Will the Academy Learn to Manage Knowledge?

Knowledge management can improve academic effectiveness and accountability—if campuses can overcome their constraints

By **Charles T. Townley**

Knowledge management offers information technology practitioners a leadership opportunity to address higher education's two greatest challenges—effectiveness and accountability. Knowledge management can establish research and scholarship as tangible organizational assets. Practitioners can use knowledge management techniques to make support services more responsive to user needs. Knowledge management can also help ensure assessment results that demonstrate accountability and justify social support for higher education. By providing knowledge management leadership, IT practitioners can strengthen their roles in the academy, using knowledge to improve organizational effectiveness.

Yet to date, the academy has been slow to adopt knowledge management. Higher education is both scholarly and operationally knowledge rich, an environment where it can be difficult to identify which knowledge assets are critical to manage. Further, the decentralized nature of departments and operational units impedes focusing knowledge management development. Finally, scholarly respect for knowledge and a desire to ensure academic freedom make most institutions reluctant to manage knowledge of any sort. These constraints lead some to wonder if the academy will learn to manage knowledge.

But are these facts of academic life really constraints or are they perhaps opportunities? Individual scholars frequently manage personal knowledge assets in ways that support creativity and academic freedom. IT practitioners can learn from these pioneers and gain faculty support.

IT practitioners often design specific knowledge-based applications that further the goals of scholars and institutions. By adding a knowledge management component, IT applications can develop knowledge critical to organizational outcomes. Academic organizations can learn to disseminate the vast array of scholarly knowledge proactively to ensure the social role of higher edu-

cation in society. By focusing on creative knowledge management applications for institutions, I believe the academy can learn to manage knowledge while helping institutions demonstrate academic effectiveness and accountability.

Knowledge Management and Learning Organizations

In higher education, knowledge management can be defined as the set of organizational processes that create and transfer knowledge supporting the attainment of academic and organizational goals. Knowledge management is an emerging area of IT practice that developed from the disciplines of computer science, library and information science, organizational psychology, and management. It addresses knowledge developed as a part of scholarship, operational knowledge developed through support services, and knowledge developed through assessment. Regardless of its source, knowledge management relates knowledge to institutional missions and to individual goals of scholars in ways that lead to increased organizational accountability and effectiveness.

Knowledge management has emerged over the past 10 years as organizations seek to increase their effectiveness. Business organizations with large knowledge assets have led the effort, including IBM, Dow Chemical, and Microsoft, as well as consulting groups like McKinsey and Cap Gemini Ernst & Young. As Lew Platt, then CEO of Hewlett-Packard has said, "If Hewlett-Packard knew what Hewlett-Packard knows, we would be three times more profitable." Knowledge management is also growing in the public sector as public organizations, including the Department of Commerce and the General Services Administration, seek to improve their effectiveness in the face of public demands for accountability and growing competition from the for-profit sector. Expenditures on knowledge management in the United States exceeded $200 billion in 2000 and are growing.

Thomas Davenport's meta-analysis of knowledge management research indicates that "knowledge is created invisibly in the human brain and only the right organizational climate can persuade people to create, reveal, share, and use it."[1] Davenport believes that knowledge management is most effective in learning communities, defined as those organizations with shared vision and practice, flat organizational relationships, and a sense of community characterized by empathy and trust.

An academic institution is more likely to demonstrate the characteristics of a learning organization than a business or government organization. Higher education institutions share a common vision—discovering and transferring knowledge. Structurally, academic organizations have comparatively few levels of authority. They use broad spans of control and have a legacy of shared governance. Most knowledge is retained in individuals' heads or personal files. Faculty, students, and others transform and transfer knowledge resources through the collegial functions of teaching, research, publication, service, and assessment. Such collegial activity involves trust and empathy.[2]

Knowledge management helps learning organizations increase organizational effectiveness through the application of useful knowledge and accepts the notion that knowledge creation and transmission are primarily human activities that can be enhanced with technology. Thus, in higher education, knowledge management is the art of creating additional value from selected organizational and academic knowledge assets. Given the large role of knowledge in higher education, knowledge management has significant potential to improve academic effectiveness and accountability.

Drawing on multiple technologies, knowledge management organizes and exploits knowledge to achieve personal and organizational objectives. Davenport indicates that successful knowledge management projects emphasize selectivity and quality to avoid drowning in growing seas of data. Successful knowledge management techniques are applied selectively to strategically important efforts that show promise of attaining significant organizational objectives. Technologies used must be appropriate to the tacit or explicit knowledge being transferred. Speed is also important, given the need for increased responsiveness and shorter cycle times. Training and support for the adoption of new knowledge and learning behaviors are perhaps the most essential and costly part of any knowledge management application.

As the pace of academic change increases, information and knowledge that used to be concentrated in one person or process over a long period of time are increasingly held by multifunctional teams, with limited life spans, using constantly changing processes and operating in dynamic learning communities. Interdisciplinary research, collaborative learning, and interdepartmental task forces have become the order of the day in higher education. As people change their roles and positions with increasing frequency, knowledge management becomes more important as a means to retain and transfer essential knowledge.

Examples of Knowledge Management

Early adopters in higher education are taking an incremental approach to knowledge management. Higher education institutions throughout the United States and abroad are implementing discrete projects. Examples addressing scholarly knowledge follow:

- Step-wise software like KnowledgeLEAD is being configured to build optimal research teams by using knowledge of research interests and activities collected from résumés, curricula vitae, and publication files. Team members are identified on the basis of what complementary skills they bring to the team. The resulting team is the best mix of skills and abilities available.
- Organizational designers are helping research organizations like the National Bureau of Standards increase the flow of scholarly knowledge from one unit to another through organizational changes combined with the creative use of intranets and other technologies.
- Web-based learning technologies like

WebCT and Blackboard contain basic knowledge management components that permit instructors to monitor some learning activity, such as reading electronic reserves and communicating on team assignments. This knowledge allows instructors to provide more targeted and effective teaching.

- Formal mentoring programs have been established to facilitate the transfer of tacit research and organizational knowledge from one worker to another.
- Knowledge management software is part of research portals supported with software like Oracle, used to create knowledge by analyzing the research interests and search patterns of clients.
- Library software at Rutgers University has been modified to create knowledge about faculty and student research interests. This knowledge guides librarians in the design of new services and acquisitions so that the library more accurately reflects the research interests of faculty and students.
- Fuzzy logic is being embedded in bibliographic software, like Voyager, to create relevancy searching capability that lists citations in order of probable usefulness.
- Profiling software like that available on Amazon.com is being developed for bibliographic software to guide scholars to useful knowledge.
- Citation indexes like Science Citation Index now contain knowledge software that allows scholars to identify the structure of knowledge and to measure the impact of specific publications in a self-defined research field. This knowledge can then be used to design more-focused research.

Knowledge management can also be used to improve operations, as the following examples illustrate.

- Intelligence products, like SPSS WebApp and WebFocus, allow IT and other personnel to use explicit data, often from data warehouses, to create knowledge to guide institutional activity.
- Intelligence products developed in house are being used at institutions like the University of Washington and Tufts University Medical School to optimize information flow, support organizational learning, and improve the quality of decisions.
- Some research organizations are documenting both explicit and tacit knowledge to create "big books" containing essential knowledge for key operations, especially those with rapid personnel turnover.
- A growing number of universities are managing intellectual property as an asset. Most of these efforts seek to reward those units and individuals who create commercially viable knowledge and to increase institutional return on investment.
- Knowledge management programs can be used to automatically respond to prospective students, providing encouragement, guidance, and additional information. Frequently, these programs are part of student portals and are intended to increase enrollment and retention.
- Student management systems like the Sallie Mae financial system are adding knowledge management components to guide students and staff through the complexities of admissions, registration, and financial aid. In these applications, knowledge management is used chiefly to improve system performance, resulting in increased satisfaction and student retention. These systems also generate useful knowledge for student and academic planning.

Seven Factors for Success

To date, knowledge management efforts in higher education have been discrete and usually small in scale. As knowledge management products are tested and improved, I expect knowledge management activities to grow in number, but to remain discrete. During this first period of development, as organizations learn how to use knowledge management effectively, knowledge management and IT practitioners will informally collaborate and share. At some point a critical mass of knowledge management activity will occur, initiating a second phase of development. Formal responsibility for knowledge management will be assigned, resources committed, and formal relationships established. In some cases this formal responsibility will go to an established IT practitioner and unit, like the computer center or library; in other cases a new organization will be created. In both instances it is likely that a chief knowledge officer and an advisory structure will be created to lead knowledge management development.

Whatever organizational arrangement is made, it is clear that heavy participation from many IT personnel will be required.

- Programmers will write code or modify off-the-shelf software.
- Systems administrators will support operations.
- Catalogers will create metadata to organize knowledge.
- Trainers, institutional researchers, and reference librarians will interact with the public and help them use the knowledge.
- IT administrators will coordinate and guide assessment of knowledge management activities.

Research on knowledge management projects in knowledge-rich organizations now amounts to more than 50 research studies. Results of these studies indicate that seven factors are critical for success.

1. Institutional leaders must identify knowledge management as a priority and encourage participation throughout the organization. Faculty, in particular, must come to believe that knowledge management programs will enhance their academic activity. Faculty must also perceive that their investment in knowledge development will lead to the attainment of personal as well as organizational goals. IT personnel can help in this process by advocating for knowledge management projects, by directing IT resources to support appropriate ones, and by demonstrating their accountability to institutional leaders

and to faculty. As learning organizations, institutions will recognize the value of knowledge management.

2. Training and practice for knowledge management projects must be provided. Trained and supported knowledge management participants are the key to successful organizational learning and the eventual adoption of knowledge management across the institution. When knowledge management projects involve technology, scholars and support personnel will need to be trained in the use of that technology. IT personnel can provide support for this process either through direct training or train-the-trainer programs.
3. Knowledge management projects must use existing data sources first. No one is eager to enter data twice. Redundant data is both useless and expensive. As frequent keepers of data warehouses and data malls, IT personnel will be critical for identifying and using explicit data throughout the institution. Given their institution-wide presence, IT personnel are in a position to propose effective means of identifying, obtaining, and using tacit knowledge in knowledge management projects.
4. Knowledge management must relate to personal and unit goals and be applied at that level. IT personnel should help ensure that projects address immediate needs of individuals and units as well as any "big pictures" of the organization. Rewards systems for individuals and units must recognize efforts to make the institution more effective and accountable through the appropriate use of knowledge. Scholars who see a direct connection between their academic interests and knowledge management projects are more likely to support them.
5. Knowledge management will likely work better in learning organizations where knowledge sharing and collaboration are the norm. Given the collaborative nature of their work, IT practitioners are in an excellent position to influence the adoption of learning organization principles throughout an institution. IT practitioners can lead by example. Adopting learning organization principles has the advantage of reinforcing the IT role throughout the institution while simultaneously increasing knowledge management learning.
6. As knowledge management reaches a critical mass, overall coordination is required. Some entity must have authority and assume responsibility to direct resources, reduce redundancy, share best practices, and assess results. Inevitably, IT personnel will be involved as knowledge management leaders and participants.
7. Fundamental changes in organizational philosophy and practice, like knowledge management, are evolutionary and take time to develop. IT personnel must develop a taste for strategy and accommodation if knowledge management is to succeed in helping institutions of higher education learn to demonstrate effectiveness and accountability.

By ensuring that these factors exist at their institutions, IT practitioners can help the academy learn to manage knowledge. The resulting organizational accountability and effectiveness will benefit everyone involved in higher education. *e*

Endotes

1. T. Davenport, D. DeLong, and M. C. Beers, "Successful Knowledge Management Projects," *Sloan Management Review,* Vol. 39, Winter 1998, pp. 287–300.
2. C. Argyris, "Teaching Smart People How to Learn," *Harvard Business Review,* Vol. 69, May/June, 1991, pp. 99–109.

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