

DEVELOPING A KNOWLEDGE RETENTION STRATEGY NOW SAVES VALUABLE ORGANIZATIONAL RESOURCES LATER

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ABSTRACT

The wastewater utility community faces a significant loss of knowledge as a result of current and pending employee retirements. Utility managers may be tempted to think that the solution to knowledge loss is to simply “write it all down.” However, this approach is not well suited to retain all types of knowledge, or to transfer it to new employees. Utility managers must use a blend of approaches that includes tools such as document repositories, mentoring programs, use of retirees and organizational learning and training. Using pilot programs to learn and expand their efforts, together with measuring the effectiveness, will help them design and expand programs with the greatest likelihood of success. With the support of top leadership, utilities will be able to successfully meet the challenge ahead.

KEYWORDS

Knowledge Retention, Knowledge Management, Mentoring, Document Repository, Tacit Knowledge

INTRODUCTION

The fact that utility workers will be making an exodus from the wastewater industry as they retire is now common knowledge. While the demographics vary somewhat from state to state and utility to utility, most utilities will lose the majority of their current staff within the next ten years. Further exacerbating this issue, a recent research study has shown that the average utility worker has spent two-thirds of his or her career at the same utility (AwwaRF/WERF, 2005). Therefore, departing workers will be taking significant and critical knowledge that they have learned during their long tenure with the utility with them when they retire.

WHAT IS KNOWLEDGE MANAGEMENT?

APQC (formerly the American Productivity & Quality Council) has conducted extensive research on knowledge retention and knowledge management focusing particularly on the private sector. APQC defines knowledge management as a systematic approach that integrates people, processes, technology, and content to enable information and knowledge to be created

and flow to the right people, at the right time, so that their work and decisions add value to the mission of the organization (APQC, 2002).

In order to understand what strategies, techniques and approaches may be used to manage knowledge and to deal with knowledge loss, it is useful to understand that there are different types of knowledge. For example, knowledge may be defined in terms of whether it is exposed to the individual or to others, as illustrated in Figure 1.



Figure 1. Four Types of Knowledge May Be Defined By Awareness

As shown, knowledge may be explicit, evident, implicit, or tacit. All types of knowledge may be important to the organization and may be negatively affected by the departure of retiring workers. Explicit knowledge is knowledge that can be readily written down, such as a Standard Operating Procedure. Tacit knowledge is knowledge that cannot be readily written down because the individual is not even aware of or able to articulate the knowledge. An example of tacit knowledge is riding a bicycle. Although the basic instructions may be readily written, it does not fully transfer the knowledge needed to ride a bicycle. Demonstration, and experience through trial and error are generally necessary to be able to successfully ride a bicycle. Evident knowledge is knowledge that is unknown to the individual but others are aware of. For example, an experienced maintenance mechanic is able to listen for certain sounds to know when to repair a pump – he may not be aware he is doing that but others can see evidence of his skill. An example of implicit knowledge is “know-who”, knowing which individuals to go to, to get certain work such as an approval, or project completed. Although the field of knowledge management generally focuses on explicit and tacit types of knowledge, understanding the four types of knowledge is useful to the development of effective knowledge retention strategies.

WHAT CAN UTILITY MANAGERS DO TO RETAIN VALUABLE KNOWLEDGE?

Utility managers may be tempted to think that the solution to knowledge loss is to simply “write

it all down.” However, given the types of knowledge as described above, many critical types of knowledge may not be easily documented. In addition, knowledge is not a static concept so a written format may not be the best way to retain or transfer knowledge. In the training field, it is common to think in terms of “teachable moments” when trainees are receptive to being taught. Similarly, knowledge must be delivered to the right person at the right time to add value to their work, as defined by APQC.

There is a great deal that the wastewater industry can learn from other industry sectors that have been focused on solutions for knowledge management and knowledge retention. Every sector is experiencing similar knowledge losses due to retirements and the “Baby Boomer” demographic. Industries as diverse as oil and gas exploration and the United States Navy have focused extensively on knowledge retention for the last 10 years or more.

A CASE STUDY: TVA

One organization that has been at the forefront of knowledge retention and transfer is the Tennessee Valley Authority (TVA.) TVA is a federal corporation established by U.S. Congress in 1933 to “reduce the risk of flood damage, improve navigation on the Tennessee River, provide electric power, and promote agricultural and industrial development in the region.” TVA is also the United States’ largest public power company. TVA operates 11 coal-fired, 3 nuclear, and 29 hydropower facilities. TVA receives the majority of its approximately \$8 billion in revenue from its ratepayers. Its workforce comprises 12,300 employees. TVA built the majority of its power plants and transmission systems in the late 1960s. Significant numbers of employees began retiring in the late 1990s.

While employees do not always take retirement as soon as they are eligible, TVA has replaced 30 percent of its work force in the last five years. In addition, 30 percent of employees are eligible to retire in the next five years with a peak in December 2008. These retiring TVA employees have the significant collective knowledge acquired from having built most of the plants, and operated and maintained them along with 17,000 miles of associated transmission lines.

At the same time, like nearly every sector, TVA is experiencing increased competition for talent. There is a smaller pool of available labor to replace retiring employees, especially in the crafts. Further challenging the situation, TVA is attempting to time replacements to reduce their overall labor costs while maintaining continuity of operations.

TVA has developed an overall strategy to deal with knowledge loss. They annually survey their employees to ask them about their retirement plans for the coming year. This voluntary survey has an 80 percent response rate. TVA encourages response to the survey as a way for employees to “leave a legacy” and for TVA to plan for continued reliable operations. TVA considers that the employees’ responses to the survey are nonbinding and may be changed at any time. They stress that the responses are used for planning only, and not for decisions affecting specific employee employment opportunities.

For employees who plan to leave the organization within the year, TVA then analyzes with the

employee and his or her manager what unique or critical knowledge that employee has. TVA asks a variety of questions including general, task based, facts and information, and pattern recognition/lessons-learned types of questions. With this information in hand, TVA determines the importance, immediacy, feasibility and transferability of knowledge. TVA then identifies what issues to ignore, correct with minor effort, or take immediate action.

TVA then takes appropriate action to retain the knowledge by:

- Documenting the knowledge,
- Transferring it to others using people-to-people approaches,
- Identifying alternative resources,
- Reengineering the need for the knowledge,
- Transferring it using education and training.

To document the knowledge, TVA develops procedures, checklists or inventories may be developed. TVA has also developed a performance support system to document employee knowledge, skills and abilities.

Secondly, TVA considers people-to-people approaches to transfer knowledge, especially tacit knowledge that is not easy to document. TVA uses approaches such as communities of practice or peer groups. Communities of practice are groups of people who interact virtually and face-to-face for the purposes of sharing knowledge. They may have a goal of helping each other by sharing experience and advice, innovating, or developing best practice within the organization.

Third, TVA determines whether there are alternate sources for critical knowledge. For example, they may draw from other departments or facilities, utilize rotating or “visiting” staff from other parts of the organization, use multi-skilling or cross-training to broaden knowledge, or use contractors, part-time employees, or even the retirees themselves.

Fourth, TVA looks at whether the need for the knowledge can be “reengineered.” For example, if a departing worker has knowledge of how to operate or repair a unique piece of equipment, it may be preferable to replace it with new equipment rather than needing to retain the knowledge.

Fifth, TVA takes a comprehensive approach to organization training and development. Their training program includes the following elements:

- Classroom training
- Computer-based and video-based training
- On-the-job training and targeted work assignments
- Coaching, shadowing and mentoring
- Formal apprenticeship programs.

APPROACHES FOR WATER UTILITIES

Recognizing the impending loss of knowledge, the Awwa Research Foundation has undertaken a number of studies on the issue of knowledge retention. Most recently, the authors have been

involved in an ongoing research project that began in November 2005, entitled “Strategies to Help Drinking Water Utilities Ensure Effective Retention of Knowledge.” The final report for this project will be published in 2008.

The project began with a review of the extensive literature published to date on the knowledge retention challenge. The project has drawn extensively upon the work on knowledge management in other sectors to adapt strategies, tools and approaches for retaining critical knowledge for water utilities. Participant utilities have contributed their previous experience, as well as experience gained by designing pilot knowledge retention projects.

This research is defining guidance on how best to use several key knowledge retention tools – including Document Repository, Mentoring, Use of Retirees, Organizational Learning, and Training.

Document repositories are organized and systematic means for capturing explicit knowledge. Repositories can include documents such as Standard Operating Procedures, checklists, and expert locators. Often, document repositories will be electronic in nature, and may use a content management system such Documentum or Xerox. In order to be used successfully for knowledge retention, true repositories should allow users to find relevant documents with “one or two click” access. For this reason, documents should be stored based on a formal taxonomy for easy search and retrieval. Very often, the documents will have metadata (descriptive data such as key words) in order to ensure easy retrieval. A process for updating relevant documents is also very important.

Many utilities may already use informal mentoring as a method to transfer various types of knowledge. However, relatively few utilities use formal mentoring for leadership development purposes, or specifically for knowledge transfer purposes. Mentoring is an important and effective knowledge retention approach, particularly for evident, implicit and tacit knowledge. While mentoring is more commonly thought of in terms of transferring managerial, operational or technical knowledge, it can transfer important understanding of the organization particularly in the area of cultural knowledge. To start a formal mentoring program, a supporting infrastructure should be provided to match mentors and mentees, provide initial and ongoing training, and to manage and coordinate the effort.

Use of retirees can be an effective way to retain and transfer critical knowledge if it is part of a planned work program. The ability to bring retirees back to the organization as full or part time employees or as contractors varies significantly by state and utility. The key to using retirees effectively is to plan for knowledge transfer as an intended goal of their work. In this way, using retirees avoids being a stop-gap measure. Some utilities use retirees to document valuable knowledge, through developing Standard Operating Procedures or entering data into Geographic Information Systems. Some use retirees as mentors or coaches for their replacements, or for teaching in apprenticeship programs.

Organization learning and training is training which is inherently focused on knowledge sharing and transfer. Such programs will likely include a blend of approaches such as traditional classroom type training in combination with computer-based or video-based training. On-the-

job training using a structured format is also important.

In designing a program for knowledge retention and transfer, utilities will likely need to focus initially on the most critical areas of current or impending knowledge loss. Most organizations find that there must be a burning business need in order to commit the resources needed. Using a pilot program approach can be an effective way to start a program to learn from that experience. Measures can be developed to track the success in terms of knowledge transferred and retained. Lessons learned can be incorporated to tailor the program to expand it to other parts of the organization. Overall, it is important that top leadership support the program to ensure its success.

CONCLUSIONS

Utilities are faced with unprecedented knowledge loss in the next decade. In order to successfully cope with this exodus, utilities will need to use a variety of approaches to capture, retain and transfer critical knowledge. While utility managers may be tempted to just “write it down” as a solution, a blend of different types of knowledge retention and transfer approaches will be necessary to deal successfully with the challenge and capture all the types of knowledge critical to their organization.

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