Chapter XII
Breaking the Knowledge Acquisition Bottleneck Through Conversational Knowledge Management

Christian Wagner
City University of Hong Kong, Hong Kong
Claremont Graduate University, USA

ABSTRACT

Much of today's organizational knowledge still exists outside of formal information repositories and often only in people's heads. While organizations are eager to capture this knowledge, existing acquisition methods are not up to the task. Neither traditional artificial intelligence-based approaches nor more recent, less-structured knowledge management techniques have overcome the knowledge acquisition challenges. This article investigates knowledge acquisition bottlenecks and proposes the use of collaborative, conversational knowledge management to remove them. The article demonstrates the opportunity for more effective knowledge acquisition through the application of the principles of Bazaar style, open-source development. The article introduces wikis as software that enables this type of knowledge acquisition. It empirically analyzes the Wikipedia to produce evidence for the feasibility and effectiveness of the proposed approach.

INTRODUCTION

Ever since the development of artificial intelligence (AI) and expert systems, there has been the promise of capturing an organization's knowledge on a large scale and making it available to the entire organization. Unfortunately, these promises did not materialize (Buchanan & Smith, 1988; Ullman, 1989). While there have been several early success stories, such as

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American Express' Credit Advisor or Digital's Expert Configurer (XCON), attempts to acquire the broad knowledge of organizations have been less fruitful. More than a decade later, a decidedly optimistic survey by Frappaolo and Wilson (2003) found that no more than 32% of the knowledge was available in computerized form. Obviously, knowledge acquisition is a challenge. How can we extract more of the existing knowledge from organizational sources, especially from people? And how can we manage the maintenance so as to assure that the stored knowledge is accurate and up-to-date? Discovering answers to these questions is important for organizations as information work becomes knowledge work, thus requiring knowledge to support non-routine decision making (Drucker, 1993, 1999). It is similarly important for organizations whose corporate portals that were set up years ago increasingly are becoming dated and stale (Newcombe, 2000). Furthermore, it is important for organizations in the business of creating knowledge assets who are faced with increased costs of knowledge creation, shorter knowledge life cycles, and increased knowledge obsolescence.

Seeking a solution to the problems of organizational knowledge acquisition, the chapter makes the following argument. First, it introduces previous approaches to knowledge acquisition, identifies four limitations, and offers evidence for these limitations. The chapter then refers to Bazaar style (software) development (Raymond, 2001) as a potential direction for knowledge asset creation. It then explains the concept of conversational knowledge management and advocates wiki technology and the "wiki way" (Leuf & Cunningham, 2001) as a possible approach to using Bazaar-style methods in conversational knowledge management. An empirical analysis of the viability and effectiveness of the approach follows. The chapter ends with implications and conclusions about the future of conversational knowledge management.

KNOWLEDGE ACQUISITION

Approaches to Knowledge Acquisition

Organizations that try to acquire organizational knowledge formally (based on artificial intelligence methods) have relatively few available alternatives. For application areas with large amounts of transaction data, data mining can induce rules from that data. Data mining solutions work well for high-volume applications such as credit approval. Even then, the knowledge creation effort is highly resource-intensive (Lee, 2001). When insufficient data volumes thwart data mining efforts, the acquisition activity has to elicit knowledge directly from experts as rules and facts or similar formal representations. This should be done under the guidance of knowledge engineers trained in knowledge elicitation, formalization, and representation. Yet a knowledge engineer's productivity is limited to hundreds of rules per year for development and maintenance (Sviokla, 1990; Turban & Aronson, 2000). This productivity level may be acceptable for high value-added projects but limits the broad applicability of the approach. Smaller projects have attempted to rely on capturing knowledge without knowledge engineers, relying on end-user development. The latter has not been very successful (Wagner, 2000, 2003). Wagner found end-user expert systems often to be poorly structured, incomplete, highly coupled, and thus, difficult to maintain. Artificial intelligence-based methods thus are facing considerable applicability constraints. Consequently, organizational knowledge management efforts have sought to capture knowledge in less formal ways; for instance, by extending document management and groupware systems into knowledge management systems (Davenport & Prusak, 1998; Holsapple & Joshi, 2002) in part through better indexing, search engines, and linking.

Yet challenges remain. When organizations try to make sense out of large volumes of docu-

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