

LUISA

Learning Content Management System Using Innovative Semantic Web Services Architecture

IST- FP6 - 027149



Deliverable D5.2 **Initial reference implementation prototype**

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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.

In this Deliverable we present the First Prototype implementation of the interface (hereafter called GUI, Graphical User Interface) that has been developed in Work Package 5. The Prototype is designed to provide the user a friendly environment where s/he can work in a direct, assisted way with the Semantic Web Service technology and the ontologies that represent the core of the LUISA project. The interface for the First Prototype consists of a set of pages extending the Moodle LMS.

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1 INTRODUCTION

This document describes the First Prototype Implementation developed for the LUISA project within the Work Package 5, from a technical point of view. The prototype is designed to provide an interface where the user can work in a friendly way with the ontologies and the Semantic Web Service technology that represent the core of the LUISA project.

There are two use cases with different needs that have to be supported by the prototype: the Industrial case, aimed to support employees trainings, and the Academic case, addressing instructional purposes at university. The interface is called GUI (Graphical User Interface) and for the First Prototype it consists of a set of pages extending the Moodle LMS. The GUI is on top of the overall architecture as highlighted by Figure 1.

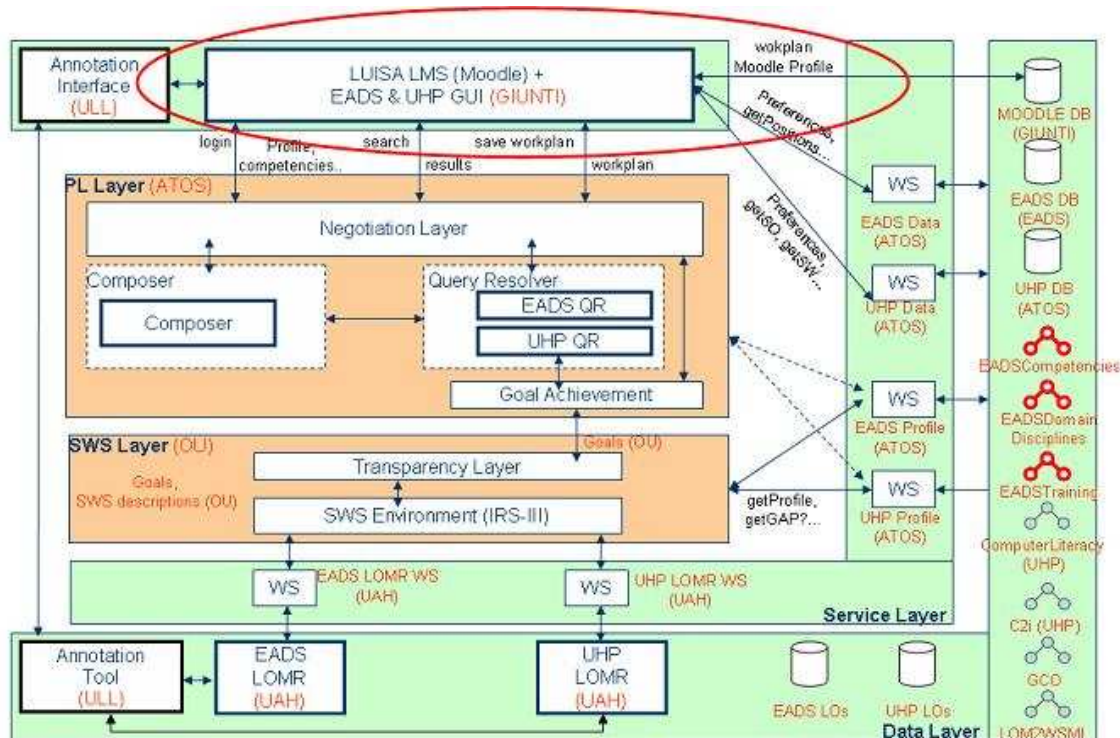


Figure 1. Overview of LUISA Architecture

For the First Prototypes, the pages are written in PHP and HTML languages, the same as the native Moodle pages. The integration has implied the use of proper Moodle principles, like its way of localization, its coding policy and layout. Furthermore, the GUI communicates with other several modules to accomplish various tasks:

- the Negotiation Layer is the main interlocutor for the management of the users' profiles and the execution of the searches, in fact the GUI sends it all the requests of retrieve and update and gets back the results
- the Annotation Interface is used in read-only modality to rant the user a deep information about the LO metadata
- the ontologies repositories are also queried to retrieved their data

2 REQUIREMENTS

The First LUISA Prototype consists into a set of pages tightly integrated into the Moodle environment. The technical requirements are:

- Moodle 1.7
- PHP 5.2.0-8
- .NET Framework 2.0

These choices are a tentative to mediate between the latest releases available at the development time and the stable and consolidated versions.

For Moodle installation guidelines see [1]. Moodle 1.7 introduces a number of enhancements respect to previous versions, among these:

- roles and capabilities: prior to Moodle 1.7 there were only six possible roles, while now it is possible to create additional roles and to change what a given role can do in a particular activity
- forum permissions: whether a student is allowed to post in a particular forum and other forum permissions may be set via the Roles tab on the update/edit forum page and the override roles link. Prior to Moodle 1.7, only administrators were allowed to edit forum posts
- teacher forums: prior to Moodle 1.7, each course had a teacher forum, accessible via a link in the course administration block. During the upgrade to 1.7, empty teacher forums are deleted. Teacher forums containing forum posts are moved to section 0 of a course and are hidden
- assigning the role of teacher: prior to Moodle 1.7, teachers could create editing teachers in the courses they taught. In Moodle 1.7, a teacher may assign the roles of non-editing teacher, student and guest in the courses they teach.

PHP 5.2.0 is a major improvement in the 5.X series, which includes a large number of new features, bug fixes and security enhancements. See [2] for further details.

.NET Framework 2.0 supports a REST client that has been developed as part of the GUI in order to act as a client for the Negotiation Layer, managing questions and answers; this introduces an interoperability level that can be reused as it is both by the PHP Moodle environment and the learn eXact asp environment.

3 USER GUIDES

In this Section we present two User Guides, one for each Use Case involved into the project: the Industrial Use Case presented by EADS and the Academic Use Case presented by the University of Henri Poincaré.

3.1 The Industrial Case: EADS

The EADS First Prototype is available at the LUISA public Moodle site:

<http://knowgate.nada.kth.se/moodle/>

For testing: enter the "Learning Management Systems" section, on the right bottom of the page you can find the block "LUISA - EADS extension". Follow the link to enter.

The Industry Use Case is provided by EADS-CCR to test and validate the applicability of the LUISA concepts and prototype on a real educational program in an industry specific context.

There are two main areas within the Prototype: the User Preferences management and the Query pages. The User Preferences section allows to insert and update a set of data that constitute the LUISA profile for the user and that will be taken into account during the query phase to better match the search results with the user needs and preferences. The Query section allows to insert parameters for the search and get back results.

What follows is the user guide to the developed prototype following the scenario description contained into D 6.1.2 [3].

3.1.1 User registering

The user is identified by the system through a login and password mechanism so that the system can retrieve his / her information in the database and identify his / her role.

3.1.2 User Preferences

The user can access a screen where s/he can select or change the preferences specific for the LUISA profile. Preferences might be relaxed in case they are too constraining (no results).

The set of User Preferences for the First Prototype is:

- Position
- Profession
- Group
- Learning method: the Learner may precise his preferred learning method: in-situ VS at some training organism place
- Learning strategy: the Learner may precise his/her Learning strategy, allowing for different prioritization of learning needs:
 - o PLAN addresses gaps in current competencies (e.g. with regards to the current position needs). Courses and lessons if accepted by the Team and the Training managers will be attended during working time.

- DIFF addresses other less proprietary needs such as competencies maintenance or possible personal learning path. Courses and lessons if accepted by the Team and the Training managers will be (partly) attended out of working time, for example during the evening or holiday time.
- Native and alternative language: the Learner may precise which LO language s/he accepts. Indeed s/he may accept a working language different from his/her native language. Per default the language preference is the same as the Learner's native language
- Working and alternative location: the Learner may precise which LO location s/he accepts.
- Working discipline
- Preferred max duration: the Learner may constrain (strictly / approximately) the total duration of the training plan

Also the Industry Preferences are shown to the user for informative purposes, they are read-only:

- Agreement
- Cost
- Language
- Location

The user preferences page can be seen from Figure 2. These are the preferences used and managed through the LUISA Moodle extension.

You are logged in as **Admin User** (Logout)

luisa moodle site

LUISA > LUISA extension > Preferences

Preferences

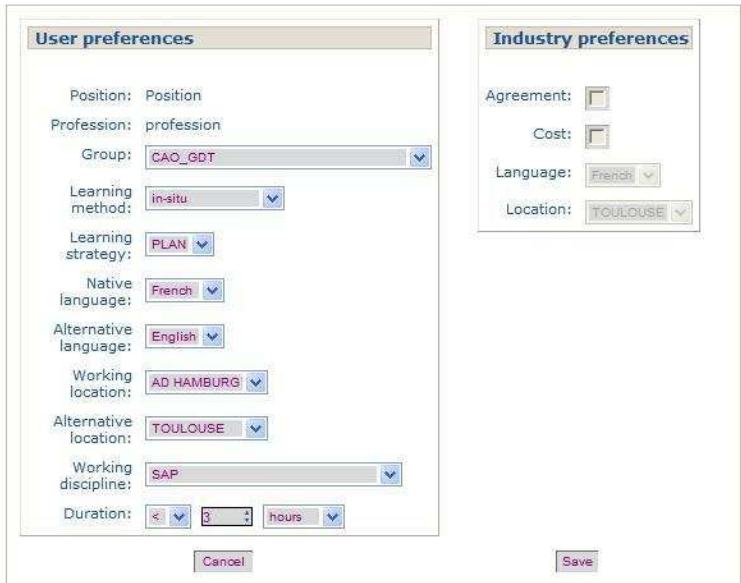


Figure 2. User preferences

Position and Profession are read-only values, this means that they are shown to user with informative purpose but they can not be updated by the user himself.

3.1.3 Query

When the user logs in, the GUI retrieves his / her user profile, including the current competency gap. The user gap is the set of the competencies required to the user by his working position, including the current mastered level and the requested one. It also verifies if the user has “DIFF” or “PLAN” as preference (see “Learning Strategy” field into preferences), these are the two main query policies.

In the PLAN modality, the GUI displays the user competency gap. Learner’s competencies information displayed include each competency name and code. The gap is represented by displaying both current and required proficiency levels per competency:

- green cursor shows positive or no gaps (current level equal or greater than the required level)
- red cursor shows negative gaps (current level lower than the required level)
- the required level is shown in bold

The displayed CO information can be immediately used as search criteria or the learner is allowed to make a further selection through the displayed data. The

user is allowed to select or precise the target competencies, competencies elements (and levels). This is a way for him / her to validate the list of missing CO provided by system or to reduce the scope of his / her query to one or several competencies from the same list. The user is allowed to change the current or required level of a competency, using the arrows buttons at the end of the sliders or dragging the cursor directly.

The user cannot add a new CO that isn't proposed in his / her profile or position requirements.

Figure 3 represents the interface for the PLAN query.



The screenshot shows the 'PLAN Search' interface. At the top, it indicates the user is logged in as 'test test' and provides a 'Logout' link. The breadcrumb trail is 'LUIISA > LUIISA extension > Query interface'. The main content area has tabs for 'PLAN' and 'DIFF'. Below this, the 'PLAN Search' section is displayed. It includes fields for 'Position' (position xyz), 'Profession' (AP-AA-Manager), and 'Query strategy' (Basic). A list of 20 competencies follows, each with a slider and a checkbox. The competencies are:

Competency ID	Competency Name	Current Level	Required Level
1.[1287]	AP-IF-Service supervisor	3	3
2.[6]	CO-AA-Budget Management	3	3
3.[7]	CO-AA-Communication Management	4	4
4.[8]	CO-AA-Customer Relationship Management	3	3
5.[11]	CO-AA-Project Management	3	3
6.[15]	CO-AA-Supplier Management	2	2
7.[1282]	CO-IE-Infrastructure capacity planning	0	0
8.[1306]	CO-IF-Service operation	1	1
9.[2083]	CO-WA-Generic Computer Environment	3	3
10.[2107]	CO-ZA-English (read and understand)	1	1
11.[17]	SK-AA-Knows financial management	0	0
12.[18]	SK-AA-Knows budget management	0	0
13.[19]	SK-AA-Defines financial processes	0	0
14.[20]	SK-AA-Manages services invoicing	0	0
15.[21]	SK-AA-Understands customers requirement	3	3
16.[22]	SK-AA-Informs on service level	3	3
17.[23]	SK-AA-Information on training	3	3
18.[24]	SK-AA-Manages customers expectations	3	3
19.[25]	SK-AA-Selects communication	3	3
20.[26]	SK-AA-Customizes messages	3	3

At the bottom of the interface, there are buttons for 'Reset', 'Preferences', 'Search', and 'Other Searches'.

Figure 3. PLAN query interface

In PLAN the profession is not selectable. A user could have more than one profession so there will be also a non-selectable field containing the current professions.

Foreseen strategies are:

1. **Basic** : selection of competencies (default). In this case all competencies are selectable (even the ones that does not belong to the current profession) and the required levels can be changed (even to be less than the current one)
 2. **All negative gaps**: the query will get LOs to fulfil only the negative gaps
 3. **Weak field** : the query will get LOs to fulfil only the weak gap
 4. **Hole in the profile** : the query will get LOs to fulfil only the holes into the profile
 5. **Job specific** : the query will get LOs specific for the user job
- The “query strategy” field is expanded into Figure 4.




Figure 4. Query strategies for PLAN

For the First Prototype, just the “Basic” strategy has been implemented.

As you can see from Figure 3, the user’s current position and profession(s) are presented but they are not selectable. The current query is a PLAN “basic” query. The competencies are selectable and the current levels can be changed.

In DIFF modality, the user is also allowed to select another target Profession by navigating into the Function-Field-Profession reference tree. This will cause a new computation of the competencies and gaps list. But since the proficiency levels are only known for individual job positions and they are not defined for reference Professions, gaps can only be computed in missing competencies terms without levels. So there are no more the sliders to show the user’s levels for the competencies, but just a simple list. the interface for the DIFF modality is reported in Figure 5.



The screenshot shows the 'Query interface' of the LUISA moodle site. At the top, it indicates the user is logged in as 'test test'. The main content area is titled 'DIFF Search' and contains the following fields:

- Position: *position xyz*
- Profession: *AP-AA-Manager*
- Competencies: A list of 20 items, each with a checkbox:
 - 1.[1287] AP-IF-Service supervisor
 - 2.[6] CO-AA-Budget Management
 - 3.[7] CO-AA-Communication Management
 - 4.[8] CO-AA-Customer Relationship Management
 - 5.[11] CO-AA-Project Management
 - 6.[15] CO-AA-Supplier Management
 - 7.[1282] CO-IE-Infrastructure capacity planning
 - 8.[1306] CO-IF-Service operation
 - 9.[2083] CO-WA-Generic Computer Environment
 - 10.[2107] CO-ZA-English (read and understand)
 - 11.[17] SK-AA-Knows financial management
 - 12.[18] SK-AA-Knows budget management
 - 13.[19] SK-AA-Defines financial processes
 - 14.[20] SK-AA-Manages services invoicing
 - 15.[21] SK-AA-Understands customers requirement
 - 16.[22] SK-AA-Informs on service level
 - 17.[23] SK-AA-Information on training
 - 18.[24] SK-AA-Manages customers expectations
 - 19.[25] SK-AA-Selects communication
 - 20.[26] SK-AA-Customizes messages
- Choose Profession: A dropdown menu showing a list of professions including:
 - FI-AA-Management
 - AP-AA-Manager
 - FI-BA-Project Management
 - AP-BA-Project Management Operations (PMO)
 - AP-BA-Project Leader
 - AP-BX-Manager of IS performance and
 - FI-BA-Project Management
 - AP-BA-Project Management Operations (PMO)
 - AP-BA-Project Leader
 - AP-BX-Manager of IS performance and
 - FI-EA-Airworthiness & Safety
 - AP-EA-Airworthiness & Safety
 - FI-EA-Airworthiness & Safety
 - AP-EA-Airworthiness & Safety
 - FI-EC-Aircraft Systems & Interior Design
 - AP-EC-Cabin System Integration & Test
 - AP-EC-Industrial design
 - AP-EC-Cabin & Cargo Engineering Support
 - AP-EC-Interior & Tech. Mgmt
 - AP-EC-Cabin Sys.&Design/Human Factor/HMI

At the bottom of the interface, there are buttons for 'Preferences', 'Search', and 'Other Searches'.

Figure 5. DIFF query interface

The current query is a “DIFF” one. The professions are selectable, even if the current one(s) is (are) read-only. If the user does not change the profession, there is the same behaviour as for PLAN. If the user selects another profession, the NL retrieves the competencies of the new profession and sends back to the GUI the list of competencies of the new profession. The rules to apply are similar, but without taking levels into account :

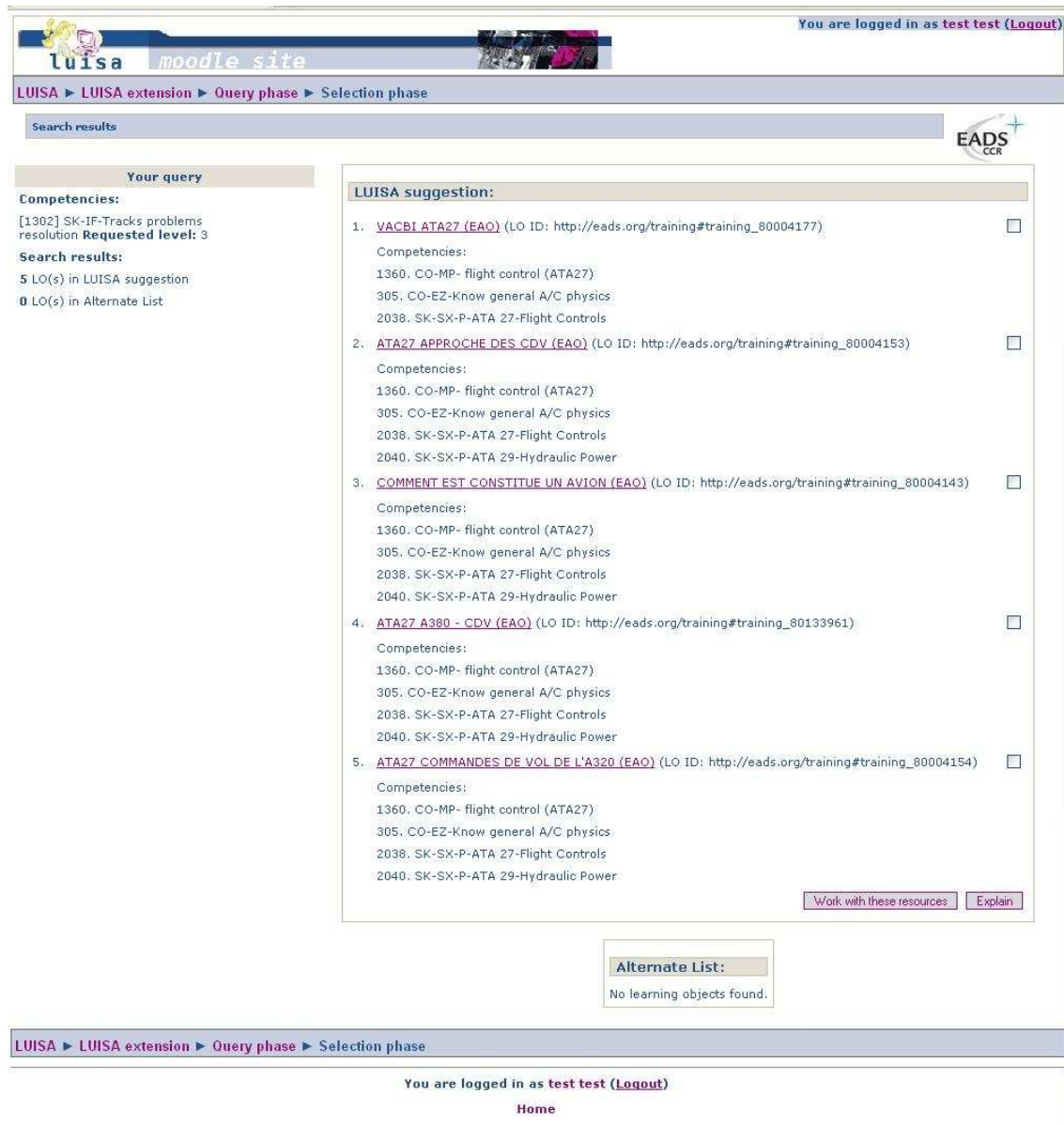
- ranking
- reuse the rules of relaxation

3.1.4 Display and select results

As an answer, the system proposes a list of LOs structured in two parts:

- the first part is a “best selection”; it includes LOs that together best answer the query (according the chosen strategy, e.g. see various query resolving strategies such as target the highest CO gap, etc. into the resolver dedicated section)
- the second part is a list of alternative possible LO, that might answer the query although less well ranked

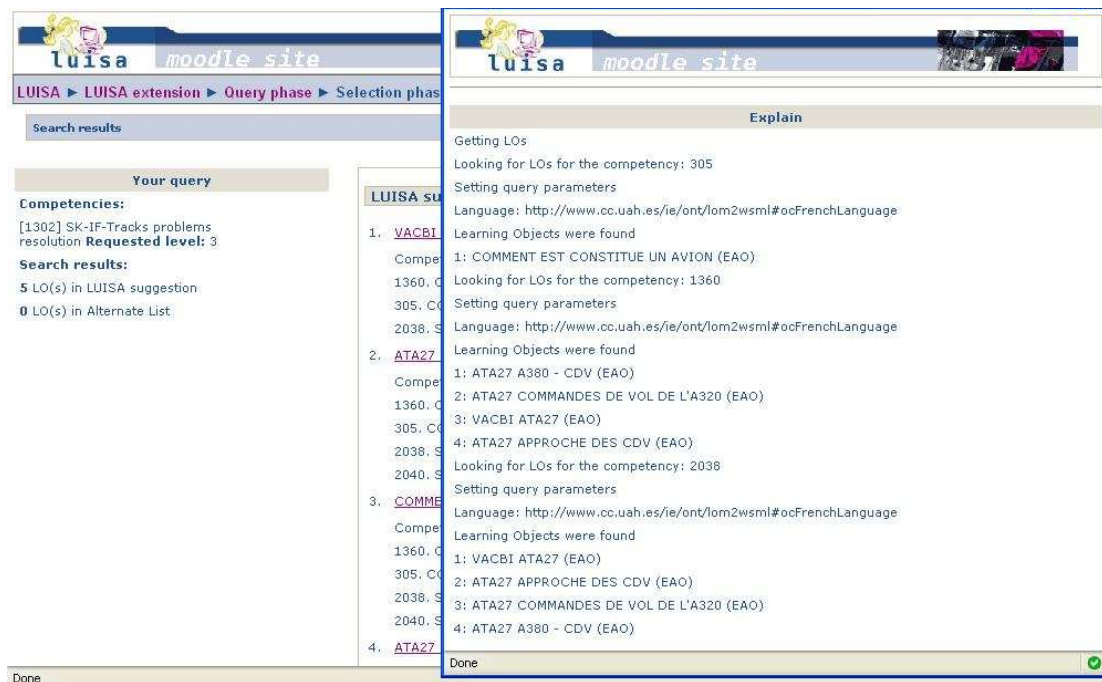
For each LO in the lists a minimal set of information shall be displayed so the Learner can understand what it is about; for the moment, code and title and provided competencies. The user shall be allowed to access (open) attached files if available. Furthermore, for each LO in the lists, the learning outcomes in terms of target CO shall be displayed. Figure 6 presents a sample results list.



The screenshot shows a Moodle site interface for the LUISA extension. The user is logged in as 'test test'. The breadcrumb trail is 'LUIISA > LUIISA extension > Query phase > Selection phase'. The search results section displays five suggestions, each with a title, LO ID, and a list of competencies. The competencies listed for each suggestion are: 1360. CO-MP- flight control (ATA27), 305. CO-EZ-Know general A/C physics, 2038. SK-SX-P-ATA 27-Flight Controls, and 2040. SK-SX-P-ATA 29-Hydraulic Power. At the bottom of the results list, there are buttons for 'Work with these resources' and 'Explain'. Below the results list, there is an 'Alternate List' section which states 'No learning objects found.' The footer of the page includes the breadcrumb trail, the user login information, and a 'Home' link.

Figure 6. EADS query results

The system can also provide explanation about the logic behind the “best suggestion” (which depends on the query resolver). A screenshot of a sample explanation is reported in Figure 7.



The screenshot shows the LUISA Moodle site interface. On the left, there's a navigation menu with 'LUISA' and 'LUISA extension' selected. Below it, 'Query phase' and 'Selection phase' are visible. The main content area shows 'Search results' with a 'Your query' section. The query details include 'Competencies: [1302] SK-IF-Tracks problems resolution Requested level: 3' and 'Search results: 5 LO(s) in LUISA suggestion, 0 LO(s) in Alternate List'. A list of results is shown, including '1. VACBI', '2. ATA27', '3. COMME', and '4. ATA27'. An 'Explain' window is open, showing the system's internal process: 'Getting LOs', 'Looking for LOs for the competency: 305', 'Setting query parameters', 'Language: http://www.cc.uah.es/ie/ont/lom2wsml#ocFrenchLanguage', 'Learning Objects were found', and '1: COMMENT EST CONSTITUE UN AVION (EAO)'. This process repeats for other competencies like 1360, 2038, and 2040, with results like 'ATA27 APPROCHE DES CDV (EAO)' and 'ATA27 COMMANDES DE VOL DE L'A320 (EAO)'. The interface ends with a 'Done' button and a green checkmark.

Figure 7. EADS explanation for the query results

The Learner can select/unselect some LOs and add them to a kind of work list. Once he notifies the system that s/he has completed the LOs, the system reminds the user to notify the completion to his/her Team Manager also.

3.2 The Academic Case: UHP

The UHP First Prototype is available at the LUISA public Moodle site:

<http://knowgate.nada.kth.se/moodle/>

For testing, enter "Learning Management Systems" section. On the right bottom of the page you can find the block "LUISA - UHP extension". Follow the link to enter.

The UHP University has chosen Moodle as its LMS for all professors and students with the wish of moving existing LOs spread across different servers to the new environment and to organize them for searching and retrieving. The LUISA Semantic Web Services core structure has been applied to the C2I context. C2I is an IT proficiency certificate introduced by the French Government which requires the knowledge of a certain set of competencies structured as a hierarchy. The LUISA technology has been integrated in order to guide and support students toward the achievement of the required knowledge by providing "best" resources according to their profiles and competencies; and also to help teachers to organize learning contents. What follows is the user guide to the developed prototype following the UHP scenario description contained into D 7.1.2 [4].

3.2.1 Login phase

In the login phase the user identifies himself/herself to the system by login and password in order to retrieve the LUISA user profile. A sketch for the login interface is proposed in Figure 8: Login.

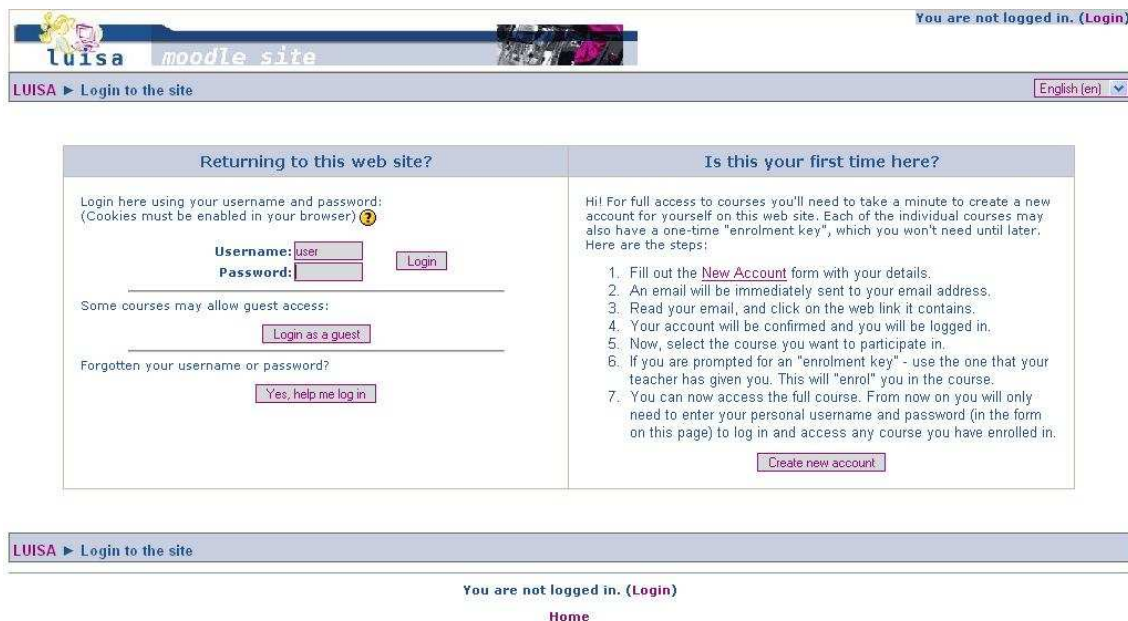


Figure 8. Login

3.2.2 Preferences

The preferences phase allows the user to see and edit his LUISA profile. There are two sets of data: user's own data and University data.

The interface through the NL retrieves the user preferences for the current Moodle user identifier. If the LUISA profile does not exist yet then the system asks the user to express his preferences.

As his own preferences, the user can select the Operating System (OS) and the pieces of Software supported by his main computer. These elements are provided by a Computer Literacy ontology [see 2]. The selected elements draw the technical environment of the user and they will allow the system to propose suitable LOs. For instance, if the user is working with OpenOffice, the system would propose first LOs using this suite in order to learn textprocessing.

The discipline's elements come from a Discipline ontology [see 2 again]. The selection of the discipline allows the system to provide LOs suitable to the user's profile. For instance, if a user studies Sport sciences, the system can provide him/her with spreadsheets tests about running races competitions.

The university's preferences cannot be modified by the user so they are read-only, shown to the user for informative purposes only.

Both buttons on the bottom part of the screen allow to come back to the query phase. The right one allows to save changes on the contrary of the “cancel” one.

See UHP preferences management interface at Figure 9.

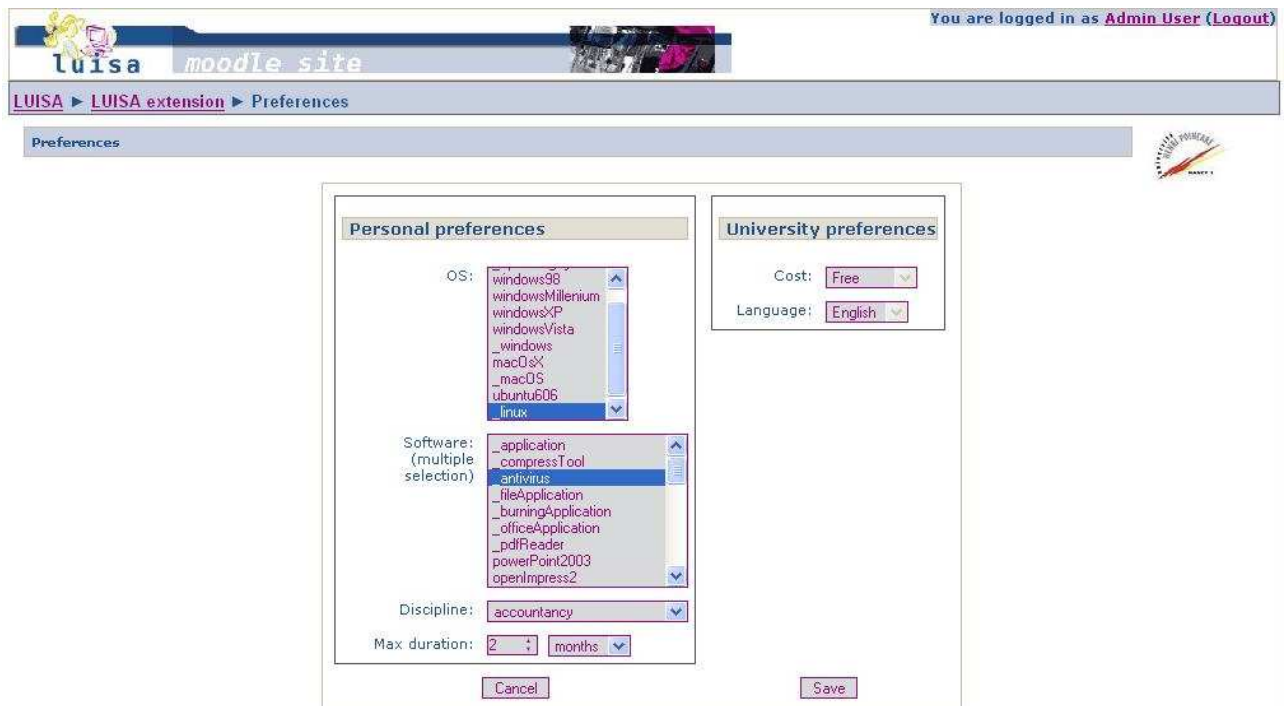


Figure 9. UHP user preferences

3.2.3 Query phase

During the query phase, the user interacts with the system in order to select the criteria of his/her search.

The expression “interacts” means the interface proposes different options according to the user choices. This “dynamic” aspect is not an aesthetic one: as the user “builds” his/her query by browsing concepts in ontologies, the browsing must be as simple as possible. Indeed from a cognitive point of view, the user “builds” its own representation of the knowledge domain by interacting with the interfaces and by formulating the query.

The user must select the competencies s/he desires to acquire and his/her available duration of work.

The competencies tree proposed by the GUI allows the user to:

- choose competencies checking them
- expand/collapse tree nodes using the +/- icon
- confirm when ready to search

Previously selected preferences will be taken into account also for the search.


A screenshot of the C2I competencies tree is reported in Figure 10.

You are logged in as **Admin User** ([Logout](#))

luisa moodle site

[LUIA](#) > [LUIA extension](#) > Query phase

Query phase



C2I Competencies

Legenda

- competency acquired and user level
- competency not acquired yet

C2I Competencies

- A1 Be aware of ICT's evolution
- A2 Comprehend ethical issues
- B1 Control one's environment of work
 - Desktop (B1-1)
 - Select the most appropriate software (B1-4)
 - Bookmarks (B1-6)
 - Filetree (B1-3)
 - OS maintenance (B1-5)
 - Connection to network (B1-7)
- B2 Search for information
- B3 Save, secure and back-up one's data in a local place or on a network
- B4 Realize documents for printing
- B5 Realize offline and online presentations
- B6 Communicate remotely
- B7 Realize a collaborative project

Preferences
Search

Figure 10. UHP competencies tree

3.2.4 Selection phase

The system provides the Learning Objects the most “suitable” to the query and the user’s profile. In the result list, some LOs can have been composed on the fly if needed. Moreover, the system can select the “best” ones to create a tentative work plan. However as an automatic search is not a perfect one, the user must be able to modify this plan.

A sample of the selection screen is reported in Figure 11.



Figure 11: Selection screen

The system displays two sets of LOs. The upper one contains what the system evaluates to be the best LOs selection, while the set below contains the other possible resources. By clicking on the right checkbox, the user can add or remove a resource from the selection. For each LO the list of the provided competencies is also shown.

Clicking on a LO's title a pop up with metadata about the LO appears. This is done by the Annotation Tool in read-only modality [see for further details]. A LO's details are shown in Figure 12.

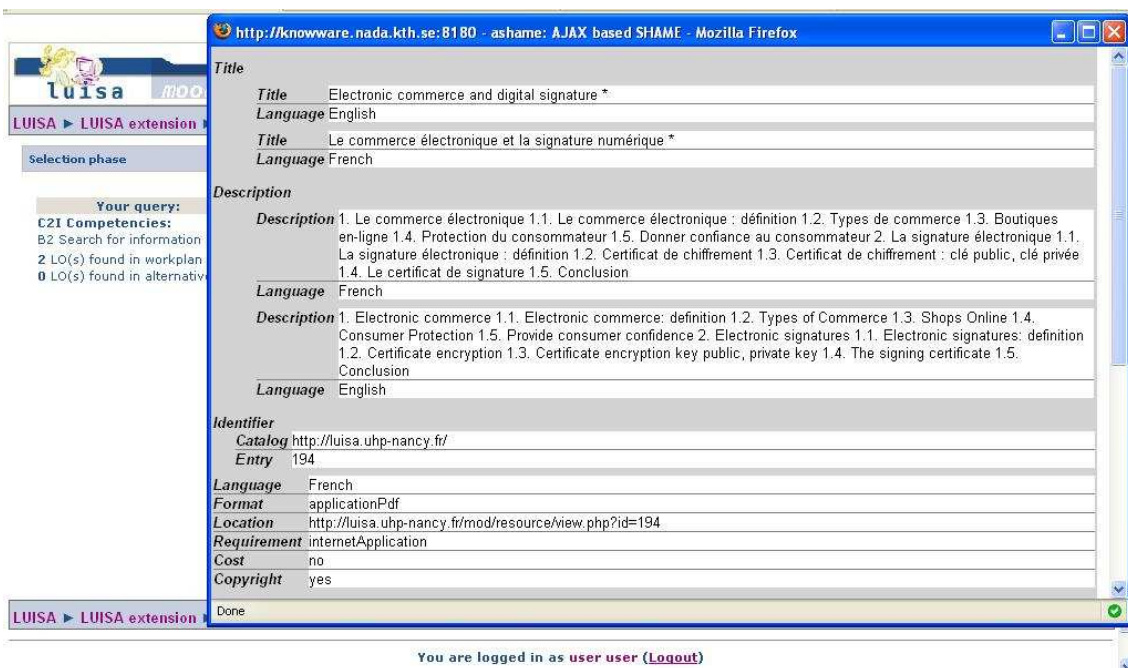


Figure 12. UHP LOs details

3.2.5 Working phase

The LOs selected in the previous phase are listed. The user can check a LO in order to indicate he has completed it. When all the LOs are marked as completed, the user profile is updated with the "newly acquired" competencies. TA sample of an working screen is reported by Figure 13.

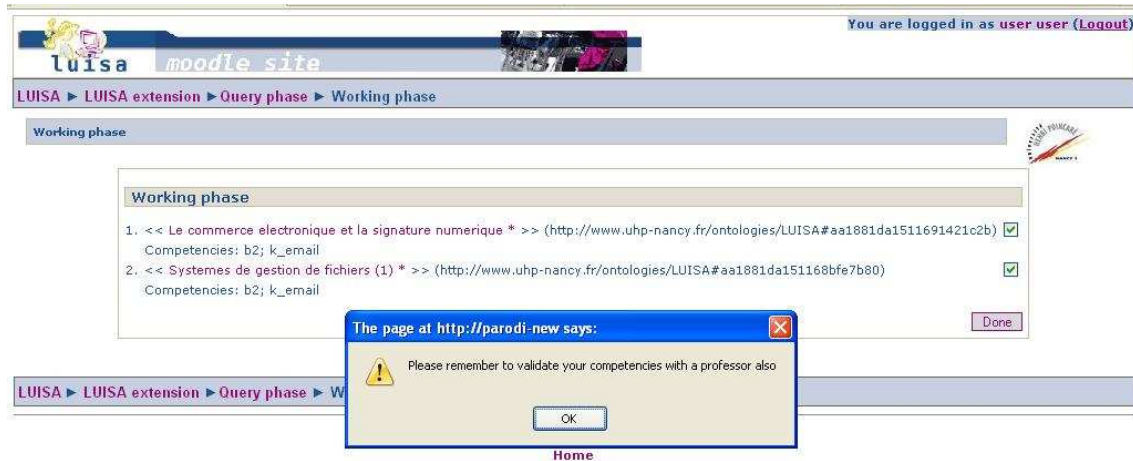


Figure 13. UHP Working phase

The user needs to click on the LOs' titles in order to open the related LO in a new window. The checkboxes on the right are all unchecked at the beginning of the working phase. Once the user finishes to work with a LO, he checks the associated box. When all the boxes are checked, a new "Done" button appears. This button displays a dialog box reminding the user s/he must validate the competencies with a professor.

4 CONCLUSION

In this deliverable we have presented a guide to the First LUISA Prototypes developed for the Industrial and the Academic use cases. We have presented the technical requirements and then we have explained how the scenarios basic functionalities have been supported by the development of an extension of the Moodle LMS, allowing to:

- identify the user
- retrieve, update and save a set of data related to the user preferences need by the LUISA extension
- query for LOs
- getting LOs

Future work foresees the completion of the interface for fully supporting the Use Case scenarios, an enhancement of the user interface and the development of integration pages into the learn eXact LCMS.

REFERENCES

- [1] http://docs.moodle.org/en/Installing_Moodle
- [2] http://www.php.net/releases/5_2_0.php
- [3] Monceaux, A.; Schneider, N.: Deliverable D6.1.2 Requirement analysis and specifications: Industrial use cases, 2007. See project site at: <http://www.luisa-project.eu/www/>
- [4] Grandbastien M.; Huynh Kim Bang,B. : Deliverable D7.1.2 Requirement analysis and specifications: Academic use cases, 2007. See project site at: <http://www.luisa-project.eu/www/>