

## Chapter 2.8

# A Framework for Managing the Life Cycle of Knowledge in Organizations

**Mark Salisbury**

*University of New Mexico, USA*

### **ABSTRACT**

This article describes a framework for managing the life cycle of knowledge in organizations. The framework emerges from years of work with the laboratories and facilities that are under the direction of the United States Department of Energy (DOE). The article begins by describing the background of the work from which the framework emerged; this is followed by describing the problem of identifying the “right” knowledge for the “right” people at the “right” time and how the use of performance objectives addresses this problem. Next, the phases in the life cycle of knowledge in an organization, the theoretical foundation for the framework, and the other aspects of the framework (Work Processes, Learning Processes, and Methodologies) are described. Finally, a discussion section summarizes

the framework and discusses future directions for enhancing and extending the framework.

### **INTRODUCTION**

This article describes a framework for managing the life cycle of knowledge in organizations. The approaches described in this article were initially used to successfully build a knowledge dissemination system for the laboratories and facilities that are under the direction of the United States Department of Energy (DOE) (Salisbury & Plass, 2001). The follow-on work to this effort was the development of a collaboration application that fed the dissemination system for the DOE laboratories and facilities. The resulting system managed the life cycle (creation, preservation, dissemination and application) of knowledge for the DOE laboratories and facilities (Salisbury, 2003). While seen as a highly successful system, a significant

problem was the difficulty in identifying the right knowledge that needed to get to the right people at the right time. What was needed to solve this problem was a systemic way that could be applied as an organizational strategy to identify this knowledge, the people that needed it, and the time it should be accessible. This article focuses on the use of performance objectives for managing the “right” knowledge in an organization. In the next section, the background of the projects that inspired the framework is introduced. Next, the framework itself is discussed: the theoretical foundation for the framework, work processes, learning processes, and methodologies for managing the life cycle of knowledge in an organization.

## BACKGROUND

The project that started this work was the design and development of the process realization process online Web site that is used by the United States Department of Energy (DOE) and its affiliates. Over the last several years, DOE has streamlined its operations to make production more efficient in a variety of coordinated engineering, manufacturing, assembly, and management activities. In so doing, eight separate laboratories and plants around the United States (a subset of all DOE labs and facilities) have agreed to utilize the product realization process (PRP) with a common set of technical business practices (TBPs) that both prescribe and guide operations. The goal was to get a potential user community of one to two thousand individuals at these eight sites to be aware of, understand, and apply the TBPs, related documents, and terminology to their projects. In addition, the user community is an aging population, not unlike the rest of the DOE. While these experienced users are highly knowledgeable about how business has been or should be conducted, others are being asked for the first time to subscribe to the common set of business practices. Experienced employees

with the TBPs, approaching their retirement, have a large amount of tacit knowledge about the TBPs that would be lost to their organization if this expertise were not captured. In addition, newcomers to these eight DOE facilities need to have an orientation while, at the same time, get a more complete picture of processes, procedures, and practices. The PRP online Web site was developed to be a dissemination system for process documents, instruction, examples, and nuggets of expert advice on applying the TBPs to the daily work of the eight laboratories and plants under the direction of DOE.

The follow-on work to this effort was the development of a collaboration application the team collaboration system (TCS) that fed the dissemination system for the DOE laboratories and facilities (Salisbury & Dickinson, 2006). TCS was developed for process improvements on the TBPs with team that comprises representatives from the laboratories and facilities of DOE. This multi-organizational and geographically-dispersed team needed a system that would support complex collaboration and yet be easy to use. They also needed project management capabilities for team members to recommend improvements, other members to review the improvements, and officials with oversight responsibilities to approve the improvements before they become policy. With TCS, there was a complete and integrated system in place that supported the creation of new knowledge (process improvements), the preservation of the knowledge (stored in TCS), and the dissemination of that knowledge (documented process improvements are automatically transferred after approval to the PRP online Web site). However, complications did arise. The process improvements that were approved in the TBPs would have to be traced through the associated instruction, examples, and nuggets of expert advice that were also disseminated through the PRP online Website. It became quite a difficult task to ensure that the associated instruction, examples,

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