# VALERIE user sessions

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eFoodLab WP1

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COMMIT/

# Colophon

# Content

# 1    Introduction

The ROC+ tool has recently been used in the EU funded VALERIE project. This project has as objective to boost the outreach of research with focus on the agricultural and forestry knowledge and innovation systems. Many EU and nationally funded research projects in the fields of agriculture and forestry provide excellent results. However, outreach and translation of these results into farming and forestry practices is limited. The challenge is to boost innovation by facilitating the uptake of formal and empirical knowledge, and its integration into field practices.

The VALERIE-project will extract, review, and wrap-up research outcomes and existing scientific information on selected themes, and with a special interest for innovative and applicable approaches. It will present the results in a format suited to end-users in the primary production sector, and will facilitate their integration into practices through a series of 'case studies on innovation'. These have a regional orientation, and a focus on either specific commodities, on farming systems, or on the landscape scale. These will be selected to provide a sound understanding of regional and local specificities.

The project strongly depends on the availability of proper ontologies, i.e., formal vocabularies for agriculture and forestry. These ontologies help to find relevant sources of information, to map user profiles and to support user query formulation. Valerie uses COMMIT/eFoodLab technology to iteratively develop such ontologies. In ten different stakeholder communities (SHC), ontologies particular to that SHC are created. This involves the identification and description of concepts (issues, problems and questions) that are important to stakeholders. Usually, key concepts differ between user groups within a SHC (e.g., farmers, processing industry, retailer), and so all groups contribute their own concepts to the collective vocabulary for that case. The ontologies are utilised in the next step to search and retrieve context-sensitive, 'best matching' information, useful to address the needs of the SHC. This information is then translated into the end-user format, and presented to the SHC for feedback, thus completing one development cycle.

The ontology creation process is performed using the ROC+ tool, developed in the COMMIT/eFoodLab project. Besides offering a stepwise process to define new terms, their synonyms, taxonomic and other relations, ROC+ also suggests related terms using existing ontologies and relevant documents.

In this deliverable, we describe the two initial ROC+ workshops given to the agronomists in the VALERIE project. We show which way of working is in our opinion a good way of involving laymen in the field of knowledge engineering in creating their own ontologies.

## 2    First session: creating thematic ontologies

In the first session, five ontologies have been created, each centred on an agronomic theme (such as irrigation, crop rotation, pest management, et cetera).

We have started with a presentation, in which the purpose of ontologies within the VALERIE project was explained, followed by a step by step introduction into the ROC+ tool. Next, the participants divided themselves in five groups of two persons and started with the ontology creation process.

The first step consists of writing down on paper all terms that come to mind concerning the theme for which an ontology is created. We ask them purposefully to write this down on paper, so both persons in the group can contribute equally to the ontology.

When the first step is completed, the list of terms is entered into the ROC+ tool. The second step is to indicate synonyms. These synonyms are frequently found in the initial list, but in many cases new terms are added to the vocabulary on the fly.

In priniple, ROC+ processes each term entered by the user to obtain suggestions from other sources. Unfortunately, in this phase of the development of the tool this process appeared to be too slow for people to wait. It is not acceptable if people must wait half a minute for new terms to pop up. This observation has led to an asynchronous processing of terms, which is described in the ROC+ deliverable of this quarter.



In the present session we have asked the participants to skip the suggestion process and to continue with the fourth step: the indication of "kind of"-relations and of "other"-relations. This step posed some issues. Our participants had difficulties in seeing the difference between "kind of" and "part of" relations. The natural tendency was to group everything that was related to each other and present the relations as subclass relations. This has led to a second important change in the ROC+ tool; the separation of indicating "kind of"-relations and indicating "other"-relations. This change is also described in the ROC+ deliverable of this quarter.

At the end of the four hour workshop, the group had created initial ontologies of 500 structured terms in total. Since no suggested terms were used, this is an impressive result.

# 3    Second session: creating case study specific ontologies

After adapting the ROC+ tool, we had another session with stakeholders from the ten case studies in the project.

To help the participants in **setting the scope** for the ontology, we have asked them to create a "John and Mary" story, in which John and Mary are farmers in their case study. The story should describe what kind of farm they run, what kind of issues they have and what kind of information could help them. An example of such a story created by one of the participants is:

*Saara and July own a private company; they are eco-logging entrepreneurs in Finland. Previously Saara and Julie had a traditional logging company, but they have changed their business idea to eco-logging. An eco-logging company is motivated by the forest owner's interest to pay an extra fee for eco-friendly logging services. By using environmentally sensitive harvesting techniques the target is to maintain ecosystem services and protect biodiversity. The customers of Saara and July benefit from natural tourism or they want to maintain forest cover more sheltered and avoid clear cut areas. The size of the machine, forest type, the time of the year and the target density for the harvesting have an influence on environmental sensitivity.*

*One of their key question is: which is the most environmentally sensitive way to do harvesting in young stands? It is very hard for them to find new knowledge about this new eco-logging. They tried to find information from Valerie, by using key words: "eco-logging", "logging and ecosystem services". They did not want to use public sources such as Linked In, since they do not want to share their business idea with the outside world, they just try to find information themselves to develop the eco-logging business idea for their customers.*

Based on the story, the participants of the workshop created (in groups of two or three) a list of terms to enter into the ROC+ tool. The process of ROC+ was followed:

- Adding terms (first on paper, next electronically)
- Finding synonyms
- Assessing the asynchronously found suggested terms
- Identifying the "kind of"-relations. Most participants needed additional explanation that grouping terms together is not correct.
- Identifying the "related"-relations.

At the end of the workshop, six initial ontologies had been created. The participants were confident enough to continue the process of ontology creation in their own time, contacting each other via Skype. The ontologies will be ready by the end of April 2014.

# 4 Conclusion

The VALERIE project has proved to be a useful user study for the ROC+-tool. Lessons learned in the first session have been translated in to a new version of the tool. The evaluation in the next session has shown that the improvements are very effective. We believe that the present functionality can assist a wide range of projects to create ontologies in relatively short time. The users enjoyed using the tool ("ontology creation is much easier than expected, I know understand what ontologies can be used for") and are inspired them to discuss their domain. Some people even referred to ROC+ as a good team building tool.