

Information Technology Applications To Acquire, Store, and Share Knowledge

Information Technology (IT) applications are not viewed by the agency as knowledge management practices, rather as a means to facilitate, accelerate, and enhance the agency's knowledge management practices. None of the IT applications are intended as replacements for the direct person-to-person connection that is necessary for transferring implicit knowledge, particularly for transferring tacit knowledge. However, new knowledge continues to be created at an accelerating pace and IT applications are effective means of capturing, sorting, storing, and disseminating this knowledge and information to maximize the effectiveness of the staff.

Connecting People

On-Line Information Sharing

On-line information sharing describes a range of technology applications and infrastructure used to share information electronically. The applications typically include web sites, which contain previously defined information such as the agency's KM Web site; list servers, which automatically send messages to individuals who have subscribed to particular topical areas, such as the Operating Experience List Server; newsgroups, which allow questions and follow-up answers to be openly posted; chat rooms, which allow real-time electronic interaction among users; and searchable databases and document repositories, like the ADAMS and Licensing Support Network document repositories.

Under the agency KM program the staff will be provided with cost-effective access to technical Web sites that exist outside of the agency such as the online International Journal of Nuclear Knowledge Management, the International Atomic Energy Agency Nuclear Knowledge Portal, and the Nuclear Energy Agency Web site. The staff will also explore IT solutions to enhance the effective online sharing of information that may require development of additional IT infrastructure or employing indexing software such as Google.

Accelerating Learning

Expanding e-Learning (Computer-based Training)

The agency accepts that e-learning (computer-based training) is not a universal replacement for traditional, classroom instruction but in many instances can more effectively deliver just-in-time, focused learning solutions. Often, delivering training courses through learning solutions that combine a mixture of e-learning and traditional learning (blended learning) accelerate the rate at which new employees achieve the first levels of functionality.

Under the agency KM program the staff will continue to identify and separate the training objectives that can be delivered through e-learning applications from those objectives that are more effectively delivered through more traditional methods. The agency is currently implementing a Learning Management System (LMS) as both the training records system and as an access portal to e-learning courses. The training modules that the agency currently delivers through e-learning, including Allegation Training and the Computer Security Awareness

Course will be incorporated into the Learning Management System in the second quarter of FY 2007. Additionally, the staff is planning to expand the availability of e-learning solutions by investigating the computer infrastructure requirements needed to support a state-of-the-art desktop Web conference capability.

Capturing Knowledge

Electronic Repositories

The agency currently uses a number of electronic repositories to capture and store knowledge and information in explicit (documented) form. Among these are document management systems such as the Agencywide Documents Access and Management System (ADAMS), the Licensing Support Network (LSN), and databases for storing unique information like the Commission Decision Tracking System (CDTS). Many of the individual offices and regions also capture and store knowledge and information in local electronic repositories such as Web-based portals and independent databases.

As part of the agency KM program independent databases and on-line repositories will be linked through office and regional knowledge portals and communities of practice Web sites. To support a goal of opening access to these repositories to the whole agency, more robust document management systems and search engines will be investigated.

Google-like Search Engine

The staff is exploring new search technologies for the ADAMS database and for the NRC intranet. The staff's goal is to eventually have in place an agencywide IT tool that provides search capabilities similar to that of the commercially-available Google application.

Communally-authored Encyclopedia (e.g., Wikipedia)

The staff will explore using a Wikipedia-like knowledge capture and sharing tool. Wikipedia is a Web-based communal encyclopedia that is written and edited collaboratively. Capturing of knowledge and knowledge bases, from Subject Matter Experts (SMEs) or literature collections and annotations, may be codified using a combination of semantic web technologies and digital knowledge bases. In particular, Web document annotation tools, collaborative learning and writing software similar to those used by Wikipedia, could possibly be provided to employees to annotate their documents individually, to facilitate collaborations in document authoring and reviewing, and/or to coordinate research efforts.

Knowledge Mapping

Identifying Occupational Priorities and Critical Bodies of Knowledge through Strategic Workforce Planning

The staff uses the Strategic Workforce Planning (SWP) database to perform an important knowledge management function at NRC by serving as a map of the agency's skills and knowledge. Because the principal use of SWP is as a skill and knowledge inventory, it can be

used as a tool by supervisors to identify or project gaps in the agency's critical competencies. That information is subsequently applied by the offices and regions to direct recruitment and staffing activities, to prioritize the expenditure of training funds, and to identify critical skill shortages for development programs such as the Graduate Fellowship Program.

Currently, the SWP tool does not support the identification of the agency's occupational priorities and critical bodies of knowledge. As a part of the agency KM program, the staff intends to explore modifying the SWP tool to automate those functions.

Knowledge Resource Locator (Expert Yellow Pages)

One of the more straightforward approaches to facilitating knowledge transfer, particularly for the tacit knowledge items that are difficult to otherwise capture and disseminate, is person-to-person transfer between experts possessing the specific knowledge item and individuals seeking the knowledge. Individuals seeking specific knowledge items, especially those who are new to the agency, may expend significant time and effort just in locating the experts who possess the knowledge.

A widely-used and effective approach for connecting knowledge seekers with knowledgeable experts is a knowledge resource locator database. A knowledge resource locator, also called an expert locator or expert yellow pages, provides a matrix that lists the contact information for agency experts organized by occupational priorities and critical bodies of knowledge. Some agency organizations have developed locator lists specific to their organization but the information is neither standardized nor centralized.

As part of the agency KM program the staff is investigating using the SWP to develop a knowledge resource locator of both technical and nontechnical experts that may be made available agencywide as a Web-accessible report through the NRC Intranet and potentially via the NRC Public Web page.