Dissemination in Portals

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INTRODUCTION

While there are many aspects to managing corporate knowledge, one key issue is how to disseminate corporate documents with appropriate context. Upon finding an article on a certain subject, for example the material properties of titanium, a reader is likely to be interested in related articles such as applications of titanium or manufacturing methods for titanium parts. Each related article has the potential to increase the reader's knowledge of the subject. Therefore, organizing documents into categories of interest plays an essential role in discovering and interpreting information. Furthermore, categories can be expected to provide historical context, describing how titanium was used in early designs or initial practices used for the repair of titanium parts.

While most large companies make a practice of cataloging and controlling well-established documents, there is a vast set of *explicit information* that has not traditionally been effectively disseminated. This class of information is less formal and may be exchanged, updated, and otherwise managed at the local level. Such information is usually not controlled at the corporate level or governed by the same organizations established to handle more stable information. Processes to disseminate such information tend to be ad hoc or nonexistent. In this article, we discuss the elements necessary to effectively disseminate informal and explicit information not controlled at the enterprise level. While the main emphasis of the article is to promote a general process for the dissemination of this type of material in large corporations, we will use a specific implementation of this process at the Boeing Company as an illustrative example.

BACKGROUND

Traditionally, the dissemination of corporate knowledge has taken a number of different forms. First, there are the methods of classic library science often as implemented by a formal corporate library staffed by trained librarians (Taylor, 2000). This is used for things that are well established such as textbooks, established how-to knowledge on a subject, published papers on a subject, and so on. Second, it has long been necessary to disseminate official policy and procedure through "Command and Control" processes and associated media. In addition, certain industries also require configuration control processes for special classes of information such as product data, drawings, and manufacturing rejection and acceptance documentation. These are all subject to an authentication process, flowing top-down to intended users. A third, extremely important approach to knowledge maintenance and dissemination has been through mentoring and establishment of departments aligned to technical specialties and communities of interest. These approaches are particularly well suited for *tacit knowledge*. A fourth category of knowledge sharing applies to the communication of explicit knowledge among peers but also includes dissemination to management and other reference groups. This method applies to information that is less formal and frequently ephemeral.

This fourth method is of an entirely more fluid nature and, in some cases, represents the majority of a corporation's explicit knowledge. While it is appropriate for the enterprise to disseminate formal information using traditional, formal means, there is a need to disseminate less formal information as well. This informal

knowledge often includes the most current information within a company and without adequate dissemination, corporate decision-making is likely to fall short. In summary, stable and formal information is well handled by existing library or document release systems. Ephemeral, less formal, and generally less controlled content, while important, is currently only shared across the enterprise by a variety of ad hoc means, if at all.

MAIN FOCUS OF THE ARTICLE

This article focuses on how to systematically share this fourth category of informal and uncontrolled knowledge. The ideal for knowledge dissemination is to make sure information of this type can be well integrated into existing formal content, taking advantage of the context that has been created over time by librarians and other formal content management systems. To achieve this, it is necessary to organize this knowledge in a way that is consonant with the information categories of multiple existing systems. This is made possible by using an enterprise *ontology* or some form of controlled system of keywords which can be mapped to existing vocabularies. Portals, and other tools which allow content aggregation and term mapping, enable sharing of this knowledge at a physical level. It provides search and simple navigation across sources, as well as security services to restrict access as needed. A central ontology combined with an interactive text classification tool make dissemination of this knowledge possible at a content level.

In the matter of assigning documents to categories, we emphasize the importance of involving subject matter experts. Traditionally, this is done by librarians who are trained to catalog (categorize) content. However, in the case when authors are widely distributed throughout a complex corporate enterprise, we suggest that text classification software be used by these subject matter experts to facilitate broad knowledge dissemination. The challenge is to provide text classification services which can be used to produce high quality results by users who are not trained in library science.

The essential elements of a distributed dissemination scheme for this type of explicit but informal knowledge are a portal, an ontology, a text classification system, and a publication process. In combination, these four elements allow autonomous subgroups of a corporate entity to interact with common resources and tools to publish their local work in a way that places it within a context comprehensible to an enterprise audience.

Knowledge dissemination, as used here, applies specifically to explicit knowledge captured in documents from many sources. There are a number of frameworks that address the life cycle of explicit knowledge (Bock, 1997; O'Dell, 1998), but here we will follow the steps outlined by Mack (2001). In this framework, the basic tasks in knowledge work are Capture/Extract, Analyze/Organize, Find, Create/Synthesize, and Distribute/Share. In particular, text classification has direct benefit to the Analyze/Organize and Find stages and portal services will be the basis of the Distribute/Share stage. As discussed here, knowledge dissemination applies to the Analyze/Organize, Find, and Distribute/Share stages.

Portals

A portal is used to collect content from many different sources, resulting in a virtual collection available through a single point of access. This aggregation of content is perhaps the key characteristic of all portal products. In addition, a portal provides some capability for metadata management whereby tags and values can be directly replicated from source documents or harmonized within the virtual collection by mapping them to a centralized schema. In addition, a portal may permit the addition of metadata based on characteristics of the source system or based on the decisions made by the group about how ontology terms will be attached to documents. The documents themselves remain in their source system, maintained, refreshed, or deleted by the groups that own them.

Other kinds of information systems besides portals can be useful for knowledge dissemination. However portals, in one form or another, are well suited for publishing a distributed collection based on the intellectual products of many subgroups. Further, because of their flexibility in combining a variety of tools and services, portals can be customized to create a rich knowledge-sharing environment. For example, portals can readily support search and navigation. In addition, they can be extended to support personalization services, which would allow even more focused dissemination.

Thus, portals are a natural element to aid in knowledge dissemination. They can be used to achieve the key goal of achieving awareness (Alavi, 1999; Prusak, 1997). Indeed, creating awareness is a goal of dissemination and is a prerequisite to collaboration or further synthesis.

Ontologies

To produce an organization of corporate documents that can be readily shared, it is essential to have some standard in the form either of a corporate *taxonomy*, a corporate *thesaurus*, or both. What is minimally necessary is simply a list of controlled keywords expressing