Chapter III
Referent Tracking for Corporate Memories

Werner Ceusters
New York State Center of Excellence in Bioinformatics and Life Sciences, USA

Barry Smith
University of Buffalo, USA

ABSTRACT

For corporate memory and enterprise ontology systems to be maximally useful, they must be freed from certain barriers placed around them by traditional knowledge management paradigms. This means, above all, that they must mirror more faithfully those portions of reality which are salient to the workings of the enterprise, including the changes that occur with the passage of time. The purpose of this chapter is to demonstrate how theories based on philosophical realism can contribute to this objective. We discuss how realism-based ontologies (capturing what is generic) combined with referent tracking (capturing what is specific) can play a key role in building the robust and useful corporate memories of the future.

INTRODUCTION

Corporate memories (CM) are information systems designed to keep track of the history and evolution of an enterprise with the goal of using lessons learned from past experiences to enhance the performance of the business transactions in the future. A well-designed CM should contain data about both the enterprise and the environment in which it operates.

The former, traditionally embodied in what is referred to as an enterprise model, consists of data about the organizational structure and operating procedures of the enterprise, its mission and strategic objectives, its staff, their skills and competences, the products and services the company is able to deliver, and, most importantly, data about projects or business transactions brought to a successful (or unsuccessful) end. The latter, the CM’s environment model, includes data
Referent Tracking for Corporate Memories

about prospects and clients, competitors and partners, applicable laws and regulations, and techniques and methodologies proposed by outsiders to complement the results of research carried out within the company itself.

For understandable reasons, CM technology is standardly approached from a backward-looking perspective, employing passive knowledge management techniques with the prime goal of making legacy electronic documents more easily accessible. To this end, such documents are manually or semi-automatically annotated with tags that reformulate words or relevant phrases in a document in a more structured and standardized manner (e.g., occurrences of the words car, van, bus, and so forth, are all tagged with the compound motor vehicle), or with meta-tags that add additional context to phrases or paragraphs (e.g., important, motivation, marketing, outsourced operations, and so forth). When these meta-tags are organized in a structure that reflects more or less the way the enterprise itself is structured, they form what is referred to as “enterprise ontologies”.

CM applications can also, however, be used for the development of more proactive, forward-looking systems in which data that reflect changes in either the organization or its environment are able to trigger warnings indicating business opportunities for the enterprise or imminent hazards to its proper functioning. To achieve these goals, CM applications must be freed from certain barriers placed around them by traditional knowledge management paradigms. This means, above all, that they must be required to mirror more faithfully those portions of reality which are salient to the workings of the enterprise, including changes that occur with the passage of time. It is especially in the domain of health care that work on such proactive technologies is most advanced. The purpose of this chapter is to demonstrate how the proposals to create proactive systems based on electronic health care record systems can be generalized in such a way as to achieve analogous objectives in the area of enterprise ontologies and corporate memories.

BACKGROUND

Corporate Memories

The word “corporate memory”, including its quasi-synonym “organizational memory,” is interchangeably used to denote distinct though related entities. Originally, the term referred to a specific type of “collective memory” found in organizations and groups, primarily commercial enterprises, and which, according to social and behavioral scientists descending from Durkheim, is something supra-individual which cannot be reduced to the memories in the minds of single individuals (Wexler, 2002). Collective memory so conceived typically comprehends various kinds of information about (1) external contacts, (2) internal know-how, (3) the types of authority and influence exerted not only by company owners but also employee associations, (4) the behavior of customers, (5) operational rule sets and routines, and (6) implementation strategies for company operations that determine how the information about all of these things should interact with the company’s primary business (Beckett, 2000).

With the advance of computer science, corporate memories became conceived as computer systems which embody a company’s entire stock of knowledge assets, including accumulated know-how (skills), and make the latter available to enhance the efficiency and effectiveness of knowledge-intensive work processes (Kühn & Abecker, 1997).

How to build corporate memory systems is a research topic in its own right, since any such system has to be able to communicate with the majority of computer systems already installed in the company and to re-use the information they contain. Since this involves issues of semantic interoperability, it is no surprise that ontologies have become essential components of corporate memory systems, contributing to a wide variety of tasks. Most prominent, however, are the ontologies that describe organizational aspects of the enterprise, and are therefore called enterprise ontologies. This includes ontologies that are designed