Chapter 5.34
Learning about the Organization via Knowledge Management:
The Case of JPL 101

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ABSTRACT

This article describes the development and operation of a knowledge system to support learning of organizational knowledge at the Jet Propulsion Laboratory (JPL), a U.S. national research laboratory whose mission is planetary exploration and to "do what no one has done before". JPL 101 is a Web-accessible database of general organizational knowledge, captured in a series of quizzes. The heart of JPL 101 is the content that is encoded as questions and annotated answers with connections to related information and resources. This article describes the requirements generation process, implementation, and roll-out of the JPL 101 system. Data collected over 19 weeks of operation were used to assess system performance with respect to design considerations, participation, effectiveness of communication mechanisms, and individual-based learning. These results are

discussed in the context of organizational learning research and implications for practice.

BACKGROUND

The Jet Propulsion Laboratory (JPL) is a United States Federally Funded Research and Development Center (FFRDC) operated for the National Aeronautics and Space Administration (NASA) by the California Institute of Technology (Caltech). JPL's primary mission is to explore our own and neighboring planetary systems. In pursuit of this mission, JPL has a rich program of technology development, science, and mission development (the three "value adding" processes of the Laboratory), as well as an extensive infrastructure to support Research and Development.

SETTING THE STAGE

The JPL 101 system described in this article is a Web-accessible database of general organizational knowledge, which is encoded as questions and annotated answers with connections to related information and resources, and captured in a series of quizzes. The Knowledge Capture (KC) team, a subset of JPL's Knowledge Management (KM) Project, conceived of JPL 101. This four-person team consisted of a librarian, two Web and database system designers, and an engineer who alternated between KM-related projects and working on Mars missions.

The motivation for the system was two-fold. First, there was a growing concern by KC team members that the KM project in general was isolated from the value-adding processes that formed the mainstream work of the Laboratory. This isolation was believed to lead to products and services that did not fully address user needs.

The second motivation was a desire to share valuable knowledge gained through a previous knowledge capture task. Prior to his retirement in the fall of 2001, the Deputy Director of the Laboratory agreed to do a series of retrospective interviews. During his tenure, JPL went through a decade of sweeping changes that fundamentally altered the way JPL did business. The primary purpose of the interviews was to collect information for the incoming Deputy Director, who was new to the organization. However, it was felt that the insights gained during the interviews were of potential value to the greater Laboratory population. In particular, discussion about stakeholder relations and the interplay between NASA, Caltech, and JPL served to make sense of the changes that occurred throughout the 1990s.

This combination of motives led to the concept for "JPL 101". It was felt that by calling attention to work related to the value-adding processes, the system could help improve the connection of the KM team to the rest of the Laboratory. In addition, by incorporating information gained through the interviews with the Deputy Director, valuable insights on stakeholder issues and basic operations could be shared with the Laboratory population.

Although inspired by events local to the KC team, the circumstances correspond to a broader organizational issue. To perform the planetary exploration mission and "do what no one has done before," large numbers of technical and professional disciplines must be integrated to support innovation (the value-adding process). In addition, infrastructure and support services are required to perform routine organizational functions (the enabling processes). While cross-functional project teams have become a common approach to integrating multi-disciplinary knowledge in support of product development (Brown & Eisenhardt, 1995), less attention has been paid to bridging gaps between value-adding and enabling processes.

In established firms, emergent knowledge processes (EKPs) (Markus, Majchrzak & Gasser, 2002) such as product development take place within the context of the organization's