Introduction

The ITS strategies for moving to the Next Level are (1) to develop ITS as a leadership organization for the University and the NDUS and (2) to create an exemplary IT program that is strategically focused, strongly service oriented, and based on best practices. To set directions and priorities, ITS has identified “enabling strategies” in the following six areas:

A. Planning and goals
B. Organization and leadership
C. Funding and budget
D. Technology infrastructure
E. IT resources and support
F. Policies, procedures, and standards

In most cases, the enabling strategies are ongoing and interrelated processes designed to follow best practices in higher education, improve efficiencies, and eliminate redundant and archaic work activities. These strategies are evaluated and adjusted as needed and continue to guide the general priorities of ITS work in 2005-06.

The 2003-04 ITS Annual Report provided an in-depth description of the various enabling strategies being followed in ITS. Because that report actually covered part of 2005, the 2004-05 report will simply provide updates on some of the major ITS activities in the six areas listed above. The updates include both accomplishments of note and inhibitors of progress. This report does not attempt to fully reflect all the varied and important activities that are carried on daily by ITS staff to support the work of the University.
A. Planning and Goals

Enabling Strategy 1: Review the NDUS, HECN, and NDSU IT strategic planning processes and develop linkages where possible.

- **Strategic planning:** There are almost no formal strategic planning processes in use in the University System, the HECN, or at NDSU, and no clear strategic planning processes for information technology. Some short-range (biennial) procedures are used, but there are deeply ingrained systemic barriers to comprehensive strategic planning. Furthermore, there is no real connection between the NDUS, HECN, and NDSU planning and budget structures for IT. Overall, not much linking can be done. Instead, ITS engages in yearly tactical planning to set internal goals.

Enabling Strategy 2: Develop IT goals that are closely tied to Next Level activities across campus.

- **Goal setting:** The ITS leadership team held an all-day Planning Retreat on February 11, 2005. The agenda included leadership exercises, reviews of the University and ITS goals, environmental scanning, brainstorming about future goals, and discussion of staff and service realignments. By the conclusion of the Retreat, the team had agreed on yearly goals related to IT funding, governance, Web services, planning, communication, and standards.

Enabling Strategy 3: Concentrate ITS services and resources in strategic and mission-critical areas and eliminate activities of less importance.

- **Staff and service realignments:** During the past year, ITS has been engaged in a comprehensive review of staff assignments and service offerings. As a result of this ongoing review, we have made a number of significant realignments that are clearly leading to greater service capacity, more efficiency, and better performance on the part of the staff. We expect this process to yield even greater benefits in the future.

B. Organization and Leadership

Enabling Strategy 1: Reorganize the IT governance structure at NDSU.
• **New IT governance structure**: Over the past year, the ITS staff developed and promoted a comprehensive IT governance proposal. The proposal was presented widely to groups across campus, including the Provost’s Council, CITPG, the University Senate, student groups, and others. The proposal was generally endorsed, but because of opposition to one part of the proposal from a small group of CITPG members, progress has been slow. The next step is to create an IT Governance Review Team to provide focused, educated campus-wide input for the development of a more effective IT governance structure.

**Enabling Strategy 2: Participate in reviewing and reorganizing the NDUS and HECN IT governance structures.**

• **NDUS IT governance participation**: ITS staff members continue to participate in a wide variety of NDUS groups and committees, including the CIO Council, the HAS Steering Committee, the HECN Network Committee, the CIS Director’s meetings, and the HECN Director’s meetings. Three ITS Directors now share the outmoded “HECN-South Director” role in coordinating the provision of HECN services.

**Enabling Strategy 3: Realign and enhance IT support across campus.**

• **Realignment of Client Services**: In order to concentrate ITS services and resources in strategic and mission-critical areas, we have reengineered the work of the Client Services unit in ITS to eliminate duplication, clarify areas of responsibility, concentrate on key service areas, and address new opportunities. As a result, several areas in ITS were integrated, expanded, and moved to new locations in order to better provide front-line support for our clients. ITS Client Services now encompasses the following areas:
  - All PC support functions have been combined into one unit, including desktops, clusters, and imaging services. Lincoln Bathie is responsible for managing all PC hardware and software support activities, including PC installation, management, hardware and software standards, software licensing, images, SUS, documentation, and life-cycle activities.
  - ITS training and education activities have been combined, refocused, and expanded. Nancy Lilleberg manages IT Instructional Services for faculty and staff, including training programs, one-on-one consulting, curriculum development, Blackboard and PRS support, and some applications support.
  - Various Help Desk and Service Center activities have been merged into one unit (one-stop shop). John Underwood now manages some one-stop shop activities, including the service window, call center,
printing/plotting services, equipment checkout, test scoring, alerts, documentation, and some application support.

- The Multimedia Consulting area and Technology Learning Center (TLC) have merged and are now located next to the Help Desk. Sheree Kornkven is responsible for managing multimedia consulting, Sponge projects, and some former TLC learning services.
- Classroom Technology now reports to Client Services Director. Melissa Stotz manages the Classroom Technology group. Synergies between classroom support, videoconferencing, desktop support, and instructional services will continue to be explored during Fall semester 2005.
- A managed, integrated, distributed IT staffing system across campus has been initiated to provide equitable and effective IT support for all NDSU employees and students. Agreements have been signed with five colleges/departments (Pharmacy, Human Development and Education, TRIO, Athletics, and Architecture) to provide distributed IT support. In most cases, this support is provided by student staff who are managed and trained in ITS. Over the coming year, we will continue to work with Deans and Department Chairs to expand this very successful program. In addition, ITS continues to work more closely with distributed campus IT professionals. Distributed staff have been invited to participate in ITS meetings, training activities, and information sharing. Regular monthly meetings to share expertise, discuss technical solutions, and work together on standard desktop policies and procedures will begin in Fall 2005.

- **Campus IT Communication Liaisons:** ITS implemented a new program this year to improve two-way communication between ITS and campus departments. Vice Presidents, Deans, and Directors were invited to submit names of staff to represent their areas. The goals of the program are to
  - Provide more effective, timely communication with departments.
  - Provide a mechanism for gathering input from departments.
  - Increase awareness of security and acceptable use issues.

Thirty-eight departmental representatives are participating in this initiative. They represent a broad spectrum of campus employees, including faculty, staff, directors, and departmental public relations personnel. One off-campus liaison from Bottineau will be attending meetings via videoconferencing.

The first meeting of this group took place in May 2005. Monthly meetings are scheduled for academic year 2006. Additional participation is encouraged, and we plan to work with REC and Extension offices to include additional off-campus employees.
C. Funding and Budgeting

Enabling Strategy 1: Modify the Technology Fee system to focus on better planning, full costing, and strategic prioritization.

- **Responsible Printing Initiative (RPI):** A new print management system called Go-Print is being installed in all public computer labs, in the five campus libraries, and in one of the College of Engineering computer labs. The goals of the RPI are to keep the printing costs for students as low as possible, reduce waste, save Technology Fee funds for investment in new or improved information technology services for students, and gain efficiencies in the printing process. This system requires the swipe of a Bison Card to release print jobs. Each user is given a set allocation of free printing, after which a per-page printing cost will be charged to the user’s Bison Card. All the system hardware and software is placed, but the software is still being configured. Therefore, the system will be initially operating at no charge to the users so that the ITS, library, and engineering staff can ensure everything works properly and the business model can be fine-tuned.

Enabling Strategy 2: Review and possibly reformulate the general IT funding structure, including HECN funding.

- **HECN funding update:** ITS has continued to promote the idea that the HECN is a collaborative service consortium in which the NDUS contracts for services with the HECN-South and HECN-North sites. This is the basic notion promulgated in the Folkner Report that was approved by the Chancellor’s Cabinet in 1996. Some System staff seem to have a different view on this, one that would allow them to simply require HECN-South to provide services whether or not sufficient funding or staff resources are available. An example of this was the recent attempt to create a System-wide Learning Management System. ITS has continued to raise questions about the nature of the HECN in hopes that the University System staff will understand the need to review the decade-old program.

Enabling Strategy 3: Modify or eliminate some expensive but outmoded service programs.

- **Modem pool elimination:** After nearly 20 years of service, ITS discontinued dial-up services at the end of Spring semester 2005. The widespread availability of broadband networking and a new service priority (wireless network access) made this decision a logical one. ITS worked closely with
Enabling Strategy 1: Create a new Server Hosting Program and various other server-based initiatives.

- **The ITS Server Hosting Program:** Many NDSU departments have specific application software needs that do not make sense to provide centrally. At the same time, these departments do not have the technical staff or expertise to manage servers to meet these needs. ITS developed a service that lets departments contract for a turn-key server hosting solution that includes technical support and all the hardware and networking needs to support their application needs. There are now over a dozen of these agreements in place.

Enabling Strategy 2: Coordinate the ongoing development and support of IT-equipped classrooms and clusters, including new facilities at the Downtown Campus.

- **Cluster and classroom update:** The campus has 25 computer clusters in 17 buildings. Each cluster has computers at every seat, and 8 clusters are instrumented for media instruction. Most clusters may be reserved for teaching. Sixty-six campus classrooms in 27 buildings are instrumented for multimedia instruction. This total includes 10 new rooms which ITS equipped in preparation for the Fall 2005 semester. Eight of these learning spaces are instrumented clusters (public labs) that may be reserved for teaching. The campus also has 35 mobile multimedia carts in 21 buildings.

- **Other infrastructure accomplishments this past year:**
  - Completed conversion of all academic buildings to switched Ethernet services. Computers and all other network devices in academic buildings now have dedicated network connections supporting higher speeds (up to 100 Mbps).
  - Installed and/or designed communication networks for 47 buildings and remodeling projects including Bison Court, Graduate Center (Co-Op), and the Downtown Campus.
  - Provided all telecommunications infrastructure for President Bush’s visit to NDSU.
  - Expanded high-performance computing services, including installing 32 additional nodes for the distributed memory cluster, deploying a resource management and job scheduling system, and installing
several scientific software applications including Accelrys and Gaussian.
  
  - Increased NDSU’s online disk storage capacity by over 5 terabytes.
  - Increased NDSU’s offline tape storage capacity by over 75 terabytes.
  - Designed and implemented multi-tier Blackboard server architecture and completed migration from version 5 to version 6.
  - Designed and implemented a server and storage architecture for the NDUS Learning Management System pilot project (D2L). (The D2L project was terminated in August and the servers were given to Mayville State.)
  - Implemented a new, user-customizable e-mail spam filtering system.
  - Enabled synchronization of Novell and Kerberos passwords to reduce confusion and improve security.

Enabling Strategy 3: Investigate pros and cons of wireless networking.

- **Wireless networking update:** After nearly three years of discussion and planning, the Provost’s office and ITS partnered on a three-year plan to deploy wireless networking in all NDSU academic buildings. As of the start of the Fall 2005 semester, nearly half of the campus academic buildings have access to wireless networking. The emphasis for wireless is making technology available in the classrooms and laboratories to support new pedagogy.

Enabling Strategy 4: Coordinate the development of a comprehensive Desktop Lifecycle Services Program.

- **Zenworks deployment:** Zenworks is a collection of desktop management resources that will enhance desktop support services by automating tasks and creating quicker response time. ITS can image a workstation, take control of the desktop remotely, push out applications, and take inventories on both hardware and software (currently not enabled). Zenworks is now deployed on about 1,200 desktop systems.

- **Campus-wide PC Cascade Program:** Over the past year, more than 70 three- and four-year-old cluster computers were sold for a nominal price to faculty and staff to replace even older computers that departments were using.

- **Campus-wide PC Disposal Program:** Over the past year, ITS disposed of over 1,000 PCs in an environmentally effective manner. In addition, other computer components like printers, scanners, keyboards, mice, and telephone equipment were discarded. Approximately 220 nonworking computer monitors were also disposed. The cost of this disposal was
approximately $6,000. ITS and Purchasing initiated a surplus sale that was strictly computer-related. Approximately 200 computer-related pieces of equipment were sold at a value of approximately $3,000. This was used to offset the cost of monitor disposal, which was paid for by Purchasing.

E. IT Resources and Support

Enabling Strategy 1: Support the ConnectND project.

- **Help Desk support:** The Help Desk provides phone support to students, staff, and faculty within the ConnectND system to aid in the transition to this system. This has included help with accounts, passwords, site navigation and general questions about the system. Over the last 12 months, we have seen a dramatic increase in calls to the NDUS Help Desk.

- **Leadership:** ITS staff members worked on many projects and committees related to the ConnectND project to try to ensure that the system would be workable.

Enabling Strategy 2: Enhance support services for distributed clients (e.g., Extension Service, Ag. Experiment Station, distributed education programs).

- **Merger of Agriculture Communication Computer Services and ITS:** After more than two years of discussions, the Agriculture Communication Services desktop and helpdesk operations are being merged into ITS. This merger should provide enhanced IT support for many areas in the Agriculture environment, and lead to greater standardization of IT support activities across the entire campus and throughout the NDSU Agriculture environment across the state.

Enabling Strategy 3: Create a Student Technology Services (STS) program.

- **Student Technology Services update:** The Student Technology Services (STS) program is a work-based learning program that was implemented in ITS to manage the ITS student workforce, which consists of approximately 100 students employed in various workgroups. In addition to providing consistent management, major STS program goals are to standardize human resources policies and procedures and to create professional development opportunities that focus on both technical and life skills. Overall, the STS program is designed to improve the skills and professionalism of student employees, thus enabling them to provide high-
quality customer service to the NDSU campus while they prepare for future careers.

- In January 2004, three student managers were hired to provide leadership for the STS program: STS manager Teresa Oe; STS human resources manager Jared Hall, and STS professional development manager Chris Pierson. Coordinator Sheree Kornkven oversees the program.
- STS human resources manager Jared Hall served on a task force that reviewed the wage structure for ITS student employees. Under the leadership of ITS director Marty Hoag, the task force recommended changes in pay rates that resulted in significant increases for many student employees.
- STS managers planned a fall retreat for all student employees for August 2005. Students will receive training on diversity and equity issues, IT security issues, and safety. Interim general work policies will be presented to the students as well.
- STS managers have developed a draft of an employee manual that includes general work policies, a grievance policy, and performance evaluation procedures. The draft will be reviewed by workgroup leaders and implemented as policy during Fall semester 2005.
- Short technology classes, previously managed by the Technology Learning Center, are now managed by STS. The STS professional development manager oversees this aspect of STS. Short classes were offered during spring 2005 and summer 2005.
- A professional development program has been developed and includes classes by the NDSU Career Center, the Counseling Department, and other campus affiliations. Topics include time management, stress management, writing résumés, professional presence, and interviewing skills.
- During the past year, STS staff members have promoted ITS at freshman orientation resource fairs, activity fairs for prospective students, job fairs, and other public relations events. ITS and STS staff presented IT information to nearly one thousand parents of incoming students at parent breakout sessions during summer freshman orientation events.

**Enabling Strategy 4: Expand IT training programs.**

- **IT training and instructional services update:** In order to offer improved learning via technology, all IT training and education activities have been consolidated into a new Instructional Services team in ITS. This team now provides faculty and staff training programs, one-on-one consulting, curriculum development, Blackboard and PRS support, and some application support.
The major focus of this new group has been to implement a technology education plan, taking into account user input and the need to provide more efficient, effective services. The plan, named “A Roadmap to Success on the NDSU Information Superhighway,” provides for a more complete IT learning experience. The goals of the plan are to
  - Identify necessary baseline competencies for faculty, staff, and students.
  - Develop curricula that help faculty, staff, and student attain competencies.
  - Offer the curricula using audio/visual Web technology, available anytime from anywhere.
  - Track faculty and staff movement through the curricula and work with Human Resources towards awarding certifications.

In addition to implementing this new technology education roadmap, Instructional Services staff undertook a large project to migrate Blackboard from version 5 to version 6. Blackboard 6 uses a more robust database, authenticates using the official NDSU logins/passwords, balances the usage load between multiple servers for stability and increased performance, and adds many interface improvements for the instructors and students using the system. The project involved combining last year’s two Blackboard servers into one, cleaning up the courses and users databases, and migrating all the version 5 courses so that we would have a version 6 backup of them. This involved much programming from our systems staff and a great deal of communication from Instructional Services to the users. Web sites and documentation were upgraded in the process.

The Personal Response System (PRS) software also had a major upgrade during this time. Because we are currently unable to get electronic class lists from PeopleSoft, we needed time to rewrite our unit registration and class roster system. We are investigating the possibility of uploading PRS and OPSCAN grades directly into Blackboard gradebooks.

Enabling Strategy 5: Collaborate in renovating campus Web system.

- **Campus Web system update:** ITS staff have had many discussions with staff from University Relations about strategies for improving the campus Web environment. The barriers to improvement include ingrained staff and faculty behaviors, limited staff and financial resources, and lack of clear institutional leadership and commitment. We are continuing to explore ways to address this important strategic area.

- **Campus information distribution:** ITS and University Relations have designed and are now testing a centralized, Web-based news, events, and announcements management and publication system that is being called
“It’s Happening Today.” The system is designed to aggregate campus information from many disparate sources and to publish that information daily on a single, easily located place on the campus Web site. Individuals may send items via e-mail to interested parties from the “It’s Happening Today” Web site and subscribe to an e-mail newsletter. The newsletter arrives in subscribers’ e-mail inboxes so they know of new campus-wide information as it is released for publication.

F. Policies, Procedures, and Standards

Enabling Strategy 1: Review and revise the policies, procedures, and educational programs related to IT security and acceptable use.

- Information security update: The IT Security Officers have been providing proactive training and awareness activities, producing a brochure for students on acceptable use, and reacting to acceptable use and security incidents. Of special note was the first K-20 IT Security Conference, organized and planned by ITS staff, that drew over 90 participants from higher education and K-12 schools in the upper Midwest.

- IT policy update: Several key policies have been considered this year.
  - NDSU Policies 158 (Acceptable Use) and 710 (Computer and Electronic Communications Facilities) were extensively revised and reviewed. The policies were then signed by the President.
  - A guest access policy and procedure was adopted by ITS to delegate responsibility for generating and tracking short-term wireless and cluster access credentials for authorized guests.
  - ITS staff conducted public forums and solicited comments on the proposed changes to NDUS Procedure 1901.2. The revisions were coordinated by the NDUS IT Security Officer.

Enabling Strategy 2: Develop new procedure for project management, campus communication, metrics, and assessment in ITS.

- Project management update: ITS has installed a project management system from the University of Memphis and is planning to pilot the use of this system. We have also helped manage other cross-functional and interdepartmental projects such as the IT provisioning for the Downtown Campus when it opened in the Fall of 2004. We have also coordinated the project to consolidate service staff on the first floor in IACC.

- Communication update: To support the ITS commitment to better campus communication about IT issues, we converted a vacant position to that of
Communications Coordinator. After the first coordinator retired, we successfully carried out a search for a new coordinator. The ITS communication efforts included publishing many Web pages, producing news articles and e-mail messages, and distributing NewsFlash publications. Under the guidance of the new Communications Coordinator, ITS is planning more regular publications, an ITS Web site redesign, and creation of an ITS style guide.

- **ITS staff hiring enhancements:** We have developed procedures to enhance the thoroughness and effectiveness of the staff hiring process. Examples include expanded screening procedures; more diversified search committee membership; checklists for opening, screening, and hiring for a position; and a more extensive and intensive interview process.
Conclusion

Over the past several years, ITS has made excellent progress at becoming a campus leadership organization. ITS staff have taken the lead on major issues related to enhanced campus IT security, comprehensive strategies for IT support, management of the IT life-cycle process, IT standards and policies, a new campus IT governance system, more effective funding approaches, and delivery of a myriad of new and improved services. The ITS leaders are now more capable of managing the political, organizational, and communication dimensions of the campus IT environment. On the state level, ITS has continued to provide a high level of support services through its HECN commitment, while at the same time trying to move the NDUS IT environment in some constructive and much needed new directions. In dealing with all these activities, ITS continually redefines and realigns itself to cope with ever-rising expectations and nearly static funding. During the 2005-06 year, we expect to complete some important projects and launch new services where possible. We are looking forward to the future with optimism and excitement.