Chapter 15
A Method for Assessing Knowledge Loss Risk with Departing Personnel

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ABSTRACT
Knowledge workers hold much of an organization’s knowledge. Unfortunately, these knowledge workers tend to be transient, and when they leave, they take the knowledge inside them. Organizations need to try to capture this knowledge but find it difficult as it is usually too late to capture this knowledge when a worker announces he/she is leaving. This chapter presents a process for assessing each worker for the risk of taking knowledge with them. The purpose of this process is to aid organizations in allocating resources to capturing the most valuable and most accessible of the knowledge potentially being lost in time for it to be captured and retained.

INTRODUCTION
Knowledge workers are defined by Davenport (2005) as those who think for a living and whose main asset is knowledge. Reinhardt, Schmidt, Sloep and Drachsler (2011) differentiate knowledge work from other forms of work through the primary task of “non-routine” problem solving that requires a combination of convergent, divergent, and creative thinking. Knowledge based organizations utilize knowledge to produce the goods/services that generate their income. Knowledge workers are those workers in knowledge based organizations that hold, access, create, and/or apply knowledge to the generation of value/income. Knowledge workers, while a valuable resource, are highly transient (Yigitcanlar, Baum & Horton, 2007). Additionally, by 2010, more than 25% of the United States workforce reached retirement age, which would have resulted in a potential worker shortage of 10 million and a tremendous loss of organizational knowledge had not the world economy sunk into recession (Federal Interagency Forum on Aging-Related Statistics, 2008). Organizational knowledge loss is an unfortunate fact and one that will become a large problem for organizations as the economy improves. Organizations lose knowledge through the loss of knowledge holders (i.e., experts and knowledge workers), failure to capture critical knowledge, failure of knowledge repositories (this can be failure of electronic, paper, or human storage...
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media), and just plain forgetting (either forgetting the actual knowledge or forgetting where captured knowledge is stored). Jennex (2006) and Jennex and Zygier (2007) have explored some of these issues. It is the purpose of this chapter to explore how to assess the risk of losing knowledge by losing experts and/or knowledge workers. Applied research methodology is used to:

- Define what risk is for knowledge loss.
- Define the factors that determine the risk of knowledge risk.
- Define processes for determining values for each of the knowledge loss risk factors.
- Define knowledge loss risk management by defining processes for ranking knowledge loss risks and determining appropriate actions to mitigate knowledge loss risks.

This chapter is based on applied research utilizing elements of design-science and action research. Design-science research involves the researcher in creating and evaluating innovative IT artifacts intended to solve significant organizational problems (Hevner, March, Park, & Ram, 2004). Action research involves the researcher by actively attempting to influence the outcome by applying a cycle comprised of designing, action planning, action taking, evaluation, and change implementation (Baskerville, 1997). To conduct the research for this paper the researcher needed to gather very rich, detailed organizational information (access was gained through participation in a project to identify a knowledge loss risk process) and then use this information to generate a process (or artifact). A systems analysis type approach was used where the problem to be solved was further defined by assessing current knowledge loss risk processes, identifying strengths and weaknesses, and then creating an improved process for identifying individual knowledge loss risk and determining actions to take based on the individual knowledge risk. The resultant artifacts were tested through a pilot project. Data for the pilot was collected through several workshops and interviews of selected organizational members and determining individual knowledge loss risk scores. The subjects selected for the pilot were representative of the diversity of the organization in terms of time in the organization, experience with the core work of the organization, and skills and capabilities utilized by the organization. The pilot project results were assessed utilizing a table top assessment involving the three project team members with the resulting lessons learned being incorporated into a final proposed process artifact and a set of data gathering form artifacts. Support for this research methodology comes from Burstein and Gregor (1999) who support the systems analysis methodology for IS research and suggest it may be a form of action research. Additionally Arnott and Pervan (2012) support the use of design science for researching decision support systems, DSS, (KM is a form of DSS). While the applied methodology was neither pure action research nor design science research it did use elements of both applied with appropriate rigor. The following sections discuss and present the results of this research.

**RISK**

The National Institute of Standards and Technology, NIST, defines risk as the net negative impact of the exercise of a vulnerability, considering both the probability and the impact of occurrence. Risk is traditionally represented by the formula:

\[ R = p * C \]

Where:

- \( R \) = Risk of knowledge loss.
- \( p \) = probability of loss of human knowledge source.
- \( C \) = Consequence of losing the human knowledge source.
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