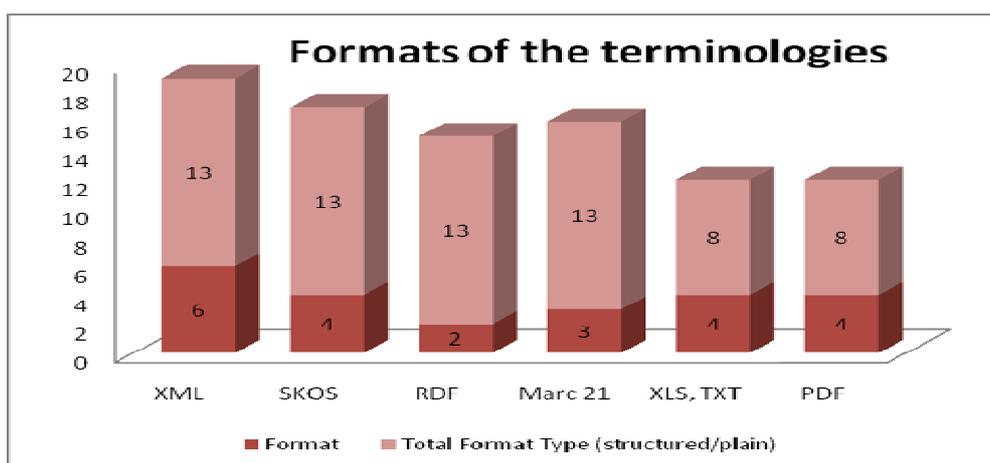
Most of the identified resources are available online. Some of the terminologies can be downloaded in various formats such as PDF, text files or Excel sheets. Some of them do not propose an access to the terminology lists. In order to be able to assess the data form of the terminology, we raised four main categories of terminologies according their availability:

- Online
- Paper copy
- Digital format, plain text files
- Digital format, structured text files

These categories are obviously not exclusive but help to have a general overview of the identified resources form:



The following graph goes further in details with the amount of terminologies which are already available for download in a structured format (XML, especially in SKOS or RDF format) or in a plain text format without structured data.



Three of the identified resources do have a SKOSified version. We already mentioned the case of the PACTOLS thesauri which are being SKOSified. The same process is under its way for these two French thesauri: RAMEAU or the Thesaurus W. The GEMET thesaurus can also be downloaded in SKOS.

Experience and methodology for this conversion process will be for sure very useful for the elaboration of the guidelines towards museums in the framework of this workpackage.

3.2.6 Kind of terminology users

Only 3 of the identified terminologies have been designed especially for the use of general public. 54% of the resources are dedicated mainly for the use of professionals while 39% of the resources have a target audience which aim at professional users and general public as well.

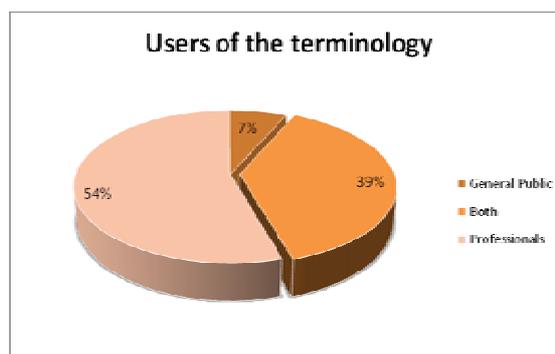
This criterion is in a way to be correlated with the production methodology of the terminology and as a matter of fact correlated to the purpose of the terminology. Most of the terminologies identified are used for indexing and information retrieval purposes. Authority files such as Library of Congress Subject Headings are mainly dedicated to the use of professionals in order to normalize the indexing process and then facilitate subject access to expert users in library catalogues for example.

It could be interesting to consider the choices made by some of the resources to compromise professionals and general public needs. The MICHAEL terminology lists which are based on the UNESCO thesauri clearly address the general public but also take into consideration expectations of the professionals of cultural heritage field. Another example that we could mention is the one of the GEMET, the GEneral Multilingual Environmental Thesaurus (<http://www.eionet.europa.eu/gemet>). The GEMET is a thesaurus which covers the environment area; it was produced on the basis of several multilingual databases on this area but avoided on purpose the terminologies that were too technical or specific in order to be consistent with the initial scope of the terminology, e.g. being a ““general” thesaurus, defining a common general language, a core of general terminology for the environment”.

The orientation took by the Inter-Active Terminology for Europe (formerly Eurodicautom) (<http://iate.europa.eu/>) is also worth mentioning from the target audience point of view. Indeed, this thesaurus formerly called Eurodicautom was dedicated only to the professionals of the European institutions or national legal institutions. In 2007 the scope of this terminology has been extended to the general public by giving access to a multilingual Web interface. This Web interface allows users to send a feedback about a specific term or on the reliability of its translation.

An investigation more in depth on the usability of these resources and all the process and methodological choices made in this sense could have an important impact on the recommendations elaborated towards museums for guaranteeing semantic interoperability.

Terminology Users	Number of terminologies	%
Only professional users	24	54
Only general public	3	7
Both professional users and general public	17	39
Total	44	100



4. Identification of terminologies: specific survey in European museums

4.1 Presentation of the survey

As explained upper in the deliverable introduction, a specific survey has been realised in order to provide us information about the terminologies used today within the European museums. Here are presented the questionnaire we use to get the information, and the protocol we have followed to produce the results.

4.1.1 The questionnaire

One questionnaire has been set up for the survey, and addressed to the European museums. This questionnaire form has been elaborated on the basis of another one, finalized in 2006 by the MinervaPLUS project: "Report on inventories and multilingualism issues: Multilingualism and Thesaurus". Because the questionnaire was mainly designed for multilingualism investigation, we had to select and to adapt them to our needs and to the specificity of our survey: this time, the interface to consider is the terminology itself, as an interface between the collections data and the users who want to access to these data.

After having done this first adaptation, we added some questions regarding access and retrieval. Most of all, the first main aim was to better know if the museums exploit their terminologies for information search through the websites (search engine, translation tools). Then the objective to focus on the terminologies themselves as they are produced, structured, featured, used, expressed and implemented. Questions on the multilinguality of the resources is also a major focus of the survey.

Country	Number of terminologies
Cyprus	0
Greece	1
Germany	1
Romania	1
Hungary	1
Slovak Republic	1
Poland	1
Estonia	1
The Netherlands	2
United Kingdom	2
[international]	2
Israel	3
Russia	5
Finland	6
Czech Republic	12
France	16
Belgium	16
Italy	34
Total	105

24 countries have been contacted for filling in the questionnaire. 7 countries have not answered yet, or their answers are arrived a bit too late for this deliverable version. Among the other 17, we are still expecting from 6 of them precisions for the main parts of the questionnaire. We have preferred to consider all the forms provided by these 17 countries rather than only 11, even if the results will have to be refined when all the data are consolidated. For the time being 105 have been then identified, 103 are used locally in museums, 2 are international. The next versions of the deliverable will present more consolidated figures.

Among these 18 countries, the situations are very different. Some of them (e.g. France, Italy, Czech Republic) use a lot of terminologies (more than 10), although 11 of them use a very few (less than 3 terminologies; e.g. Greece, Poland, United Kingdom).

N.B.: The complete questionnaire is in annex

4.1.2 The survey protocol

1/ Thanks to identified national contact points and experts, we have addressed each country partner of Athena. The museums known for their use of terminology have been contacted to fill in the questionnaire.

2/ A first consolidation of the answers has been done, and allowed us to identify different lack of information or ambiguities. So that we have precisely put questions to each partner, terminology by terminology, in order to fix it.

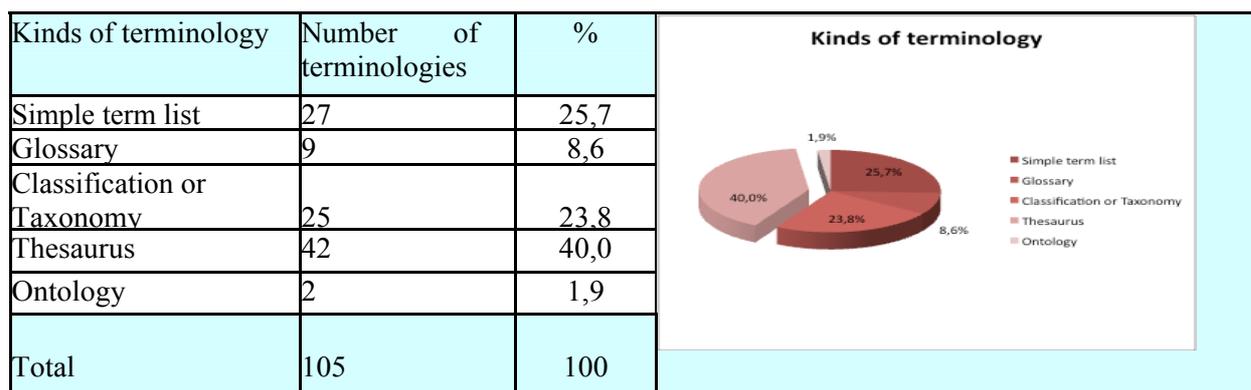
3/ The second consolidation that this deliverable is the result for, provides first results, more or less reliable. Either by the deliverable finalisation, or during the further WP4 tasks, we will investigate more to make the results more reliable and useful for the rest of the project.

4.2 WP4 questionnaire results

Here we provide the results of the specific survey we did for the WP4 about terminologies. As explained within the part 2.4, the analysis of the terminologies used within the European museums has been realised according to a set of criteria. The results below are structured by this set.

4.2.1. Kinds of terminology

Among the 105 terminologies listed in the survey, 41 are thesauri, and two are ontologies. It means 41% of the existing used terminologies are potentially structured enough to manage multilingualism. Hence, even if these results are promising, the guidance effort must particularly pay attention to this issue. A specific survey about the reasons of terminology choice may help to better address recommendations toward the museums. The choice can be motivated by a lack on information or expertise, and by the search of an adequacy with the real needs in the museum as well.



N.B.: 5 terminologies have been declared as simple term lists or glossaries, but featuring narrower / broader relations. In regards with our definitions of the part 2.3, and waiting for confirmation from museums, we consider these terminologies are classifications rather than simple lists or glossaries.

Here are a few examples of thesauri currently used in European museums:

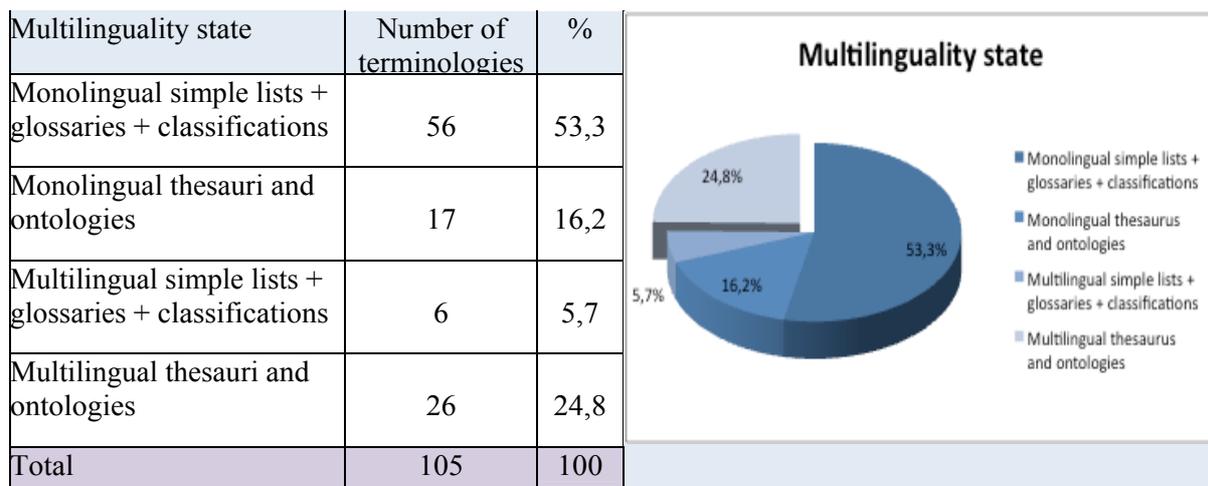
Title	Museoalan asiasanasto MASA
Kind of resource	Thesaurus
Country	Finland
Language(s)	Finnish
Description	Managed by the National Board of Antiquities. Used for the description of archives from the following areas: Cultural history, ethnology, maritime history, archaeology, museology, historical architecture, conservation
Dimension	5001-10000
URL	http://www.nba.fi/

Title	Jerusalem Index of Jewish Art
Kind of resource	Thesaurus
Country	Israel
Language(s)	Hebrew and English
Description	Managed by The Center for Jewish Art at the Hebrew University of Jerusalem. Used for the description of archives from the following areas: Jewish art: Ritual objects, Illuminated manuscripts, Ancient Jewish Art, Modern Jewish Art, Ritual Architecture
Dimension	1001-5000
URL	http://cja.huji.ac.il/Publications/ija2.html

Title	Joconde - Methods of collection, types of sites, geographical locations of discovery
Kind of resource	Thesaurus
Country	France
Language(s)	French
Description	Managed by the French Ministry of Culture and Communication, and whose terms are validated by DMF, Direction des Musées de France. Used for the description of archives from the following areas: Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...
Dimension	1001-5000
URL	http://www.culture.gouv.fr/documentation/joconde/

4.2.2 Multilingualism of the terminology

From a very large point of view, about 70% of the listed terminologies are monolingual, and only 30% multilingual. Hence we can confirm that the guidance task shall make a big effort to foster the museums to produce multilingual terminologies. However if we focus on the rate of multilingual thesauri and ontologies, we do notice they represent 25% of all the listed terminologies. More, among the 31 multilingual terminologies, 22 are already fully multilingual (71%)(ie the terms expressed in the museum reference language are fully translated into the chosen other languages). Somehow here is a reason to hope for the coming guidance task insofar good examples could exist among all these multilingual terminologies.



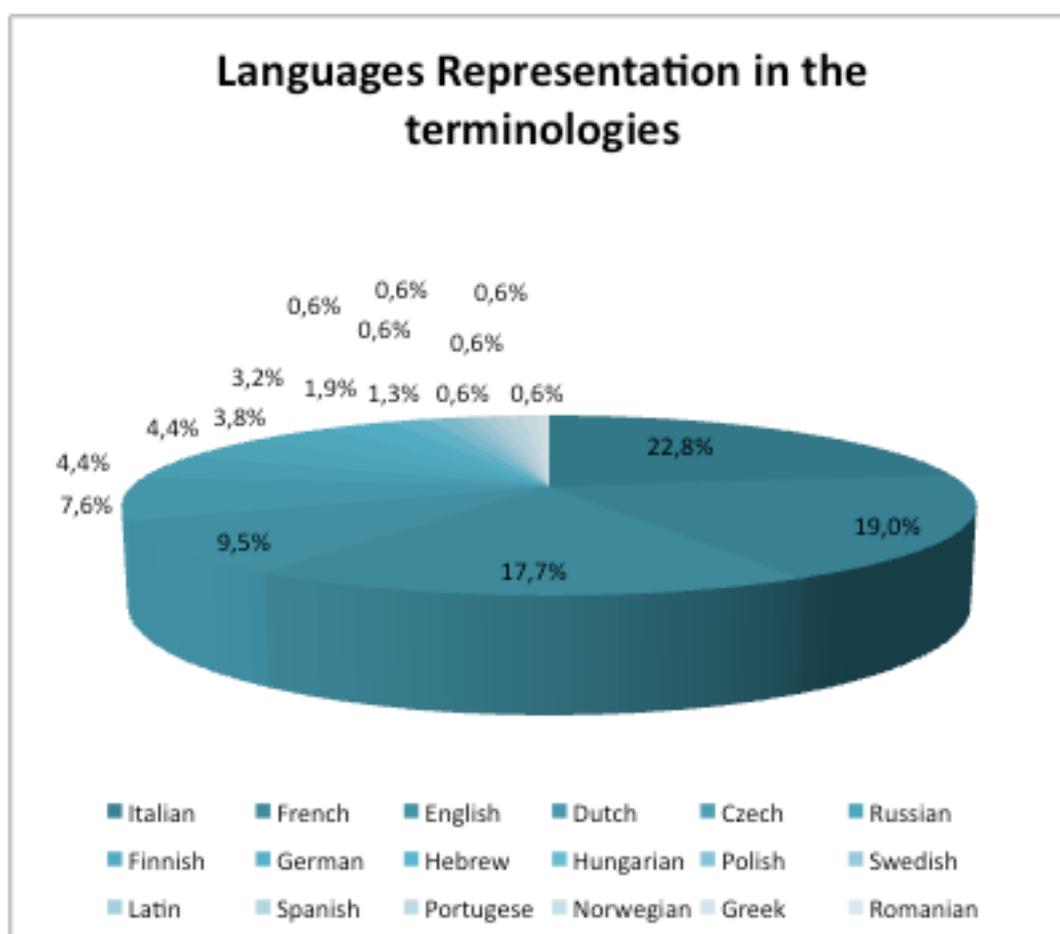
Here are for examples of terminologies illustrating these four cases:

Title	Vocabolario settoriale campo sgti scheda ra - scultura in marmo - sarcofagi e rilievi
Kind of resource	Glossary
Country	Italia
Language(s)	Italian
Description	Managed by Istituto centrale per il catalogo e la documentazione (ICCD) Used for the description of archives from the following areas: Archeology focused on marble sculptures and sarcophagi
Dimension	101-500
URL	http://www.iccd.beniculturali.it/

Title	Tezaur de termeni (Thesaurus)
Kind of resource	Thesaurus
Country	Romania
Language(s)	Romanian
Description	Managed by CIMEC - Institute for Cultural Memory Used for the description of archives of cultural heritage from the following sub-areas: fine arts, decorative arts, archaeology, ethnography, numismatics, history, history of science&technology
Dimension	Over 10000
URL	http://www.cimec.ro/

Title	Lists of terms for art museum objects: categories, material, technics
Kind of resource	Simple list of terms
Country	Russian Federation
Language(s)	Russian and English
Description	Managed by The State Tretyakov Gallery. Used for the description of archives from the following areas: icons, painting, graphics, sculpture
Dimension	11 – 100
URL	http://www.tretyakov.ru/

Title	AFO Ontology - The Agriculture and Forest Ontology
Kind of resource	Ontology
Country	Finland
Language(s)	Finnish
Description	Managed by Viikki Science Library, University of Helsinki. Used for the description of archives from the following areas: Agriculture; Forestry; Veterinary Science; Food science; Environmental Science;
Dimension	5001-10000
URL	http://www.tiedekirjasto.helsinki.fi/english/



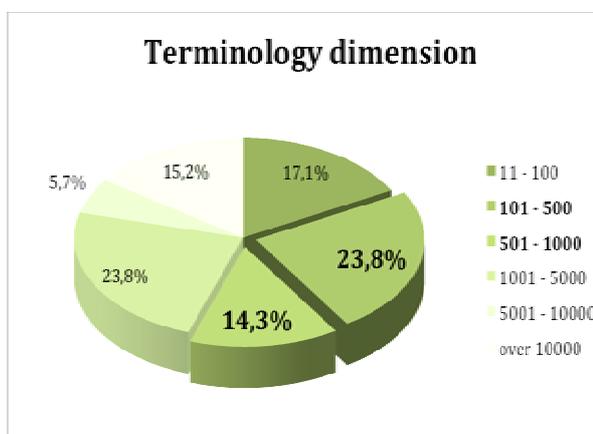
This graph gives an idea of the languages that are represented in the terminology resources independantly from the ratio aspect. Italian, French, English and Dutch are particularly represented, but for different reasons. On the first hand, Italian and French are top-ranked because Italy and France have declared a lot of monolingual terminologies in their proper language, and are a bit used in other countries as a secondary language in which the terminologies are translated. On the other hand, English and Dutch are first of all used as a secondary language since UK and the Netherlands have identified a very few terminologies for their own territories. A quick overview confirms English is very well distributed in European museums, and could play a sort of pivot language rôle for all the countries.

4.2.3 Area width and dimension of the terminology

When we consider the terminology dimension (number of terms) independantly of any other analysis criteria, no easy conclusion happens. "Small terminologies" (< 100 terms) are not marginal (17,1%), "enormous terminologies" (> 5000 terms) are not a fatality (20,9%), "medium terminologies" (between 101 and 1001 terms) are not so widespread (38,1%).

Nevertheless, the combination of these figures with another criteria may provide useful information. For example, one hypothesis is to claim that the larger an area is, the bigger the terminology is. A complementary study should be very useful to check how much the correlation between the area width and the terminology dimension is determinate. The current results of our survey prevent us from concluding right now that our hypothesis is confirmed. Thus the following of our WP4 activity shall make an effort to fix this lack. This will enable us to evaluate the average dimension we shall recommend to the museums.

Dimension (number of terms)	Number of terminologies	%
11 - 100	18	17,1
101 - 500	25	23,8
501 - 1000	15	14,3
1001 - 5000	25	23,8
5001 - 10000	6	5,7
over 10000	16	15,2
Total	105	100,0



We have given terminologies information upper for some of the listed dimensions:

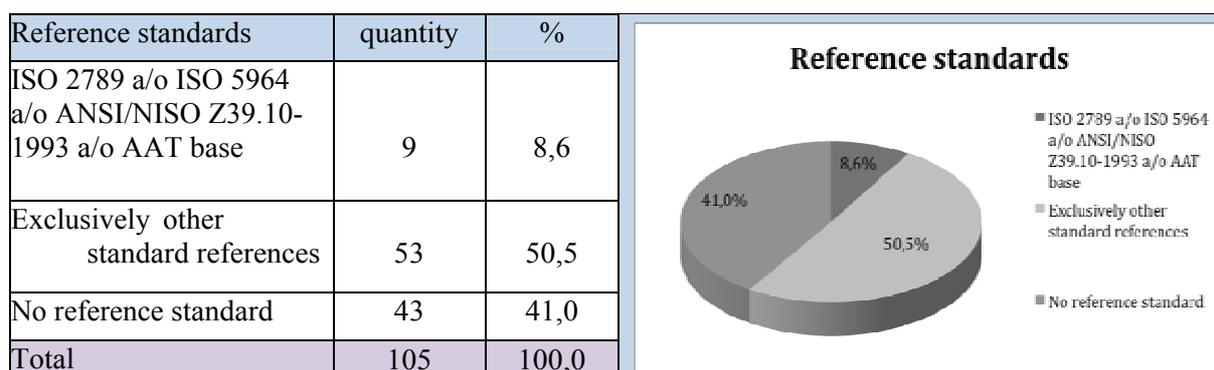
- 11-100 terms: see the Russian lists of terms for art museum objects
- 101-500 terms: see the Italian glossary Vocabolario settoriale campo sgti scheda ra - scultura in marmo - sarcofagi e rilievi
- 1001-5000 terms: see the French thesaurus Joconde - Methods of collection, types of sites, geographical locations of discovery
- 5001-10000 terms: see the Finnish Ontology AFO Ontology - The Agriculture and Forest Ontology
- Over 10000 terms: see the Romanian thesaurus Tezaur de termeni

Here is an example of a terminology whose dimension is 501-1000 terms:

Title	Lists of terms for art museum objects: categories, material, technicsRMAH EGYPTE - Datation
Kind of resource	Thesaurus
Country	Belgium
Language(s)	French and Dutch
Description	Managed by Royal Museums of Art and History. Used for the description of archives from the following areas: Art, Archaeology, Architecture, History, Ethnography, Musical instruments
Dimension	501-1000
URL	http://www.rmah.be/

4.2.4 Production of the terminology

The WP4 questionnaire does not ask so much about the production of terminology. One question about standards used as reference is proposed. We notice that 43 of the 105 listed terminologies have been set up without any standard (41%). Half of them have been set up without the main standards that are ISO 2789, ISO 5964, ANSI/NISO Z39.10-1993, and AAT as a possible base. And at least 14 different references have been listed. So we can say that museums are used to starting from existing standards to produce their own terminologies, and that no standard seems to comply enough with all the domains to be the reference one. The complementary study we intend to make shall investigate in depth the why museums choose standards as reference, and the how they adapt them to their needs and peculiarities.



For example:

- The Israeli thesaurus “eJewish Controlled Vocabulary” has been produced in conformance with the two standards ISO 2789 and ISO 5964

Title	eJewish Controlled Vocabulary
Kind of resource	Thesaurus
Country	Israel
Language(s)	English, Hebrew, French, Russian and Spanish
Description	Managed by The Jewish Agency for Israel. Used for the description of archives from the Jewish culture
Dimension	1001 – 5000
URL	http://www.ejewish.info

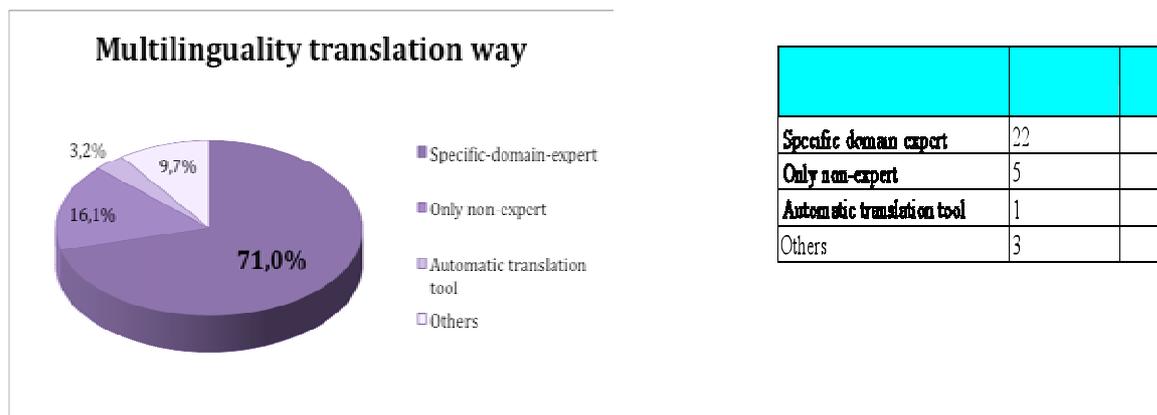
- The Estonian Glossary “MuIS Sõnastik” has been produced exclusively from another source

Title	MuIS Sõnastik
Kind of resource	Thesaurus
Country	Estonia
Language(s)	Estonian
Description	Managed by Estonian Ministry of Culture. Used for cataloguing and description of museum objects (colour, purpose of use, description, etc.)
Dimension	1001 – 5000
URL	http://www.kul.ee/

- The German Classification “SHIC Social History and Industrial Classification” has been produced without any standard as reference

Title	SHIC Social History and Industrial Classification
Kind of resource	Classification
Country	Germany
Language(s)	German and English
Description	Managed by Fachgruppe Dokumentation im DMB. Used for description of archives from the following areas: community life, domestic/family life, personal life, working life, agriculture, equipment, crafts/maufacture, textiles, architecture
Dimension	1001 – 5000
URL	http://www.museumsvokabular.de/

Then, regarding the production of multilingual terminologies, 22 of the 31 listed multilingual terminologies have been translated by a specific-domain-expert, and only one translation by an automatic tool. If a guidance must be imagined for this sort of task, human contribution shall be more relevant for and well gusted by the domain community.



We have given terminologies information upper for some of the listed ways for terminology translation:

- Specific domain expert: see the Belgian thesaurus “RMAH EGYPTE - Datation”

Here is an example of terminology translated by a non-expert:

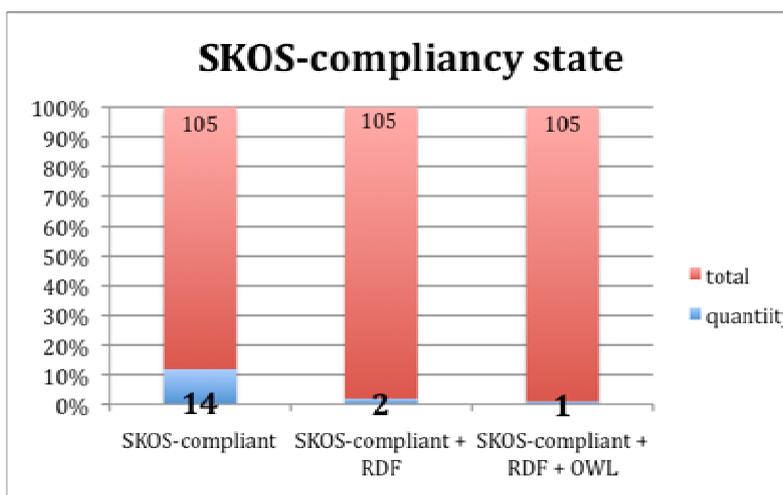
Title	Nové taxony hub popsané Josefem Velenovským/New fungal taxa described by Josef Velenovský
Kind of resource	Simple term list
Country	Czech Republic
Language(s)	Czech and English
Description	Managed by Narodni muzeum. Used for description of archives from the Natural science area: Fungology
Dimension	Over 10000
URL	http://www.nm.cz

Here is an example of terminology automatically translated by a tool:

Title	Subject Entry
Kind of resource	Simple term list
Country	Belgium
Language(s)	English and Dutch
Description	Managed by Flemish Art Collection. Used for description of archives about Fine Arts
Dimension	“11-100”
URL	http://www.vlaamsekunstcollectie.be/

4.2.5. Data form of the terminology

A candidate terminology has to be SKOS-compliant to be accepted into the Europeana input process. If we focus on the state of the already SKOSified terminologies within the European museums, we can notice that a few could at this very moment be accepted. Among the 105 listed terminologies, only 14 are already SKOSified (13,3%).



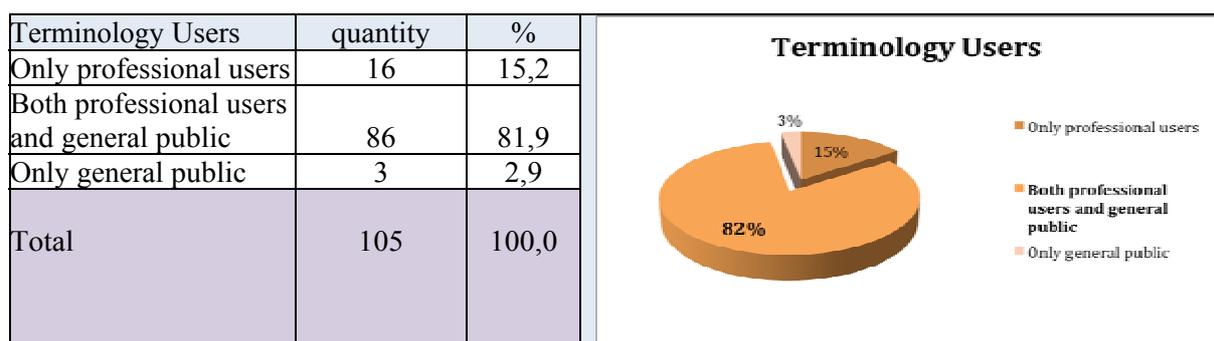
This implies that a strong effort has to be made in the guidance to help the museums in general to adapt their terminologies to this Europeana requirement. Besides the SKOS-compliance, we can also see that these terminologies are not conceived yet to be exploited in an Web-interoperable way. Only 2 are SKOSified and expressed in RDF, only one of those in OWL too. In the future of WP4, if we consider that formalisation in RDF and OWL is really better to have for the candidate terminologies, a stronger effort shall be made in the guidance because the museums don't seem to be aware of their interest for Web-retrieval and perennation/ubiquity of access.

Here is the only listed terminology already SKOSified and expressed in RDF and OWL too:

Title	AFO Ontology - The Agriculture and Forest Ontology YSA - Yleinen suomalainen asiasanasto - General Finnish Thesaurus
Kind of resource	Ontology
Country	Finland
Language(s)	Finnish and Swedish
Description	Managed by The National Library of Finland. Used for the description of archives especially from the following areas: humanistic and social sciences
Dimension	Over 10000
URL	http://www.kansalliskirjasto.fi/kirjastoala/asiasanastot.html

4.2.6. Kind of terminology users

Only 3 terminologies are exclusively conceived for a general public use, on the contrary only 16 for an exclusive professional use. 82% of the terminologies are dedicated to both. If these figures are reliable, we can conclude that generally museums are already used to take into account the general public use when they design terminologies. However in the WP4 questionnaire, the related question is a bit ambiguous. It is not so easy to know if the whole set of answers is homogeneous. Maybe some museums have not understood that the question is specifically about the design of the terminology. It would be better if the further WP4 tasks could investigate this point a bit more to consolidate this optimistic conclusion.



We have given terminologies information upper for some of the listed terminology users:

- Only professional users: see the Israelian thesaurus “Jerusalem Index of Jewish Art”

Here is a terminology specifically and exclusively designed for a use by general users:

Title	Kabinet virtuální reality/Cabinet of virtual reality
Kind of resource	Simple list of terms
Country	Czech Republic
Language(s)	Czech
Description	Managed by The National Library of Finland. Used for the description of archives especially from the social science: History
Dimension	“11 - 100”
URL	http://www.nm.cz

Among all the terminologies designed for both kinds of use, as an example there is:

Title	Trefwoorden bibliotheek
Kind of resource	Simple list of terms
Country	Belgium
Language(s)	Dutch
Description	Managed by Modemuseum Provincie Antwerpen. Used for the description of archives especially from the following areas: Fashion - Costume - Textile
Dimension	501 – 1000
URL	http://www.momu.be/

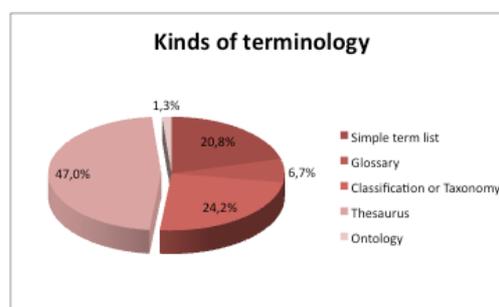
5. Recommendations

Here we propose a joint synthesis based on common analysis of all the information gathered by Athena WP4 and other due projects (results presented in the parts 3.2 and 4.2). These recommendations must be considered as a preliminary step that will be complemented by the two other WP4 deliverables. They will help to the define orientations and strategies for the very next steps of the project. Some of the recommendations will also be refined with specific questions in the next phase.

5.1 Prefer the use of thesauri (to other types of terminologies)

Among all existing types of terminology resources, we recommend the use of thesauri for museums in order to make their collections available to Europeana. First, this type of terminology is quite easy to SKOSify as the SKOS format is intended – even mainly designed to handle thesauri, so that it can technically comply with the main requirement of Europeana ingestion process. Then, if we compare with the other terminology types, thesaurus features a good mix of richness and usability. Moreover, museums are generally already used to employing this kind of terminology rather than ontology to describe their collections in a well-structured manner (47% of the 149 terminologies we have listed are thesaurus). Without forgetting that regular relations of equivalence and of association are particularly relevant for multilinguality. So, even if Europeana is moving toward the ontologies, we keep recommending thesauri to the museums since it appears as a good “middle way” between controlled vocabulary (particularly appreciated in the museums) and ontologies (especially powerful for the retrieval).

Kinds of term	Quantity	%
Simple term	31	20,80%
Glossary	10	6,70%
Classification	36	24,20%
Thesaurus	70	47,00%
Ontology	2	1,30%
Total	149	100,00%



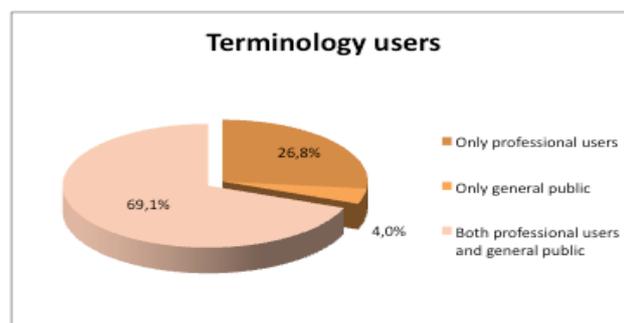
We can add that the SKOS format has been recognised as a W3C recommendation and that a new ISO standard providing guidelines for the production of thesauri will be published as “ISO DIS 25964-1 - Information and documentation - Thesauri and interoperability with other vocabularies - Part 1: Thesauri for information retrieval.” This standard will deal with the mapping of SKOS vocabularies.

5.2 Focus terminologies on specific domains and then create bridges between them

Rather than trying to constitute one big thesaurus for all the areas to deal with, we recommend the museums keeping and feeding their existing specific-domain-thesauri without broadening them to other domains. It sounds better to add new thesauri to cover new domains, and to set up bridges between the thesauri if the retrieval issue on Europeana requires a cross-domain browsing.

5.3 Be “general user oriented”

Because Europeana is a portal for accessing to the collections data, earlier the point of view of who is accessing is taken into account, the more efficient the portal should be. Requests will not be expressed by professionals, but by the general public. It means the Europeana meta-terminology does comply with what the general public is “functionally” expecting. If a candidate thesaurus has natively been designed in the same mood, we can guess that it will work fine on the portal. Thus we recommend the museums designing thesauri by considering the skills, habits and expectancies of the general users than the professionals as well. It means both two approaches can be considered in the meantime as complementary: 1/ the “bottom-up” approach consists in starting from the needs and habits of the professionals to determine the terminology; 2/ the “top-down” approach on the contrary in coming from the specificities of the access and research by the general users. The good point is that today 69% of the 149 terminologies we have listed have been designed by considering both professionals and general public. And projects like GEMET have already experimented the less employed “top-down” approach. So we can hope to find among the museums and projects inspiring examples for the guidance.



6. Workplan

6.1 Establishing a guidance for the museums

As we regularly mentioned all along the content of this deliverable, we are going to set up a guidance dedicated to the implementation of terminologies in museums who want deliver their collections to Europeana. Here are the next steps in WP4 for establishing such guidance:

- To give feedback to participating European museums about the recommendations we have already proposed in the part 5 after the first inventory phase
- To detail some aspects of the survey in order to refine our recommendations:
 - About the reasons the museums make their choices of a kind of terminology rather than another one
 - About the correlation between the area width and the thesaurus dimension
 - About the choice of standards as reference, and how they adapt them to their needs and peculiarities
- To identify good examples among the listed multilingual thesauri and to investigate the way they have been produced, the objectives they have been designed for, how they have been made multilingual (translation issue)
- To evaluate if we should recommend an average dimension (number of terms) for specific domains thesaurus in order to make them more easily compliant and efficient with Europeana

6.2 Experimenting a test thesaurus

The study we have just made leads us to consider that an experimentation on a test thesaurus in the WP4 will be useful for confirming and refining our first results. The experimentation will aim at practically test the guidance we are going to define by the end of the project. The museums finally could benefit from the work done to set up a way to adapt their terminology resources into Europeana-compliant thesauri. This experimentation will be done within the Working group of the WP4, on a domain that will be chosen from the results of the survey. A draft test thesaurus will be proposed to be discussed and improved through an internal Wiki. Here is the proposed plan for the development of this experimentation:

Milestone 1: Lund Plenary meeting (Mid-October 2009)

- Presentation of the D4.1 results and first orientations for the guidance
- Kick-off of the collaborative work on a test thesaurus (for a very specific domain, with a few partners, through a Wiki)

Milestone 2: WP4 Expert Group meeting (Mid-November 2009)

- First assessment of the collaborative work, identification of hard issues to solve
- Decisions about the issues and follow-up of the collaborative production of the test thesaurus (notably about the SKOSification task)

Milestone 3: End of 2009

- Finalization of the first version of the thesaurus and first report about what the Expert Group has learned during the test (new set of recommendations)
- Beginning of the Europeana ingestion process with this test thesaurus (second part of the experimentation, in collaboration with WP3 and WP7)

Milestone 4: Plenary meeting (January 2010)

- Presentation of the intermediate results: first version of test thesaurus and first integration tests into Europeana platform of a SKOSified thesaurus
- Discussion about the issues pointed out by the integration tests into Europeana platform of a SKOSified thesaurus (in collaboration with WP3, WP5 and WP7)
- Validation of next steps

Milestone 5: D4.2 for internal reviewing (March 2010)

- Proposal of an intermediate version of the D4.2 for an internal review and enrichment

Milestone 6: D4.2 final version (April 2010)

- Delivery of the D4.2 to the European Commission

7. Annex

7.1 Questionnaire form



WP4 | SURVEY

Integration of Existing Data Structure into Europeana

What is in the survey?

The survey has 7 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

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 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?

This survey is complementary to the “Collections” survey (led by the ATHENA WP3) and it is based on its first results.

The aim of this survey is to collect information about terminology resources used by the museums for describing their collections. This information will be used to help the integration of data structures in Europeana.

One survey should be filled in for each terminology.

Identification of existing terminology resources in museums



For questions about the survey: contact

Marie-Véronique Leroi marie-veronique.leroi@culture.gouv.fr

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.

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):

7. Website:

a) Does your organisation have a website?

Yes URL : Http://

No

b) Which languages is your website in? Please list them and indicate in what proportion are the languages to each other on your website.

Language 1: _____ Percentage: _____ %

Language 2: _____ Percentage: _____ %

Language 3: _____ Percentage _____ %

Language 4: _____ Percentage _____ %

Language 5: _____ Percentage _____ %

c) Do you use any information retrieval tool (full text search, semantic search, thematic search functionalities, ...)? For an example, see Louvre's website <http://www.louvre.fr> or Musée des arts décoratifs

<http://mad.lesartsdecoratifs.fr/ow2/MADjanvier2008/index.xsp?index.xsp?rc=robes&e>

Yes No

If yes, please specify them:

d) Do you use any tool for providing multilingual access to your website (automated translation tools, multilingual search functionalities, ...). For an example see Orsay's Museum's website <http://www.musee-orsay.fr/en/tools/search/advanced-search.html>

Yes No

If yes, please specify them:

8. Terminology multilingual issue

c) Is your terminology multilingual?

Yes No

d) 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%, ...

e) Which tools or resources were used to make the terminology multilingual?

- a. Non expert human translation
- b. Domain specific expert
- c. Another existing multilingual terminology (e.g. Getty's terminology)
- d. Automatic translation
- e. Other

If other please specify:

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

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

10. Which areas does this terminology cover? (Ex.: area: social science, sub-area: psychology, criminology, sociology, etc.)

11. 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

12. Which thesaurus features are supported?

- a. Narrower term / Broader term
- b. Related term (or 'See also')
- c. Preferred Term
- d. Non-Preferred Term
- e. Use/Used for (or 'See')
- f. Use OR
- g. Use AND
- h. Top term
- i. Temporary Term
- j. Other relations
- k. Scope Note
- l. Other (special) notes: use notes, date of entry

13. 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):

If the terminology is not accessible on the Web, please send us a copy of the terminology

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

Professional users

General users

- | | | | |
|---|--------------------------|----------------------|--------------------------|
| -from libraries | <input type="checkbox"/> | - libraries audience | <input type="checkbox"/> |
| -from archives | <input type="checkbox"/> | - archives audience | <input type="checkbox"/> |
| -from museums | <input type="checkbox"/> | - museums audience | <input type="checkbox"/> |
| -folk continuous professional development | <input type="checkbox"/> | - pupils | <input type="checkbox"/> |
| -other | <input type="checkbox"/> | - teachers | <input type="checkbox"/> |
| | | - students | <input type="checkbox"/> |
| | | - professors | <input type="checkbox"/> |
| | | -other | <input type="checkbox"/> |

If other, please specify:

If other, please specify:

15. Specific operating system or software for using the terminology (for example Flash player, Mac OS, UTF-8, ...)

16. Is this terminology available in the following forms?

- a. SKOS (Simple Knowledge Organisation System)
- b. RDF (Resource Description Framework)
- c. OWL (Web Ontology language)
- d. Other

If other, please specify:

17. Intellectual property rights and conditions of use

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

18. 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:

19. Which standards were used in creating the terminology?

- a. ISO 2788
- b. ISO 5964
- c. ANSI/NISO Z39.10-1993
- d. Model based on the Art and Architecture Thesaurus
- e. Other

If other, please specify:

**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 details on the recognising authority:

21. Can the terminology be used in the following metadata schemes?

**If yes, which element in the metadata schemes is the terminology aimed at?
Please give details for each metadata.**

- a) Yes No CDWA,
Categories of Description for Works of Art
- b) Yes No CIDOC-
CRM, The International Committee for Museum Documentation-Conceptual
Reference Model
- c) Yes No DCMI,
Dublin Core Elements
- d) Yes No EAD,
Encoded Archival Description
- e) Yes No FRBR,
Functional requirements for bibliographic records
- f) Yes No ISAD (G),
International Standard Archival Description

- g) Yes No LOM,
Learning Object Metadata
- h) Yes No MAB,
Automated Library Exchange Format
- i) Yes No MARC,
Machine-Readable Format
- j) Yes No METS,
Metadata Encoding & Transmission Standard
- k) Yes No MIDAS,
Managing Heritage Data
- l) Yes No MODS,
Metadata Object Description Schema
- m) Yes No Museumdat
- n) Yes No SPECTRUM, Standard ProcEdures for CollecTions
Recording Used in Museums
- o) Yes No TEI, Text

Identification of existing terminology resources in museums



Encoding Initiative

p) Yes No
Visual Resource Association

VRA,

q) Other, please specify:

7.2. Results of the WP4 survey

Wariness: This table contains more terminologies than the amount we have considered for the statistics. The statistics basis has been fixed at the end of July 2009, and all the information we have gotten after that date have been added in the following table only.

Name of the terminology	Country	Organisation name	Website URL	Type of terminology	Area - subject	Number of terms	languages of the terminology
Vocabulary of Basic Terms for Cataloguing Costume	[international]	ICOM International Committee for the Museums and Collections of Costume	http://www.costume-committee.org	Glossary	area: social science, sub area: costume	101-500	French 100%, German 100%, English 100%
Own terminology	Belgium	Royal Institute for Cultural Heritage	http://www.kikirpa.be	Thesaurus	art history including extensive iconography)	Over 10000	French 100%, Dutch 100%
RMAH PROCHE ORIENT - Référence Géographique	Belgium	Royal Museums of Art and History	www.rmah.be	Thesaurus	Art, Archaeology, Architecture, History, Ethnography	101-500	French 100% - Dutch 100%
RMAH PROCHE ORIENT - Dénomination	Belgium	Royal Museums of Art and History	www.rmah.be	Thesaurus	Art, Archaeology, Architecture, History, Ethnography	101-500	French 100% - Dutch 100%
RMAH EGYPTE - MatièreTechnique	Belgium	Royal Museums of Art and History	www.rmah.be	Thesaurus	Art, Archaeology, Architecture, History, Ethnography, Musical instruments	101-500	French 100% - Dutch 100%
RMAH EGYPTE - NomsDivins	Belgium	Royal Museums of Art and History	www.rmah.be	Thesaurus	Art, Archaeology, Architecture, History, Religion	101-500	French 100% - Dutch 100%
RMAH EGYPTE - Provenance	Belgium	Royal Museums of Art and History	www.kmkg.be	Thesaurus	Art, Archaeology, Architecture, History, Ethnography, Musical instruments	501-1000	French 100% - Dutch 100%

Identification of existing terminology resources in museums



RMAH EGYPTE - Datation	Belgium	Royal Museums of Art and History	www.rmah.be	Thesaurus	Art, Archaeology, Architecture, History, Ethnography, Musical instruments	501-1000	French 100% - 2. Dutch 100%
RMAH EGYPTE - Categorie	Belgium	Royal Museums of Art and History	www.kmkg.be	Thesaurus	Art, Archaeology, Architecture, history, Ethnography, Musical Instruments	501-1000	French 100% Dutch 100%
geography	Belgium	Antwerp City Archives	Http://www.felixarc.hief.be	Simple term list	geography, depicted places, streets and buildings	1001-5000	
Keyword	Belgium	Antwerp City Archives	http://www.felixarc.hief.be	Simple term list	Subjects connected to life in a city	101-500	
N/A	Belgium	MuHKA	http://www.muha.be	Thesaurus	Contemporary Art	11-100	
Not applicable	Belgium	KMSKA	http://www.kmska.be	Thesaurus	Art History, Fine Art	Over 10000	French and English = 100%, German = 50%
Internal made list	Belgium	S.M.A.K.	http://www.smak.be	Simple term list	Contemporary Art	1001-5000	
Trefwoorden bibliotheek	Belgium	Modemuseum Provincie Antwerpen	http://www.momub.be	Simple term list	Fashion - Costume - Textile	501-1000	
Subject entry	Belgium	Flemish Art Collection	http://www.vlaamse.kunstcollectie.be	Simple term list	Fine arts	11-100	English and Dutch – 100%

Identification of existing terminology resources in museums



RMCA_ThematicKeywords	Belgium	Royal Museum for Central Africa	http://www.africamuseum.be	thesaurus	History and Ethnography	11-100	French 100%, English 100%, Dutch 100%
Sbírka mimoevropské numismatiky/Collection of non-European numismatology	Czech republic	Narodni muzeum	www.nm.cz	Simple term list	Social science: History: Numismatology	11-100	czech 100% english 10%
Fond minerály/Collection of minerals	Czech republic	Narodni muzeum	www.nm.cz	Simple term list	Natural science: Anthropology	501-1000	
Fond rukopisů a starých tisků/Document collection of manuscripts and old printing	Czech Republic	Narodni muzeum	www.nm.cz	Simple term list	Literature	101-500	Czech 100% English 100%
Kabinet virtuální reality/Cabinet of virtual reality	Czech republic	Narodni muzeum	www.nm.cz	Simple term list	Social science: History	11-100	
Fond časopisů Všeobecný historický katalog knihovního fondu Fond starých tisků/Collection of journals General catalogue of history of librous collection Collection of old printing	Czech republic	Narodni knihovna CR	www.nm.cz	Simple term list	Ex.: area: literature	Over 10000	Czech 100% English 30%

Identification of existing terminology resources in museums



Databáze archeologické sbírky/Data base of archaeology	Czech republic	Narodni muzeum	www.nm.cz	Simple term list	Archeology	Over 10000	
Nové taxony hub popsané Josefem Velenovským/ New fungal taxa described by Josef Velenovský	Czech republic	Narodni muzeum	www.nm.cz	Simple term list	Natural science: Fungology	Over 10000	Czech 100% English 100%
Ex-libris, knižní ilustrace, svaté obrázky, plakáty, grafika/Ex- libris, book illustrations, holy pictures, posters, graphic	Czech republic	Narodni muzeum	www.nm.cz	Simple term list	Literature	5001-10000	
Autografy A. Dvořáka a B. Smetany Josef Suk, Radúz a Mahulena, scénická hudba ke hře Julia Zeyera/Autographs of A. Dvorak and B. Smetana Josef Suk, Radúz and Mahulena, scenic music to drama by Julius Zeyer	Czech Republic	Narodni muzeum	www.nm.cz	Simple term list	Musicology	1001-5000	
Databáze archeologické	Czech Republic	Narodni muzeum	www.nm.cz	Simple term list	Social science: Archaeology	Over 10000	

Identification of existing terminology resources in museums



sbírky/Databa se of archaeology							
People for Europe	Czech Republic	Narodni muzeum	www.nm.cz	Simple term list	Social science: History	11-100	Czech 100%, English 100%, Italian 100%
Antropologick á sbírka/Collecti on of anthropology	Czech republic	Narodni muzeum	www.nm.cz	Simple term list	Natural science: Anthropology	Over 10000	
MuIS Sõnastik	Estonia	Estonian Ministry of Culture	www.kul.ee	Thesaurus	All areas, description and cataloguing of museum objects (colour, purpose of use, description, etc.)	1001-5000	
KULTU - Kulttuuriaineis ton luokitus - Outline of Cultural Materials	Finland	NBA - National Board of Antiquities	www.nba.fi	Classification or Taxonomy	Cultural heritage, cultural materials	1001-5000	Finnish 100%
Museoalan asiasanasto MASA	Finland	National Board of Antiquities	www.nba.fi	Thesaurus	Cultural histroy, ethnology, maritime history, archaeology, museology, historical architecture, conservation	5001-10000	Finnish 100%
YSA - Yleinen suomalainen asiasanasto - General Finnish Thesaurus	Finland	The National Library of Finland	http://www.kansalliskirjasto.fi/kirjastoala/asiasanastot.html ; http://vesa.lib.helsinki.fi	Ontology	Everything, especially humanistic and social sciences General Finnish Thesaurus	Over 10000	Finnish 50%, Swedish 50%

Identification of existing terminology resources in museums



Valokuvan asiasanasto	Finland	Finnish Museum of Photography	www.fmp.fi	Thesaurus	Culture; art; photography	1001-5000	Finnish 100%
AFO Ontology - The Agriculture and Forest Ontology	Finland	Viikki Science Library, University of Helsinki	http://www.tiedekirjasto.helsinki.fi/english/	Ontology	Agriculture; Forestry; Veterinary Science; Food science; Environmental Science; Biology	5001-10000	Finnish 50%; English 30%; Latin 20%
LUAS - Liikunnan ja urheilun asiasanasto	Finland	LIKES - Foundation for Sport and Health Sciences; Research Center; Information Service / Jyväskylä University Library; Information Service	www.likes.fi ; http://kirjasto.jyu.fi/kirjasto-netusivu-uusi/view?set_language=en	Thesaurus	Health science; sport science	1001-5000	In 1993 "LISETI - Liikuntatieteellinen suomalais-englantilainen tiedonhakusanasto" (Finnish-English List of Sport Scientific Descriptors) was published; Finnish 50%; English 50 %
YSO - Yleinen suomalainen ontologia - The Finnish General Upper Ontology	Finland	Helsinki University of Technology, Media Technology Laboratory and the Finnish Terminology Centre TSK	http://www.seco.tkk.fi	Ontology	General, commonly used terms	Over 10000	Finnish 100%
MAO	Finland	Helsinki University of Technology, Media Technology Laboratory	http://www.seco.tkk.fi/ontologies/mao/	Ontology	General, commonly used terms	Over 10000	Finnish 100%
Joconde – Uses and functions	France	French ministry of Culture and Communication	http://www.culture.gouv.fr	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	1001-5000	French 100%

Identification of existing terminology resources in museums



			r/documentation/joconde/				
Joconde – Technics and materials	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde/	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	1001-5000	French 100%
Joconde - Represented items	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde/	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	Over 10000	French 100%
Joconde – Legal status	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde/	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	11-100	French 100%
Joconde – Sources de représentation	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde/	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	1001-5000	French 100%
Joconde - Roles of authors and performers	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde/	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	101-500	French 100%

			tion/joconde				
			/				
Joconde – Periods and styles	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	501-1000	French 100%
Joconde – Periods	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	1001-5000	French 100%
Joconde - Methods of collection, types of sites, geographical locations of discovery	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	1001-5000	French 100%
Joconde - Geographical locations for creation, execution and use	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	1001-5000	French 100%
Joconde – Inscriptions	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	101-500	French 100%

Identification of existing terminology resources in museums



Joconde – Genesis	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde/	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	101-500	French 100%
Joconde – Ecoles (Schools)	France	French ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde/	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	501-1000	French 100%
Joconde – Domains	France	Ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde/	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	1001-5000	French 100%
Joconde – Denominations	France	Ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde/	Thesaurus	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	1001-5000	French 100%
Joconde - Liste des auteurs/exécutants (List of authors and performers)	France	Ministry of Culture and Communication	http://www.culture.gouv.fr/documentation/joconde/fr/pres.htm	Simple term list	Archaeology, sciences and technology, fine arts, ethnology, contemporary art, ...	Over 10000	French 100%

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SHIC Social History and Industrial Classification	Germany	Fachgruppe Dokumentation im DMB;	www.museumsverband.de	Classification or Taxonomy	community life, domestic/family life, personal life. working life, agriculture, equipment, crafts/manufacture, textiles, architecture	1001-5000	English 100% German 100 %
Terminology of the National Archive of Monuments – HMC	Greece	Directorate of the National Archive of Monuments - Hellenic Ministry of Culture	http://nam.culture.gr	Simple term list	Area: Archaeology - Movable monuments (objects) Sub- areas: Pottery, sculpture, architectural reliefs, statues, figurines, vases, coins, inscriptions, icons, wall paintings, jewellery, furniture, tools & instruments.	501-1000	
KÖZTAURUS Z	Hungary	National Szechenyi Library - Library Institute	http://www.pim.hu	Thesaurus	general (The main aim of the KÖZTAURUSZ is to cover all possible subject fields, professions, terms, so it is really GENERAL)	Over 10000	
Jerusalem Index of Jewish Art	Israel	The Center for Jewish Art at the Hebrew University of Jerusalem	http://cja.huji.ac.il/Publications/jia2.html	Thesaurus	Jewish art: Ritual objects, Illuminated manuscripts, Ancient Jewish Art, Modern Jewish Art, Ritual Architecture	1001-5000	Hebrew 50% English 50%
eJewish Controlled Vocabulary	Israel	The Jewish Agency for Israel	http://www.ejewis	Thesaurus	Jewish culture	1001-5000	English, Hebrew, French, Russian, Spanish – the

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			h.info				terminology is fully translated in all languages
The Israel Museum, Jerusalem Thesaurus	Israel	The Israel Museum, Jerusalem	http://www.english.imjnet.org.il/htmls/Home.aspx	Classification or Taxonomy	Art and archeology , sub-area: African Art Art of the Americas Ancient Glass Asian Art Billy Rose Art Garden Chalcolithic and Canaanite Periods Classical Archaeology Contemporary Art Design and Architecture Egyptian Archaeology European Art Hellenistic, Roman, and Byzantine Periods Islamic Art and Archaeology Israeli Art Israelite and Persian Periods Jewish Ethnography Judaica Modern Art Numismatics Oceanic Art Photography Prehistoric Cultures Prints and Drawings Shrine of the Book (Dead Sea Scrolls) Western Asiatic Antiquities	Over 10000	90% bilingual Hebrew- English
Eretz Israel Museum Libraries	Israel	The Eretz Israel Museum, Tel Aviv	http://eretzmuseum	Thesaurus	Archaeology Numismatics	501-1000	Hebrew 50% English 50%

			m.org.il/ main/ site/ index. php3?m od=first Page&la ngId=1		Ethnography/Folklore Judaica Philately Fine Art Decorative Art		
Vocabolario di controllo ricavato dalle parole chiave del sistema di classificazione e iconografica ICONOCLAS S	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http:// www.i cccd.be nicultu rali.it/	Simple term list	Historical and artistic heritage	1001-5000	
Beni naturalistici - Planetologia (BNPL) - Tabelle di supporto per la compilazione della scheda - Tabella 4	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http:// www.i cccd.be nicultu rali.it/	Classification or Taxonomy	Planetology	11-100	
Beni naturalistici - Planetologia (BNPL) - Tabelle di supporto per la compilazione della scheda - Tabella 3	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http:// www.i cccd.be nicultu rali.it/	Simple term list	Planetology	11-100	
Beni naturalistici - Planetologia (BNPL) - Tabelle di supporto per la scheda - Tabella 2	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http:// www.i cccd.be nicultu rali.it/	Classification or Taxonomy	Planetology	11-100	
Beni naturalistici - Planetologia	Italy	Istituto centrale per il catalogo e la	http:// www.i cccd.be	Classification or Taxonomy	Planetology	11-100	

(BNPL) - Tabelle di supporto per la compilazione della scheda - Tabella 1		documentazione (ICCD)	nicultu_rali.it/				
Scheda RA - Reperti archeologici - Vocabolario per la compilazione del campo CLS - Classe E - Produzione	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/nicultu_rali.it/	Classification or Taxonomy	Archaeology	101-500	
Vocabolario settoriale campo DESS scheda RA - Mosaico	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/nicultu_rali.it/	Glossary	Archaeology	101-500	
Beni naturalistici - Petrologia (BNPE) - Tabelle di supporto per la compilazione della scheda - Tabella 3	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/nicultu_rali.it/	Classification or Taxonomy	Petrology	101-500	
Beni naturalistici - Mineralogia (BNM) - Tabelle di supporto per la compilazione della scheda - Tabella 5	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/nicultu_rali.it/	Classification or Taxonomy	Mineralogy	101-500	
Beni naturalistici - Petrologia (BNPE) - Tabelle di supporto per la compilazione della scheda - Tabella 2	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/nicultu_rali.it/	Classification or Taxonomy	Petrology	101-500	
Beni naturalistici -	Italy	Istituto centrale per	http://www.iccd.be/nicultu_rali.it/	Classification or	Petrology	101-500	

Petrologia (BNPE) - Tabelle di supporto per la compilazione della scheda - Tabella 1		il catalogo e la documentazione (ICCD)	www.iccd.be nicultura.it/	Taxonomy			
PICO Thesaurus	Italy	Ministero per i beni e le attività culturali	http://www.cnicultura.it	Thesaurus	Italian culture, with special focus on tangible and intangible heritage; people and organisations involved in cultural processes and administration; cultural and educational disciplines; chronological periods	501-1000	Italian 100%; English 100%
THESAURUS DEL CORREDO ECCLESIASTICO DI CULTO CATTOLICO	Italy	Istituto centrale per il catalogo e la documentazione	http://www.iccd.be nicultura.it	Thesaurus	Historical & artistic heritage	1001-5000	French – 100%; English – 100%; Portuguese – 100% - Italian – 100%
[Vocabulary for the description of the object type in the Archaeological Site record] SCHEDA SITO ARCHEOLOGICO - VOCABOLARIO PER LA COMPILAZIONE DEI CAMPI: OGTD – DEFINIZIONE	Italy	ICCD Istituto centrale per il catalogo e la documentazione	http://www.iccd.be nicultura.it/	Classification or Taxonomy	Archaeology	101-500	

DELL'OGGETTO - OGTT - PRECISAZIONE TIPOLOGICA							
BENI NATURALISTICI - MINERALOGIA (BNM) - TABELLE DI SUPPORTO PER LA COMPILAZIONE DELLA SCHEDA - TABELLA 4	Italy	Istituto centrale per il catalogo e la documentazione	http:// www.iccd.be/ nicultu_rali.it/	Classification or Taxonomy	Mineralogy	101-500	
BENI NATURALISTICI - MINERALOGIA (BNM) - TABELLE DI SUPPORTO PER LA COMPILAZIONE DELLA SCHEDA - TABELLA 3	Italy	Istituto centrale per il catalogo e la documentazione	http:// www.iccd.be/ nicultu_rali.it/	Classification or Taxonomy	Mineralogy	101-500	
BENI NATURALISTICI - MINERALOGIA (BNM) - TABELLE DI SUPPORTO PER LA COMPILAZIONE DELLA SCHEDA - TABELLA 2	Italy	ICCD Istituto centrale per il catalogo e la documentazione	http:// www.iccd.be/ nicultu_rali.it/	Classification or Taxonomy	Mineralogy	101-500	
BENI NATURALISTICI	Italy	ICCD Istituto centrale per il	http:// www.iccd.be/ nicultu_rali.it/	Classification or Taxonomy	Mineralogy	1001- 5000	

- MINERALOGI A (BNM) – TABELLE DI SUPPORTO PER LA COMPILAZIONE DELLA SCHEDA – TABELLA 1		catalogo e la documentazio ne	unicultura.it/				
Thesaurus di architettura	Italy	ICCD Istituto centrale per il catalogo e la documentazio ne	http://www.unicultura.it/	Thesaurus	Architecture	1001-5000	
CATEGORIE ICONOGRAFI CHE NORMALIZZATE RELATIVE AL SOTTOCAMPO "DESS - INDICAZIONI SUL SOGGETTO"	Italy	ICCD Istituto centrale per il catalogo e la documentazio ne	http://www.unicultura.it/	Simple term list	Historical & artistic heritage	11-100	
SCHEDA RA – REPERTO ARCHEOLOGICO LISTA TERMINOLOGICA PER LA COMPILAZIONE DEL CAMPO MTC	Italy	Istituto centrale per il catalogo e la documentazio ne (ICCD)	http://www.unicultura.it/	Simple term list	Archaeology	1001-5000	
VOCABOLARIO SETTORIALE CAMPO MTC SCHEDA RA - METALLI E LEGHE	Italy	Istituto centrale per il catalogo e la documentazio ne (ICCD)	http://www.unicultura.it/	Glossary	Archaeology	501-1000	

METALLICHE							
Scheda OA – Opera d’Arte - Vocabolario per la compilazione del campo MTC (materia e tecnica)	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/nicultu_rali.it/	Simple term list	Historical & artistic heritage	5001-10000	
DIZIONARIO DELLA PITTURA PARIETALE ROMANA - OGGETTO (OGTD- OGTT) - SOGGETTO (SGTI-SGTT)	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/nicultu_rali.it/	Glossary	Archaeology	501-1000	
DIZIONARIO SCULTURA IN MARMO - OGGETTO (OGTD- OGTT) SOGGETTO (SGTI-SGTT) - CLASSE E PRODUZIONE - Sarcofagi (CLS)	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/nicultu_rali.it/	Glossary	Archaeology	501-1000	
LISTA SETTORIALE COROPLASTICA – OGGETTO (OGTD - OGTT) - SOGGETTO (SGTI) - CLASSE E PRODUZIONE (CLS)	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/nicultu_rali.it/	Glossary	Archaeology	501-1000	

Scheda OA – Opera d’Arte - Vocabolario per la compilazione dei campi OGTD – OGTT (definizione oggetto– tipologia)	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/niculturali.it/	Simple term list	Historical & artistic heritage	5001-10000	
SCHEDA SI - SITO ARCHEOLOGICO - VOCABOLARIO PER LA COMPILAZIONE DEI CAMPI: OGTD – DEFINIZIONE DELL’OGGETTO - OGTT – PRECISAZIONE TIPOLOGICA	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/niculturali.it/	Classification or Taxonomy	Archaeology	101-500	
VOCABOLARIO SETTORIALE CAMPO OGTD SCHEDA RA - CONTENITORI IN METALLO E LEGHE METALLICHE	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/niculturali.it/	Glossary	Archaeology	101-500	
VOCABOLARIO SETTORIALE CAMPO SGTI SCHEDA RA - SCULTURA IN MARMO - BUSTI	Italy	Istituto centrale per il catalogo e la documentazione (ICCD)	http://www.iccd.be/niculturali.it/	Glossary	Archaeology	11-100	

VOCABOLAR IO SETTORIALE CAMPO SGTI SCHEDE RA - SCULTURA IN MARMO - SARCOFAGI E RILIEVI	Italy	Istituto centrale per il catalogo e la documentazio ne (ICCD)	http:// www.i ccd.be nicultu rali.it/	Glossary	Archaeology	101-500	
SOGGETTAR IO ICONOGRAFI CO	Italy	Istituto centrale per il catalogo e la documentazio ne (ICCD)	http:// www.i ccd.be nicultu rali.it/	Classification or Taxonomy	Historical & artistic heritage	5001- 10000	
SCHEDE RA – REPERTI ARCHEOLO GICI THESAURUS PER LA COMPILAZIO NE DEL CAMPO OGTD – DEFINIZIONE DELL’OGGET TO	Italy	Istituto centrale per il catalogo e la documentazio ne (ICCD)	http:// www.i ccd.be nicultu rali.it/	Thesaurus	Historical & artistic heritage	501-1000	
VOCABOLAR IO SETTORIALE CAMPI OGTD E OGTT DELLA SCHEDE RA - MANUFATTI IN VETRO E PASTA VITREA	Italy	Istituto centrale per il catalogo e la documentazio ne (ICCD)	http:// www.i ccd.be nicultu rali.it/	Glossary	Archaeology	501-1000	
Archaeology	Poland	Państwowe Muzeum Archeologiczn e w Warszawie	http:// www. pma.p l/	Glossary	Archaeology	101-500	Polish 80%, English 20%

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		(State Archaeological Museum)					
Tezaur de termeni (Thesaurus)	Romania	CIMEC - Institute for Cultural Memory	http://www.cimec.ro	Thesaurus	area: cultural heritage, sub- area: fine arts, decorative arts, archaeology, ethnography, numismatics, history, history of science&technology	Over 10000	
Lists of terms for art museum objects: categories, object types, material, technics, collections	Russian Federation	Museum of History of the Kazan State University	No	Simple term list	Objects related to the history of Kazan University: objects owned by famous scientists/researchers, book covers, awards, equipment of scientific laboratories, documents, photo	11-100	
Lists of terms for art museum objects: material, technics, collections	Russian Federation	The State Radishshev Art Museum	http://www.radmuseumart.ru/ ; http://old.sgu.ru/ogis/katalog/rus/frames2.htm	Simple term list	paintings, icons	11-100	
Lists of terms for art museum objects: categories, material, technics	Russian Federation	The State Tretyakov Gallery	http://www.tretyakov.ru	Simple term list	icons, painting, graphics, sculpture	11-100	Russian 100%, English 100%
Lists of terms for art museum objects:	Russian Federation	Chouvashia State Art Museum	http://www.artmu	Simple term list	Art museum (icons, paintings, sculpture,	11-100	

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categories, material, technics,			seum.ru		graphics, applied art, folks art, documents, photo, everyday life objects)		
Lists of terms for art museum objects: object types, material, technics, collection, topic	Russian Federation	Rybinsk State History, Architecture and Art Museum- reserve	http://www.rybmsuseum.ru/	Simple term list	art and history museum terminology (icons, paintings, sculpture, graphics, applied art, folks art, documents, photo, everyday life objects)	11-100	
Unified Museum Thesaur	Slovak republic	Slovak National Museum	www.snm.sk	Thesaurus	Arts and Humanities	1001-5000	English 100%, German 30%, Hebrew 5%, Hungarian: 10%
MATRICA	Slovenia	Narodni muzej Slovenije	Http://www.narmuz-lj.si/	Glossary	Predvsem področja umetnostne zgodovine in kulturne zgodovine, glede na raznoliko tematiko pa tudi etnologije, biologije, tehničnih ved, oblikovanja, kartografije, fotografije in drugih – skratka vseh področij, ki jih je mogoče izbrati kot motiv likovne upodobitve.	101-500	Slovenian 100%
Etnološka sistematika – Ethnological Systematic	Slovenia	Slovene Ethnographic Museum	http://www.etn.muzej.si/	Classification or Taxonomy	Ethnology	501-1000	Slovenian 100%

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Iconclass	The Netherlands	Rijksbureau voor Kunsthistorische Documentatie (RKD)	www.iconclass.nl	Classification or Taxonomy	Culture; Art; Iconography	Over 10000	English 20%; French 20%; German 20%; Italian 20%; Finnish 15%; Norwegian 5%
Art & Architecture Thesaurus Nederlandstalig	The Netherlands	Rijksbureau voor Kunsthistorische Documentatie (RKD)	http://www.rijksmuseum.nl/index.jsp?lang=en	Thesaurus	area: art historical and architecture objectnames, materials, techniques	Over 10000	English 100% Dutch ? Contact RKD for more information
SHIC (Social History and Industrial Classification)	United Kingdom	SHIC Working Party (but contact Collections Trust)	http://www.collections-trust.org.uk	Classification or Taxonomy	area: social science	101-500	[However there is a German version, contact Monika who is in the ATHENA project]
MDA Archaeological Objects Thesaurus	United Kingdom	Collections Trust and English Heritage	http://www.collections-trust.org.uk	Thesaurus	area: archaeology, sub-area: object names	1001-5000	
TGN	USA	John Paul Getty Trust	www.bsz-bw.de	Thesaurus	place names world wide	Over 10000	descriptors are given in the vernacular language and American