

KNOWLEDGE MANAGEMENT IN 2010 - DESIRABLE

FUNDAMENTAL CONCEPTS

- The term 'knowledge' is used broadly and is meant to encompass the terms information and data. For example, the phrase 'knowledge environment' includes data files, clinical information, and scholarly publications.
- There are basic stewardship requirements for knowledge, information & data - storage, organization, preservation, intellectual and physical access, for example - that must now encompass many different forms of content.
- Management of the 21st Century knowledge environment requires many different kinds of expertise and credentials. To be effective, information professionals must acknowledge their common purpose and act collaboratively, however they are organized.
- The knowledge environment must evolve to protect intellectual property and personal confidentiality while assuring a basic level of easy access to digital resources. To achieve this will require legislative and regulatory action that assures the continuation of fair use for educational uses and defines parameters for access to information needed for health care.
- Well-conceived applications of information technology will be vital tools in eliminating disparities of health, wealth, education and ability. Legislative and regulatory action will be required to assure that all people have equitable access to communication networks, computers and information literacy programs.
- A knowledge environment is organized around the needs of individuals - teachers, students, patients, consumers, researchers, health care providers, program administrators. It delivers any format (digital, print, visual or audio), meeting the time and place requirements of the individual who will use the information. The concept of the library is a useful framework for designing the 21st Century knowledge environment.
- The information infrastructure, which encompasses intelligent devices and wireless connectivity, is both ubiquitous and unobtrusive. A convergence of communication media (network, phone, video, etc) will be necessary to achieve this state.

THE DESIRABLE FUTURE

COMMUNICATION & ACCESS: Individuals receive their primary information services through information portals, that provide access to a mix of digital resources and interactive personal services. Intelligent agents update these portals and provide suggestions for new additions of interest. Remote access is available without charge to core collections of electronic materials for each mission area (e.g., health professions education, health care, biomedical research. Access and authentication systems for those materials support access by non-traditional client groups. Clinical information systems and personal portals are the primary access point for library resources & services. A menu of Internet-only custom services (indexing, current awareness, publishing, archiving, interface design, software testing, and instruction) is also available. In-person assistance and call-in service desks are augmented by kiosks & Internet-based information services. New search and retrieval tools allow information seekers to design the environmental elements of an Internet search (e.g., specify the level of authority, format, audience level, location, etc.)

KNOWLEDGE, INFORMATION, DATA: There is a network-accessible cooperative system of institution-based knowledge resources - databanks, libraries, image repositories, simulation tools, clinical cases, multi-media archives, etc. - which includes materials that are unique or rare. Students and health care providers use reliable digital knowledge resources that are constantly updated with best evidence. All scientific articles contain embedded data files, analysis tools and other interactive components. All biomedical and health-related journals and current books are available and searchable in digital form. Individuals and organizations can obtain affordable access to digital information resources from a number of sources. Some institutions offer certification & repository services for scholarly digital manuscripts and data files produced by their faculty, staff and students. Screening mechanisms exist at the regional or national level for peer review and/or deposit of scholarly research in national digital archives such as PubMed Central. Patients routinely receive a selection of information services from their care providers.

ORGANIZATION & OPERATIONS: Health sciences centers have support staff available to help walk-in clients plus information professionals who are certified for their skill at computer-mediated communication, clinical information service, instructional design, research support and other technology-enabled functions. Knowledge resources and systems provide transaction analysis data that support customization of generic resources to fit individual preferences. Full text access to digital scholarly resources is supplemented by small collections of print materials. Older print materials are borrowed as needed from regional repositories. The basic research portfolio in all academic health organizations includes informatics/information science topics. Many alumni retain Internet-based benefits after they leave an institution, such as access to digital libraries.

PROCESSES & METHODS: There is a permanent organizational mechanism that (1) brings together an institution's information units (clinical IT, instructional computing, network, informatics) for planning & budgeting, research and development and (2) develops support and documentation for budget decisions about complex information systems. To support distance education and telemedicine activities, some institutions provide areas for secure, private access to web-based personal health information, for videoconferences with health care providers, and/or for interactive participation in video courses. Techniques for managing and mining enormous datasets are an important area of fundamental research. Some institutions have a central repository for faculty & student research data (e.g., lab notebooks, slides), which are digitized as needed. Evidence-based management is the norm, drawing upon transaction data and integrated management data sets. Information organizations (IT support groups, libraries, etc.) use cost/benefit data to evaluate and justify their service & expenditure levels.

ROLES: Information specialists, including informaticians and librarians, are directly involved in teaching and evaluating students, performing and guiding research, and serving as active members of clinical teams in their organizations. User groups for all resources & services in the knowledge environment have diversified to include the general public, local and distant. Real-time videoconference consultation with information professionals is available 24 x7. Credentialing programs for specialists who are cross-trained in information sciences, biology, clinical services and other disciplines, are offered via the Internet by a number of academic health centers.

RISKS, CONCERNS AND BLOCKING FACTORS

COMMUNICATION & ACCESS: The chief risk is that the knowledge environment will evolve in a way that excludes portions of the population from access and information delivery. A chief concern is that an individual's right to privacy will be compromised by unauthorized access to his/her personal information. A chief blocking factor is the need for convergence among communication media.

KNOWLEDGE, INFORMATION, DATA: The chief risk is fair use to digital materials for educational and health purposes will be constrained or lost. A chief blocking factor is that consolidation in the commercial publishing environment could constrain access to and increase the cost of valuable knowledge resources.

ORGANIZATION & OPERATIONS: The chief risk is continued erosion of the financial support base for the essential components of a robust integrated information infrastructure. A chief concern is that reduction of central knowledge services will result in higher overall costs for knowledge as individuals and departments sign licenses for localized access to digital tools & resources. A chief blocking factor is the need for robust mechanisms of authentication and authorization that can be tailored to local needs.

ROLES: The chief risk is that academic health institutions will not be able to find and retain the focused expertise needed to manage complex layered information architectures or integrated multimedia knowledge resources. The chief blocking factors are the financial competition between academic centers and industry for trained informaticians, programmers and information specialists.