Organic.Lingua Annual Public Report 2012

www.organic-lingua.eu

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1. Project description

The project "Organic.Lingua: Demonstrating the potential of a multilingual Web portal for Sustainable Agricultural & Environmental Education" began life in March 2011 and it is an initiative of the ICT Policy Support Programme (ICT PSP), that aims to enhance an existing Web portal (www.organic-edunet.eu) with educational content on Organic Agriculture (OA) and Agroecology (AE), introducing automated multi-lingual services that will further support the uptake of the portal from its targeted audiences, facilitate the multilingual features of the portal, and further extend its geographical and linguistic coverage.

Figure 1: The Organic.Edunet web portal

The Organic.Edunet Web portal bridges together a network of learning repositories with content on OA & AE, providing its users with a significant volume of relevant learning resources. It adopts a federated, standards-based approach that allows the incremental growth of the network. It provides access to almost 11.000 educational resources in 10 languages from 11 institutional repositories and collections of related organizations and it has more than 5.000 registered users. Since January 2010, the portal has received almost 150,000 visits and 460,000 page views from 121,000 unique visitors from 193 countries.

Organic.Lingua aims to capitalise on international demand for Organic.Edunet by transforming it into a truly multilingual service. While Organic.Edunet web portal presently supports seventeen (17) languages, the current process makes translation error prone and time consuming, and misses opportunities to enhance the quality and efficiency of cross-language functions with available technology. The existing solution relies completely on human effort in translating and does not use existing linguistic resources and tools to help make resources and descriptions available in different languages or to enable cross-lingual search. Instead, the Organic.Edunet portal uses multiple languages supported by different kinds of knowledge organization schemes, namely, keywords (as expressed in metadata), ontology terms and tags provided openly by users. Resource retrieval is restricted as a consequence of the fragmentation of resource descriptions in several languages.

2. Project objectives

The **Organic.Lingua** project focuses on enhancing the approach to linguistic support and coverage of the existing Organic.Edunet infrastructure. More specifically, it aims to achieve the following objectives:

- To advance in the identification of user needs regarding linguistic support in on-line information services, using the existing features of the Organic.Edunet Web portal.
- To identify and explore new or anticipated user interface, functional and technical requirements related to linguistic technologies, analyzing existing services and competing approaches, perceived gaps and weaknesses of existing solutions.
- To devise and validate innovative and effective methods, processes and workflows for linguistic support in Organic.Edunet, over and beyond mere integration of linguistic technology.
- To enhance, extend and re-engineer the existing Organic.Edunet Web portal towards a wider and cost-effective multilingual support, broadening in this way the current audience and impact of the service.
- To deploy large pilots trials that demonstrate a cost-effective approach for delivering language technologies in existing Web portals based on open standards and open source software, that can be easily transferred to other domains.

Overall, Organic.Lingua aims to make the Organic.Edunet Web portal a service that will support agricultural researchers and educators around Europe, as well as explore new business opportunities for the specific service but also for the developers/providers of language technologies.

3. Expected outcomes

The main outcome of the Organic.Lingua project will be an automated multi-lingual service that will facilitate the usage, exploitation and extension of digital educational content related to Organic Agriculture and Agroecology. Organic.Lingua will bring together on a European multilingual level content seekers (educators, students, researchers, general public, school teachers), content providers (NGOs, Businesses), and information evaluators (decision makers, academic institutions, professionals).

More specifically, the project will provide the following services and tools:

- Machine translation services for the automatic translation of metadata
- Cross language retrieval technologies that will allow searching of educational resources in the user's native language
- A wiki based tool that will allow the evolution of the ontology and will provide an ontology service that will be accessed by the Organic.Edunet portal and the repository tools used for educational content generation by institutions
- A user centric content evolution approach that will allow users to suggest educational content and to contribute to metadata translation

Since the linguistic limitations of Organic.Edunet are common to most current multilingual Web portals, an important outcome of the Organic.Lingua project will be

a set of guidelines, good practice methods and software tools that can be adopted in other portal cases.

4. Summary of activities

During the first 18 months of the project a number of initial goals were achieved:

- The target audiences and goals of the project have been defined
- A market analysis has shown the status of similar efforts, tools and methodologies used
- The feedback received by various stakeholders and Organic.Edunet users during consultation meetings and online surveys has been collected, analyzed and organized in requirements
- The first version of the machine translation and cross-language information retrieval tools has been developed and tested
- Existing metadata schema and ontology have been revised in order to meet the multilinguality needs of the project
- A revised version of the Organic.Edunet Web portal (www.organic-edunet.eu) has been designed, including the integration of multilingual components and the improvement of semantic navigation
- The Organic.Lingua repository tool (Agricultural Learning Repository Tool – AgLR) integrating the machine translation component was developed
- The User Generated Content (UGC) widget allowing users to suggest educational resources and metadata translations was developed
- Evaluation and validation activities have been designed, planned and are ready to be implemented through a number of user trials in various countries all over Europe
- Dissemination channels have been set up and used for the exposure of the project's work to a wider audience

THE ORGANIC.LINGUA VISION

The Organic.Lingua vision is as follows:

> *"Boost the usage, exploitation and extension of knowledge on Organic Agriculture and Agroecology by using new/ innovative ways to facilitate searching and to minimize the segmentation of knowledge due to linguistic barriers through the introduction of automated multilingual services, supported by a quality-controlled collaborative and interactive approach while developing a sustainable low-cost and re-usable solution to the problem of multilinguality across Europe and the whole globe."*

The project vision was initially developed at the kick off meeting. Since then, and in each project meeting, there is a Vision session based on the Dotmocracy process (http://dotmocracy.org), which aims to provide feedback about the factors affecting the project and ensure that the project objectives will always be updated according to the feedback received. The project vision deliverable is a living document in the

sense that is periodically updated and revised after the feedback received during interactive sessions in project meetings, stakeholders' meetings and other events. A vision section has been included in all the project deliverables in order to reflect the impact of the deliverable's outcomes on the project vision. The Organic.Lingua project vision is depicted using the Debategraph conceptual map and is available at the project website: http://www.organic-lingua.eu/en/the-project/vision.

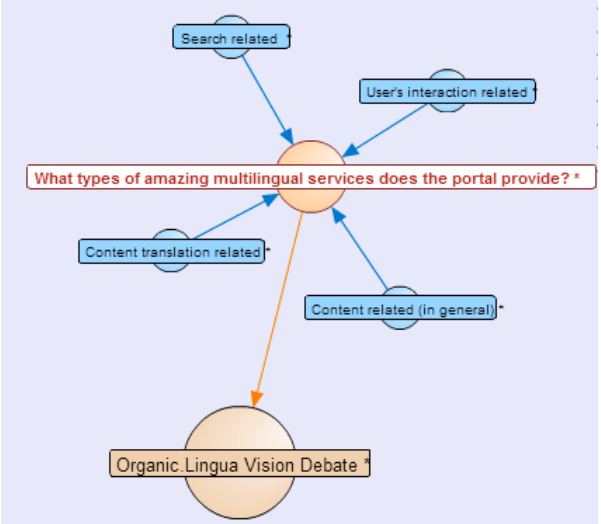

Figure 2: Partial view of the Organic.Lingua vision

USER REQUIREMENTS

During the first 18 months of the project, the requirements of the users were collected using a wide variety of tools and methods, including the analysis of the data collected from the portal, web analytics and online surveys targeted towards existing and potential users of the Organic.Edunet portal, in order to identify their multilingual needs. The results were converted into requirements that provided additional feedback to project partners working in various parts of the project, like the development and adaptation of the automatic translation tools, the interface of the web portal etc.

CONCEPTUAL MODELLING FRAMEWORK

In the Organic.Edunet portal thematic ontologies and metadata schemas are being used by content providers to annotate, classify and contribute resources. The Organic.Lingua project worked on the evolution of both the metadata schema and the Organic Agriculture and Agroecology (OA-AE) ontology, based on the previously defined recommendations that focused on enabling multilingual features and services.

The revisions for the metadata schema were defined based on analysis of the IEEE LOM OE AP, the procedure for its translation and a study of how multilinguality is treated in IEEE LOM standard. As regards the OA-AE ontology revisions, a group of domain experts from various countries collaborated for this task using MoKi (Modeling Wiki), a collaborative online environment, for mapping existing concepts to the AGROVOC vocabulary developed by Food and Agriculture Organization of United Nations, as well as for translating, adding, removing or revising concepts based on ontology metrics and usage statistics.

LANGUAGE RESOURCES AND SERVICES

After studying existing language technologies that can enhance the Organic.Edunet portal, as well as existing multilingual vocabularies, dictionaries, thesauri and multilingual corpora resources that can be used to train and test the various language components of the architecture, the consortium defined the specifications of the software components that will be deployed and developed in Organic.Lingua. Based on these specifications, the first version of the software components that will enable multilingual features were designed and developed and the revised architecture that will allow the easy adoption of any new language service allowing multilingual support for additional languages in the Organic.Edunet Web portal was defined.

THE ORGANIC.EDUNET WEB PORTAL

The re-engineered version of the Organic.Edunet Web portal, including the multilingual software components is expected to be deployed before the end of 2012. It will include revisions in the user interface, based on the results of usability testing sessions and the requirements of the stakeholders' meetings. In addition, the revised version of the portal will integrate a number of automatic translation tools including the machine translation component and the cross-language information retrieval one as well as an improved semantic navigation mechanism.

EXTENSION OF CONTENT COVERAGE

One of the objectives of the project is to enrich the content available through the Organic.Edunet Web portal with the use of the multilingual tools and components developed by the project. In this direction, the existing workflows for connecting to Organic.Edunet were studied and revised in order to make use of the multilingual tools. Various aspects affecting the content extension, including the quality criteria, the different ways to connect and clear guidelines for the connection of new repositories were also analyzed and documented. The first step towards this direction is the sharing of metadata by a number of new content providers, such as INRA and CUK.

PILOT OPERATION & VALIDATION

The evaluation framework for the Organic.Lingua products and services was developed, in order to ensure their quality. For this purpose, an evaluation method for each one of the project's products, including the multilingual components, the revised Organic.Edunet Web portal, the collaborative tool for the evolution of the ontology (MoKi, https://moki.fbk.eu), the agricultural learning repository tool (AgLR, http://aglr.agroknow.gr) and the metadata records was developed. This was further supported by the development of additional supporting material for each kind of trial and evaluation testing.

5. Dissemination

Based on the dissemination plan previously developed, existing communication channels set for Organic.Edunet are re-used to ensure that the community already built around the portal is engaged with the project. Various stakeholders, including researchers, teachers, academics, students and practitioners in OA & AE, as well as

policy makers were engaged in a number of project-related events. The project website, available at www.organic-lingua.eu, provides an overview of the project's news, updates, related events and the project's outcomes, such as publicly available deliverables, presentations, publications and dissemination material.

For the successful dissemination of the project a series of activities has already taken place in alignment with the dissemination plan.

	Type of Activity	No of activities
1	Journal Papers	2
2	Conference papers	7
3	Presentations at conferences	3
4	National workshops	3
5	Organization of events	1
6	Participation in other events	10
7	Liaison Meetings	3

JOURNAL PAPERS

- Cebeci, Z. (2011). Organic.Lingua ve Sürdürebilirlik için Çok Dillilik. Adanalife. 29: 44-48, November 2011 issue.
- Dietze S., Sanchez-Alonso S., Ebner H., Qing Yu H., Marenzi I., Giordano D., Pereira Nunes, B. (2013) "Interlinking educational Resources and the Web of Data – a survey of challenges and approaches". International Journal "Program: Electronic library and information systems", accepted for publication in Emerald Program: Electronic Library and Information Systems, Volume 47, Issue 1 (2013).

CONFERENCE PAPERS

- Segura, A., Martinez, C., Vidal-Castro, C. and Sanchez-Alonso S. (2012) "Preliminary Ideas on Concept to Query Closeness Metrics". Proceedings of the Seventh International Conference on Internet and Web Applications and Services (ICIW 2012), pp. 73-79. 27/5 – 1/6/2012 - Stuttgart, Germany.
- Ruston S., Lacigova O., and Fuller K. (2012) "Demonstrating the Potential of multilingual Web portal for Sustainable Agricultural and Environmental Education". Proceedings of the 16th Annual Conference of the European Association for Machine Translation (EAMT 2012), 28-30/5/2012, Trento, Italy.
- Koutoumanos, A., Stoitsis, G. and Kastrantas, K. (2012) "Breaking Down Language Barriers: The Case for the Organic.Edunet Portal". Multidisciplinary Symposium on the design and evaluation of digital content for education (SPDECE 2012), 13-15/6/2012, Alicante, Spain.

- Dragoni, M. And Ghidini, Ch. (2012) "Ontology Evolution with Semantic Wikis". Proceedings of the CAiSE 2012 International Workshops, pp. 105-116, 25-26/6/2012, Gdańsk, Poland.
- Stoitsis, G., Kyrgiazos, G., Chinis, G., Megalou, E. and Sanchez-Alonso, S. (2012) "Processing Rating Datasets for Recommender Systems' Research: Preliminary Experience from three Case Studies". Workshop of the Recommender Systems Challenge (RecSysChallenge 2012) of the Sixth ACM Conference on Recommender Systems (RecSys 2012). 13/9/2012, Dublin, Ireland.
- Koukourikos, A., Stoitsis, G. and Karampiperis, P. (2012) "Sentiment Analysis: A tool for Rating Attribution to Content in Recommender Systems". 2nd Workshop on Recommender Systems for Technology Enhanced Learning (RecSysTEL 2012). 18 – 19/9/2012, Saarbrucken, Germany.
- Koutoumanos, A. and Protonotarios, V. (2012) "Multilingual Educational Repositories: Breaking Down the Language Barrier". 16th Panhellenic Conference on Informatics with International Participation (PCI 2012). 5-7/10/2012, Piraeus, Greece.

PRESENTATIONS AT CONFERENCES

- Presentation of the Organic.Lingua project at the European Workshop "Organic Agriculture & Education: Challenges in Training Advisors of Organic Farmers". 6/12/2011, Athens, Greece.
- Participation in the Multilingual Web W3C Workshop. 15-16/3/2012, Luxemburg.
- Delivery of a seminar presentation at the Offentiga Rummet conference. 29-31/5/2012, Uppsala, Sweden.
- Presentation of Organic.Lingua at the International Conference on Advanced Learning Technologies and Technology-enhanced Learning 2012, 4-6/7/2012, Rome, Italy.

NATIONAL WORKSHOPS

- Focused workshops for Estonian teachers at Anstla, Märjamaa, Puurmani, Paikuse, Tarvastu, Narva, Lihula and Talinn in Estonia during April 2012.
- Meetings with Lithuanian and Latvian teachers at Roklškis, Lithuania, during March-May 2012.
- National workshop for INRA researchers in June 2012, promoting the online survey of Organic.Lingua.

ORGANIZATION OF EVENTS

- Organic.Lingua was the organizer "Workshop on Agricultural Education, Methods, Practices and Technologies" (AgEdWS12)", which took place at Pollenzo, Bra, Italy, on October 25, 2012. The Workshop was addressed to stakeholders involved in different aspects of the agricultural education, including course designers, content providers, repository managers and software developers. The presentations covered aspects ranging from course design to metadata management tools and learning portals and are available through the wiki page of the Workshop (http://goo.gl/lKtod).

Figure 3: Session at the AgEdWS12

PARTICIPATION IN OTHER EVENTS

- Presentation of the Organic.Edunet Web Portal and the Organic.Lingua project in the Professionalization Fair of the ISLE Erasmus Network. 8-9/11/2011, Lisbon, Portugal.
- Participation in the SPREAD Event: "Counting Backwards: How Did We Reach Sustainable Lifestyles in 2050?" 24-25/11/2011, Helsinki, Finland.
- Presentation of Organic.Lingua project in the Ecofestival 2011: Organic Products & Services exhibition 25-28/11/2011, Paiania, Greece.
- Dissemination of the Organic.Lingua project at the UK House of Commons debate 'How can agricultural investment meet international development goals?' 28/11/2011, London, UK.
- Dissemination of the Organic.Lingua project at the Agriculture and Rural Development Day. 3/12/2011, Durban, South Africa.
- Dissemination at the launch of the 'Women's Empowerment in Agriculture Index' (WEAI) at the Houses of Parliament, 7/3/2012, Westminster, UK
- Participation in the Multilingual Web W3C Workshop. 15-16/3/2012, Luxemburg.
- Participation in the TEL Map European Schools Meeting. 9-11/5/2012, Bologna, Italy.
- Participation in Paper launch 'Women in African Agriculture: farmers, mothers, innovators and educators' organised by Imperial University 17/09/2012, Westminster, UK
- Support of Green Ideas 2012. Organic.Lingua was one of the sponsoring projects of this event. 22-24/10/2012, Pollenzo, Bra, Italy.

LIAISON MEETINGS

- Content meeting at FAO, Rome with the FAO potential content providers and the Statistical Machine Translation research team of FAO. 27/6/2012, Rome, Italy.
- Liaison meeting with Citadel on the Move project partners at the W3C event: Using Open Data for policy modeling to discuss multilingual semantic standards. 19/6/2012, Brussels, Belgium
- Liaison meeting with KULeuven, Royal Museum for Central Africa & the Consortium of European Taxonomic Facilities. 9-11/7/2012, Leuven, Belgium.

6. The consortium