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**ASPECT**

# **A Critical Mass of Metadata That Can Be Searched For and Discovered Seamlessly**

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***eContentplus***

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<sup>1</sup> OJ L 79, 24.3.2005, p. 1.



## Summary

Deliverable D5.1 is essentially an 'online deliverable' that consists of a critical mass of metadata that can be searched for and discovered seamlessly through the Learning Resource Exchange.

In the ASPECT project, focus is on providing a “critical mass of metadata that can be searched for and discovered seamlessly”. WP5 has done extensive work on metadata in connection with existing and new resources that already have been made or will be available shortly through the LRE. The metadata application profile (LREMAP) version 4.0 and 4.5 implemented as part of the ASPECT project enables users to perform searches that take advantage of functionalities related to the enrichment features of the ASPECT LRE, e.g., a better management of resources available in different formats such as SCORM and IMS Common Cartridge.



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## 1 Introduction

Deliverable D5.1 is an 'online deliverable' that consists of a critical mass of metadata that can be searched for and discovered seamlessly. The metadata referred to in the deliverable is metadata made available through the ASPECT version of the LRE, the Learning Resource Exchange developed by the European Schoolnet.

However, as the metadata of the deliverable is not quite tangible, we provide this accompanying document in which we present some facts and figures about the metadata of the deliverable.

The deliverable presents an important part of the work done by WP5 so far. *D5.1 A Critical Mass of Metadata That Can Be Searched For and Discovered Seamlessly* contains, as it were, two different objectives. On the one hand we have to provide a 'critical mass' of metadata on learning resources to which we have applied the metadata specifications recommended by WP2. On the other hand, and this is more important, we have to demonstrate the functionality provided by using metadata based on the specifications developed by WP2. The latter means that we should be able to demonstrate that this metadata enables users to *search for and discover seamlessly* the learning resources described by the metadata we have made available through the LRE.

Performing searches using the LRE search interface includes not just simple searches based on the metadata provided by the content providers. It also includes searches that take advantage of functionalities related to some of the enrichment features of the ASPECT LRE that are based on the use of the LRE MAP v.4.0 specification, e.g., automatic translations that will allow users to search for resources 'across' language barriers.



## 2 A critical mass

### 2.1 The broad figures

At the beginning of the ASPECT project, immediately after the end of the MELT project, see MELT final report, the Learning Resource Exchange contained 142,000 metadata instances referencing the same number of learning objects. 32,000 of these were registered as resources, and 110,000 as assets.

Today, at the end of February 2010, the ASPECT LRE portal contains a total of 190,113 objects. 54,269 are categorized as resources and 125,666 as assets. Since the beginning of the ASPECT project almost 48,000 learning object descriptions have been added to the LRE and are now accessible via the ASPECT portal. Although ASPECT is not about adding content to the LRE, we have, nevertheless, added a considerable amount of new or updated content as part of the project.

### 2.2 Some details

All content providers have added metadata about their learning resources, in most cases both assets and learning objects. Particularly interesting is the addition of a rather large number of complex, high-quality learning resources provided by some of our content providers.

#### 2.2.1 CNDP

CNDP is one of the organizations that have been connected to the LRE as part of the ASPECT project. So far CNDP has provided 346 resources. The resources have passed the Ariadne harvester and validation and now only need to be moved into the LRE as the last step in the process.

#### 2.2.2 CUP

CUP is currently working on the set of resources to be made available as part of ASPECT. The set of resources consists of 236 files with approximately 1600 Learning Objects (defined as individual screens in a larger learning resource).

The 236 metadata instances will be ready by Friday 26th March if everything goes according to plan.

#### 2.2.3 DGIDC

DGIDC have provided 2834 resources in a wide range of different subject areas:

Area	Number
German	1
Arts	3
Environmental Studies	283
Civics	53
History of Art	5
Mathematics	388

Electricity – Labs	1
Electronics - Labs	7
Prevention and Security in Building	1
Theatre	2
ICT	30
Pre-school learning	33
Arts	7
Accompanied Study	52
Gymnastics	62
Descriptive Geometry	2
Psychology	2
Database Management	12
Project Area	136
Programming	10
Human Biology	43
Citizenship and Society	6
Economics	6
Physics and Chemistry	57
French	8
English	48
Portuguese Literature	6
Multimedia Technology	8
Citizenship and the World Around Us	8
Nature Sciences	240
Physical Education	7
Moral and Religious Education	6
Geology	18
Portuguese History and Geography	101
Portuguese Language	264
Language and Communication	9
Applied Mathematics	1
Multimedia Lab	5
Technology Projects	5
Geographic Information Systems	1
Construction Technologies	1
Computer Technologies	28
Graphic Computing	1
Ecology	7
Technology Education	8
Artistic Expression	84
Philosophy	5
History	82
Introduction to ICT	4
Chemistry	78
Anthropology	1
Applications of Electronics	8
Natural Science	89
Educating for Citizenship	59
Physics	12
Physics and Chemistry	72

Multimedia Workshop	4
Sociology	1
Facilities Technology	1
Computer Applications	9
Geography	61
Design Workshop	1
Electronics – Lab	2
Health	36
Biology	107
Music Education	8
Visual Education	31
Natural Spaces and Environmental Education	15
History of Culture and Arts	4
Arts Workshop	2
Portuguese	69
Sports	4
Digital Analogic Systems	3

#### **2.2.4 EDUC/KlasCement**

Educ/KlasCement has added 6768 learning resources to ASPECT LRE. The resources cover a wide range of open content. Most of the resources are language learning resources.

#### **2.2.5 EDUCATIO**

EDUCATIO has applied the new metadata application profile, the LRE MAP v.4., to all the resources provided as part of the MELT project, and as an additional exercise they have packaged all the learning objects of that set of resources as Common Cartridge packages.

Apart from this, EDUCATIO has also added 650 new assets to the LRE.

#### **2.2.6 FWU**

The FWU has developed a script-based work flow to generate SCORM packages from their existing educational DVDs and CD-ROMs. Therefore over 20 DVDs and CD-ROMs were broken down to the individual media. To each media (texts, images, movies, worksheets, audio etc.) in different formats (mpg, wmv, html, pdf, jpg) metadata was added.

The packages include approximately 1,800 learning objects. The first packages have already been harvested and are available through the LRE. There will be about 50-60 packages mainly for Geography, Maths and Primary School ready by the end of March 2010.

Apart from the work these new metadata, the FWU has applied the new LRE Metadata Application Profile 4.0 to all the metadata that were provided as part of the MELT project (LRE Profile 3.0) and also added new metadata instances to a number of other resources.

#### **2.2.7 Indire**

Indire has provided 100 Learning Objects in the area of psychology and pedagogy. All are available through the LRE.

### 2.2.8 ITC

ITC has so far made 1092 resources available in the following areas and formats:

	HTML	SCORM	Total
Biology	634	234	868
Chemistry	14	20	34
Mathematic	1	19	20
English	-	32	32
History	-	138	138
Total	649	443	1092

A part of the SCORM packages, all in all 49 packages in the areas biology, chemistry and mathematics, have also been converted to Common Cartridge format.

### 2.2.9 OU

The Open University has made some 520 large learning resources available as HTML pages as well as SCORM and CC packages. The learning resources cover the following areas:

Area	Number
Arts and History	69
Business and Management	40
Education	43
Health and Lifestyle	46
IT and Computing	27
Law	10
Maths and Statistics	46
Modern Languages	18
Science and Nature	104
Society	72
Study Skills	33
Technology	35

All packages are available through the ASPECT LRE portal.

### 2.2.10 SIVECO

Siveco, one of our commercial producers of learning resources, like CUP, has made 200 learning resources available to the project.

### 2.2.11 UL

The University of Ljubljana has provided the following metadata instances:

- metadata of 4400 resources from MELT portal were upgraded to LREv4 (both English and Slovenian versions),
- 83 SCORM packages without metadata were enriched with LREv4 metadata, in both Slovenian and English. All of these packages have also been converted into CC packages.





All resources are from the field of Computer Science. All metadata have been harvested by the Ariadne harvester without any problems and are expected to be made available through the ASPECT portal within the next week.

#### **2.2.12 YDP**

YDP, another of our commercial producers and publishers, has made 10 high-quality SCORM-packaged resources available to the LRE.

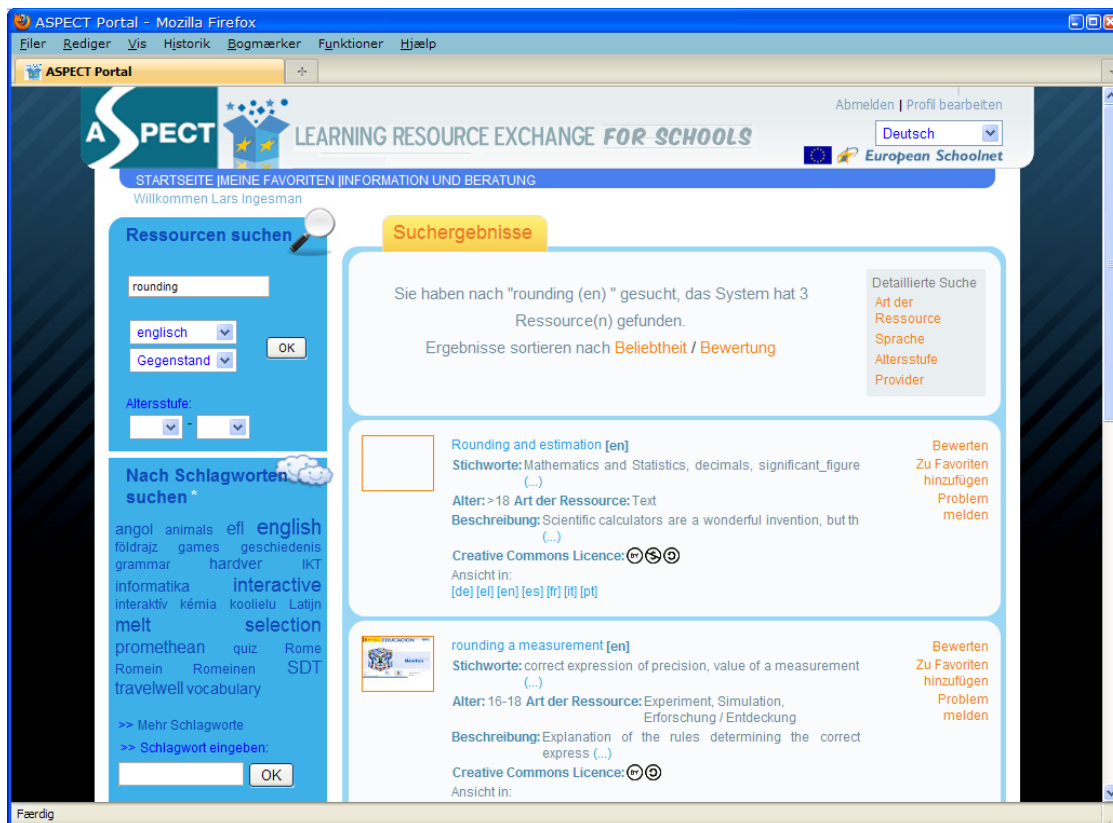
### 3 Search and discover

#### 3.1 Introduction

As mentioned earlier, a key issue is to what extent the metadata improves searchability and discoverability seen from the point of view of the user. To show some of the functionality provided by the metadata specification which the content providers have implemented I'll give some simple examples of searches that take advantage of some of the ASPECT enrichment services, automatic translation, controlled vocabularies etc.

#### 3.2 Simple search

Let us assume that I am German and interested in finding something on the mathematics topic of rounding in English. If I know the English word 'rounding' I can add it to the search box and click the OK button:

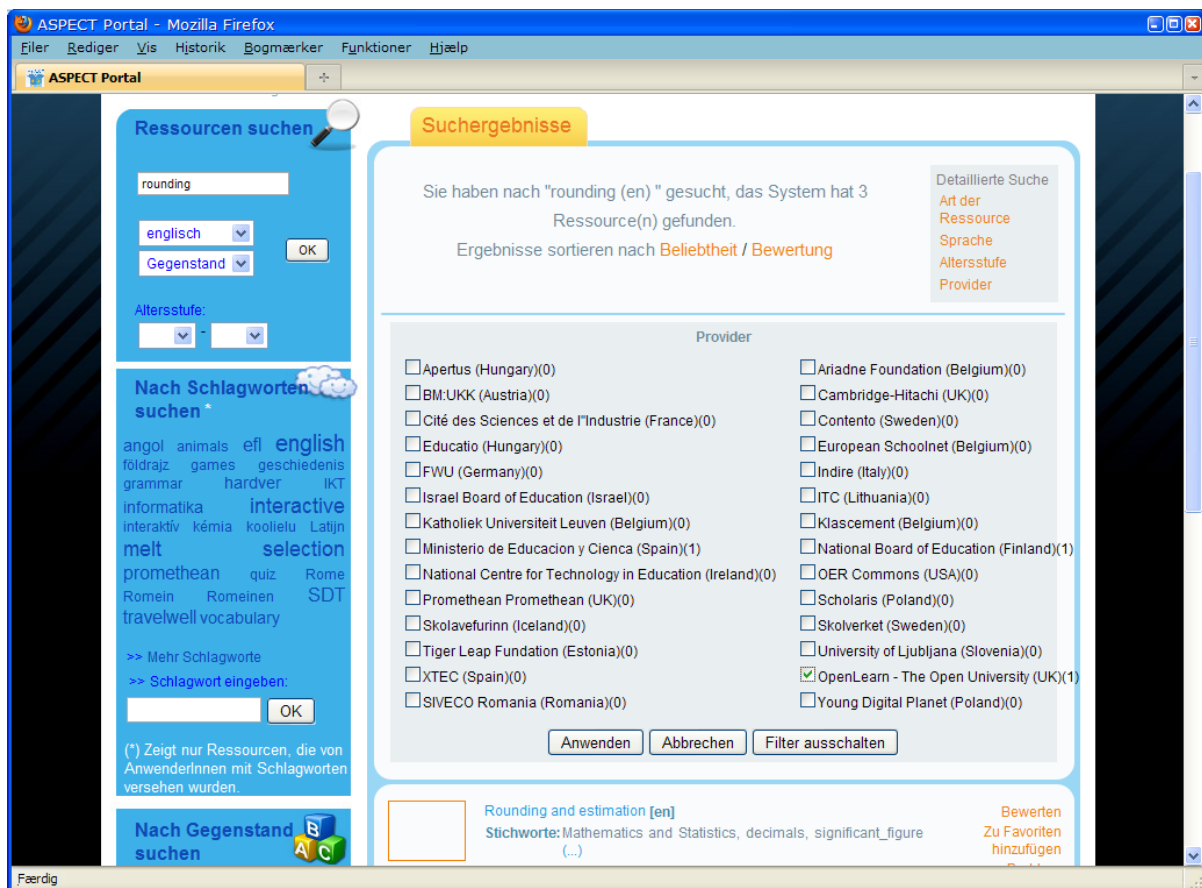


Figur 1: Simple search

This will give me three hits.

### 3.3 Using advanced search features

If I click the Provider in the field *Detaillierte Suche*, I can limit my search result to one or more providers. In this case I am only interested in the Open University materials. I can see already on this search screen that there is only one result from the Open University.



Figur 2: Advanced search features

When I click Anwenden, I get the one result that I am interested in:



**Suchergebnisse**

Sie haben nach "rounding (en)" gesucht, das System hat 1 Ressource(n) gefunden.  
Ergebnisse sortieren nach **Beliebtheit / Bewertung**

Detaillierte Suche (-)  
Art der Ressource  
Sprache  
Altersstufe  
Provider (-)

**Rounding and estimation [en]**  
Stichworte: Mathematics and Statistics, decimals, significant\_figure (...)  
Alter: >18 Art der Ressource: Text  
Beschreibung: Scientific calculators are a wonderful invention, but th (...)  
Creative Commons Licence:   
Ansicht in: [de] [el] [en] [es] [fr] [it] [pt]

Bewerten  
Zu Favoriten hinzufügen  
Problem melden

Figur 3: Search results

### 3.4 Automatic translations in interface

If my understanding of English math terms is not that good, I can click the [de] at the bottom of the metadata instance and get a translation of the entire record:



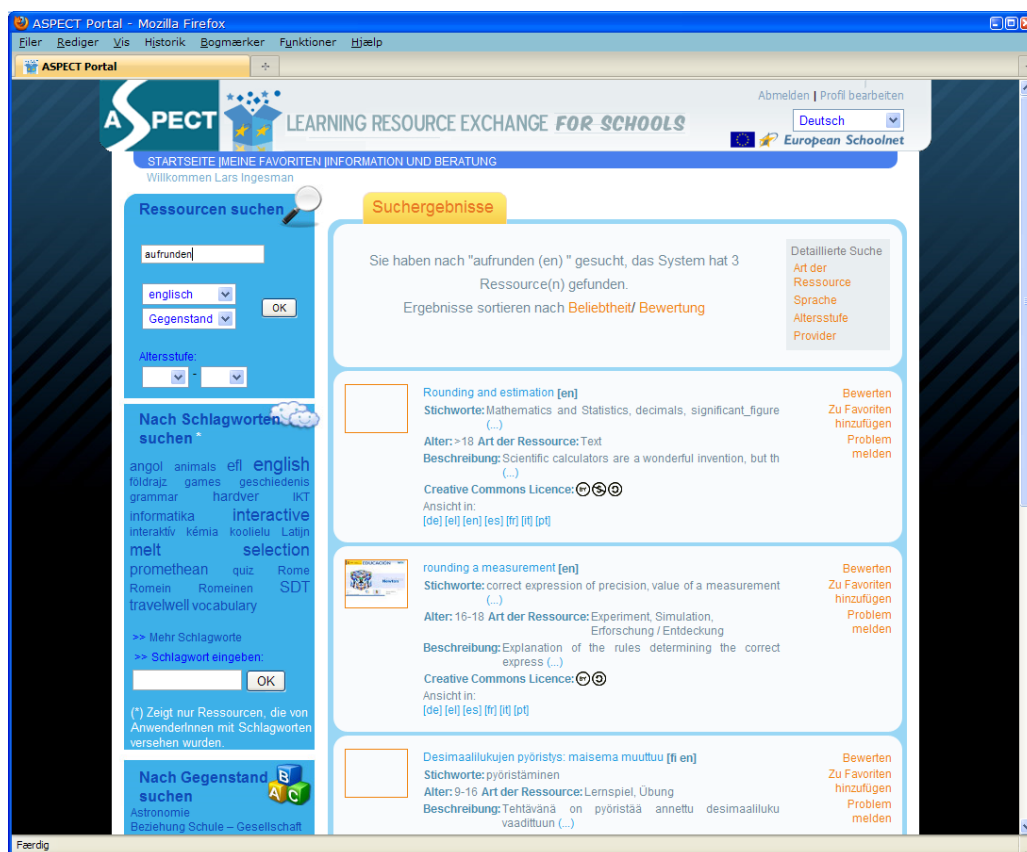
**Aufrunden und Schätzung [en]**  
*Diese Metadaten wurden automatisch übersetzt.*  
Stichworte: Mathematik und Statistiken, Dezimalstriche, significant\_ (...)  
Alter: >18 Art der Ressource: Text  
Beschreibung: Wissenschaftliche Rechner sind eine wundervolle Erfindu (...)  
Creative Commons Licence:   
Ansicht in: [el] [en] [es] [fr] [it] [pt]

Bewerten  
Zu Favoriten hinzufügen  
Problem melden

Figur 4: Automatic translation in interface

### 3.5 Automatic translations in searches

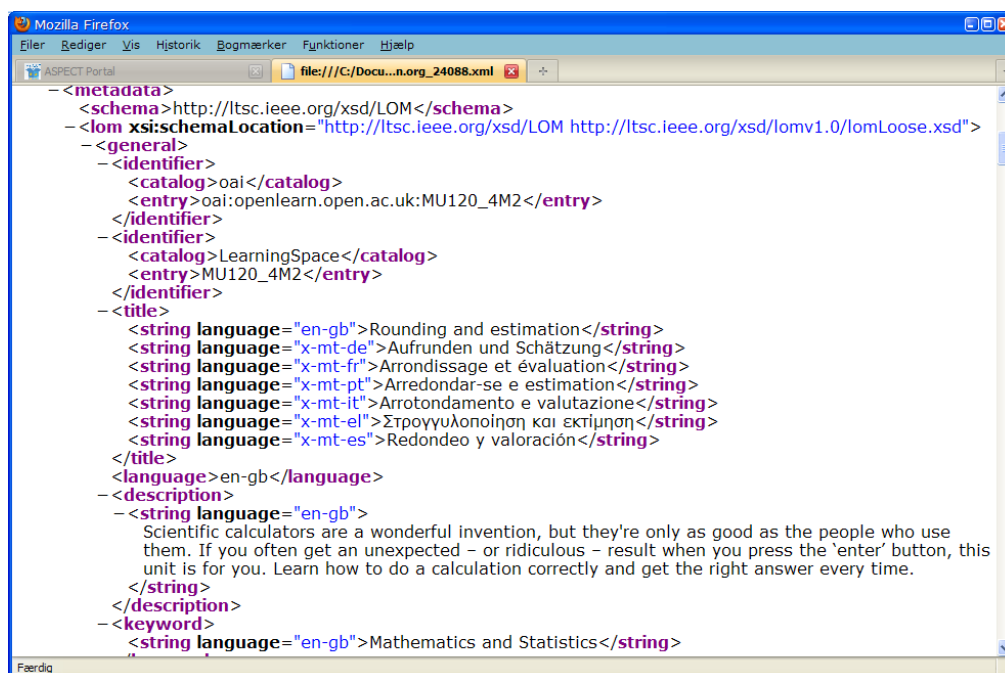
I could also have searched entirely in German using the German word 'Aufrunden'. Due to the automatic translation of certain parts of the metadata I can search, as it were, across language:



Figur 5: Automatic translation in searches

### 3.6 Metadata enrichment

The reason why I can do this is hidden in the metadata enrichments. Below I have a part of the metadata record for this particular learning resource. As you can see, the title exists in a number of different languages. The same goes for the description and most of the keywords:



Figur 6: Enriched metadata



The enrichment based on free text translation is done on the contents of the fields *title*, *description* and *keywords*.



## 4 Conclusion

The deliverable describes the status of the work on metadata a year before the end of the project. Over the last twelve months of the project we will keep on working on metadata, in particular the enrichments features made possible through the use of controlled vocabularies, thesauri and other services provided by the ASPECT Service Centre.