

Chapter 5.18

Knowledge Management for Electric Power Utility Companies

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ABSTRACT

This chapter will present an overview of the challenges presented to modern power utility companies and how many organizations are facing particularly pressing problems with regards to an ageing workforce and a general shortage of skills; a situation that is anticipated to worsen in the future. It is proposed that knowledge management (KM) and decision support (DS) may contribute to a solution to these challenges. The chapter describes the end-to-end processes associated with KM and DS in a power utility context and attempts to provide guidance on effective practices for each stage of the described processes. An overview of one particular power utility company that has embraced KM is presented, and it is proposed that the function of asset

management within power utilities in particular may benefit from KM. The chapter focuses not only on KM techniques and implementation, but, equally, if not more importantly, on the various cultural and behavioural aspects that are critical to the success of any KM/DS initiative.

INTRODUCTION

Knowledge management (KM) and decision support (DS) provide opportunities to reduce many forms of risk, to improve business processes, to increase workforce engagement and morale, to enhance training programs and to ultimately deliver financial benefits. Furthermore, there are significant problems presently being experienced throughout the power utility industry associated with the retirement of experienced employees and

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a shortage of skilled personnel being available to enter the business. These problems are anticipated to worsen in the future. This situation has heightened interest in the potential for KM and DS as tools with which such problems can be addressed.

However, it is very important that a measured and systematic approach is taken to KM and DS. There is certainly no single solution that can be used in all circumstances, and there are many examples of KM projects and applications that have resulted in a failure to meet expectations and, in some cases, in the disenfranchisement of personnel. This chapter will provide an overview, and hopefully some guidance, into the various components of KM and will illustrate, through examples and references, the main steps and considerations that must be taken when planning, implementing, maintaining and evolving KM and DS initiatives.

The Problem

Executives in power utility companies are presented with many strategic issues and challenges. These include: privatization and the emergence of new market entrants; an almost continual process of mergers, acquisitions, formation and dissolution of corporate partnerships; changing legislation and government policy, e.g. the UK government's decision to permit future use of nuclear energy, which was previously discounted as a future power generation option (British Broadcasting Corporation, 2007); the drive for green energy and increasing penetration of distributed generation; the demand for increased shareholder return, countered by mounting pressure on wholesale fuel prices and negative publicity and consumer sentiment associated with increasing consumer energy prices; increasing moral and legal obligations with respect to health and safety; and many others.

All of these issues and challenges must be faced in an environment where there is a dwindling skills resource, exacerbated by the fact that there

is an increasing shortage of skilled professional engineers. In (American Public Power Association, 2005), it is stated that, with reference to 111 organizations' responses to a survey carried out in 2005 (and a similar survey carried out in 2002):

- *"50 percent of the respondents indicated that more than 20 percent of their workforce would be eligible to retire in the next five years;*
- *63 percent of respondents identified "skilled trades" as being among the utility positions with the most likely retirements over the next five years;*
- *52 percent of respondents indicated that vacancies among the "skilled trade" positions would be among the most difficult to fill;*
- *64 percent of respondents believe that retirements will pose either a moderate or very great challenge to their utility;*
- *Twice as many respondents in 2005 believe that retirements will create a "significant challenge" for their utility than in the 2002 survey; and*
- *The most significant challenges created will be the loss of knowledge due to retirements, the difficulty finding replacements, and the lack of bench strength within the organization."*

It is clear that there will be widespread problems for power utilities in ensuring access to the appropriate levels of skills and expertise to underpin their businesses in the future. Coupled with this are significant changes to both the business environment and to employees' career models. The aforementioned issues of privatization and industry deregulation, an increase in the penetration of distributed generation and the requirement to extensively refurbish and replace generation, transmission and distribution networks, are just some of the issues that will require knowledge

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