

Do you know what you know?

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Long derided as a meaningless buzz phrase, knowledge management can help program managers harness complex chains of software.

The instruction was clear: “No new data entry from the field.”

When the Coast Guard leadership gave the go-ahead to Commander Janet Stevens and her team to develop a new readiness management system, they made it explicit they did not want to create new work for existing personnel. The Coast Guard needed a system that would automatically assess how ready it was to respond to emergencies and promote maritime safety, but it didn’t want people who might know the situation best to be inconvenienced. “The field had enough burdens from reporting requirements,” Stevens said.

So Stevens and her team fashioned a solution that drew data from 11 different existing Coast Guard data sources. They brainstormed and came up with 400 metrics that could be used to measure the readiness of a particular unit, division or person. The metrics included everything from whether or not a ship had the required number of replacement parts onboard, to whether an individual had completed a scheduled dental checkup. Every night the system ingested the data and returned summary reports.

Although reporting results based on such metrics has long been the job of standard business intelligence software, Stevens found that producing the Coast Guard’s readiness reports was only the first step in what she wanted to do.

“We’re weaving together portals, search, security, business intelligence, maps and data warehouse technologies in a way that users can quickly and easily make decisions and manage their readiness,” Stevens said.

How the Coast Guard and other agencies accomplish these goals often depends on a much-hyped, equally maligned and constantly evolving field of software.

Whither knowledge management

Getting the right information to the right people has long been the purview of an amorphous technology field dubbed knowledge management. Those who have been in IT for a while might even roll their eyes at the buzzword. Knowledge management was heavily hyped in the mid-1990s, with every vendor rebranding their products as knowledge management solutions, diluting the phrase so it held little or no meaning.

“The earlier generations of knowledge management were all attempted in totally proprietary systems. And that’s what killed a lot of them,” said George Kondrach, executive vice president of Innodata Isogen Inc. of Hackensack, N.J. Innodata helps organizations build knowledge management systems.

Today, managers are seeing a huge influx of new data-generating technologies, many using open standards. Web logs and Wiki software can be used internally to allow employees to share information. Portals give organizations a conduit to reach their workers. Business intelligence and data mining tools can analyze raw data. Although all are useful, no single application can encompass all the data management needs of an organization. The responsibility falls to the program manager to architect a series of technologies to address the problem at hand. Knowledge management can help.

“The use of our technology has typically been around a single domain, such as human resources or a specific application. What [customers] are doing now is taking a more sophisticated approach. They’re asking much more complicated questions,” said Terence Atkinson, director of public sector solutions at Cognos Corp. of Burlington, Mass., which supplied the business intelligence tool for the Coast Guard’s readiness system.

Ten years ago, knowledge management gurus focused on the newfound powers of networks, preaching how they could be used to collect an enterprise’s data into one spot, making it available to all.

“Someone would only need to access this great repository from any place in the world and would have access to the knowledge of the entire firm,” recounted Douglas Weidner, chairman of the International Knowledge Management Institute, a trade association supported by knowledge management product vendors.

Simply aggregating knowledge turned out not to be enough, however. The person requiring data from such a great repository would be seeking the proverbial needle in the haystack. More recently, knowledge management thinkers have shifted their focus to how to manage the processes that create and discover information.

“It’s what we do with the knowledge,” Weidner said. “The bottom line is that there are multiple knowledge processes that we [go through]. It is those things that we can manage, not knowledge itself.”

Mapping how knowledge happens

Of course, knowledge management was never exclusively about technology. Brainstorming sessions, after-action reviews, organizational changes and other nontechnical approaches all help better tease knowledge from a group. Organizations such as Weidner’s Knowledge Management Institute offer courses in how to plan the flow of knowledge through a complex environment.

But the concepts of knowledge management can also help federal agencies design smarter information systems. For instance, the Naval Network Warfare Command recently built a virtual knowledge repository, one targeted exclusively to new program managers. This Web-based repository serves as a one-stop shop for Navy personnel looking for new technologies, or as Lt. Cmdr. Mark Preissler called it “a convergent high point for IT knowledge within the department that the different agencies and commands within the Department of Navy could tap.”

Originally developed by the Department of Navy Business Program, and now overseen by the Space and Naval Warfare Systems Center, the repository has multiple components. The repository connects to databases of technology pilots conducted by the Navy and the Defense Department. The system also allows vendors to submit descriptions of their software, and even

tracks the latest industry news through Really Simple Syndication feeds.

Previously, a program manager seeking new technology might have had to seek out all this information through different conduits, an approach that would all but ensure he or she might overlook some possibilities, either from industry or government. A portal assembles all this information in one place. The team also developed software that translates the technical details into a terminology described in the Defense Department IT Portfolio Repository, cutting out the geek speak that might confuse potential users of the technology. In the end, an entire knowledge discovery process was automated.

The idea was “to take business process talk and translate that into technology talk, so we can start forming partnerships,” Preissler said.

Elsewhere in the Navy, the Office of Naval Intelligence was also battling the problem of getting the right data in front of the right people. Like many agencies, ONI knew it had plenty of data, but analysts weren’t seeing it.

John Becker, head of the knowledge management group for ONI’s command knowledge officer, described the frustration this way: “One of the problems we’ve had over the last few years is that people who needed to know [something] didn’t even know that they needed to know it.” To make matters worse, Becker said, analysts “didn’t know that there was information there to know.”

Today Becker oversees an effort to use so-called topic maps as a way of helping analysts carve more quickly through the mountains of data at their disposal. Generated with the Extensible Markup Language, topic maps outline a field of study, illustrating how the various elements fit together. The office has developed, with the help of Innodata Isogen, a prototype topic map for a single broad category.

Analysts use a portal to search through the Navy’s databases, image files and reports. The portal’s search engine consults the topic map for help in ordering the results, pushing the most relevant items to the top. Unlike simple taxonomies, a topic map can be used to present information based on a perspective the user specifies, Becker said.

“We need to place information in the right relational context to create knowledge, so that the [analyst] understands the impact of that knowledge,” Becker said.

Although ONI is currently using only one topic map, Becker foresees ONI creating others as new areas of interest emerge. The office is even considering dedicating a couple of full-time workers to creating topic maps for various areas of concern to ONI analysts. One topic map could reach across multiple sources and be used by other intelligence agencies to make sense of ONI data. And once created, the topic map could also be used to help get new analysts up to speed on a particular topic, as the map offers a ready-made outline of the topic, Becker said.

“Topic maps are a way of dealing with knowledge,” Becker said.

As the Navy programs illustrate, today’s knowledge management concepts force system builders to focus on tailoring information for end users. It’s a task that goes beyond simple system architecture, Weidner said. The program manager must figure out how to get people to share their knowledge and how to transform that data into useful knowledge for others.

“We look at our vision first and then look for the technology to support it, rather than the other way around,” Becker agreed.

The Coast Guard also found that the analysis of their end users’ needs proved invaluable to their readiness systems design. Stevens’ team utilized sophisticated taxonomies that long predated the Web: the Coast Guard chain of command. By knowing the rank and job assignment of the person logging in, the system could personalize the information—what material that person was allowed to see, what readiness standards or performance goals they had to meet—and deliver that person’s own readiness assessment “within a click,” Stevens said.

Connecting the dots

“It’s a shortcut to knowledge. We can say ‘I know who you are.’ [Now] why not take the information we know you need to better manage your readiness, and deliver it to you in the format you need, through a system you already use? That will create knowledge rather than just information,” Stevens said

This personalization, in turn, improves readiness, Stevens found. One measure of a unit’s readiness is whether personnel have gotten their required medical checkups. An individual who hasn’t had his yearly dental update, for instance, would see a red light on his personalized portal page. Moreover, that person’s manager would also see the delinquent appointment.

“I’m a believer in knowledge management, though I’d probably come up with a better term for it,” Stevens said. “Maybe call it enterprise intelligence.”