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## D3.2.11 Initial Experiences from the Shared Masters Program

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**with contributions from:**

**Abstract.**

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In this deliverable we summarise the achievements made towards establishing the EASE Master programme in Semantic Web. We also look towards the future and try to analyse opportunities and risks.

The purpose of this deliverable is not to be a full overview of everything that has been done towards the creation of a shared master programme. For a detailed overview of all these activities, we refer to earlier deliverables.

We will analyse the status of the shared master program in the form of a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats). The SWOT analysis will show that although some weaknesses and threats exist, the strengths of the Shared Master programme significantly outweigh risks and threats.

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# Executive Summary

In this deliverable we summarise the achievements made towards establishing the EASE shared masters programme in Semantic Web. We also look towards the future and try to analyse opportunities and risks.

The purpose of this deliverable is not to be a full overview of everything that has been done towards the creation of a shared master programme. For a detailed overview of all these activities, we refer to earlier deliverables.

We will analyse the status of the shared master program in the form of a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats). The SWOT analysis will show that although some weaknesses and threats exist, the strengths of the Shared Master programme significantly outweigh risks and threats.

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# Chapter 1

## Introduction

To establish a unique European master in Semantic Web technologies (the *EASE master*), we have established the European Academy for Semantic Web Education (the *EASE academy*) in the past year, which will work as coordinating and mediating instance between the participating partners and which is responsible for running the web site of the EASE master available at <http://semantic-web-academy.eu>. The EASE academy is supported by the *EASE association* (<http://ease.semanticweb.org/>), the main organisation to continue the education area activities of KnowledgeWeb such as the REASE repository.

In short: the EASE association is the legal body supporting the EASE academy (as one of its activities). The EASE academy is running the EASE master.

We will analyse the status of the shared master program in the form of a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats). The SWOT analysis will show that although some weaknesses and threats exist, the strengths of the EASE Master programme significantly outweigh risks and threats.

# Chapter 2

## Strengths

The efforts towards a shared masters programme in the Semantic Web area (to be called EASE Master, after the European Academy of Semantic-Web Education) over the past few years have lead to a number of significant achievements. These achievements are some of the major strengths.

### **2.1 Strength: agreement on entry qualifications**

As described on <http://www.semantic-web-academy.eu/application.html> there is a simple set of entry-requirements which are both achievable by a wide population of potential students, and which are easily verifiable. This includes at minimum a Bachelor in Computer Science and a language certificate for English.

### **2.2 Strength: agreement on overall curriculum structure**

As described on <http://www.semantic-web-academy.eu/studyplan/studyplan.html> we have designed an overall curriculum structure, which at the same time ensures essential common ground and allows each university to exploit their individual strengths. The structure of this curriculum is shown in Figure 2.1. See more details at the website.



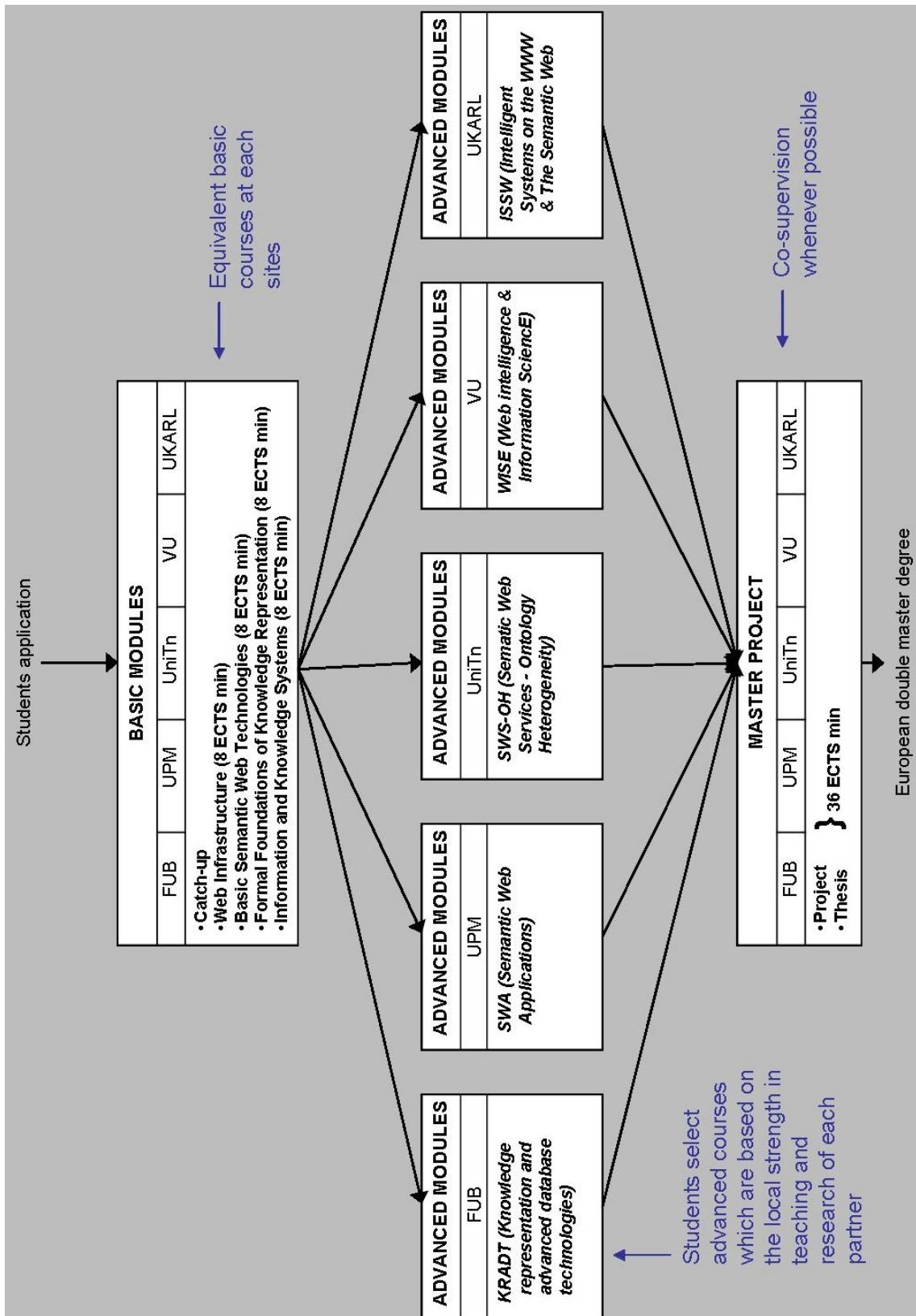


Figure 2.1: Diagram

### **2.3 Strength: exploiting local course programmes to build a joint curriculum**

Because of the overall modular structure, it is possible for each participant to offer their local strengths as part of the curriculum. At the same time, we have ensured that this is not a "free for all", but that there is set of meaningful modules, with each of the local courses being assigned to one of these modules. This labelling of local courses with shared labels gives us "unity in diversity", which enables students to find their way across a wide variety of courses at different locations.

The list of locally available courses, and how they are labelled with the common module-names is listed at <http://www.semantic-web-academy.eu/studyplan/modules.html> and was extensively described in deliverable D3.2.4<sup>1</sup>.

### **2.4 Strength: commitment from staff at top institutions**

The currently participating list of partners are:

- Universitat Innsbruck <http://www.uibk.ac.at>, Austria
- Free University of Bozen-Bolzano <http://www.inf.unibz.it/>, Italy
- Vrije Universiteit Amsterdam <http://www.few.vu.nl/>, The Netherlands
- Università di Trento <http://www.dit.unitn.it>, Italy
- Universidad Politécnica de Madrid <http://www.fi.upm.es>, Spain
- Universidade Nova de Lisboa <http://www.di.fct.unl.pt/>, Portugal

These are all significant players in the Semantic Web space in Europe. Particularly interesting is the participation from Lisbon as a representative from the REWERSE Network of Excellence.

### **2.5 Strength: commitment from decision makers at top institutions.**

We have drawn up an Agreement of Cooperation, which regulates the basic procedures and arrangements between the participating partners in the EASE Master. This Agreement

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<sup>1</sup><http://knowledgeweb.semanticweb.org/semanticportal/deliverables/D3.2.4.pdf>

was previously published in D3.5.2, Chapter 5<sup>2</sup>.

These include registration procedure, fees, mutual compensation between the partners, establishment of a joint commission, and financial obligations, among others.

All currently participating partners have committed to signing this Agreement, and the process of collecting signatures from the authorised persons at each partner is currently underway. The text of this Agreement of Cooperation is attached as an appendix to this report.

## **2.6 Strength: participation from outside Knowledge Web**

Collaboration has been established with members of REVERSE, the other significant Network of Excellence in the Semantic Web area <http://reverse.net/>. This has led to a joint definition of the hierarchy of teaching topics, the so-called *Semantic Web Topic Hierarchy*, maintained at [http://ontoworld.org/wiki/Semantic\\_Web\\_Topic\\_Hierarchy](http://ontoworld.org/wiki/Semantic_Web_Topic_Hierarchy). The agreement on this hierarchy, which underlies the labels of the course-modules, guarantees the "unity in diversity" that is key to the feasibility of the EASE Master.

Also, one of the currently participating partners (Lisbon) is a member of the REVERSE network.

## **2.7 Strength: a website as single entry-point**

A joint website has been established at <http://www.semantic-web-academy.eu/>, which functions as the single joint entry point for students interested in the EASE master. The site lists all essential and up-to-date information about

- general background information about the topic area
- the overall structure of the course
- the detailed modules and their concrete instantiations at each site
- prerequisites for starting the EASE Master programme
- information about fees and grants
- pointers for further information.

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<sup>2</sup><http://knowledgeweb.semanticweb.org/>

## **2.8 Strength: inventory of formal and administrative requirements**

Deliverable D3.2.5, Chapter 1<sup>3</sup> lists the formal and administrative requirements that must hold for a successful joint master programme. Making these explicit will contribute to the longevity of the programme, even after the initiating individuals are no longer involved.

## **2.9 Strength: administrative and organisational workflow and structure is in place**

Similarly, the same deliverable D3.2.5, specifies in Chapter 4 an administrative and organisational workflow and structure that the participating partners have agreed upon. Again, this will contribute to the longevity of the programme.

## **2.10 Strength: an activity-coordinator beyond the lifetime of Knowledge Web**

As a recent development, STI International<sup>4</sup> has agreed to become the coordinator for the EASE Master activity<sup>5</sup>. The EASE Master will become one of the educational services offered by STI International. Again, this will contribute to the longevity of the programme.

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<sup>3</sup><http://knowledgeweb.semanticweb.org/semanticportal/deliverables/D3.2.5v2.pdf>

<sup>4</sup><http://www.sti2.org/>

<sup>5</sup><http://www.semantic-web-academy.eu/application.html>

# Chapter 3

## Weaknesses

Here we will list the two main weaknesses that still remain in the results achieved so far.

### **3.1 Weakness: very little practical experience**

So far, practical experience with the EASE Master programme has been limited to a single student, sharing between Trento (native University) and Amsterdam. This student did indeed complete the course and obtained a double degree, from both institutions. For the year 2008/2009, we have at least two candidates, one sharing between Amsterdam and Barcelona, and one between Amsterdam and Trento (both with Amsterdam as native University). Clearly, this experience is too weak to make major claims about the viability of the programme. When marketing efforts for the EASE Master will start in earnest (spring 2008), we expect to see a sharp rise in student numbers.

### **3.2 Weakness: participation from some important countries very low**

There are some European countries from which it will be difficult to obtain participating partners, for a variety of reasons:

- France: there is a general unwillingness, and sometimes even formal barriers to teaching in English. This is obviously a major obstacle for foreign students.
- Germany: until recently, many Universities in Germany were not ready to implement the Bologna Bachelor/Master structure. Without this structure, participation in the EASE Master programme is difficult. This is one of the main reasons why places such as Karlsruhe and Mannheim are not yet participants in the programme, despite explicitly stated interest by the teaching staff.

- UK: there is a general lack of interest in shared master programmes among UK Universities, mainly because of the already strong influx of foreign students in the UK.

# Chapter 4

## Opportunities

### 4.1 Opportunity: no competitors

To the best of our knowledge there is currently no other initiative in the European space to offer a high quality, international, multi-degree Master programme on Semantic Web theory and technology at the academic level. Of course many Universities offer courses on Semantic Web technology at the Master level, but no single University (including the Universities participating in the current programme) is able to offer a programme of the breadth and depth as described on <http://www.semantic-web-academy.eu/studyplan/modules.html>. The EASE Master is arguably worldwide the best Semantic Web offering on the educational market at the moment.

There are a variety of commercial courses on offer (e.g. by the Semantic Web Company (<http://www.semantic-web.at/>) in Europe, and by TopQuadrant ([www.topquadrant.com](http://www.topquadrant.com)) in the US) but these are all aimed at an industrial audience, have a significantly different cover, do not include an theoretical foundations, and run over a different life-span (not a full 2-year curriculum).

### 4.2 Opportunity: enthusiasm for joining by new partners

After the four initial partners listed in earlier deliverables (Bolzano, Trento, Madrid, Amsterdam), two new partners have already joined: Innsbruck and Lisbon. Lisbon is the first partner from outside the Knowledge Web consortium. Innsbruck has volunteered to take up the coordination task after the end of the Knowledge Web Network. We have explicit intentions from other partners to join in the near future, for example Karlsruhe and Mannheim, which are currently mainly held back because of the delay in Germany to implement the Bologna Bachelor/Master structure. Furthermore, the new coordinating

partner STI International is actively campaigning for other members to join. We expect the EASE Master to benefit from the rapidly increasing visibility of STI International.

### **4.3 Opportunity: transition to a full Erasmus Mundus programme**

It has always been the explicit intention of the participating partners to make the transition towards becoming a fully recognised Erasmus Mundus programme.

The European Commission's Erasmus Mundus subsidy programme is a co-operation and mobility programme for higher education which promotes the European Union as a centre of excellence in learning around the world. It supports European top-quality Masters Courses and enhances the visibility and attractiveness of European higher education in third countries. It also provides EU-funded scholarships for third country nationals participating in these Masters Courses.

In order to be eligible by Erasmus Mundus, Integrated Master programmes should comprise high-quality integrated courses at masters level offered by a consortium of at least three universities in at least three different European countries. The courses must be well integrated, which means that they must foresee a study period in at least two of the three universities, with at least the 30% of the total ECTS credits obtained in each different host universities. The courses must lead to the award of a recognised double, multiple or joint diploma.

The consortium is already well under way to fulfilling such requirements. There will be no call for Erasmus Mundus 2 for courses starting in 2008/09. The next calls is for courses starting in 2009/10. We expect to be ready then to make such an application.

For further information on the Erasmus Mundus 2 programme we refer to <http://eacea.ec.europa.eu/static/en/mundus/seminar/2007/index.htm>



# Chapter 5

## Threats

Despite the significant strength and opportunities described above, a number of threats to the success and longevity of the EASE Master remain. In this chapter we will discuss these threats. For each threat, we will discuss possible mitigations.

### 5.1 Threat: loss of momentum after Knowledge Web

The funding of Knowledge Web and the synergy created by the resulting Network has been instrumental in getting the momentum necessary for setting up the EASE Master initiative. The counterpart of this observation is that this synergy will dissipate when then Knowledge Web funding has run out.

**Mitigation:** Two mitigations of this tread exist: (1) We are confident that the current partners by now all have sufficient self-interest in the continuation of the EASE master. (2) STI International has committed to taking up the results of the Knowledge Web funded development of the EASE Master, and continue the coordination and marketing of the EASE Master beyond the end of the Network.

### 5.2 Threat: getting bogged down in borocrazy

During the development of the EASE Master, a major and recurring issue has been to deal with the large variety of administrative rules that exist in the different countries (currently 5) at all levels (departmental /faculty, university, regional, national). We have not perceived any signs over the past 3 years that this threat is diminishing over time. The Bologna agreement has been a major facilitator.

**Mitigation:** This threat would be mitigated if administrative rules were being internationally homogenised, which we judge unlikely. Instead, we trust that administrators at

different levels will increasingly see the added value of shared master programmes such as the EASE Master, and will be willing to facilitate them.

### **5.3 Threat: remaining divergence between different local programs**

There are still some remaining issues concerning non-compatibility between the individual curricula. An example is the size of the of the final project and thesis, where there are still conflicts between national requirements in Portugal (minimum of 42 points) and local restrictions in other locations (maximum of 36 points in Trento, Amsterdam and Innsbruck).

**Mitigation:** This is an open issue to be resolved, and is currently subject of dicussion between the partners involved.

### **5.4 Threat: requiring too much curriculum maintenance**

Each of the participating partners is a high quality teaching institution, each offering locally an Master programme in their own right. These Master programmes are (of course) subject to continuous changes and updates. Madrid is undergoing a radical transformation in the study course structure, both Italian partners have a change in the national legislation of the Masters, Innsbruck just started a new master and is passing though a transient period. Since these local Master programmes provide the teaching material for the modules of the EASE Master, such changes and updates will also have their effect on the content, structure and coherence of the EASE Master programme.

**Mitigation:** The modular structure of the curriculum will to some extent against changing at one site affecting too much the overall EASE Master curriculum. (modularisation as a means for change containment).

## **Chapter 6**

### **Conclusion:**

This deliverable has explicitly summarized the achievements of the EASE master made during the past years and serves as a central hub for all information to be found in the deliverables related to the EASE master. Furthermore, we have analyzed the current state of the EASE master preparations in a SWOT analysis. As a result, we are sure that the advantages and opportunities outweigh the threats and we expect that the EASE master activity will be continued seamlessly in the upcoming month.