



# Technology Enhanced Learning: Conformance - European Requirements & Testing

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<b>Summary:</b>	This document outlines the OUNL application profiles created for IMS Learning Design, IMS Content Packaging and IMS Metadata.

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# 1 INTRODUCTION

The Application Profile outlined in this document is based around IMS Learning Design (IMS LD). IMS LD is meta-language which models learning designs and supports pedagogical diversity. Units of Learning (UoL) modelled in learning design allow for reuse of course components, in addition to learning resources. IMS LD is a powerful specification which allows designers to model flexible units of learning containing multiple roles. The use of standards such as IMS LD further promotes interoperability between e-learning systems and communities. For more information about Learning Design, please refer to the IMS LD Information Model, Best Practice and Implementation Guide and Information Binding documents, available at: <http://www.imsglobal.org/learningdesign/>.

In broad terms, this Application Profile (AP) provides an example of how a simple Application Profile based on Learning Design may be developed. This could be of interest to any Community of Practice in Europe considering the implementation of IMS Learning Design or the development of a similar Application Profile. Such communities may include the Valkenburg Group (<http://www.valkenburggroup.org>) and the Communities of Practice within the UNFOLD project (<http://www.unfold-project.net>) among others.

More specifically, this profile implementation uses a metadata set which has been recommended by the Dutch DU consortium, and so will also be of particular interest to Communities of Practice within the Netherlands such as SURF, as it demonstrates an implementation of a profile using both the recommended DU metadata set as well as IMS Learning Design.

## 1.1 Scope & Context

The IMS Learning Design specification was conceived within the context of the broad range of specifications developed by IMS. As such, the use of IMS LD also often implies the use of other specifications such as Content Packaging (which together with IMS LD forms a Unit of Learning) and IMS Metadata, which can be used to describe various parts of a Learning Design. This metadata can be used for both administrative purposes (such as recording copyright or technical details) and search and discovery purposes. Numerous other standards such as QTI and LIP may also be used in combination with Learning Design, but are not currently within the scope of this Application Profile. In the second phase of the Telcert project (2005/2006), a further Application Profile is planned, which will include other specifications such as QTI.

IMS LD is divided into three parts; Level A, B and C. The core of the specification is contained in Level A, with levels B and C both integrating and extending the previous level. The profile outlined in this document is based on IMS Learning Design Level A. The profile planned for Telcert Phase 2 will be based around level B and/or level C.

In order to test for conformance with this Application Profile, test content has also been developed and will be made publicly available (Telcert project, Deliverable 13). This test content will be used in conjunction with the tests identified in the Phase 1 Acceptance Test Criteria (Telcert project, Deliverable 6) to test for conformance with this profile.

## 1.2 List of Acronyms

IMS LD – IMS Learning Design

XML – eXtensible Markup Language

UoL – Unit of Learning

AP – Application Profile

OUNL – Open University of the Netherlands

EML – Educational Modelling Language

IMS LR MD – IMS Learning Resource Metadata

IMS CP – IMS Content Packaging

DU – Digital University (Dutch consortium)

SURF - <http://www.surf.nl/en/home/index.php>

UNFOLD – Understanding New Frameworks Of Learning Design

## **2 TERMS OF REFERENCE**

This Application Profile was created based on IMS Learning Design Version 1.0, Level A. It is relevant to communities of practice with an interest in implementing Learning Design

## 3 INFORMATION MODEL

As previously mentioned, this AP currently includes content packaging, metadata and learning design, and it is planned to be extended to include further specifications in the second phase of the Telcert project.

### 3.1 IMS Learning Design Level A

#### 3.1.1 Base schema

IMS LD Level A is the most basic level of Learning Design, and contains the core elements of the specification. As well as allowing designers to create units of learning, level A also supports a number of services that may be used during the execution of a unit of learning. These services include send-mail, index search, conference and monitor.

#### 3.1.2 Modifications

This Application Profile includes all elements as dictated in the IMS LD Version 1.0, Level A specification. No modifications were made to the learning design base schema.

### 3.2 IMS Metadata

#### 3.2.1 Base schema

The Application Profile is based on the IMS Metadata Version 1.2.2:  
<http://www.imsglobal.org/metadata/index.cfm#version1.2.2>

The metadata used in this AP conforms to the metadata set specified by the Dutch DU (Digital University) consortium. The DU element set contains a number of mandatory and optional elements. Responsibility for completion of each element is deferred to a specified role. The two primary roles are “author” and “cataloguer.” Of particular interest for the description of learning designs may be the “educational” elements (section 5), which are listed as optional and are the responsibility of the author role.

#### 3.2.2 Modifications

Table 1 details all the mandatory and optional elements within this application profile. There have been a number of modifications to the DU metadata set as follows:

- For the second role specified in lifecycle (element 2.3.1) a fixed value is mandated. This value is specific to DU and is not included here.
- The cataloguer role has been assigned to complete the optional technical, size (element 4.2) element. No role was specified in the DU application profile

**Table 1: Mandatory and optional metadata elements**

IMS ref.	Name	Mandatory/Optional	Completed by	Default Value (English)	Mandatory Value (English)	Notes
1	general					
1.1	identifier					
1.2	title	Mandatory	author	-	-	
1.3	catalogentry					
1.3.1	catalog	Mandatory	cataloguer	-	DUCat	
1.3.2	entry	Mandatory	cataloguer	-	-	
1.4	language	Mandatory	cataloguer	nl	-	
1.5	description	Mandatory	author	-	-	
1.6	keyword	Mandatory	author	-	-	
1.7	coverage	Optional	author	-	-	
1.8	structure	Optional	author	-	-	
1.9	aggregation level	Optional	author	-	-	
2	lifecycle					
2.1	version	Mandatory	author	0.1	-	
2.2	status	Mandatory	author	ontwerp (design)	-	
2.3	contribute					
2.3.1	role	Mandatory	author	-	auteur (author)	
2.3.2	entity	Mandatory	author	-	-	
2.3.3	date	Mandatory	author	-	-	
2.3.1	role	Mandatory	cataloguer	-	uitgever (editor)	
2.3.2	entity	Mandatory	cataloguer	-	-	
2.3.3	date	Mandatory	cataloguer	-	-	
3	meta-metadata					
3.1	identifier					
3.2	catalogentry					
3.2.1	catalog	Mandatory	cataloguer	-	-	
3.2.2	entry	Mandatory	cataloguer	-	-	
3.3	contribute					
3.3.1	role	Mandatory	cataloguer	-	maker (creator)	
3.3.2	entity	Mandatory	cataloguer	-	-	
3.3.3	date	Mandatory	cataloguer	-	-	
3.3.1	role	Mandatory	cataloguer	-	documentalist (validator)	
3.3.2	entity	Mandatory	cataloguer	-	-	
3.3.3	date	Mandatory	cataloguer	-	-	
3.3.1	role	Optional	cataloguer	-	-	
3.3.2	entity	Optional	cataloguer	-	-	
3.3.3	date	Optional	cataloguer	-	-	
3.4	metadata scheme	Mandatory	cataloguer	-	LOMnlv1.0	
3.5	language	Mandatory	cataloguer	-	nl (Dutch)	
4	technical					
4.1	format	Mandatory	cataloguer	-	-	
4.2	size	Optional	cataloguer	-	-	
4.3	location	Mandatory	cataloguer	-	-	

IMS ref.	Name	Mandatory/Optional	Completed by	Default Value (English)	Mandatory Value (English)	Notes
4.4	requirement					
4.4.1	type	Optional	cataloguer	-	besturingssysteem (control system)	
4.4.2	name	Optional	cataloguer	-	-	
4.4.3	minimum version	Optional	cataloguer	-	-	
4.4.4	maximum version	Optional	cataloguer	-	-	
4.4.1	type	Optional	cataloguer	-	-	
4.4.2	name	Optional	cataloguer	-	webbrowser	
4.4.3	minimum version	Optional	cataloguer	-	-	
4.4.4	maximum version	Optional	cataloguer	-	-	
4.4.1	type	Optional	cataloguer	-	Elektronische leeromgeving (e-learning environment)	
4.4.2	name	Optional	cataloguer	-	-	
4.4.3	minimum version	Optional	cataloguer	-	-	
4.4.4	maximum version	Optional	cataloguer	-	-	
4.5	installation remarks	Optional	cataloguer	-	-	
4.6	other platform requirements	Optional	cataloguer	-	-	
4.7	duration	Optional	cataloguer	-	-	
5	educational					
5.1	interactivity type	Optional	author	-	-	
5.2	learning resource type	Optional	author	-	-	
5.3	interactivity level	Optional	author	-	-	
5.4	semantic density	Optional	author	-	-	
5.5	intended end user role	Optional	author	-	-	
5.6	context	Optional	author	hoger onderwijs (higher education)	-	
5.7	typical age range	Optional	author	-	-	
5.8	difficulty	Optional	author	-	-	
5.9	typical learning time	Optional	author	-	-	
5.10	description	Optional	author	-	-	
5.11	language	Optional	author	-	-	
6	rights					
6.1	cost	Mandatory	cataloguer	Ja (yes)		
6.2	copyright and other restrictions	Mandatory	cataloguer	Ja (yes)		

IMS ref.	Name	Mandatory/Optional	Completed by	Default Value (English)	Mandatory Value (English)	Notes
6.3	description	Optional	cataloguer	"neem contact op met DU voor voorwaarden" (Refer to DU for conditions of use)		
7	relation					
7.1	kind	Optional	cataloguer	-	-	
7.2	resource					
7.2.1	identifier					
7.2.2	description	Optional	cataloguer	-	-	
7.2.3	catalogentry					
7.2.3.1	catalog	Optional	cataloguer	-	-	
7.2.3.2	entry	Optional	cataloguer	-	-	
8	annotation					
8.1	person	Optional	user	-	-	
8.2	date	Optional	user	-	-	
8.3	description	Optional	user	-	-	
9	classification					
9.1	purpose	Optional	cataloguer	-	onderwerp (subject)	
9.2	taxon path	Optional	cataloguer			
9.2.1	source	Optional	cataloguer	-	NBC	
9.2.2	taxon		cataloguer			
9.2.2.1	id	Mandatory	cataloguer	-	-	
9.2.2.2	entry	Mandatory	cataloguer	-	-	
9.3	description	Optional	cataloguer	-	-	
9.4	keyword	Optional	cataloguer	-	-	

Within the IMS Learning Design specification, the elements that allow the use of metadata include:

learning-design, prerequisites, learning-objectives, information, learner, staff, learning-activity, activity-description, feedback-description, support-activity, activity-structure, environment, learning-object, send-mail, conference, index-search, play, role-part, act

The metadata elements specified in Table 1 apply to the Unit of Learning as a whole. Components within the Unit of Learning (such as activity structures or roles) may also be described using metadata, but the use of metadata for these components is not mandatory.

### 3.3 IMS Content Packaging

#### 3.3.1 Base schema

The IMS Content Packaging specification (IMS CP 1.1.4) was used for this Application Profile. The base schema is available at:

[http://www.imsglobal.org/xsd/imscp\\_v1p1.xsd](http://www.imsglobal.org/xsd/imscp_v1p1.xsd)

More information on the base specification is available at:

<http://www.imsglobal.org/content/packaging/index.cfm>

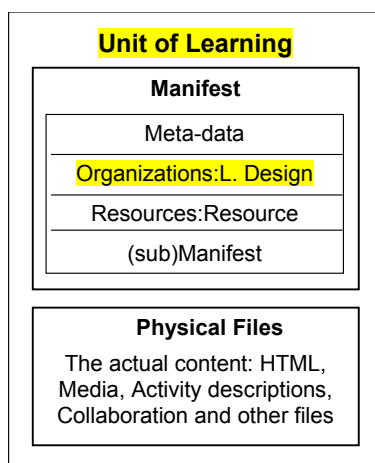
### 3.3.2 Modifications

The Application profile required two modifications to the base specification of IMS Content Packaging in order to ensure that content packages were conformant to the requirements set out in the *IMS Learning Design Information Model* document.

The modifications outlined in this document are:

- The <organizations> element must contain exactly one <learning-design> element
- Any <organization> elements found within the <organizations> element will be ignored. In this AP, additional <organization> elements will be made illegal.

The modification is outlined in the figure below. Note that this is standard practice for including a unit of learning within a content package:



Source: [http://www.imsglobal.org/learningdesign/ldv1p0/images/imsld\\_infov1p07.gif](http://www.imsglobal.org/learningdesign/ldv1p0/images/imsld_infov1p07.gif)

## 4 BINDING

### 4.1 IMS Learning Design Level A

The complete IMS LD Level A base schema was used with no modifications:

[http://www.imsglobal.org/learningdesign/ldv1p0/IMS\\_LD\\_Level\\_A.xsd](http://www.imsglobal.org/learningdesign/ldv1p0/IMS_LD_Level_A.xsd)

### 4.2 IMS Metadata

```
<sp:schema_mod baseSchema="imsmd_rootv1p2p1.xsd"
  xmlns="http://www.imsglobal.org/xsd/imsmd_rootv1p2p1"
  xmlns:sp="http://iwm.uni-koblenz.de/xsd/ims_apv1p3"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://iwm.uni-
  koblenz.de/xsd/ims_apv1p3_ims_apv1p3.xsd">
  <sp:modifications>
    <sp:modification element="/xsd:schema/xsd:complexType[@name='classificationType']">
      <sp:cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[1]"/>
      <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
        <sp:modification element="/xsd:sequence[1]/xsd:element[2]">
          <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
            <sp:attribute_properties fixed="subject"
              subelement="/xsd:simpleContent[1]" type="purpose-fixed-text"/>
          </sp:modification>
        </sp:modification>
      </sp:modification>
    </sp:modification>
    <sp:cardinality maxOccurs="unbounded" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[2]"/>
    <sp:modification element="/xsd:sequence[1]/xsd:element[2]">
      <sp:cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[1]"/>
      <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
        <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
          <sp:attribute_properties fixed="NBC"
            subelement="/xsd:simpleContent[1]" type="taxonpath-source-fixed-text"/>
        </sp:modification>
      </sp:modification>
    </sp:modification>
    <sp:cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[2]"/>
    <sp:modification element="/xsd:sequence[1]/xsd:element[2]"/>
      <sp:cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[1]"/>
      <sp:cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[2]"/>
    </sp:modification>
  </sp:modification>
  <sp:modification element="/xsd:schema/xsd:complexType[@name='educationalType']">
    <sp:modification element="/xsd:sequence[1]/xsd:element[6]">
      <sp:modification element="/xsd:sequence[1]/xsd:element[2]">
        <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
          <sp:attribute_properties
            default="higher education"
            subelement="/xsd:simpleContent[1]" type="higher-education-default-text"/>
        </sp:modification>
      </sp:modification>
    </sp:modification>
  </sp:modification>
  <sp:modification element="/xsd:schema/xsd:complexType[@name='generalType']">
    <sp:cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[1]"/>
    <sp:cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[2]"/>
    <sp:cardinality maxOccurs="unbounded" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[3]"/>
    <sp:modification element="/xsd:sequence[1]/xsd:element[3]"/>
  </sp:modification>
</sp:modifications>
```

```

    <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
      <sp:attribute_properties fixed="DUCat"
        subelement="." type="catalog-fixed-text"/>
    </sp:modification>
  </sp:modification>
  <sp:cardinality maxOccurs="unbounded" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[4]">
  <sp:modification element="/xsd:sequence[1]/xsd:element[4]">
    <sp:attribute_properties default="nl" subelement="." type="language-restriction"/>
  </sp:modification>
  <sp:cardinality maxOccurs="unbounded" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[5]">
  <sp:cardinality maxOccurs="unbounded" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[6]">
</sp:modification>
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  <sp:cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[1]">
  <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
    <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
      <sp:attribute_properties default="0.1"
        subelement="/xsd:simpleContent[1]" type="version-default-text"/>
    </sp:modification>
  </sp:modification>
  <sp:cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[2]">
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    <sp:modification element="/xsd:sequence[1]/xsd:element[2]">
      <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
        <sp:attribute_properties default="design"
          subelement="/xsd:simpleContent[1]" type="status-default-text"/>
      </sp:modification>
    </sp:modification>
  </sp:modification>
  <sp:cardinality maxOccurs="2" minOccurs="2" subelement="/xsd:sequence[1]/xsd:element[3]">
  <sp:modification element="/xsd:sequence[1]/xsd:element[3]">
    <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
      <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
        <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
          <sp:attribute_properties cnd="cnd0"
            fixed="author"
            subelement="/xsd:simpleContent[1]" type="author-restriction"/>
          <sp:attribute_properties fixed="editor"
            subelement="/xsd:simpleContent[1]" type="editor-restriction"/>
        </sp:modification>
      </sp:modification>
    </sp:modification>
    <sp:modification element="/xsd:sequence[1]/xsd:element[2]">
  </sp:modification>
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  <sp:cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[3]">
</sp:modification>
  <sp:modification element="/xsd:sequence[1]/xsd:group[1]">
</sp:modification>
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  <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
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      <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
        <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
          <sp:modification element="/xsd:sequence[1]/xsd:element[1]">
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              fixed="creator"
              subelement="/xsd:simpleContent[1]" type="creator-restriction"/>
            <sp:attribute_properties fixed="cataloguer"
              subelement="/xsd:simpleContent[1]" type="cataloguer-restriction"/>
          </sp:modification>
        </sp:modification>
      </sp:modification>
    </sp:modification>
  </sp:modification>
</sp:modification>

```

```

    </sp.modification>
    <sp.cardinality maxOccurs="unbounded" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[2]"/>
    <sp.cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[3]"/>
  </sp.modification>
  <sp.cardinality maxOccurs="unbounded" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[4]"/>
  <sp.modification element="/xsd:sequence[1]/xsd:element[4]"/>
    <sp.attribute_properties fixed="LOMnlv1.0"
      subelement="." type="metametascheme-fixed-text"/>
  </sp.modification>
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  </sp.modification>
</sp.modification>
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    <sp.modification element="/xsd:sequence[1]/xsd:element[2]"/>
    <sp.modification element="/xsd:sequence[1]/xsd:element[1]"/>
      <sp.attribute_properties default="yes"
        subelement="/xsd:simpleContent[1]" type="cost-default-text"/>
    </sp.modification>
    </sp.modification>
  </sp.modification>
  <sp.modification>
  <sp.modification>
  <sp.modification>
  <sp.cardinality maxOccurs="1" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[2]"/>
  <sp.modification element="/xsd:sequence[1]/xsd:element[2]"/>
    <sp.modification element="/xsd:sequence[1]/xsd:element[2]"/>
    <sp.modification element="/xsd:sequence[1]/xsd:element[1]"/>
      <sp.attribute_properties default="yes"
        subelement="/xsd:simpleContent[1]" type="copyright-and-other-default-text"/>
    </sp.modification>
  </sp.modification>
  </sp.modification>
  </sp.modification>
  <sp.modification element="/xsd:sequence[1]/xsd:element[3]"/>
  <sp.modification element="/xsd:sequence[1]/xsd:element[1]"/>
    <sp.attribute_properties
      default="Refer to DU for conditions of use"
      subelement="/xsd:simpleContent[1]" type="rights-description-default-text"/>
  </sp.modification>
</sp.modification>
</sp.modification>
<sp.modification element="/xsd:schema/xsd:complexType[@name='technicalType']">
  <sp.cardinality maxOccurs="unbounded" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[1]"/>
  <sp.cardinality maxOccurs="unbounded" minOccurs="1" subelement="/xsd:sequence[1]/xsd:element[3]"/>
  <sp.modification element="/xsd:sequence[1]/xsd:element[4]"/>
  <sp.modification element="/xsd:sequence[1]/xsd:element[1]"/>
    <sp.modification element="/xsd:sequence[1]/xsd:element[2]"/>
    <sp.modification element="/xsd:sequence[1]/xsd:element[1]"/>
      <sp.attribute_properties
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        subelement="/xsd:simpleContent[1]" type="technical-type-restriction"/>
    </sp.modification>
  </sp.modification>
  </sp.modification>
  <sp.modification>
  <sp.modification element="/xsd:sequence[1]/xsd:element[2]"/>
  <sp.modification element="/xsd:sequence[1]/xsd:element[2]"/>
  <sp.modification element="/xsd:sequence[1]/xsd:element[1]"/>
    <sp.attribute_properties
      default="control system"
      subelement="/xsd:simpleContent[1]" type="controlsystem-fixed-text"/>
    <sp.attribute_properties fixed="webbrowser"
      subelement="/xsd:simpleContent[1]" type="webbrowser-fixed-text"/>
    <sp.attribute_properties
      fixed="e-learning environment"
      subelement="/xsd:simpleContent[1]" type="e-learning-environment-fixed-text"/>
  </sp.modification>
</sp.modification>

```

```

    </sp.modification>
    <sp.modification element="/xsd:sequence[1]/xsd:group[1]">
      <sp.element_extension maxOccurs="3" minOccurs="0"
        namespace="##any" subelement="/xsd:sequence[1]/xsd:any[1]">
    </sp.modification>
  </sp.modification>
</sp.modifications>
<sp.definitions>
  <sp.condition id="cnd1" name="cataloguer">(..../..../contribute[position()=2])=(..../..../)</sp.condition>
  <sp.condition id="cnd2" name="creator">(..../..../contribute[position()=1])=(..../..../)</sp.condition>
  <sp.condition id="cnd0" name="author">(..../..../contribute[position()=1])=(..../..../)</sp.condition>
  <xsd:simpleType name="author-restriction">
    <xsd:restriction base="xsd:string">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="librarian-restriction">
    <xsd:restriction base="xsd:string">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="creator-restriction">
    <xsd:restriction base="xsd:string">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="librarian-restriction-metametadata">
    <xsd:restriction base="xsd:string">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="catalogue-default-text">
    <xsd:restriction base="catalogType">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="language-restriction">
    <xsd:restriction base="xsd:string">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="catalog-fixed-text">
    <xsd:restriction base="catalogType">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="version-default-text">
    <xsd:restriction base="xsd:string">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="status-default-text">
    <xsd:restriction base="xsd:string">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="editor-restriction">
    <xsd:restriction base="xsd:string">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="cataloguer-restriction">
    <xsd:restriction base="xsd:string">
      <xsd:whiteSpace value="preserve"/>
    </xsd:restriction>
  </xsd:simpleType>

```

```

<xsd:simpleType name="language-restriction-metadatascheme">
  <xsd:restriction base="metadataschemeType">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="metametadata-language-fixed">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="metametascheme-fixed-text">
  <xsd:restriction base="metadataschemeType">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="technical-type-restriction">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="technical-requirement-name">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="technical-requirement-name2">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="controlsystem-default-text">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="webbrowser-fixed-text">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="controlsystem-fixed-text">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="e-learning-environment-fixed-text">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="higher-education-default-text">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="cost-default-text">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="copyright-and-other-default-text">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="rights-description-default-text">
  <xsd:restriction base="xsd:string">

```

```

    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="purpose-fixed-text">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="taxonpath-source-fixed-text">
  <xsd:restriction base="xsd:string">
    <xsd:whiteSpace value="preserve"/>
  </xsd:restriction>
</xsd:simpleType>
</sp:definitions>
<sp:mappings/>
</sp:schema_mod>

```

### 4.3 IMS Content Packaging

```

<sp:schema_mod baseSchema="imscp_v1p1.xsd"
  xmlns="http://www.imsglobal.org/xsd/imscp_v1p1"
  xmlns:imsld="http://www.imsglobal.org/xsd/imsld_v1p0"
  xmlns:sp="http://iwm.uni-koblenz.de/xsd/ims_apv1p3"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://iwm.uni-
koblenz.de/xsd/ims_apv1p3 ims_apv1p3.xsd">
  <sp:modifications>
    <sp:modification element="/xsd:schema/xsd:complexType[@name='organizationsType']">
      <sp:cardinality maxOccurs="0" minOccurs="0" subelement="/xsd:sequence[1]/xsd:element[1]"/>
      <sp:modification element="/xsd:sequence[1]/xsd:group[1]">
        <sp:element_extension cnd="cnd0" maxOccurs="1"
          minOccurs="1"
          namespace="http://www.imsglobal.org/xsd/imsld_v1p0"
subelement="/xsd:sequence[1]/xsd:any[1]"/>
      </sp:modification>
    </sp:modification>
  </sp:modifications>
  <sp:definitions>
    <sp:condition id="cnd0" name="ld-condition">name()='learning-design'</sp:condition>
  </sp:definitions>
  <sp:mappings/>
</sp:schema_mod>

```

## **5 POLICY AND PROCESSES**

The Application Profile defined in this document may be used by any interested party.

## **6 CONFORMANCE TESTING**

No conformance testing procedures have been outlined in this document.

## 7 TOOLS

The modifications to this base specifications were produced by the Schemaprof Application (Version 2.3). For further information: [schemaprof@uni-koblenz.de](mailto:schemaprof@uni-koblenz.de)

## 8 REFERENCES

IMS Learning Design Best Practice and Implementation Guide (v. 1.0):

[http://www.msglobal.org/learningdesign/ldv1p0/imsld\\_bestv1p0.html](http://www.msglobal.org/learningdesign/ldv1p0/imsld_bestv1p0.html)

IMS Learning Design Information Model (v. 1.0):

[http://www.msglobal.org/learningdesign/ldv1p0/imsld\\_infov1p0.html](http://www.msglobal.org/learningdesign/ldv1p0/imsld_infov1p0.html)

IMS Learning Resource Metadata Best Practices and Implementation Guide (v 1.2.1):

[http://www.imsproject.org/metadata/imsmdv1p2p1/imsmd\\_bestv1p2p1.html](http://www.imsproject.org/metadata/imsmdv1p2p1/imsmd_bestv1p2p1.html)

IMS Metadata Schema version IMS MD 1.2.1

[http://www.msglobal.org/xsd/imsmd\\_rootv1p2p1.xsd](http://www.msglobal.org/xsd/imsmd_rootv1p2p1.xsd)

Werken met metadata in DU-projecten (v 1.1) (Dutch only) – retrieved 13/12/04

<http://www.digiuni.nl/digiuni/index.cfm/site/digiuni/pageid/C2101FE3-BC93-CF8C-EBB1B0B66C44D87C/objectType/Article/objectID/C024BE38-B9CD-5A60-31ABA8607A8C3B5D/LayoutTemplate/tekst/index.cfm>

Handboek technologie en standaarden: Voor het ontwikkelen van digitale content (v 1.0) (Dutch only) – retrieved 13/12/04

<http://www.digiuni.nl/digiuni/download/DI.PROC.014.Handboek%20techniek.v11.pdf>

Cancore Element Set 1.0: Approved Version

<http://www.cancore.ca/elementset1.html>

IMS Content Packaging Best Practice Guide (v 1.1.4)

[http://www.msglobal.org/content/packaging/cpv1p1p4/ims\\_cp\\_bestv1p1p4.html](http://www.msglobal.org/content/packaging/cpv1p1p4/ims_cp_bestv1p1p4.html)