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## Open Discovery Space

“Metadata for the ODS project”

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## ***Application Profiles quick review***



# Application profiles

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- A set of metadata elements, policies, and guidelines defined for a particular application.
- Defines an application-appropriate set of properties in a public and communicable manner.
- Permits the building of loosely-coupled systems that still offers powerful capabilities.



# IEEE LOM



- 
- Institute of Electrical and Electronics Engineers Standards Association Standard for Learning Object Metadata (IEEE 1484.12.1 – 2002).
  - Internationally-recognised open standard for the description of “learning objects”.
  - Relevant attributes of learning objects to be described include: type of object; author; owner; terms of distribution; format; and pedagogical attributes, such as teaching or interaction style.



# IEEE LOM based APs

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- Regional
  - UK LOM Core (UK)
  - ANZ-LOM (Australia and New Zealand)
  - NORLOM (Norway)
- Domain
  - Organic.Edunet (Organic agriculture)
  - ODS: Open Discovery Space Application Profile



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***Presentation of the ODS AP***



# More than an AP

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- Based on the IEEE LOM Standard
- Includes curriculum-based vocabularies that will be used for the:
  - Harmonization
  - Alignment
  - Aggregation of the metadata records
- Existing educational content repositories, collections or federations into the ODS open learning content infrastructure.



# More than an AP

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- The **ODS Curriculum-based Vocabularies:**  
Science, Mathematics, ICT,  
Social Studies, Arts, Language Learning,  
Additional subjects as proposed by ODS Partners.
- A set of options for categories of **social tags and evaluative metadata**, which can be utilized by the ODS Portal towards enabling its end-users to contribute their tags, comments or reviews about the educational content provided by the ODS Portal.



# Objectives

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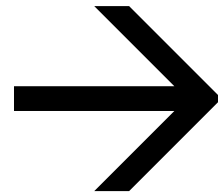
- Finding the offered learning resources useful for the classroom .
- Appreciating the cross-linguistic and cross-border use of content.
- Perceive pedagogical benefits of the resources provided.
- Facilitate automatic translation services.
- **Socially-Powered.**



# Objectives

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- Several different metadata applications profiles used by the various repositories integrated in ODS.



- A unique ODS application profile.



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***Detailed description of ODS LOM AP***



# Data Types

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- ***CharacterString***: text can be entered in the element directly (e.g. “ISBN”, “ARIADNE”, “LOMv1.0”, etc.).
- ***LangString***: the text must identify its language and there can be one or more character strings in the element (e.g. “en”, “organic agriculture”).
- ***DateTime***: the element contains date and time information and there can also be textual information about this point in time (e.g. “2008-07-21”).
- ***Duration***: the element contains information about an interval in time and there can also be textual information about the duration (e.g. “PT2H45M”, “PT50S”).
- ***Vocabulary***: the element contains source and value where source is a reference to publicly sourced and maintained value.



# ODS AP Overview



Category	Mandatory	Recommended	Optional
1 General	1	5	2
2 Life Cycle	-	1	2
3 Meta-Metadata	-	2	2
4 Technical	1	-	6
5 Educational	-	5	6
6 Rights	-	3	-
7 Relation	-	-	2
8 Annotation	-	-	3
9 Classification	2	-	2



# Mandatory Elements

## 1.2 General.Title

<b>Datatype</b>	LangString [SPM: 1000 char]
<b>Size</b>	1
<b>Example</b>	“en”, “A neutron star” “gr”, “Ένας αστέρας νετρονίων”

**Gives the learning object a human readable name. It is a LangString data type, which provides the possibility to define the used language.**



# Mandatory Elements

## 4.3 Technical. Location

<b>Datatype</b>	CharacterString [SPM: 1000 char]
<b>Size</b>	SPM: 10 items
<b>Example</b>	“http://host/id”

**A string that is used to access this learning object. It may be a location (URL), or a method that resolves to a location (URI). The first element of this list shall be the preferable location.**



# Mandatory Elements



## 9.1 Classification.Purpose

<b>Datatype</b>	Vocabulary
<b>Size</b>	1
<b>Example</b>	“discipline” “educational objective”

**It is a Vocabulary data type which describes the purpose of classifying a learning object under a given classification system.**



# Mandatory Elements



<b>9.2 Classification.Taxon Path</b>				
	<b>9.2.1 Source</b>	<b>9.2.2 Taxon</b>	<b>9.2.2.1 Id</b>	<b>9.2.2.2 Entry</b>
<b>Datatype</b>	LangString [SPM: 1000 char]	-	Character String [SPM:100 char]	LangString [SPM: 500 char]
<b>Size</b>	1	-	1	1
<b>Example</b>	"Science"	-	"320"	"Astronomy"

**Stores a taxonomic path in a specific classification system. Each succeeding level is a refinement in the definition of the preceding level.**



# Recommended Elements



1.1 General. Identifier		
	1.1.1 Catalog	1.1.2 Entry
Datatype	CharacterString [SPM: 1000 char]	CharacterString [SPM: 1000 char]
Size	1	1
Example	ISBN, ISSN, URI,URL	<a href="http://www.ods-project.eu/image.jpg">http://www.ods-project.eu/image.jpg</a>

**Stores a globally label that identifies a learning object as unique. The ODS AP permits up to ten (10) identifiers for each metadata record of a specific learning object.**



# Recommended Elements



## 1.3 General.Language

<b>Datatype</b>	CharacterString [SPM: 1000 char]
<b>Size</b>	SPM: 10 items
<b>Example</b>	“en”, “gr”

**Defines all languages used within the learning object. It can store up to ten (10) language elements**



# Recommended Elements



## 1.4 General.Description

<b>Datatype</b>	LangString [SPM:2000 char]
<b>Size</b>	SPM: 10 items
<b>Example</b>	("en", "Artist's interpretation of the x-ray burst of a neutron star which is the dead core of a massive star")

**Defines all languages used within the learning object. It can store up to ten (10) language elements**



# Recommended Elements



## 1.5 General.Keyword

<b>Datatype</b>	LangString [SPM: 1000 char]
<b>Size</b>	SPM: 10 items
<b>Example</b>	("en", "neutron stars"), ("gr", "αστέρες νετρονίου")

**Provides free text keywords describing the topic of the learning object.**



# Recommended Elements



## 1.8 General.Aggregation Level

<b>Datatype</b>	Vocabulary
<b>Size</b>	1
<b>Example</b>	"1"

Value Space	Definition
1	The smallest level of aggregation, namely, an educational resource
2	A collection of level 1 learning objects, namely, a lesson plan
3	A collection of level 2 learning objects, namely an educational scenario

**Stores the functional granularity of the learning object.**



# Recommended Elements



2.3 LifeCycle.Contribute			
	2.3.1 Role	2.3.2 Entry	2.3.3 Date
Datatype	Vocabulary	CharacterString [SPM: 1000 char]	Date Time
Size	1	SPM: 40 items	1
Example	“author”	<entity> BEGIN:VCARD(...) </entity>	“16/11/2012”

**Responsible for data about the entities that have contributed to the state of the L.O. during its life cycle**



# Recommended Elements



3.1 Meta - Metadata. Identifier		
	3.1.1 Catalog	3.1.2 Entry
Datatype	CharacterString [SPM: 1000 char]	CharacterString [SPM: 1000 char]
Size	1	1
Example	“URI”	<a href="http://www.ods-project.eu/description/12">http://www.ods-project.eu/description/12</a>

**Represents a globally unique label that identifies a specific metadata record. The ODS AP permits up to ten (10) identifiers for each metadata record of a specific learning object.**



# Recommended Elements



3.1 Meta - Metadata. Identifier		
	3.1.1 Catalog	3.1.2 Entry
Datatype	CharacterString [SPM: 1000 char]	CharacterString [SPM: 1000 char]
Size	1	1
Example	“URI”	<a href="http://www.ods-project.eu/description/12">http://www.ods-project.eu/description/12</a>

**Represents a globally unique label that identifies a specific metadata record. The ODS AP permits up to ten (10) identifiers for each metadata record of a specific learning object.**



# Recommended Elements



3.2 Meta – Metadata.Contribute			
	3.2.1 Role	3.2.2 Entity	3.2.3 Date
Datatype	Vocabulary	CharacterString [SPM: 1000 char]	Date Time
Size	1	SPM: 10 items	1
Example	“creator”	<entity> BEGIN:VCARD (...) </entity>	“16/11/2012”

**Represents those entities that have affected the state of this metadata instance during its life cycle.**



# Recommended Elements



## 5.2 Educational. Learning Resource Type

<b>Datatype</b>	Vocabulary
<b>Size</b>	SPM: 10 items
<b>Example</b>	("Diagram"), ("Exercise")

**Value Space**

**Described in Section 5.6.11 of the ODS LOM AP documentation**

**Indicates the specific kind of the learning object. It is a Vocabulary data type and the ODS AP permits up to ten (10) different 5.2 Educational.Learning Resource Type elements.**



# Recommended Elements



## 5.6 Educational.Context

<b>Datatype</b>	Vocabulary
<b>Size</b>	SPM: 10 items
<b>Example</b>	("Primary Education"), ("Secondary Education")

**Value Space**

**Described in Section 5.6.15 of the ODS LOM AP documentation**

**Indicates the principal environment within which the learning and use of this learning object is intended to take place**



# Recommended Elements



## 5.7 Educational. Typical Age Range

<b>Datatype</b>	LangString [SPM: 1000 char]
<b>Size</b>	SPM: 5 items
<b>Example</b>	("15 – 18"), ("18 – U")

**Intended to indicate the typical age of the user of the learning object. It is a LangString data type and is expressed by an age range (minimum age to maximum age) separated by a hyphen. Either minimum or maximum value can be set to U (undefined) meaning that then the range is extended in that way.**



# Recommended Elements



## 5.8 Educational. Difficulty

<b>Datatype</b>	Vocabulary
<b>Size</b>	SPM: 5 items
<b>Example</b>	("easy"), ("very difficult")

**Value Space**

**Described in Section 5.6.16 of the ODS LOM AP documentation**

**Exhibits how hard it is to work with or through this learning object for the typical intended target audience.**



# Recommended Elements



5.9 Educational. Typical Learning Time	
<b>Datatype</b>	Duration
<b>Size</b>	1
<b>Example</b>	“PT1H30M”, “PT1M45S”

**Stores the approximate or time it takes to work with or through this learning object for the typical intended target audience.**



# Recommended Elements



6.1 Rights. Cost	
<b>Datatype</b>	Vocabulary
<b>Size</b>	1
<b>Example</b>	“yes” “no”

**Used to indicate if the use of the learning object requires payment, so as to be used.**



# Recommended Elements



## 6.2 Rights, Copyrights and Other Restrictions

<b>Datatype</b>	Vocabulary
<b>Size</b>	1
<b>Example</b>	“yes” “no”

**Used to indicate if any copyrights or other restrictions apply to the learning object. The value “Yes” means that the copyrights and/or other restrictions apply to the LO, while “No” means that the learning object has no restrictions and is not protected by copyrights.**



# Recommended Elements



6.3 Rights. Description	
<b>Datatype</b>	LangString [SPM: 1000 char]
<b>Size</b>	1
<b>Example</b>	“en”, “See copyright notice: <a href="http://copyrightsnotice.org/rights.html">http://copyrightsnotice.org/rights.html</a> ”

**Used to provide textual description of copyrights or other restrictions that apply to the learning object.**



# Optional Elements

1.6 General.Coverage	
<b>Datatype</b>	LangString [SPM: 1000 char]
<b>Size</b>	SPM: 10 items
<b>Example</b>	("en", "Europe") ("gr", "Ευρώπη")

Used to store the geography or specific region to which the learning object applies.



# Optional Elements

1.7 General.Structure	
<b>Datatype</b>	Vocabulary
<b>Size</b>	1
<b>Example</b>	("atomic") ("collection")
<b>Value Space</b>	Described in Section 5.6.2 of the ODS LOM AP documentation

**Provides information about the underlying organizational structure of the learning object.**



# Optional Elements



2.1 LifeCycle.Version	
<b>Datatype</b>	LangString [SPM: 50 Characters]
<b>Size</b>	1
<b>Example</b>	("en", "v1.0")

**Intended to store the version/edition of the learning object.**



# Optional Elements

2.2 LifeCycle.Status	
<b>Datatype</b>	Vocabulary
<b>Size</b>	1
<b>Example</b>	("draft") ("final")

<b>Value Space</b>	<b>Described in Section 5.6.4 of the ODS LOM AP documentation</b>
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**Intended to indicate the completion status or condition to the learning object.**



# Optional Elements

## 3.3 Meta – Metadata. Metadata Schema

<b>Datatype</b>	CharacterString [SPM: 30 char]
<b>Size</b>	SPM: 10 items
<b>Example</b>	“LOMv1.0”

**Intended for the name and version of the authoritative specification used to create this metadata instance.**



# Optional Elements

3.4 Meta – Metadata. Language	
<b>Datatype</b>	CharacterString [SPM: 100 char]
<b>Size</b>	1
<b>Example</b>	“en”

**Intended to describe the language of the metadata instance.**



# Optional Elements

## 4.1 Technical. Format

<b>Datatype</b>	CharacterString [SPM: 500 char]
<b>Size</b>	SPM: 40 items
<b>Example</b>	("image/gif") ("application/x-director") ("text/xml")

**Value Space**

**Described in Section 5.6.7 of the ODS LOM AP documentation**

**Presents information about the technical datatype(s) of (all the components of) this learning object.**



# Optional Elements



4.2 Technical. Size	
<b>Datatype</b>	CharacterString [SPM: 500 char]
<b>Size</b>	1
<b>Example</b>	("44000") ("50392")

**Intended to store the size of the digital learning objects in bytes (octets). The size is represented as a decimal value (radix 10). Consequently, only the digits “0” through “9” should be used.**



# Optional Elements

## 4.4 Technical.Requirement

	4.4.1.1 OrComposite. Type	4.4.1.2 OrComposite. Name	4.4.1.3 OrComposite. Minimum Version	4.4.1.4 OrComposite. Minimum Version
Datatype	Vocabulary	Vocabulary	CharacterString	CharacterString
Size	1	1	1	1
Example	("browser") ("operating system")	("unix") ("multi - os")	("7") ("v 16.0.2")	("7") ("v 16.0.2")

**Used for the grouping of multiple requirements. The composite requirement is satisfied when one of the component requirements is satisfied, i.e., the logical connector is OR.**



# Optional Elements



## 4.5 Technical. Installation Remarks

<b>Datatype</b>	LangString [SPM: 1000 char]
<b>Size</b>	1
<b>Example</b>	("en", "Unzip the zip file and launch index.html in your web browser")

**Intended to hold a description on how to install the learning object.**



# Optional Elements

## 4.6 Technical. Other Platform Requirements

<b>Datatype</b>	LangString [SPM: 1000 char]
<b>Size</b>	1
<b>Example</b>	("en", "sound card"), ("en", "runtime X")

**Intended to store information about other software and hardware requirements.**



# Optional Elements

4.7 Technical. Duration	
<b>Datatype</b>	Duration
<b>Size</b>	1
<b>Example</b>	("PT1H30M") ("PT1M45S")

**Holds the time a continuous learning object takes when played at intended speed.**



# Optional Elements

5.1 Educational.Interactivity Type	
<b>Datatype</b>	Vocabulary
<b>Size</b>	1
<b>Example</b>	("Active") ("Mixed")

<b>Value Space</b>	<b>Described in Section 5.6.10 of the ODS LOM AP documentation</b>
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**Intended to store the definition of a learning object according to its interactivity type with the user.**



# Optional Elements

5.3 Educational.Interactivity Level	
<b>Datatype</b>	Vocabulary
<b>Size</b>	1
<b>Example</b>	("low") ("very high")

<b>Value Space</b>	Described in Section 5.6.12 of the ODS LOM AP documentation
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**Intended to store the degree of interactivity characterizing this learning object. Interactivity in this context refers to the degree to which the learner can influence the aspect of behavior of the learning object.**



# Optional Elements

5.4 Educational.Density	
<b>Datatype</b>	Vocabulary
<b>Size</b>	1
<b>Example</b>	("low") ("very high")

**Value Space**

Derives its values from IEEE LOM v1.0 Vocabulary.

**Intended to store the degree of conciseness of learning object. The semantic density of a learning object may be estimated depending on the relation between the amount of information provided and the size, span or duration of the LO.**



# Optional Elements

5.5 Educational.Intended End User Role	
<b>Datatype</b>	Vocabulary
<b>Size</b>	SPM:10 items
<b>Example</b>	("Author") ("Teacher")

<b>Value Space</b>	Described in Section 5.6.14 of the ODS LOM AP documentation
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**Intended to indicate the role of principal user(s) for which this learning object was designed.**



# Optional Elements

5.10 Educational.Description	
<b>Datatype</b>	LangString [SPM:1000 char]
<b>Size</b>	SPM: 10 items
<b>Example</b>	("en", "Teacher guidelines that come with a textbook.")

**Intended to provide comments on how this learning object is to be used.**



# Optional Elements

5.11 Educational.Language	
<b>Datatype</b>	CharacterString [SPM: 100 char]
<b>Size</b>	SPM: 10 items
<b>Example</b>	("en"), ("fr")

**Stores the human language(s) used by typical intended user of this learning object.**



# Optional Elements

7.1 Relation. Kind	
<b>Datatype</b>	Vocabulary
<b>Size</b>	1
<b>Example</b>	("ispartof"), ("haspart"), ("isversionof")

<b>Value Space</b>	<b>Described in Section 5.6.17 of the ODS LOM AP documentation</b>
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**Intended to describe the nature of the relationship between this learning object and the target learning object, identified by "7.2 Relation.Resource".**



# Optional Elements



## 7.2 Relation.Resource

	7.2.1.1 Relation.Resource. Identifier.Catalog	7.2.1.2 Relation.Resource. Identifier.Entry	7.2.2 Relation.Resource. Description
Datatype	CharacterString [SPM: 1000 char]	CharacterString [SPM: 1000 char]	LangString [SPM: 1000 char]
Size	1	1	SPM:10 items
Example	("ISBN"), ("ARIADNE"), ("URI")	("2-7342-0318") ("LEAO875")	("en", "The Quick Time movie of the horizontal throw on the web site of the Wikipedia")

**Stores the target learning object that this relationship references.**



# Optional Elements

## 8.1 Annotation.Entity

<b>Datatype</b>	CharacterString [SPM: 1000 char]
<b>Size</b>	1
<b>Example</b>	<code>&lt;entity&gt;</code> <code>BEGIN:VCARD</code> <code>(...)</code> <code>END:VCARD</code> <code>&lt;/entity&gt;</code>

**Stores the entity (i.e., people, organization) that created this annotation.**



# Optional Elements



8.2 Annotation.Date	
<b>Datatype</b>	DateTime
<b>Size</b>	1
<b>Example</b>	("2012 – 11 – 27")

**Stores the date in which the specific annotation was created.**



# Optional Elements

## 8.3 Annotation.Description

<b>Datatype</b>	LangString [SPM: 1000 char]
<b>Size</b>	1
<b>Example</b>	("en", "I have used this video with my student". They really enjoy being able to modify some features of the experiment")

**Contains the description of this annotation regarding the LO.**



# Optional Elements

## 9.3 Classification.Description

<b>Datatype</b>	LangString [SPM: 2000 char]
<b>Size</b>	1
<b>Example</b>	("en", "This learning object can be used to educate people how to use a telescope")

**Contains a textual description of the characteristics being described.**



# Optional Elements



## 9.4 Classification.Keyword

<b>Datatype</b>	LangString [SPM: 1000 char]
<b>Size</b>	1
<b>Example</b>	("telescope", "planets")

**Contains keyword description of learning objective relative to its stated purpose.**



# Questions?

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# *Thanks!*



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