Chapter 4.51
Organic Knowledge Management for Web-Based Customer Service

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ABSTRACT

This chapter introduces practical issues of information navigation and organizational knowledge management involved in delivering customer service via the Internet. An adaptive, organic approach is presented that addresses these issues. This approach relies on both a system architecture that embodies effective knowledge processes, and a knowledge base that is supplemented with meta-information acquired automatically through various data mining and artificial intelligence techniques. An application implementing this approach, RightNow eService Center, and the algorithms supporting it are described. Case studies of the use of eService Center by commercial, governmental and other types of organizations are presented and discussed. It is suggested that the organic approach is effective in a variety of information-providing settings beyond conventional customer service.

INTRODUCTION

The phrase "organizational data mining" in the title of this book suggests the importance of tapping all sources of information within an organization. The bare term "data mining" is most often applied to the extraction of patterns and relationships from databases or other structured data stores, enabling the productive use of information otherwise buried in overwhelming quantities of raw data. More recently, methods have been developed to extract information from relatively unstructured text documents, or, at least, to render that information more available via techniques of information retrieval, categorization and extraction. But in spite of such progress, one major source of organizational knowledge often remains inadequately managed.

It is widely recognized that much of the knowledge of any organization resides in its people. A major difficulty in tapping this key resource is that much of this knowledge is not "explicit" but rather "tacit." For our present purposes, we call explicit the sort of knowledge that could be captured relatively easily in a document, such as a memorandum, a manual or a white paper. In contrast, tacit knowledge is generally not committed to any permanent, structured form, because it tends to be strongly dependent on context or other variables that cannot be described easily. Because of its difficult nature, as well as its importance, the concept of tacit knowledge has received much attention in the recent literature (e.g., Nonaka & Takeuchi, 1995; Stenmark, 2000; Richards & Busch, 2000), though its roots go back at least to Polanyi (1966). It has become clear that the obstacles to capturing such knowledge are not merely technical, but psychological, sociological and even philosophical. No simple solution can be anticipated to this inherently difficult problem. Nevertheless, one can hope to identify certain features of the problem that are likely to be important in designing systems to deal with it.

In the following, we shall present our view of some key aspects of human-centered knowledge acquisition and dissemination. We do this within the context of a specific software application, RightNow eService Center (RNeSC), which was originally developed and is primarily used for Web-based customer service. This is not the limited domain it might at first appear, for the basic paradigm of knowledge exchange between producers (e.g., customer service representatives, university staff or government agencies) and consumers (e.g., customers, students or citizens) can be applied very generally. To cover this broad spectrum using a common terminology, we shall refer to the producers as "experts" and the consumers as "novices" or "end-users," while the general term "users" will encompass both groups.

Focusing on the knowledge management aspects of our application, the fundamental goal is to facilitate information finding by end-users and information providing by experts. We recognize that the information transfer, though asymmetric, occurs in both directions. Indeed, one of our main points is that for end-users to learn effectively, the experts must also learn about the end-users and their information needs. Furthermore, we note that the same basic paradigm can also apply to the situation where experts and end-users are the same population. (Our software is actually used in that way within a number of organizations, including our own.)

Data mining is key to the function of RNeSC in more than the metaphorical sense of eliciting knowledge from experts or the conventional sense of extracting information to generate various reports on the system status, history and use. Beyond these, the continuous analysis of text exchanges and the mining of user interaction logs represent embedded data mining functions that are crucial to the performance of RNeSC. Their main purpose is to extract what could be considered tacit knowledge of both experts and end-users about the relationships among knowledge items in the

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