

# 7. Smart search using common sense

Searching information on a specific topic can be time consuming. Instead of using brute force searching that does not use any knowledge about the world, we develop smart methods that use background knowledge on specific domains. This background knowledge is formalized in an ontology: a network of concepts within a domain. An ontology in the food-domain might for example formalize that 'Jonagold' is a type of 'apple', which is related to 'orchard'.



We have developed two tools that enable smart search: the ROC+ tool and the SIEVE tool. ROC+ helps a domain expert to create his own ontology by making associations, using publicly available vocabularies. The SIEVE tool in turn uses this ontology to refine a collection of documents for example in a library, a company-specific corpus or the internet.

The ontology and the refined document set enable end users to efficiently find or organize specific and high quality information.

### ICT science question

Although domain-specific ontologies enable smart search, their construction is hard and time-consuming. Domain experts are generally required to distinguish relevant from irrelevant concepts. The scientific challenge is to minimize the effort by experts while maximising its usefulness.

### Application

The combination of our two tools minimize the effort needed from experts to build a specific document set and a dedicated ontology: the time needed can be reduced from weeks to hours.

On our FoodVoc-website we publish ontologies related to the food domain that can be used by these tools. One application is the Valerie project, which generates innovation advice for European



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farmers based on results from EU-projects. The method has also been applied to assist in identifying innovation opportunities for small and medium food enterprises.

### Alternative Application

Our two tools can be used in any other domain than food, for example pharmaceuticals, chemistry, finance or automotive. With our experience in the food domain we can organize ontology creation sessions and assist in handling document repositories.

### Nice to know

Users have experienced our ROC+ tool also as a team building tool.

### Quote

"Your tools help us to retrieve relevant information tailored to our customers' needs" – Ivo van Ham, innovation manager of Syntens about sCore, a project that has used ROC+



Smart search tools to improve the innovation process.



Fun tools for smart search kick start our innovation process.



Smart search puts information at our employees' fingertips, so that assets previously wasted on ineffective search are put to good use elsewhere.



With smart search I find high-quality information for my research.