HSLIC Strategic Plans   Administration

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UNM HSLIC Strategic Plan for Knowledge Management and Information Technology, FY2005-FY2007

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Historical and Administrative Collection   Administration

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UNM Health Sciences Center Strategic Plan for Knowledge Management and Information Technology, FY2005-FY2007

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UNM Health Sciences Center
3-Year Strategic Plan for
Knowledge Management and
Information Technology
FY2005 – FY2007

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1.0 Introduction

The purpose of this document is to present the University of New Mexico Health Sciences Center's Knowledge Management and Information Technology (KMIT) infrastructure and goals for FY2005 - FY2007 that support the long-range operational goals of the Health Sciences Center (HSC). Specifically, they support the Infrastructure Goals for Knowledge Management and Information Systems listed in the 1999 HSC strategic plan. They also support the FY2004 Operational Goals in the 20-Year Strategic Plan of the UNM HSC (http://hsc.unm.edu/about/strategic/), specifically the development of an IT infrastructure for statewide outreach and the continued development of state-of-the-art technology to enhance educational and research programs.

This document is the result of discussions with committees and stakeholders throughout the HSC. Progress toward IT goals must be routinely aligned with directions stated in this document and communicated to Health Sciences Center faculty, staff and administrators. Communication also must be facilitated between KMIT and the UNM Computer and Information Resources and Technology (CIRT) department with an eye toward university-wide integration and consolidation where appropriate.

The organizational structure supporting HSC-wide IT planning is based on Knowledge Management and Information Technology (KMIT) councils including: the KMIT Leadership Council, the Operations Council and the Advisory Council. The planning process also includes the UNM Hospitals Information Systems Steering Committee and the HSC Information Systems Directors group. These committees include representatives and stakeholders from across the Health Sciences Center.

The goals in this plan are expressed in terms of capabilities as opposed to systems. This differentiation is made in recognition of the fact that this plan addresses the management of information that includes, but is not limited to, information technology and traditional telecommunication services. Not all solutions are automated and not all needs, even when automation is indicated, can be met by a single, monolithic system. In many cases a solution requires a complex combination of automated and manual processes.

1.1 Background

The strategic goals in this document are designed to meet the long-term IT needs of the HSC as a reflection of the institutional mission and purpose. A major component of this document focuses on the implementation of an electronic medical record and the development of site-wide hardware, software and support standards.

1.2 Themes

The information technology management goals discussed in this document will guide the information technology management activities of the Health Sciences Center during FY2005 – FY2007. The key themes of the current goals include:

- delivery of information to the desktop quickly and efficiently
- evaluation and integration of current and emerging desktop, mobile, server and network technologies that collectively provide a powerful set of electronic tools for research, education and clinical care
- training students, faculty and caregivers to use information technologies to their fullest capabilities
- developing an institutional electronic medical record system that supports data mining and warehousing capabilities
- improving collaboration among all IT professionals throughout the HSC and UNM

- developing a robust informatics program
- planning for new HSC buildings and infrastructure projects

1.3 Governance

The University of New Mexico HSC has adopted a centralized governance structure for KMIT with the following features:

Executive Vice President, HSC
- Oversees the academic, clinical, and research components that make up the HSC
- Delegates authority to the Associate Vice Presidents for Finance and Administration and Knowledge Management and Information Technology

Associate Vice-President, HSC, Finance and Administration
- Assures appropriate distribution of funding and new resources
- Serves on KMIT Leadership Council

Associate Vice-President, HSC, Knowledge Management and Information Technology
- Coordinates long-range planning for HSC Academic and Research IT
- Ensures collaboration between HSC, UNM and statewide partners
- Provides budgetary oversight for IT within HSC academic and research components
- Serves on KMIT Leadership Council
- Serves as communication link with main campus entities including High Performance Computing, CIRT, Extended University, University Libraries and Telecommunications, and to the IT structures of the HSC components

Chief Information Officer (CIO), UNM Hospitals
- Coordinates long-range planning for UNM Hospitals and HSC Clinical Operations IT
- Provides budgetary oversight for IT at UNM Hospitals
- Ensures collaboration efforts between the HSC, UNM and statewide partners
- Serves on KMIT Leadership Council
- Provides general oversight for UHNM IT centralized support model
- Ensures managed IT support for all UNM Hospitals and clinics including:
  - clinical applications
  - system operations, network and technology management
  - systems development
  - customer support and project management

Knowledge Management and Information Technology (KMIT) Committees
- **Leadership Council** - Plans and coordinates long- and short-range IT strategic planning and allocation of resources.
- **Advisory Council** - Faculty and administration from HSC components, the VA and UNM main campus provide direct feedback on specific policy and initiatives to help set priorities. Advisory Council members assist in identifying faculty needs in the information/telecommunication technologies and knowledge management resources supporting HSC Strategic Planning goals in education, research, clinical care, and administration. Technologies and resources include those needed to support the curriculum, distance learning, continuing education, patient care and telehealth, research processes, outreach, training and professional development (including simulation), administrative services, workstation and network support, application support, web-based technologies for internet/intranet development, public access computing, classrooms, and audio-visual production.
- **Operations Council** - IT managers from the two centralized IT units (UNMH IT and HSLIC) work together to define specific initiatives and implement IT plans and guidance for the development of policy and procedures.

IS Directors
- The quarterly HSC IS Directors meeting facilitates discussion among IT managers from the major components of the HSC
- Provide direct feedback on policy and initiatives

Information Systems Steering Committee (ISSC)
- Co-chaired by UNMH CIO and the School of Medicine's Director of Medical Informatics
- Approves and prioritizes large projects for HSC clinical operations IT
- Tracks budget and resource allocation
- Monitors progress on implementation of large systems

HSC Department Contacts
- HSLIC Manager of User Support facilitates monthly discussion about operational IT issues among academic/research components. This group works with day-to-day implications of polices and standards.

HSC Research Council
- Similar to the HSC Department Contacts group, the HSC Research Council works with implications of knowledge management policy/standards.

HSC Component IT Structures
- Many HSC departments also fund their own IT support staff to meet first-level user needs within the department. These support staff are invited to participate in the IS Directors and HSC Department Contacts meetings.

1.4 Annual Updates and Evaluation

This plan is formally re-evaluated on an annual basis by the KMIT councils, and changes may also be made on an as-needed basis. The New Mexico Commission on Higher Education receives copies of this plan with legislative requests.

2.0 Mission

The mission of the knowledge management and IT components of the HSC is to meet the information needs of the center in order to facilitate the best possible service to its customers. Specifically, we strive to:

- provide timely, secure, and universal access to data and information for all of our users
- maintain all computer hardware to meet the performance needs of our users
- develop/obtain/maintain software to meet the functional needs of our users
- manage the collection, storage, and retrieval of Health Sciences Center data
- maintain the security, confidentiality, and integrity of data and information
- provide expertise to users in obtaining specialized computer hardware and software
- enable the capable and efficient use of systems with a comprehensive training program
- provide technical help-lines with adequate and timely trouble response

These activities will take place within the framework of the following KMIT guiding principles.

Knowledge management creates a user-centered environment that ensures easy access to and ethical use of appropriate information resources. Effective policy and training, as well as a ubiquitous and unobtrusive information technology infrastructure, are essential to a knowledge management program providing stewardship of the collection, storage, organization, retrieval, archiving and access to data and information.

Information technology supports knowledge management and includes a variety of devices and the connectivity that links them in order to enable all forms of electronic communication.

Accomplishing this mission fosters the creation of a knowledge management environment to maximize the power of information technologies.

Our current direction is shaped by the following intentions:

- Ensure that data gathering takes place once, accurately, and at the original source. Data are integrated and gathered in anticipation of future needs.

- Provide information in a timely, useful, and intuitive way to those with the need to know.

- Make certain that the UNMHSC KMIT environment enriches knowledge-based interactions and decisions and eliminates all process steps that do not add value.

3.0 Goals

HSC information management goals are based on the need to fulfill the mission for information management in the Health Sciences Center. The goals described below are intended to guide the information management activities of the Health Sciences Center during FY2005 through FY2007. They are divided into eight concentrations: planning, technical infrastructure, academic support, research support, clinical support, administrative support, collaborative efforts and evaluation and budgeting.

These goals are met and evaluated through the development and completion of tactical and annual objectives, which are divided by fiscal year. The HSC KMIT strategic goals and Annual Goals and Objectives Matrix (http://hsc.unm.edu/library/kmit//docs/KMIT_3-year_plan_7_8_02.xls) includes a timeline list of resources and ownership for each objective. The status of these objectives is reported to the KMIT councils on a regular basis.

3.1 Planning Goals

- Envision the UNMHSC as the comprehensive, easily accessible, electronic healthcare resource and leader for the state of NM.

- Identify leadership and a planning infrastructure that assures continuous planning, evaluation, and process improvements for information technology, consistent with ongoing UNMHSC planning initiatives and partnering with key constituencies.

- Assess UNMHSC information technology infrastructure/systems readiness, especially those that support desktop collaboration and telehealth, to ensure that they properly support KMIT goals.

- Identify and assess information needs for patient care, research, education and administration.

- Continually update the UNM HSC 3-Year Strategic Plan for Knowledge Management and Information Technology to serve as a guide for implementation and coordination of information technology.

3.2 Technical Infrastructure Goals

- Address current and emerging technologies that enable easy, secure, and universal access to a powerful set of automated tools for information management.

- Create standards (equipment, applications, and network) to reduce cost, improve quality of service and increase the HSC's ability to support users, applications, equipment, and network services.

- Expand technologies to support distance education, public access computing, and instruction using web-based and other interactive electronic curricular resources, including streaming media and electronic learning management systems.

- Continue consolidation of decentralized resources, where feasible and appropriate, to reduce redundancy, take advantage of critical mass, and enable implementation of HSC-wide solutions.

- In collaboration with CIRT, continue network development including management and security, collaborative directory development, and improved in speed and connectivity for campus and remote users.

3.3 Academic Support Goals

- Educate and prepare students, faculty, and health care practitioners to effectively use information technologies to perform their duties in a more cost-effective manner and to improve their utilization of health care resources.

- Incorporate informatics and evidence-based clinical decision-making into HSC curricula.

- Increase the amount of and access to health information resources (especially electronic and other library resources) available for students, faculty, clinicians, researchers, and citizens.

- Encourage the use of distance education and other technologies to provide education (curriculum and continuing education) for students, practitioners, and citizens throughout the state.

3.4 Research Support Goals

- Ensure sufficient computing capability to undertake health outcomes research.

- Create knowledge-based resources to acquire, organize, make accessible, and deliver results of health-related research, especially those related to unique New Mexico populations.

3.5 Clinical Support Goals

- Enable effective use of the clinical patient data repository (data, images, and other media formats) to improve medical management and decision-making, internally to the UNMHSC campus, at telehealth sites, and for other collaborative activities with statewide agencies or organizations.

- Increase breadth of data (e.g., images) available in the electronic medical record through use of technology.

- Increase accessibility to clinical systems from both on and off campus.

3.6 Administrative Support Goals

- In collaboration with other UNM units, incorporate information technologies into business, academic, and research administrative processes and services.

- Use the Internet and Internet technologies as the "mission-critical" tool for the conduct and delivery of HSC services and products.

- Participate in implementation and support of UNM Project LINK.

- Use information technologies to assess HSC processes, services, and products to assure continuous quality improvement.

3.7 Collaborative Efforts Goals

- Increase collaborative efforts within UNM and throughout the state that focus on information technologies and embracing new technology.

- Work collaboratively to ensure progress in the development of an integrated statewide health care information system, reduce redundancy, and ensure a uniform level of patient care throughout the state.

- Increase integration throughout the HSC of library, media, computing, and telecommunications services to better meet user needs.

3.8 Evaluation and Budgeting Goals

- Create evaluation and budgeting processes that align budgeting with priorities, encourage innovation, maximize windows of opportunity, and anticipate user and institutional needs.

4.0 Business Strategies and Guidelines

4.1 Prioritization

With input from the HSC Leadership Council and the KMIT Advisory Council, the KMIT Operations Council establishes HSC-wide priorities using the Knowledge Management and Information Technology Planning Matrix, the Information Technology Management Plan, and the Joint Operational Plan as guides. The KMIT Leadership Council provides general guidance for overall resource allocation.

The KMIT Operations Council addresses administrative strategies, system integration priorities and industry best-practice decisions. The council also reviews strategies for complying with Health Insurance Portability and Accountability Act (HIPAA) IT security regulations.

Within the University of New Mexico Hospitals component an Executive Sponsor serves as champion for projects, delineates objectives, and defines success factors and budgets, ensuring that completed projects meet those factors. When a project is approved, the Administrative Project Sponsor and IT Project Manager responsibilities are established to shepherd the project through contracting or development and implementation.

4.2 Administration

The administrative strategy focuses upon the infrastructure and priorities that will permit integration of administrative objectives across the HSC and UNM enterprises. Among these objectives are standard application software, standard network infrastructure and network management strategy and standardized desktop hardware and software. The centralized HSC IT departments also work with their UNM counterpart (CIRT) to assure that the proper planning and lines of communication are in place.

A major strategy for the HSC is to develop and maintain standardized client interfaces to centralized systems.

4.3 Information Confidentiality & Security

The University of New Mexico Health Sciences Center recognizes information as a vital medical, research, and business resource. Preventative measures necessary to secure the confidentiality, integrity and availability of Health Sciences Center information and to ensure compliance with all state and federal regulations are being taken. HSC administration is committed to the centralized development of campus security best practices so that they are distributed and maintained appropriately. Toward this end, IT security personnel in the academic, research and clinical components are working together to define a layered program that is centrally supported and maintained.

A continuous cycle that utilizes risk, business and impact management is the strategy used to develop, maintain, and improve Health Sciences Center information security. To meet HIPAA requirements, an HSC security official, appointed by the Executive Vice President for the Health Sciences, will ensure that policies are created and kept up-to-date, workforce security training is provided, annual reports of compliance with policies are performed and appropriate sanctions are enforced. This person will work closely with IT management, IT security technicians and departments to ensure compliance.

Clinical information in the medical record, whether it is paper or electronic, must be timely, accurate, reliable, secure, and accessible. All initiatives related to clinical information are evaluated on their ability to fulfill these goals. All state and federal regulations regarding the protection and use of patient data are adhered to. Furthermore, the Health Sciences Center is committed to a fully electronic medical record and strives for a single repository of patient and clinical data.

4.4 Standards

The primary goal of information technology services today are effective management of information. Within the framework of this goal, the desktop computer, whether it is a personal computer as we know it today or a thin client device, should be viewed as a tool for delivery of data and information to people. The desktop environment should be simplified to serve the management of access and authorization for use of data and information efficiently. Desktop access should require minimal resources to maintain for the majority of users.

The key strategies to be used in attaining these goals are:

- provide access to directory-enabled applications and services
- emphasize the use of web-enabled technologies using browsers as clients

- continue supporting and updating a standardized set of tools and applications that can address a variety of needs including a business productivity suite and standard desktop utilities
- provide secure and reliable access to centralized network storage
- utilize an integrated and layered approach to securing and maintaining the integrity of data and information

The HSC Information Technology Standards document (http://hsc.unm.edu/library/kmit//it_standards.shtml) presents current standards for information technology hardware, software and support.

4.5 Web Site

The HSC web site is a service provided to the HSC community that contains standards for publishing procedures, branding, navigation, graphics and content/application development tools. Responsibilities for development and maintenance of content will be distributed according to the roles defined in the policy. Application development is centrally coordinated to assure consistent use of programming and security best practices as well as full functionality and stability within the HSC environment. The overall goal is to provide several key audiences with a maximally usable and navigable website that presents a consistent message about the HSC and its components. Web site standards will be selected to ensure that departments can be successful in meeting this goal and still have an appropriate autonomy in presenting their site-specific information. This strategy is consistent with the procedures outlined in the HSC Web Policy http://hsc.unm.edu/library/kmit/policies.shtml.

4.6 System Support and Maintenance

Every aspect of the information management infrastructure must be supported so that it remains usable and appropriate for the Health Sciences Center. Trained staff support each component of the infrastructure-network, hardware and operating system platforms, office automation tools, clinical information technology, financial and human resources information technology, operations, security, and education. Systems analysts, technicians, and managers monitor and evaluate the status of each component of the infrastructure. Small changes in the infrastructure are handled within the group assigned to that component. Changes that have a more global impact are discussed at staff meetings comprised of representatives from each functional IT unit. Estimates of internal support requirements are made for all system acquisitions and included in the estimated capital and operational cost of the system. User requests for support will be funneled through the Help Desk and passed on to the appropriate group.

Upgrade and maintenance support strategies for application software will be based on input from the customer base for each system. Upgrades, patches, and downtime will be publicized well in advance and downtime procedures should be reviewed prior to any scheduled extended downtime.

The HSC is committed to directory service technologies to aid in the logical grouping of users, resources and information needed to assist the organization in deploying and maintaining services in an orderly, efficient and flexible manner.

4.7 In-House Application Development, Implementation, and Rollout

In-house development will occur only for niche products where no adequate off-the-shelf software exists. A cost-benefit analysis will always be performed before undertaking in-house development. A rapid, iterative prototyping approach will be used for all in-house development. In addition, a user group will be identified to work closely with the developer during all phases of the development.

4.8 Overall Automation

We strive for all information management initiatives to be solution-driven not system-driven and service rather than technology-oriented. An automated IT system must improve current processes and procedures. The system must be compatible with the current hardware and software environment and be executable and maintainable. A new system can be developed internally or purchased from a financially solid vendor. Underlying processes and procedures should be carefully analyzed and improved before an automated solution is sought. Buy vs. build decisions should be based on the possibility of an "off-the-shelf" solution, cost-benefit ratios, timeliness of projected implementation, ability to be integrated into current environment and available resources.

4.9 Network Infrastructure

HSC-wide network management has been consolidated into a single group responsible for clinical, academic, and research areas. The HSC has recently formalized an IT Infrastructure Master Plan that formalizes the physical requirements for network and building connectivity. The Plan is being used as a guide for the nearly 1.7M square feet of new construction planned through 2020. The HSC Network is TCP/IP only on the backbone with only small pockets of non-IP protocols inside buildings. Over 95% of ports are switched with 100 Mb/s to the desktop with gigabit ethernet between floors and buildings. Work is moving forward for the use of high availability technologies to improve uptime on and off campus. We anticipate future goals to include the widespread use of wireless technologies for both academic and clinical purposes as well as the use of multicast technologies in collaborative projects.

4.10 Hardware

Client/server and web-based systems are based on the Windows/Intel platform. The Health Sciences Center supports Novell, Windows, VMS/Alpha and Linux network operating systems.

4.11 Contingency and Business Continuity

The Health Sciences Center has developed a comprehensive Disaster Recovery and Contingency Plan http://hsc.unm.edu/library/kmit/policies.shtml. The Plan should cover contingencies for every system housed within throughout the HSC.

4.12 Customer Support

Information technology departments within the Health Sciences Center must provide the level of support necessary to ensure that all system users are able to do their jobs as effectively as possible. User support for IT services is provided by two support centers (HSLIC User Support HelpDesk and UNMH IT HelpDesk). All support and service requests will be directed through these help desks. Procedures are in place to provide seamless customer service supported by a shared, integrated call logging, tracking, and reporting system. Help desk personnel are trained to provide a first level of support and to escalate calls as necessary.

4.13 Training

Training-focused departments at the HSC strive to support the education and performance improvement of employees on an increasing number of applications. This is achieved through consistent, competency-based training programs and end-user consultations. In order to ensure

full use of the systems purchased by the Health Sciences Center, training modules are developed to address basic through advanced levels, as well as special topics to improve employee productivity and efficiency. Training curricula and support documentation, whether on-line or as desk references, are customized to address the applied use of systems within the organization. Training will be centrally coordinated and managed to support both department-specific as well as site-wide needs.

4.14 Programmatic Support for Mission Areas

Programmatic support is also provided to the three general mission areas defined in the HSC Strategic Plan.

Academic: IT support for distance education is no longer a niche service and must be provided centrally with a high level of availability and technical support. WebCT is UNM's standard courseware tool used to support both distance education and traditional classroom coursework. Focused FTE within HSLIC who are expert in the use of Web CT will help HSC faculty transition to using Web CT to augment the classroom experience for students who increasingly expect such tools.

Research: IT in the HSC research community remains highly specialized and will remain somewhat decentralized so that specific, focused solutions are encouraged. HSC administration will ensure that HSC researchers are provided with:

- high speed campus network connections
- access to Internet research networks
- co-location space in data centers for research equipment
- desktop support
- a support bridge with main campus IT research services (e.g. supercomputing, emerging technology evaluation, conferences)

Clinical: The IT strategy for clinical operations is based on the foundation of electronic medical records and the state and federal regulations that keep the information within the records safe and accurate. Of primary importance is to ensure that for clinical providers information within the records is available on demand in a timely manner. An additional strategy is to pursue the integration of clinical decision support into current clinical systems. The end goal is to ensure patient safety. High-speed campus network connections and reliable security mechanisms are required.