

## Domain map object

Version 0, second try, August 25, 2009

### Introduction

In order to better support the emergent social organization of knowledge workers in collaboratively overcoming specialization and fragmentation of knowledge, a Topics/ Subject Maps-based technical system is envisaged. The remainder of this document specifies core elements of such a system, and sketches how these in combination lead to the desired improvement in knowledge work.

Rather than creating such a system from scratch, our strategy is to evolve it in stages, while the system is being used and experimented with by a cross-disciplinary community of researchers, including ourselves. The present document describes the main components of the system in general, and specifies the initial prototype of one of them, the domain map, in some detail.

By creating a whole ready to be used system, which includes social organization as key factor, we want to facilitate the adoption of the technology. (\* This important strategic point may need to be expended ; I don't know if the 'technology is 1/2 of the automobile' argument works, but the insight needs to be communicated \*)

The domain object applies the knowledge federation to information overload, as explained in [1].

A domain map helps the researchers see where knowledge is lacking.

### Main components

The key components we envision for our system are the domain map, the value matrix and the knowledge garden.

A domain map is a an online representation of a domain of knowledge (think about a discipline such as sociology, or about a cross-disciplinary project dedicated to, say, suggesting ways of handling the climate change). We say more about it below.

A value matrix is an object assigned to each information resource, to serve as container for information about the value of the resource, that is accumulated throughout the lifetime of the resource. We may imagine it as a matrix whose columns are criteria and whose rows are different ways of evaluating those criteria.

A knowledge garden is a facility for growing the knowledge about a domain in an organic manner. Among its tools are various ways of querying the domain map and the value matrices.

## Purposes of a domain map

A domain map provides:

- \* tools for visualizing the domain and its resources, to serve as orientation for learning and research
- \* means for subject-centric organization and access to resources
- \* ways to select resources by fine-tuning criteria
- \* ways to collaboratively synthesize consensus views and high-level insights
- \* means to communicate critical insights from the domain to media workers and other domains
- \* means to evaluate contributions of knowledge workers by multiple criteria, including the contributions to knowledge structuring, communication across domains and collaborative synthesis of insights. (\* This is another strategic point that may be expanded \*)

## Domain map object structure (first prototype)

A domain map object consists of

- \* a list of community members
- \* a subject map with pointers to resource URLs and visualization tools
- \* a wiki page with an associated discussion page for each subject
- \* two wiki pages called import and export (or inbox and outbox) providing space for communication with the external world including media workers and Internet users

With each community member a log of all updates done by the member is maintained. This allows us to evaluate the contributions of the member with respect to different criteria. This can also be used in queries, for example by asking for all the resources about a given subject recommended by a given member.

The initial structure of the subject map is a star graph consisting of knowledge federation as the central ('mountain top') node surrounded by the five 'aspect' nodes labelled 'Issues', 'background', 'methodology', 'tools' and 'examples'. Edges connecting these nodes are labelled. The aspect nodes are initial subjects in the topic map. The map grows by creating new subjects and associating them with existing ones.

(\* Figure missing \*)

## Value matrix object structure (first prototype)

In this very basic first implementation the value matrix object is simply a set of annotations labeled '+' (a recommendation), '-' (an objection) and '\*' (Michelin star, signifies extraordinary excellence; the idea is that one may want to read only the most excellent materials in a domain; and that a researcher may get promoted based on excellence rather than volume of production).

## Use case examples

Member JP spots on the Internet a search or 'discovery' engine called Worio and decides it could be useful thing to now about for the knowledge federation community members. The domain map will help him create a subject called 'Worio' and link it with Tools via a suitable association. A Wiki page called Worio will automatically be created and associated with the subject Worio. JP will be asked to provide initial content. Entries reflecting the addition of the subject Worrior and Wiki content are added to JPs personal log with suitable pointers.

Member AS notices this addition, or is notified about it because he had registered his interest in knowledge federation tools in the knowledge garden. He studies Worio a bit and finds out that it is a nice way of handling an issue that has general interest. He calls the issue 'Words are limiting', creates the corresponding subject and associates it with Issues and with Worio. He adds his recommendation to the Worio value matrix. In the Wiki node associated with 'Words are limiting' he talks about synonyms and tags and about insightful analogies etc. All this is recorded in AS's personal log.

Member LM notices this addition and adds an objection to the Worio value matrix. An objection is automatically a subject, and the system creates one for him. In the wiki page / (dialogue page?) associated with the objection LM explains that Worio lacks topic map capability. Counter-arguments may later be added to resolve the conflict. The changes are recorded in LM's log.

## REFERENCES

[1] <http://heim.ifi.uio.no/~dino/KF/NL2008.pdf>.