Knowledge, a resource that was once hoarded and rare, is becoming a commodity with potential to dramatically change the world. While knowledge advances as the key strategic fuel powering an information economy, researchers and entrepreneurs race to create tools to meet needs of effective knowledge management.

There is a growing urgency for new technology support structures to link organizations’ people and information worldwide in more effective and valuable ways (Kelly, 1998; Kosko, 1999; Tapscott, 1999). The development of innovative processes and supporting products directly impacts the ability of business and society to use information and knowledge for improvement (Ruggles, 1997; Davenport and Prusak, 1998).

Forecasts are common for multi-billion dollar growth in knowledge management products during the next decade. Ernst & Young predicts that knowledge management “has the potential to exceed ERP (enterprise resource planning) as an application opportunity. The principal driving force for this is a growing realization that effective management of knowledge can add real value to the organization (Landau, 1998; Koulopoulos, 1998). This, according to Dr. George Kozmetsky, “will continue well into the next century” (Kozmetsky, 1999).

The objective of this chapter is to provide an outline of the general and specific technology issues relating to development of electronic knowledge management tools. Although it focuses particularly on the design of software systems, it provides a coherent overview of general technical aspects and considerations.

INTRODUCTION

Experts in intelligence have strived to create improved systems for information collection, management and analysis under various guises since the 1940s (Minsky, 1986; Crevier, 1993). They have been aided by advancements in mathematics, linguistics and neuroscience that have contributed to improved electromechanical machines (Turing, 1936; Chomsky, 1968; Pansky, 1988). The widespread availability and adoption of computers during the past three decades has brought more highly evolved systems for constructing, acquiring, storing and representing knowledge. We now see possibility for devices that mirror cognitive human behaviors and allow new methods of interactivity and association. The wealth of opportunities presented by technology tools has resulted in divergent methods for their application within organizations, especially businesses, in order to increase value.

Identification of knowledge as a recognized field of principal investigation for business use, in addition to academic research, has spurred continuing demand for information systems (Fayyad, 1996; Conarty, 1997; Snell, 1998). Worldwide expenditures on information technology has generated significant, if sometimes varying, benefits for the “knowledge workers” and is growing in importance (Drucker, 1994). As organizations grow they are challenged by rapidly changing economic forces for which they must develop faster, more accurate, responses. At the same time the explosion of information threatens to overwhelm individual and corporate response mechanisms with information overload.

It is impossible, within a brief paper, to examine more than cursorily the relevant issues surrounding information and knowledge. To even delve deeply into a few practical aspects of knowledge management technology requires a great deal of reduction. This chapter is a synthesis of a 12-month examination of software and technology approaches currently in use for knowledge management. It is the result of a qualitative investigation of software products from 83 companies ranging from small component technologies such as search engines to large commercial groupware systems (Appendix A). It relies heavily on current marketplace technology standards that have global reach and does not include technologies that have only achieved regional dominance, such as MiniTel (France Telecom) or Ichitaro Office8 (JustSystem, Japan). Note: the author’s selection of technologies is biased towards products that are sold within dominant markets, therefore there is an overwhelming emphasis on companies in the U.S. It can be expected that companies in other parts of the world will be included as technology becomes more evenly distributed.

The chapter is divided into four general sections. The first section explores the definition of knowledge management. The second section describes the environment, or context, in which technology is being considered. Third is a description of some of the current architectural approaches to development of knowledge management software. Finally there is a brief overview of some technology considerations.

DEFINING KNOWLEDGE MANAGEMENT SOFTWARE

There is considerable debate concerning the definition of knowledge management, knowledge management software and the scope of items that should be
An Examination of the Work Outcomes of Professionals in a Virtual Organization
Donna Weaver McCloskey (2001). Knowledge Management and Business Model Innovation (pp. 183-197).
www.igi-global.com/chapter/examination-work-outcomes-professionals-virtual/24938?camid=4v1a

Rediscovering Design Education as a Social Constructivist Foundation for Innovative Design Thinking
www.igi-global.com/chapter/rediscovering-design-education-social-constructivist/45330?camid=4v1a

Knowledge Management’s Strategic Dilemmas Typology
www.igi-global.com/chapter/knowledge-management-strategic-dilemmas-typology/58260?camid=4v1a