

A SW-based Framework for Disclosure of Organizational Knowledge to the Outside World

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Abstract

Growth of an organization requires the development of knowledge, skills, competency, and so on, and to make the organization's presence known to others. Disclosing information about itself is an effective way to make its presence known. Such information should be presented with appropriate context to make a good impression when sending organizational knowledge to the outside world. Toward that end, we propose a SemanticWeb(SW)-based Framework for showing organizational knowledge to the outside world.

1 Introduction

Growth of an organization requires the development of knowledge, skills, and competency (represented generally as “intellect” herein) and to make the organization known to others. Disclosing the organizational intellect is an effective way to promote organizational growth. The goals of disclosure for the organization are:

- to get an evaluation of how well the intellect developed in the organization, and
- to maintain a cooperative relationship among organizations.

This study is intended to create a SW-based framework for displaying the organizational intellect externally.

Most organizations have their own guidelines for developing the organizational intellect. To the extent that organization members share them, the intellectual activities in the organization can be done smoothly.

On the other hand, it is difficult for outsiders, who do not know organizational guidelines, to appreciate the intellect created by other organizations. This study addresses clarification of an effective way to disclose intellects with meaningful information for outsiders to understand its importance.

2 Intellect exchange for creation and inheritance of organizational intellect

This project explores the following issues:

- (A) Revitalization of activities for creation and inheritance of organizational intellect
- Supplying guidelines to direct organization members to the desired process of creation and inheritance of organizational intellect.
 - Encouraging organization members to become aware of the relationships among people, intellects, and media. Through that awareness, they can derive answers to questions such as: *Who knows the intellect well? Who should collaborate? Which medium is useful to obtain the intellect?*
- (B) Disclosing organizational intellect to the outside
- Clarifying the intention of disclosure based on a deep understanding of the organizational intellect.
 - Producing a presentation with the most suitable style for showing the intellect.

3 Overview of intellect exchange support

Figure 1 shows an overview of this project, focusing on (B). The dual loop model (DLM) and intellectual genealogy graph (IGG) form a foundation to provide awareness information on the organizational intellect for both

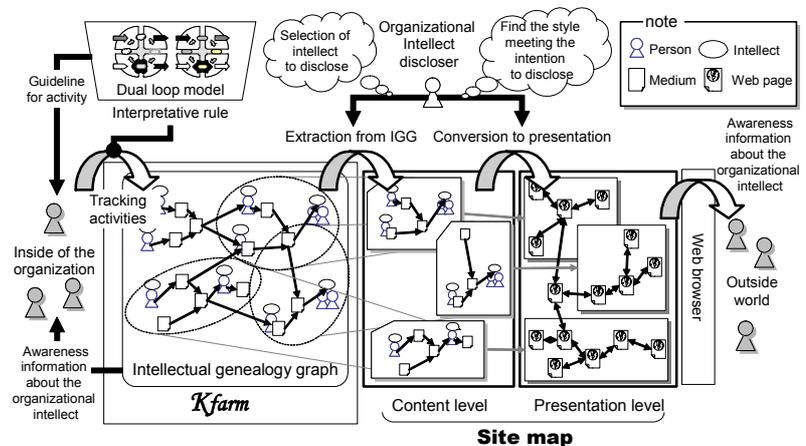


Figure 1. An overview of intellect exchange support

organizational members and outsiders. That awareness will involve not only the meaning of the intellect itself but also its formative process.

DLM represents a process of change of intellect in an organization, both from the viewpoint of the individual and the organization [Hayashi 01]. This model serves as a guideline for organizational activity. IGG represents chronological correlation among persons, activities, and intellect in an organization as an interpretation of the activities of organization members based on DLM [Hayashi 02]. IGG is generated from activities with media. A medium is a representation of intellect that mediates intellect among people: text, figures, voice, and so on.

A site map is a model describing the structure of intellects to disclose. The model consists of a content level model and a presentation level one. The content level model is a subset of an IGG. That level model is extracted with the intention of disclosing the organizational intellect. The content level model is transformed into the presentation level model to allow its display on a WEB browser.

Based on these models, this project is intended to develop information systems to support both (A) and (B), as mentioned above.

This brief paper is insufficient to allow comprehensive discussion of these matters. Detailed explanation is presented elsewhere [Hayashi 01], [Hayashi 04]; this paper specifically addresses features of the framework focusing on (B). To support (B), it is crucial to prompt the organization to grasp a comprehensive view of its own organizational intellect and to allow the organization to prepare its best materials for dissemination. Moreover, it is important to prepare a mechanism for conversion from the content level to the presentation level. Herein, we specifically address a content-level representation of organizational intellect because of space limitations.

4 Metadata for organizational intellect disclosure

This paper defined the framework to describe contextual information of the organizational intellect. Contextual information includes people and media that relate to the intellect, and the intellect's role. That contextual information is extracted from IGG. Metadata describing the

contextual information are shown in Fig. 2.

These metadata show that the person(person#1) made medium#1, named ontological engineering, with intellect#1 through intellectlevelactivity#1. The metadata elements are defined in DLM ontology. A part of the ontology described with RDF schema is shown in Fig. 3.

5 Conclusions

This paper proposes a framework for disclosing organizational intellect externally with contextual information. We will implement the disclosing support function of organizational intellect using semantic web technology.

Reference

- [Hayashi, Y. et al., 2001] Toward an Ontology-aware Support for Learning-Oriented Knowledge Management. *Proc. of ICCE'2001*, Seoul, Korea, pp.1149-1152.
- [Hayashi, Y. et al., 2002] An Intellectual Genealogy Graph Affording a Fine Prospect of Organizational Learning-. *Proc. of ITS 2002*, San Sebastian, Spain and Biarritz, France, pp.10-20.
- [Hayashi, Y. et al., 2004] Intellect transmission support based on organizational intellect model. *Proc. of e-Society2004*, Avila, Spain, pp.1094-1098.

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Figure 2. RDF description of the contextual information of an intellect

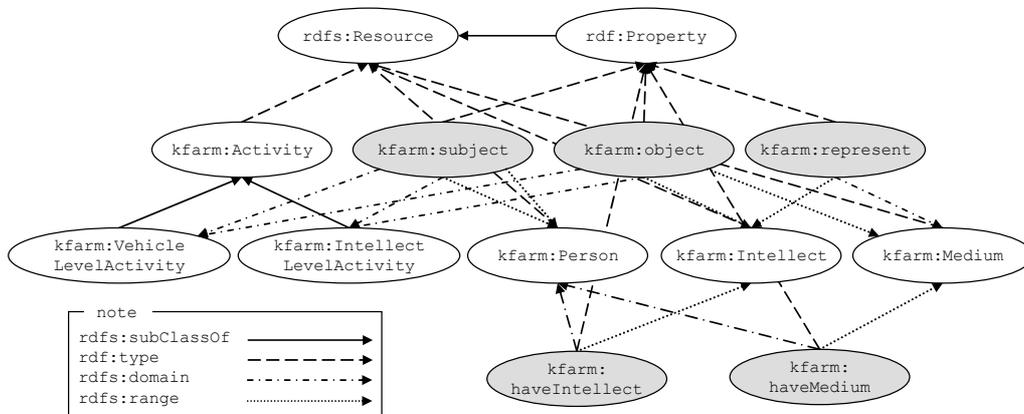


Figure 3. DLM ontology using RDF Schema