Institution-Wide Information Strategies

by Gerald Bernbom

This article continues work begun by the late Paul Evan Peters, founding executive director of the Coalition for Networked Information. The text draws on his thoughts, ideas, and early writings in the area of enterprise-wide information strategies, and on the input of an informal group of advisors that Paul had assembled from the library, technology, archive, and information resources professions.

“Information technology investments create no more advantage or productivity, by themselves, than do investments in new machine tools. It is not technology but technology-in-use that creates value. The value of information technology depends on information and the role of information in organizations.”

James McGee and Laurence Prusak, in Managing Information Strategically, John Wiley & Sons, Inc., 1993

The Coalition for Networked Information is undertaking a new initiative1 to better understand, describe, and promote institution-wide strategies for networked information resource and service development across five major dimensions: (a) technology platforms, (b) financial resources, (c) organizational and human resources, (d) policies and practices, and (e) strategic alignment (see sidebar, page 10). This article is an overview of institution-wide information issues, focusing on two major forces at work in the research and education institution: the network as an information and technology platform, and the network as an organizational structure.

An examination of institution-wide information strategies addresses the questions:
• How does an institution (such as a college or university, public agency, professional association, scholarly society, commercial firm) use information?
• How does this institution coordinate its activities and allocate its resources so that the use of information creates value for the institution in such areas as quality of service, user satisfaction, intellectual productivity and discovery, innovation, organizational efficiency, or others?

The network platform and the network organization

The issues of institution-wide information strategies are at the intersection of two powerful forces at work in the education and research institution: the rapidly changing network platform (telecommunication networks, network-centric computing, and networked information resources), and the emerging network organization, which is providing a flexible and responsive alternative to hierarchies and bureaucracies.

The network platform has become a catalyst of change in higher education. Network and telecommunication technologies deliver increasingly high-bandwidth, high-speed interconnections that enable communication and information sharing among people and places that are geographically, organizationally, and socially distant from one another. Network-centric computing—an emerging alternative to PC-based, mainframe-based, or even client/server information system designs—assembles diverse, interchangeable, and ever-changing software components into systems for the storage, transmission, and manipulation of information.

Networked information resources represent dramatic increases in the speed, reach, and range of information distribution, and in the volume of available digital information. New information media (interactive, hyperlinked, and multimedia) are becoming commonplace, and new conceptual forms of information (e.g., the active document or the visible, virtual information-space) are emerging. The intrinsically distributed capabilities of networked information resources have the potential to place everyone on equal footing as provider, consumer, broker, or value-added processor of information.

The network platform has introduced institutions to a rapid pace of change, high expectations, and a high degree of uncertainty. The
network organization is emerging as an organizational form adapted to rapid change and uncertainty. It is an organization that can (re-)assemble itself and align its resources quickly, unhindered by traditional roles and boundaries.

As an alternative to hierarchy, the network organization makes different assumptions about information and places different demands on an institution. In a hierarchy, information is concentrated in management positions, which function as decision and control points for the organization. Information in a hierarchy flows upward, where it is increasingly aggregated and synthesized, and decisions flow downward. In a network, decisions can be made anywhere, and the placement of decision-making can move in response to external events or internal initiatives. The information flow in a network organization can be up, down, or horizontal across traditional boundaries; most important is that information is made accessible where it’s needed and that this flow must be capable of change. Another view of the network organization is that decision-making will relocate and aggregate around those who have information, not vice versa. Network organizations also place high demands on coordinating information quality throughout the institution.

All organizations are networks to some degree, and many research and education organizations have a long tradition of distributed authority and some characteristics of a network structure. There are differences, though, between a network organization and a federation of independent agencies: the degree of communication among organizational units, the flexibility of resource assignment and the allocation of decision rights, and the accompanying flow of information needed to support these flexible and changing institutional arrangements.

Networks can also describe the relation of an institution to others in its external environment: suppliers, customers, regulators, competitors, and so forth. The analysis of these relations as a network for the creation and exchange of value leads institutions toward partnerships, collaborations, and strategic alliances. Here, too, information plays a vital role; shared knowledge is seen as one of the key determinants of a successful partnership.

Finally, and perhaps most fundamentally, information is at the heart of higher education’s research and teaching mission. The creation, distribution, and exchange of knowledge are its primary product. The network platform and the network organization are powerful forces whose value lies in their ability to promote this knowledge enterprise. CNI’s Institution-Wide Information Strategies initiative will seek to identify and advance the best institutional practices in this important area.

**Issues in institution-wide information strategies**

Until relatively recently only a small number of individuals and departments at any institution were experimenting with or implementing networked information resources and services, and typically these resources and services were relatively localized, supporting a small number of functions or users. This “proof of concept” period has now been followed by a new focus on “best practices,” identifying how networks can leverage the success experienced by these early adopters to the success of the institution overall. Colleges and universities are turning attention to institution-wide strategies that promote the integration of diverse resources and services, especially from the viewpoint of a user population that is increasing in size, sophistication, and level-of-service expectations. Institutions are looking for ways to make networked resources and services developed in one location available to others. And they are trying to forge institutional and organizational processes, practices, and policies that promote the sharing of information and the rapid and sure development of networked resources and services that fit this profile.

Among the enterprise issues that some institutions have identified are the following:

**Architectures vs. ecologies:** An architectural approach to information management is built from the top down, and selects technologies and information practices according to a rational design. An ecological approach allows for random variation, is built from the bottom up, and selects technologies and information practices according to their utility or “fitness.” Which approach does an institution take in establishing institution-wide information strategies? Or how are the best of these two approaches brought together in a single strategy?

**Balanced strategies:** The institution has many dimensions and many types of resources—technologies, finances, human resources, organizational structures, rules, policies, and practices—each with its own capabilities for the management and use of information. How does an institution establish a balance in relative importance among these resources, and reasonable expectations of each, in the development of institution-wide information strategies?

**Center/periphery relationships:** Some departmental systems operate as “shadows” of central systems, maintaining parallel but distinct information about the institution and its activi-
“How will the institution manage networked information resources so that the appearance of an integrated world of information is achieved?”

Institution-Wide Information Strategies: A CNI Initiative

The Coalition for Networked Information, through the Institution-Wide Information Strategies initiative, seeks to identify institutions who are thinking strategically about the management and use of information on an institution-wide scale and are actively engaged in applying these ideas to the information needs of their institutions. The initiative will bring these institutions into communication with one another so they can share their experiences while their work is still in progress and, in so doing, learn from one another, gain new perspectives on difficult aspects of their own work, and improve or expand upon efforts at their own institutions.

It is also the intent of this initiative to create a vehicle for sharing the experiences and insights of the participants. An outcome of the initiative will be analytic case studies of institution-wide information strategies at participating institutions. The collection of these case studies will represent a compendium of current best practices in the design and implementation of strategies that address a range of institutional information management challenges. Each case study will address one or many of a range of institution-wide information issues (see accompanying article). Additionally, five overarching issues involving information resource services and institutional strategies have been identified and will be addressed in all case study reports:

- **Information Technology Platforms**: institutional hardware and software infrastructures.
- **Financial Resources for Information Services**: institutional budgets, cost models, price structures, and financial plans.
- **The Information Professions—Organization and Human Resources**: the staff, skills, and organizational structures of the institution.
- **Information Policies and Practices**: the institutional rules and agreements.
- **Strategic Alignment**: the relation of information strategy to the mission and business strategy of the institution.

Finally, this initiative seeks to forge productive working relationships among a variety of information professionals in research and educational institutions and organizations. Among the information professions who might be expected to participate are: technologists, librarians, archivists and records managers, scholars and other “content specialists,” information system and information resource managers, institutional researchers, and others who depend upon the exchange and use of information in the course of their work.

The initiative will be launched with a “Call for Statements of Interest and Experience,” by which institutions will be invited to participate in and make a contribution to the project. More information is available at http://www.cni.org/projects/iwis/

How does the institution determine which is authoritative? How does the institution establish linkages and consistency among these systems, or enable the elimination of redundant systems?

**Checks and controls**: How does the institution establish responsibility for the accuracy and timeliness of data? Can the assignment of responsibility serve in lieu of time-consuming checks and quality controls?

**Cross-domain information flows**: Requirements, practices, and technologies may differ significantly from one organizational unit to another (e.g., from the dean’s office, to the faculty desktop, to the registrar’s office, to the student computer in the dorm). How does the institution enable, manage, or encourage the flow of information among these units?

**Converging information professions**: User service is a driving force for convergence among technologists, librarians, archivists, information systems managers, and others. How will the institution manage networked information resources so that the appearance of an integrated world of information is achieved? How will these information professionals deliver the reality of integrated information services to their diverse users?
Culture shift: Collaborations and partnerships can advance the mission of an institution and create the opportunity for innovation and improvement. How can the institution reward collaboration and assure that “protecting one’s turf” pays off much less than producing successful resources and services for the entire institution?

Customer service: What strategies are institutions taking so that customers are provided with the information, access to technology, and redefined processes needed so they may directly access services, without requiring an intermediary service representative?

Information politics: If information and knowledge are power, such power may not be freely shared or given away within an institution. What policies, practices, or other strategies work to promote communication and information sharing?

Life cycles: Information resources and services are continually adapted to new uses and purposes. How can the institution effectively anticipate future uses of resources and services, and design in flexibility throughout the life cycle?

Managing risk and preserving evidence: Electronic information systems are increasingly the sole source of evidence for an institution’s official acts and transactions; absence of such evidence can represent a significant institutional risk. By what strategies is the institution assuring that evidence of its actions will be accessible, and that a record of its most basic activities will be preserved for future administrative, regulatory, legal, and historical needs?

Results, not performance: The number of hours a service is available is not as important as the difference that service makes in the lives of its users. What strategies are institutions adopting to manage service levels from an outcome perspective?

User-centered design and usability: Successful information designs and information delivery systems depend on matching content and technology to a user’s real-life work tasks and information needs. How are institutions incorporating the methods of user-centered design and usability studies into their information management practices?

The preceding is by no means an exhaustive list, but the challenges mentioned are suggestive of issues that may be addressed by institutions participating in the CNI initiative.

Conclusion
CNI’s Institution-Wide Information Strategies initiative has four major objectives:

- To examine and describe the issues of information use and management on an institution-wide basis, and to promote understanding of the issues.
- To focus this examination on networked information resources and services, with special attention to collaborative institutional strategies and network organizations.
- To identify institutions which are developing best practices in this field, and to advance their individual work through collaboration with like colleagues from other institutions.
- To document and communicate these best practices to a wide audience, and so to promote improvements in the use of networked information resources and services.

It’s hoped that this article communicates the interest and enthusiasm that many of the Coalition Task Force have expressed about this initiative, and that it provides readers with additional motivation to participate in this effort or suggests ideas for pursuing these issues at their own institutions.

CNI offers a wealth of information on topics related to the challenges of the networked information environment. The CNI World Wide Web server, in particular, now offers an alphabetical index to the Coalition’s corporate archives, including most of the reports and white papers generated by CNI projects, as well as summaries of the Coalition’s Spring and Fall Task Force Meetings for the past several years. Take advantage of this excellent set of resources by visiting the CNI homepage (http://www.cni.org/).