

LUISA

Learning Content Management System Using Innovative Semantic Web Services Architecture

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EXECUTIVE SUMMARY

The mission of LUISA is that of exploiting the advantages of a Semantic Web Service Architecture to make richer and more flexible the processes of query and specification of learning needs in the context of Learning Management Systems and Learning Object Repositories.

This document details the methodology used to evaluate the LUISA prototypes and presents the results of the first evaluation. It gives a first snapshot upon the advantages and limits of the LUISA technology.

In a first part, the document details the annotation process conducted with the tool ELUISA which is based on ontologies. Results show that annotating with ontologies-based tools is not more time consuming than annotating with classic tools.

In a second part, the document describes the evaluation of the prototype which implements the reasoning part of the LUISA system in order to provide documents to students. Users into the university particularly appreciate the competencies-based approach. Users from outside the university brought some additional comments, including two national projects that could benefit from LUISA technology.

A second version (D7.4.2) will complete this document with the evaluation of the second prototype implementing more advanced features.

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Abstract (for dissemination)	This document details the methodology used to evaluate the LUISA prototypes and presents the results of the first evaluation. It gives a first snapshot upon the advantages and limits of the LUISA technology.
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1 INTRODUCTION

The mission of LUISA is to exploit the advantages of a Semantic Web Service Architecture in order to make richer and more flexible the processes of query and specification of learning needs in the context of Learning Management Systems and Learning Object Repositories.

The LUISA system was implemented into an industrial context at EADS and an academic one at UHP. This document concerns this last case.

We consider two main phases in the global process of learning object management as supported by the LUISA technology:

- The annotation of Learning Objects (LOs) with the LUISA semantic annotation tool.
- The search of these LOs by a user through the LUISA system prototype.

In the LUISA project, the annotation tool the first version of which is called **ELUISA**, is based on the Annotation Tool Library that is a code-library described in more detail in D3.3 [2]. The specificity of ELUISA is to be based on Annotation Profiles, which are configuration mechanisms defining which metadata to edit and how to edit them [1]. The experimentation of a first version of ELUISA used during the annotation process is detailed into the first part of this deliverable (section 3).

A prototype regroups the other LUISA components and allows the query of the annotated LOs. Then the system returns the LOs corresponding to the query according to reasoning services based on ontologies (the same that were used to annotate the LOs). The interface and the behaviour of this prototype were proposed to teachers and librarians of the UHP university. The prototype was also demonstrated outside the university during a national French workshop called "Printemps de la science et de la technologie". This activity is described in the second part of this deliverable (sections 4 and 5).

This document details the methodology used to evaluate the LUISA prototypes and presents the results of the first evaluation. It gives a first snapshot upon the benefits and limits of the LUISA technology. At the end of the project, a second version (D7.4.2) will complete this document with the evaluation of the second prototype implementing more advanced features.

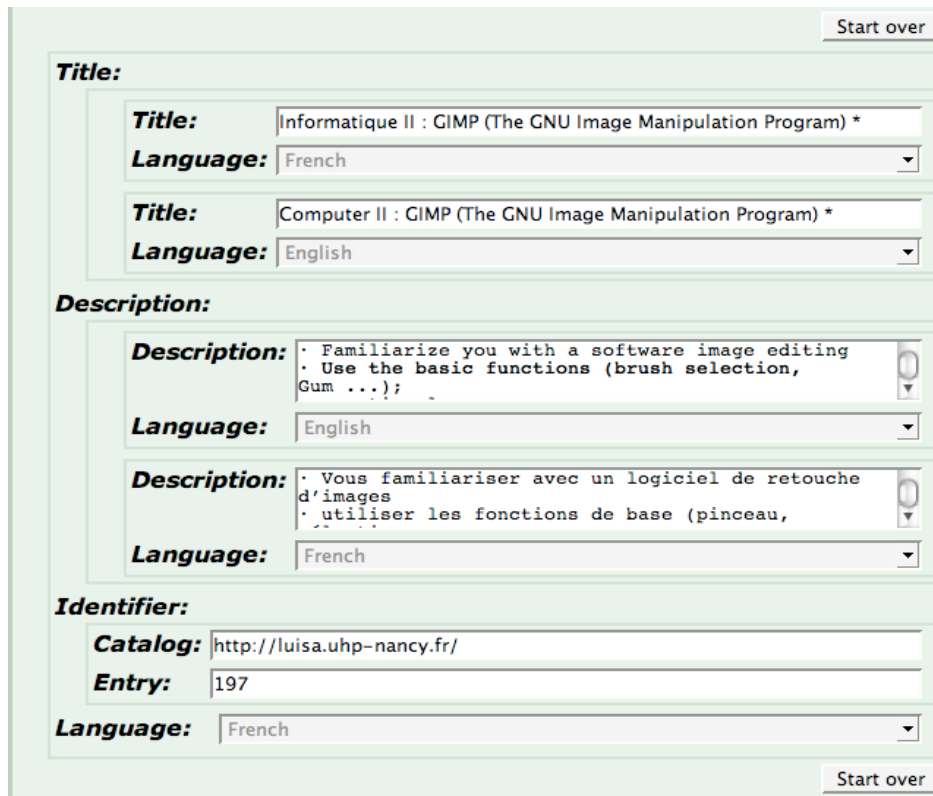
2 EVALUATION OF THE ANNOTATION TOOL

2.1 Context

The annotation tool, ELUISA, was used by UHP to annotate almost 80 resources between December 2007 and January 2008. The resources are web pages or internal documents used to teach C2I (French diploma covering basic skills about computers and Internet). This evaluation phase benefited from a constant interaction between UHP and ULL, partly for debugging software

issues and partly for immediately bringing solutions to minor requests. Consequently, some of the problems that are mentioned have already been solved. The remarks that will be presented below are based on this annotation process.

2.1.1 Annotation tool



The screenshot shows the ELUISA annotation tool interface. It features a 'Start over' button in the top right corner. The interface is divided into several sections:

- Title:** This section contains two entries. The first entry has a title 'Informatique II : GIMP (The GNU Image Manipulation Program) *' and a language dropdown set to 'French'. The second entry has a title 'Computer II : GIMP (The GNU Image Manipulation Program) *' and a language dropdown set to 'English'.
- Description:** This section contains two entries. The first entry has a description 'Familiarize you with a software image editing' and 'Use the basic functions (brush selection, Gum ...);' and a language dropdown set to 'English'. The second entry has a description 'Vous familiariser avec un logiciel de retouche d'images' and 'utiliser les fonctions de base (pinceau,' and a language dropdown set to 'French'.
- Identifiant:** This section contains three fields: 'Catalog' with the value 'http://luisa.uhp-nancy.fr/', 'Entry' with the value '197', and a 'Language' dropdown set to 'French'.

There is another 'Start over' button in the bottom right corner of the interface.

Figure 1: Annotating into ELUISA

ELUISA (first look on **Figure 1**) is based on Annotation Profiles, which are configuration mechanisms allowing an administrator to easily define which metadata to edit and how to edit them. Instead of being attached to an annotation standard, a LO can be annotated with a composition of metadata fields from Dublin Core, IEEE LOM or any other adapted metadata models. The administrator can also decide how the metadata interface must be presented to the annotators. For example, he can choose to present a metadata field as free-text or as a list of items in which the annotators would have to select a value. These administrator's choices are saved into the Annotation Profiles and make the tool very flexible (See D3.2 for more details on the annotation profiles).

The administrator tries to make the annotation process as simple and quick as possible to the annotators. These principles guide the selection and the configuration of the elements of the annotation interface. It is very important to understand that the Annotation Tool hides the complexity of editing an ontology

using an ontology editor, while keeping the power of ontology-based annotations.

In our context, all the fields come from the LOM model. UHP provided to ULL a list of LOM fields and of values. These fields are detailed into D7.2.1.

We can identify two steps when using then annotation tool: the configuration step and the annotation one.

For the configuration step, ULL acted as an administrator by configuring the annotation tool according to the UHP's specifications. However, all the UHP's choices cannot be directly implemented into ELUISA. The interface that was finally used was designed through an iterative refinement process between ULL and UHP.

For the moment, the administration interface is a textual one. In the future, it is foreseen to provide a graphical one which will directly allow an administrator on the use-case side (like UHP or EADS) to configure the annotation tool. It could allow end-users experimenting more different configurations and evaluate the respective benefit brought by each of them.

2.1.2 Annotation process at UHP

Once the annotation tool has been configured according to UHP needs, several UHP actors used the tool to describe resources which were previously stored for the LUISA project. These actors include:

- Academic staff
- LUISA staff
- Mediatice (UHP service in charge of digital learning resources) staff
- Master student in Information Sciences.

For this first prototype, the annotation profiles were not adapted to each actor. However fields were gathered according to LOM sections allowing to separate pedagogical fields from technical ones.

These actors are a mix between the final users (academic staff and Mediatice) who should annotate in a real final context and few people (as LUISA staff and one student) who helped just for the prototype.

The implemented sections are the following:

Educational (intended for academic staff)

Lifecycle (intended for digital resources admin – Mediatice))

Semantic classification (intended for academic staff)

General (intended for digital resources admin or librarians)

Technical (intended for digital resources admin – Mediatice)

Rights (intended for digital resources admin)

We did not provide each actor with a questionnaire, we ran a more interactive process, discussing with the actor during s/he performed annotation (this was

also necessary because of the frequent breakdowns of the system). We also ask each of them to write a final report about the main difficulties encountered and the suggestions they could make to improve the tool.

In the next paragraph we have summarized and organised the remarks which came out of this phase.

2.2 Results

A first set of remarks and suggestions were about missing or inadequate content for describing the resources. These remarks are linked to the ontologies that have been used to populate drop-down menus and other choice mechanisms in the form presented to the end-user. Adding some instances or extending the ontologies and the annotation profiles can make the tool more adapted to our resources. Another set of comments and suggestions are about functions that are not yet available and that would be helpful. A final set is related to some surprising random behaviour or ergonomic features. Nevertheless, we remind that the annotation tool was tested in the particular context of evolving ontologies and evolving software.

In this first evaluation round, the focus is only on major defaults that should be corrected for prototype 2 and on suggestions for improvements.

2.2.1 Results involving ontologies and metadata

As far as underlying ontologies are concerned, we noticed several kinds of difficulties. They are all dealing with a more detailed or more accurate description of the resource, which is not possible right now. Indeed, it would require a more detailed or more accurate description of the resources.

Missing instances:

During the annotation phase, the annotators needed few missing instances in order to annotate the LOs. Indeed, few aspects of the description of the LOs were forgotten during the creation of the ontologies. That's why an instance was added to the Software ontology (see D7.2.2 for more details on the ontologies). It was the PDF-reader which was added as an Office program. Then the ontologies were frozen in order to make easier the implementation of the first LUISA prototype. This fact prevented the adding of another instances corresponding to graphical tools (like Photoshop or Gimp).

A difficulty rose also with the software version. We created quite a limited number of versions due to the length of the task. Thus instances like "Word 2007" were missing. Even if they will be added in the next ontology version, we report this difficulty here because it highlights the problem of maintaining up-to-date models, particularly into the fast-moving domain of software.

Multi-valued fields:

When annotating resources, the annotators needed to annotate some resources with several learning resource types. For example few LOs can include a course and some exercises, and they are annotated as "lecture" and

as “exercise”. The annotation tool allows to put several values to this field and we used it like that. However, this behaviour is not compliant with the LOM model which forces to apply a single value to this field. ELUISA’s flexibility was here an advantage, but our annotators remind that it cannot be exported in a LOM compliant format.

LOs for teachers:

Few documents (like exams with corrections) are more oriented to teachers than to students. Annotators were hindered by not being able to indicate this fact in the initial annotation profiles. So the next version of the annotation interfaces will probably include the “Intended End-User Role” (LOM field 5.5).

During the annotation process, one annotator used the “Rights” field 6.2 as a comment one. For example, in our case, a keyword was added for resources clearly oriented to teachers. In case of other annotation difficulties, a field dedicated to free comments could be helpful for the annotator in the annotation profiles.

Competencies’ scale for extended competencies:

Few resources were about subjects providing competencies the levels of which were superior to the C2I required competencies. For example, image manipulation is not directly into the C2I’s set of competencies. However, it is an extension of competency B4.4 about integrating image into a document (see D7.1.2 for more details about C2I competencies). As the GCS ontology allow to associate scales and values to a competency, we will include a value field into the interface. It would be a scale from 1 to 3 (associated with each competency) where 1 means the LO deals with a part of the competency, 2 means the LO deals totally with the competency and 3 means the LO goes further.

As explained above, during the annotation process, the “Rights” field 6.2 was used for adding comments. (**Figure 2: The field of Rights description used as a comment zone for the annotators** shows such a comment). The comment was added for resources clearly dealing with more than just the C2I required competency.



Styles: [Default Sand Blue](#)

URI:

Form:

Language:

Cost:

Copyright:

Description of copyright and other restrictions:

Rights description:

Language:

Figure 2: The field of Rights description used as a comment zone for the annotators

Competencies' scale for parts of competencies:

C2I competencies are divided in two levels. For example, the competency B6 "Communicate remotely" is composed of "Use e-mail", "Use a bulletin board" and so on. However, many LOs deal with chunks of competencies like "Configure antispam filters into email software". This limited competency doesn't appear in the C2I ones but is included in some of them. In the next version, we will use the scale which is defined in the precedent paragraph. This solution spares us to detail too much the ontology of competencies. However, we have to investigate whether this solution will be really usable by the LUISA reasoning system to provide resources for a query. This aspect will be experimented in the second prototype.

2.2.2 Results related to the tool behaviour or interface

Let us remind that ELUISA is a research tool in beta version. Here are our first comments on its use. However, we can already notice that comments were in part taken into account in ALUISA, a second version of the annotation tool based on AJAX¹ technology. This technology mix CSS, JavaScript and advanced HTML functions providing dynamical interfaces similar to ones for software installed on computers. Indeed, we are able to test a preliminary version of ALUISA, but we did not yet use it for indexing LOs.

¹ <http://www.adaptivepath.com/ideas/essays/archives/000385.php>

Lack of constraints-check:

ELUISA doesn't provide basic checks like verifying that two LOs must have two different titles. This can be explained by the fact that ELUISA was developed as a generic tool working with metadata fields defined into Annotation Profiles by administrators. These fields are chosen by the administrators during the creation of the Annotation Profile. Consequently, it is difficult for developers to provide a check based on the rule "Open a warning box if two resources have the same value for a field called 'title'" because developers cannot know which metadata fields will be created in an annotation profile neither the fields' name.

Behaviour problems for same fields with different languages:

ELUISA allows to state languages for metadata fields then to create values in different languages for the same field. In our case, titles and descriptions metadata were filled in French and in English (see **Figure 1: Annotating into ELUISA**). At different moments of the use of the tool, these fields were interchanged. Sometimes the French field appears above the English one. Next it appears below. This unpredictable behaviour was disturbing in the use of the tool and should be corrected in the next version.

Lack of features to manage resources:

Figure 3 displays the ELUISA interface allowing to manage LOs' metadata. The interface is quite basic with just a list of resources' titles.

On our request, a **"delete" button** was added to allow the annotator to delete LOs' metadata. It was useful with all resources created for tests.

Moreover, if the list was sufficient for few resources, it became inconvenient for more than 20 resources. A kind of **sorting function** would be helpful to classify LOs metadata by date of creation, by language or any other fields. These aspects should be implemented in the next version of the tool.

Finally, more than just sorting, ULL developers foresee to implement a real **query interface** in order to filter resources. As annotators, this query interface would be very useful to gain a global view of the resources. For example, it could help to count the LOs which are for a discipline X or which required competencies Y. Without the interface, annotators must open each LO's metadata to count manually.

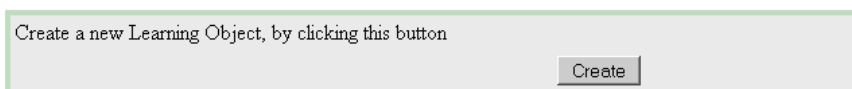
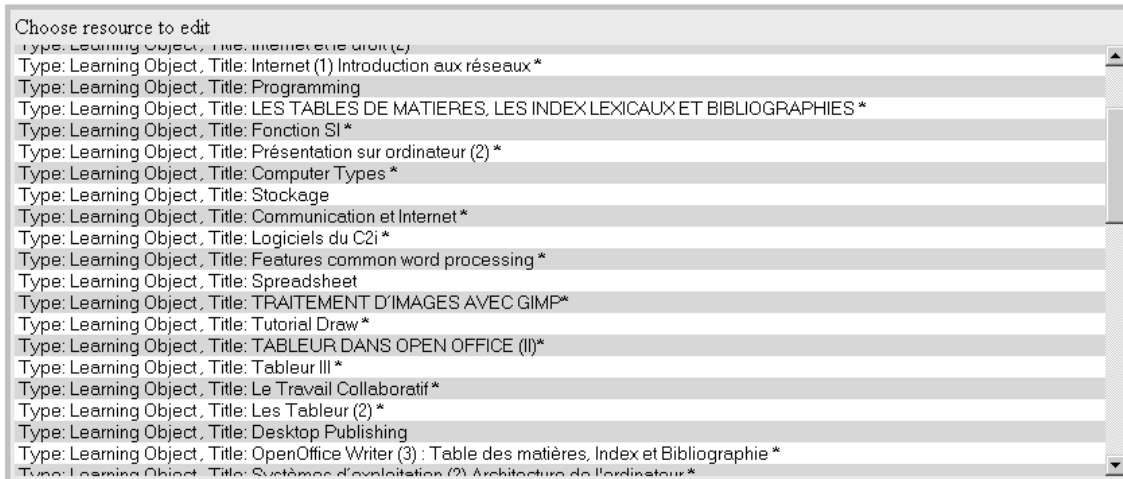


Figure 3: Managing LOs metadata

Difficulties to insert our model into ELUISA:

Before using ELUISA, we proposed a list of fields (from LOM) associated with values. Generally, these values were a selection of values from LOM. However, when we tested ELUISA, the tools contained few divergences with our propositions.

First, few fields contained all the values from LOM (for example for pedagogical types) and not just the ones we selected among them in D7.2.2 [4]. Consequently, we don't know how far ELUISA can adapt values from ontologies on which the interface is based. This can be seen as a limitation as ELUISA was supposed to generate profiles in a flexible and dynamic way.

Secondly, LOM includes a VCARD field in order to identify who contributes to the creation or the annotation of the LO. As this part has not been implemented by developers, we don't know if ELUISA could work with this type of field.

Good integration of different ontologies:

In our case, the annotation interfaces are based on a LOM ontology (WSML/LOM) linked to an ontology of competencies (GCS), an ontology of Discipline and an ontology of Software. The integration between the different ontologies was done without difficulties. The annotator could fill metadata by picking values into different sources; the different ontologies used for that purpose are completely hidden to him. The interface was corresponding to our propositions.

2.3 Conclusion about ELUISA

These remarks were gathered during the annotation phase. A part of them were taken into account in the development of ELUISA. The others will be implemented in the second cycle of the LUISA project leading to prototype 2. Missing instances have been added in the ontologies while remarks about the annotation tool are currently inserted into ALUISA, a second version of ELUISA based on AJAX technology.

From a higher perspective, the main point highlighted by testers during the interviews about the annotation tool was its flexibility. Indeed as the annotation process is more and more a collaboration between different users and roles (librarians, professors and administrative staff), the tool must be as flexible as possible to be adapted for cases and support the collaboration. Next time, we also hope to be able to test the configuration process allowing to quickly adapt profiles.

3 EVALUATION OF THE FIRST PROTOTYPE AT UHP

We call “LUISA prototype” all the components except of the annotation tool. The LUISA prototype allows to search for resources previously annotated with this annotation tool. The interface is a plugin into the Moodle Learning Management system.



Figure 4: LUISA Moodle screenshot

The first version of the prototype was tested with professors, e-learning engineers and librarians from the University Henri Poincaré (UHP). Indeed few implementation problems like latencies between the queries and the results prevented us from testing the prototype in real situation with students. Thus this first deliverable is mainly based on interviews with university's staff. The second version of this deliverable will be focussed on the final prototype and on students' comments.

Several methods can be used as far as usability engineering is concerned (see the results provided by the TRUMP project for example). Given the lack of stability of the prototype and given the novelty of the competency-based approach for the actors, an interview procedure was the best choice for this first evaluation step.

3.1 Interview procedure

There were two evaluation interviews, the duration was 2 hours for each of them:

- One with two librarians.
- One with a professor and an e-learning engineer.

All the interviews were based on the same skeleton:

1. Explanation of the LUISA project
 - a. Explanation of the underlying knowledge representations (ontologies for competencies, disciplines and software)
 - b. Explanation of the basic search features
2. Prototype demonstration: people were reminded of the possible bugs of the prototype and of the latency problem during the queries. Then they were explained each screen from login to the results page.
3. Presentation of the advanced features foreseen in the next prototype (ratings by users, pedagogical packages, mapping, rules explained to the users).
4. Question phase where users were asked to detail their remarks for the general prototype and for each feature.

Each interview took place with small groups of users (that we will call "testers") allowing interactive discussions.

3.2 Results

Competencies-based approach:

The major benefit pointed by the testers was the competencies-based approach of the LUISA project. Indeed, according to the testers, this approach "forces the

university to deal with the *students' needs* instead of staying into a disciplinary approach.”

They detail their interests into three points:

- *It helps judging the documents:* They notice that traditional tools (like Google) provide documents but without stating the context or the goal of each document in terms of learning needs. Thus students don't understand clearly if the documents correspond to their queries. On the contrary, librarians consider that displaying competencies targeted by learning resources would help students gaining a critical perspective to judge and choose the documents.
- *It helps to structure learning:* professors told that a decomposition of the curriculum into competencies could help students to understand their curriculum and the meaning of their assigned work.
- *It helps organizing resources:* Currently, librarians organize resources by subject and levels (years of studies), which are not sufficient to help students. When a student asks for a resource, the librarians always answer by another question: “what for?” Indeed all documents on a same subject are not appropriate for all tasks. For example, few students in medicine look for documents to prepare a next day meeting with their professor around a patient. Thus they need short syntheses about a precise case while longer documents are not useful. However, librarians use to just annotate documents according to subjects and not according to the targeted competencies. According to them, a competency approach would be a good way to enrich metadata and to filter resources.

Catégories de cours

Sciences fondamentales et applications	80	Pharmacie	121
Physique	11	Diplôme Docteur en Pharmacie	99
Chimie	11	Diplôme Audioprothèse	11
Mathématiques appliquées et sciences sociales	1	STAPS	72
Mécanique, génie mécanique, ingénierie mécanique	3	L1	5
Informatique	42	L2	14
Electronique, Electrotechnique, Automatique	2	L3 Entraînement Sportif	2
Sciences et technologie industrielles	7	L3 Education et Motricite	11
Energétique et thermodynamique	1	L3 Management du Sport	9
Sciences de la vie	208	IUFM	13
Vie, biologie, santé (cours non classés)	10		

Figure 5: Resources organised by discipline at the university

The only limit associated with the competencies-based approach that they foresee is the fact that professors and students are not used to manage competencies. So they will have to learn to think this way. An interface like the tree of competencies can be a first step in this direction. (We remind that the C2I context was selected by the LUISA consortium, because it was one of the rare contexts dealing with competencies on a large scale into the French universities.)

Rating learning resources by users

Among different criteria, using students' ratings to classify resources was appreciated. As competencies previously described, ratings force universities to take students into account. Librarians find this solution "natural" in the current participative trend to annotate resources on the Web. Professors are more cautious with this aspect.

Link between different ontologies ("about" relation)

Librarians are used to think about knowledge concepts organized in thesaurii. However a thesaurus represents the vocabulary of a domain but rarely points to other thesaurii. So the relation "about" pointing from the competency ontology to the subject ontology (Software one) opened new perspectives for librarians. They qualify this feature as "what must be done" and as "totally corresponding to the librarian logic" of merging data.

Mapping between ontologies (from UHP to EADS competencies)

This feature allows to search for a competency in a Learning Object Repository (LOR), then to look for the same competency in another LOR. If the second LOR contains resources annotated according to another competencies scheme, the LUISA system can make the "translation" (basic mapping) from one scheme to another.

This feature corresponds to the current practice of librarians. When they look for documents, they are building packages of resources from different sources. They do not want to be disturbed by problems of "interoperability" of the metadata.

Explanation rules (applied during the query) displayed on the result page

The LUISA system is based on ontologies which are quite understandable by humans (compared to a statistical model). It allows the system to explain on the result page, rules applied to search resources.

Librarians were interested by this feature because they are used to see an impact factor² on the result pages and they don't really know what lies behind.

Composing documents into pedagogical packages

In the second prototype, a "composition lab" will be proposed to teachers or librarians to regroup documents. The composition will be based on very simple criteria as putting exercises first and lessons after in a discovery way or putting lessons first in a classic pedagogical mode.

Librarians of the university told us that they *do not know* how to regroup documents to create consistent packages useful for students. For the moment, they regroup them according to professors' lists of books given at the beginning of each year. So they would be interested to be helped in order to create more personalized packages. Nevertheless they don't see which precise criteria they could take into account to reach this objective.

Integrating LUISA system into real situations

Testers were curious to know how a system such as the LUISA one could be inserted into the current academic landscape. They were mainly concerned by new repositories of academic documents, called ORI-OAI³, which are going to be implemented in all French universities. These repositories share a common view of the documents into the universities: courses, research articles and so on. For the moment, ORI-OAI is based on Dublin Core and LOM.

A first step to link LUISA to ORI-OAI repositories would be to allow RDF annotations of ORI-OAI resources with use of competencies.

Testers raised the idea to contact the professional training section at the university. Indeed this section works with people who are used to deal with competencies. They could be interested by the competencies-based approach of the LUISA system.

4 DEMONSTRATING THE LUISA PROTOTYPE AT A FRENCH WORKSHOP

Nancy Université, a federation of the three universities in Nancy, was the organiser of a national workshop entitled "le printemps de la science et de la technologie", which could be translated by "spring of science and technology". This workshop took place from June 2nd to June 4th 2008. It aimed at gathering the main actors in charge of the development of digital learning resources from many French universities and other higher education or research institutions. Although the LUISA project was not part of the practical projects launched by the consortium, we obtained from the organisers a slot to schedule a presentation of the LUISA project and to show a demo to interested participants.

² <http://scientific.thomson.com/free/essays/journalcitationreports/impactfactor/>

³ <http://www.ori-oai.org>

The participants who came for the LUISA demos were invited to fill a form (provided in Appendixes). Their conclusions are very similar to those provided in the previous paragraph. In addition, one of them question the practical feasibility of mappings between the ontologies supporting the indexing process in very different LORs, indeed he originated from the knowledge engineering field and was aware of potential difficulties in using ontology mapping techniques.

They are very interested in an explanation mechanism leading the student to be more active in formulating his queries. One of them feels necessary to better take into account the duration item. Another one suggests a more detailed description of the pedagogical type of the resource. As a potential drawback, they all mention the time that is necessary for properly designing the ontologies. We believe that this problem could be partly solved by developing and sharing discipline classifications and ontologies within international discipline consortiums such as ACM for computer science or MESH for medicine.

Moreover, they mentioned two national initiatives that could benefit from LUISA technology when it becomes a usable tool.

The first initiative, already mentioned by the librarians, is the ORI-OAI national project for interoperability of learning resources metadata. It aims at providing a ready to use technology to French universities for managing digital learning resources metadata through a common portal. All additional services, especially a competency-based querying service as provided by LUISA, are welcome.

The second initiative is the fuschia portal launched by INRIA. INRIA is a major French research institute in the field of applied mathematics, information and communication technologies and automated control. INRIA's missions include disseminating scientific knowledge to professionals and citizens. They are launching a national portal that will make documents (texts, images, and also more interactive documents in the form of "gamelets") available. Once many documents become available, they are very interested by intelligent services that could be added to the portal. LUISA semantic based search could be one of them.

5 CONCLUSION

Although it was run on a still basic prototype, this evaluation phase provided interesting results, both from inside and outside LUISA consortium.

For inside use, a couple of bugs have been identified and already fixed. Moreover and more important, many suggestions were gathered, the implementation of which can really lead to a significantly improved version of the whole system.

For outside use, the advantages provided by the intensive use of semantic technologies already appear to the end-users. Among them, we have noticed:

- for the annotation process, the flexibility of the ELUISA annotation tool, allowing a configuration well adapted to the user's requirements and leading to an annotation process which is similar in duration to a LOM annotation. However the resulting metadata are semantically richer and less ambiguous.

- for the querying process, the query by competency to be reached is appreciated, it is something expected by the users and quite new compared to existing querying processes as currently available in academic LORs.
- for the retrieving process, the competency composition as well as the shift from a competency based query to a topic based query, as well as the personalised final selection are also allowed by the use of semantic technologies.

These first conclusions are of course provisional. They should lead to the implementation of the suggested improvements in the second prototype and have to be completed by the second evaluation campaign.

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6 REFERENCES

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- [2] LUISA Consortium (2007) D3.3 Annotation Tool
- [3] LUISA Consortium (2007) D7.1.2 Specification and requirements: Academic use cases
- [4] LUISA Consortium (2007) D7.2.2 Design and modelling of the specific (domain related) metadata and models
- [5] TRUMP project <http://www.usabilitynet.org/trump/index.htm>
- [6] Moodle LMS website: <http://moodle.org/>

7 APPENDIXES

7.1 List of participants in “LUISA testing sessions”

- 21/05/2008: Two librarians from the medical department of the University Henri Poincaré
- 22/05/2008: One assistant-professor and one ICT engineer from the University Henri Poincaré
- Printemps de la science et de la technologie :

Yolaine B. Head of the Computer Science Department at Supelec Engineering High School

Philippe T., Head of the ICT for Education and Training department at UTC university

Manuel M., Principal author and actor of the Scenari Production Tool at UTC.

Pierre J. , Head of the department for mathematics digital learning resources at l'UTES, UPMC university

Christine F., Head of the ICT for Education department at Lorraine Polytechnics Intitute (Engineering school)

Patrick R., research director at INRIA, principal investigator in the fuschia project.

Alain M., Head of Information systems, university of Valenciennes, one of the main investigators in the ORI-OAI project.

7.2 Evaluation sheet

See next page.

Evaluation du projet LUISA

<http://luisa.atosorigin.es>

Prénom :

Nom (optionnel) :

Fonction et lieu de travail :



Le projet européen de recherche LUISA a débuté en Mars 2006 et concerne l'**annotation sémantique puis la recherche de documents pédagogiques**. En répondant à ces quelques questions, vous permettrez d'évaluer l'apport du projet et les possibilités de transfert dans des environnements réels.

Merci de détailler vos réponses pour nous aider au mieux à les prendre en compte.

Selon votre expérience, quels sont les principaux avantages et nouveautés du système LUISA ? Pourquoi ?

Quels pourraient être les défauts les plus gênants ? Pourquoi ?

Que pensez-vous de l'annotation sémantique et de l'outil présenté ? Pourquoi ?

Que pensez-vous de l'approche par compétences et de l'interface de recherche par compétences ? Pourquoi ?

Que pensez-vous de la possibilité de passer d'une compétence dans un référentiel à une compétence dans un autre référentiel (« mapping ») ? Que pensez-vous du passage d'une compétence à un sujet ? Pourquoi ?

Que pensez-vous de la prise en compte de l'avis des apprenants (« rating ») dans la recherche de documents ? Pourquoi ?

Que pensez-vous de la possibilité d'afficher le raisonnement du système pour trouver les documents (explication des règles sur la page résultat) ? Pourquoi ?

Que pensez-vous de la composition automatique de paquets de documents ? Pourquoi ?

Avez-vous des idées ou remarques complémentaires ?

Merci pour votre participation !