ELON UNIVERSITY
THREE YEAR TECHNOLOGY PLAN
2004 - 2007

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EXECUTIVE SUMMARY

On the following pages is a review and assessment of the immediate past three year technology plan (2001-02 through 2003-04), a description of the current status of technology at Elon University and a detailed new three year technology plan (2004-05 through 2006-07).

The past three year plan was well developed and executed. Numerous assessments have been made, and the comments from those consultants have been uniformly excellent. These comments have ranged from:

“What Elon had achieved in this arena (technology) may be unmatched by any mid-sized, liberal arts centered higher education institution (private or public).”

“The stated IT goals and resulting priorities and investments were extremely well aligned with where Elon was moving institutionally and what the campus community needed and expected. …[Elon] has moved to a significantly higher level of service, performance and reliability.”

“[Elon’s technology is] a model for other institutions.”

Currently, Elon’s technology units have combined budgets totaling $5.7 million. The unit has 52 employees.

The immediate past plan had several overarching areas of emphasis and five (5) goals. Our consultants advised us that these areas of emphasis and goals were of sufficient importance and breadth that we should, for the next iteration of the plan, keep them and merely change the strategies and objectives under each one for the future. We came to agree with this concept so the new plan follows much of the same thrust as the old, but with different initiatives and objectives.

In summary, the new plan’s areas of emphasis and goals, and their attendant objects are:

**Enhance the teaching, learning and research of faculty, students and staff**

Goal (1): Develop and support curriculum and program initiatives for teaching and learning through the use of appropriate technologies.

- Improve and expand classroom technology
• Develop the program for the Koury Business Center with technology staffing and resources
• Expand the support given by Instructional Technologies (IDD & ITS)

Goal (2): Develop the capability for distance learning through the use of remote technologies.

• Provide space in the Koury Business Center (Digital Theater) to use remote technologies
• Expand bandwidth, and partner with NC-REN (North Carolina Research and Education Network) to allow for satellite and remote video traffic
• Improve the networking and server capability on the campus

Prepare students for a life and career in a rapidly evolving age of technology

Goal (3): Develop college-wide and discipline-specific technology objectives, define ways to enable students to meet these objectives.

• Migrate from analog to the newly required digital technology, throughout campus, but primarily in the School of Communications
• Upgrade software packages in academic departments and throughout the campus
• Focus on academic departmental 5-year plans when adding new Instructional Technologies staff to maximize student learning outcomes

Goal (4): Infuse technology throughout the curriculum, internships and work experiences so that Elon University students become known nationwide for their expertise in the use of technology.

• Expand on-line offerings consistent with educational and pedagogical goals (supported and subsumed in numerous other objectives: servers, bandwidth, remote technologies, etc.)
• Provide on campus student work experiences in technology fields that allow students to work with the newest technology and methods (supported and subsumed in numerous other objectives: elite /Emerging Leaders In Technology @ Elon/ Program, Help Desk, Events Management, Scheduling Software, Print Management System, E-services, etc.)
Improve efficiency and effectiveness of communications and operations
Goal (5): Provide the infrastructure and support that enable improved communications and operations technologies to be introduced in a timely and efficient manner

- Continue to deploy Voice Over Internet Protocol (VOIP) as a cost savings and efficiency measure
- Improve technology staff development opportunities
- Expand E-services, including scheduling software and a print management system
- Provide additional support for database creation and management

Budget

The budget for this plan is composed, as the immediate past one was, of on-going costs and one-time costs. In order to fully understand some of the costs associated with this plan, a fourth year projection is shown to explain how some of the elements of the plan will take longer than three years to accomplish and be funded. These on-going and one time costs are shown on the following two tables:

### Ongoing Expenses for the Technology Plan

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Year 04-05</th>
<th>Year 05-06</th>
<th>Year 06-07</th>
<th>Year 07-08 (projected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>$220,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$38,750.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>$38,750.00</td>
<td>$78,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$43,750.00</td>
<td>$87,500.00</td>
<td>$43,750.00</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$37,500.00</td>
<td>$37,500.00</td>
<td>$37,500.00</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>$128,420.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>$33,750.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>$150,000.00</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>$69,000.00</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>$175,000.00</td>
<td>$175,000.00</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>$60,000.00</td>
<td>$60,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>$38,750.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>$51,500.00</td>
<td>$51,500.00</td>
</tr>
<tr>
<td>14</td>
<td>$56,250.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>$270,000.00</td>
<td>$687,170.00</td>
<td>$664,750.00</td>
<td>$51,500.00</td>
</tr>
</tbody>
</table>

Notes: 'not a continuing expense after year 2007-2008.
### One-Time Expenses for the Technology Plan

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Year 04-05</th>
<th>Year 05-06</th>
<th>Year 06-07</th>
<th>Year 07-08 (projected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Upgrade Staley, Moffitt, Maynard, West/Virginia, Sloan, Carolina and Smith residence halls</td>
<td>$86,662</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Upgrade remaining classrooms to the level 3 equipment</td>
<td></td>
<td>$512,244</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Put phones in all classrooms</td>
<td></td>
<td>$102,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Purchase the recommended scheduling software</td>
<td>$42,075</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Purchase the hardware for the scheduling software</td>
<td>$22,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Fund digital conversion for School of Communications</td>
<td></td>
<td>$350,000</td>
<td>$350,000</td>
<td>$350,000</td>
</tr>
<tr>
<td><strong>Total One Time Costs</strong></td>
<td>$150,737</td>
<td>$964,244²</td>
<td>$350,000</td>
<td>$350,000</td>
</tr>
</tbody>
</table>

**Notes:**
1. These upgrades could be funded over time out of the proposed R & R fund for classrooms.

2. This figure presumes that all of these initiatives for the year are done in one year, instead of funded over time as noted in Note 1, immediately above.

**Conclusion:**
Finally, this new plan calls for strengthening the gains that have been made over the past three years and making selective, qualitative improvements over the next three years for academic, administrative and student programs.
Technology at Elon University

I. Summary of Previous Three Year Technology Plan

The focus of the previous three-year technology plan was primarily on enhancing teaching and learning through the use of technology. The plan directed the growth of technology at Elon by rearranging the staff, significantly adding support staff, purchasing equipment, and building a solid infrastructure that encouraged growth and use of technology. At the end of the three years, Elon has gained regional and national recognition for having a solid technology program to support academics, student life and the operations of the institution.

The technology plan was based on our vision of

- Technology that facilitates a knowledge-building community of learners and scholars
- Technology that prepares students for an information-based world
- Technology that is pervasive across campus and that reaches across time and distance to be accessed anytime anywhere

Major goals

The previous plan had 5 goals that were under three areas which focused on the academics, students and the operation of the institution.

Enhance the teaching, learning and research of faculty, students and staff
Goal (1): Develop and support curriculum and program initiatives for teaching and learning through the use of appropriate technologies

Goal (2): Develop the capability for distance learning through the use of remote technologies

Prepare students for a life and career in a rapidly evolving age of technology
Goal (3): Develop college-wide and discipline-specific technology objectives, define ways to enable students to meet these objectives.

Goal (4): Infuse technology throughout the curriculum, internships and work experiences so that Elon College students become known nationwide for their expertise in the use of technology.
**Improve efficiency and effectiveness of communications and operations**

Goal (5): Provide the infrastructure and support that enable improved communications and operations technologies to be introduced in a timely and efficient manner

**Funding plan**

Funding for the previous technology plan included adding an additional $1.5 million to the annual budget for technology. At the end of three years, the amount was closer to $3 million. The plan also called for one-time expenditures of $3 million, mostly for the construction of the Technology Center and specialized teaching spaces. The Technology Center was not funded because of other institutional priorities, however approximately $1 million in one-time expenses were allocated to improve teaching spaces, purchase new equipment for expanded services and upgrade networking infrastructure.

**II. Current Status of Technology at Elon University**

Technology at Elon University was significantly enhanced during the last three years. The adoption of a three year technology plan in 2000 caused major changes in staffing, equipment, services and infrastructure. All of these changes were focused on making improvements in the educational program, administrative effectiveness and student services.

Currently, the technology team’s efforts have resulted in the achievement of almost all of the goals in the original three year plan. The following is a description of the current status of the technology staffing, programs, hardware and software and the infrastructure that operates every day at Elon.

**Instructional & Campus Technologies Staffing**

All technology, both administrative and academic, reports to the Director of Instructional & Campus Technologies, Chris Fulkerson. He reports to the Vice President of Business, Finance and Technology, Gerald Whittington. The Director also meets regularly with the Provost. Instructional and Campus Technologies support the mission of the university by:

- Enhancing the teaching, learning and research of faculty, students and staff;
• Preparing students for an information-based world;
• Improving the efficiency and effectiveness of communications and operations.

Instructional Technologies is divided into two areas:

• Instructional Design and Development (IDD) and,
• Instructional Technology Services (ITS).

Instructional Design & Development (IDD) provides consulting services on the development of instructional materials and programs to faculty. They also provide training to faculty and staff in the use of technology. IDD has the following staff:

• 7 staff members:
  o 1 director,
  o 3 instructional designers,
  o 1 multimedia developer and,
  o 2 system administrators.

Instructional Technology Services (ITS) consists of four areas:

• Media Services,
• Multimedia Services,
• Television Services, and the
• Emerging Leaders in Technology @ Elon, the elite Program.

Combined, these groups provide technology support to all teaching spaces; design instructional CD’s and Web sites; produce videos for academic and campus wide use; provide project support to faculty; provide technology training to students and staff.

The entire unit (ITS) is supervised by a Director who is supported by a secretary.

  a. Media Services supports technology needs for classrooms, computer labs, and events for the campus community. They also provide support for the creation and production of posters, transparencies, DVD/CD duplication, data-film transfers and audio tape and video tape duplication.

Media Services has 4 staff members:

• 1 coordinator,
• 1 event technician,
- 1 classroom technician and
- 1 lab/production technician.

b. Television Services provides both student and faculty with an opportunity to create specialized audio and visual programming from music, news, documentaries, instructional, sports, style and game shows in cooperation. Television Services has 5 staff members:
  - 1 coordinator,
  - 1 engineer,
  - 1 video production specialist,
  - 1 audio production specialist, and
  - 1 office manager.

c. Multimedia Services produces multimedia web, CD-Rom and DVD projects. Previous projects include instructional CD-ROM's such as Understanding the Global Experience, a multimedia CD-Rom text for the General Studies 110 courses and a CD-Rom guidebook with a cross cultural focus for the Winter Term London Study Abroad Program.

Multimedia Services has 1 multimedia developer.

d. The Emerging Leaders in Technology @ Elon (elite) Program employs students to provide technology support to the Elon community. These students help integrate technology to faculty, staff and students through one-on-one mentoring and technology workshops. The elite program has one staff member:
  - 1 coordinator

Computer Support provides all Elon users with trouble/fix support on hardware and software for both Windows and Apple based computer platforms. Computer Support consists of three different areas—technology helpdesk, Elon Student Computing Services and a team of desktop computing support specialists.

Computer Support is led by a director.

- The Elon University Technology Helpdesk provides phone support for faculty, staff and students. The helpdesk is the clearing house for routing service work orders to all areas of technology on campus. The helpdesk has:
• 3 Help Desk Associates.

• Student Computing Services provides computer support and repairs to the nearly 5,000 Elon students. It is primarily run by:
  o 1 technician.

• The team of desktop computing support specialists repair and maintain Macintosh and Windows computer. There are:
  o 3 hardware technicians and,
  o 5 software technicians.

Information Systems and Technology (IS&T) is composed of four very active sections. They are: Administrative Computing, Networking/Telecommunications, Systems Administration, and Web Development. IS&T has a director and a secretary.

• Administrative Computing manages the business application computer system thru systems, programming, and user support. They have 5 staff members:
  o 1 director,
  o 1 project manager/programmer and
  o 3 programmers.

• Web Technologies is responsible for the technical support of the university web presence. In addition to the technical support, the team develops e-service functions for the university such as the OnTrack, the Web interface for Datatel. Web Technologies has 3 staff members:
  o 1 director and,
  o 2 programmers.

• Networking/Telecommunications is responsible for all the data communication and the telephone service including the switchboard. Their service also includes maintenance and installation of all the communication wiring underground and within buildings. Networking/Telecommunications has 5 staff members:
  o a director,
  o a telecom coordinator,
  o 2 technicians and
  o 1 switchboard operator.

• Systems Administration manages all 24x7 mission-critical servers and user accounts. System Administration is also responsible for application support
for Exchange (E-Mail) Administration, Blackboard Learning System, SQL, Network Storage, and Active Directory. System Administration has 2 staff members:
  o a director and
  o a system administrator.

Budget

As mentioned earlier in this report, the annual budget for technology was increased, initially, by more than $1.5 million. Ultimately, the budget increased by $3 million over the budget prior to the adoption of the technology plan. During the course of the three year technology plan, the spending on technology more than doubled.

The current budget for all technology is:
  • Annual expenses--$3,061,632 in salaries; $2,699,067 in operations
  • R&R pool--$1.1 million (included in operational expenses listed above)

<table>
<thead>
<tr>
<th>Year</th>
<th>Technology Budget</th>
<th>Operations</th>
<th>Salaries</th>
<th>% increase over previous year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>$ 2,345,632</td>
<td>$ 1,052,481</td>
<td>$ 1,293,151</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>$ 2,980,021</td>
<td>$ 1,169,912</td>
<td>$ 1,810,109</td>
<td>27.0%</td>
</tr>
<tr>
<td>2001</td>
<td>$ 4,148,617</td>
<td>$ 2,053,215</td>
<td>$ 2,095,402</td>
<td>39.2%</td>
</tr>
<tr>
<td>2002</td>
<td>$ 4,693,243</td>
<td>$ 2,405,383</td>
<td>$ 2,287,860</td>
<td>13.1%</td>
</tr>
<tr>
<td>2003</td>
<td>$ 4,979,808</td>
<td>$ 2,273,674</td>
<td>$ 2,706,134</td>
<td>6.1%</td>
</tr>
<tr>
<td>2004</td>
<td>$ 5,760,699</td>
<td>$ 2,699,067</td>
<td>$ 3,061,632</td>
<td>15.7%</td>
</tr>
</tbody>
</table>
Description of Network

Elon’s network features a core of five large switches connected in a redundant double ring configuration. The redundant rings operate at a maximum of 4 gigabit/second. The core switch performance is 32 gigabit/second. Most buildings on campus connect to the network core with a 1 gigabit/second fiber-optic link. The network is scalable and can be upgraded for higher performance by adding additional gigabit ports to existing equipment. The campus Internet connection is a 45 megabit/second full DS3 through Time Warner Telecom. We will be adding an additional connection with 100 megabit/second this summer and a connection to North Carolina REN.

Servers

Below is a list with descriptions of the mission critical services that support the everyday faculty and staff operations. Any mission critical service is maintained by the system administrators of Information Systems & Technologies on server class machines to provide 24/7 up time.

Servers for Faculty/Staff Operations:

Datatel: The University’s business system runs on a HP UNIX Server. This server was upgraded from a K-460 to an L3000 HP box. Although a single system, the service it provides is very important to the day-to-day functions of the campus and is considered mission critical.
**OnTrack:** The server that supports the OnTrack environment is on an A500 HP server running HP-UNIX. The services it provides are online registration, grades, schedules, employee information, etc. This server is also considered mission critical several times during the year.

**Blackboard Learning System:** Blackboard 6.0 learning system runs on a multi-server platform consisting of 2 front-end Web servers which are balanced (Network Load Balance) to insure a constant connection for the user environment and to increase the speed in which pages are served. A backend file server using Microsoft DFS (Distributed File System) is used to share common files to the front-end servers. Microsoft SQL runs on an additional server and shares database information to the front-end servers. These servers are considered mission critical.

**Blackboard Phoenix Card:** The Phoenix Card system is on an HP R390 server running HP-UNIX. Students depend on the availability and functionality this server provides on a daily basis. The services on this server are all the card readers, all Phoenix card data, Phoenix Card Vendor information and information for the door readers. This system is considered mission critical.

**E-Mail – Mailing Lists:** Elon currently utilizes a very large and sophisticated Exchange 2000 system. Our configuration consists of two large back-end servers, two front-end servers, a storage server, and two WebShield servers for virus and spam blocking. This system includes 1000 mailing lists and over 6000 users. This system is considered mission critical.

**Web:** The web servers that house the campus homepage and student, faculty, and staff Web pages, run on Windows platform machines. These systems require very strict security and administrative tasks in order to keep them away from hackers. These machines are ordinary computers that can be easily replaced at anytime as long as the data is kept safe. We should replace these machines with server class computers with redundant components in the near future.

**PALS:** Last year PALS moved all of their systems to Elon. We provide backups and support for the equipment. The PALS systems will be replaced soon.

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**Operation of the network and other “technology-only” servers**

Below is a list of mission critical servers supported by the system administrators in IS&T that support the “behind the scenes” functions of technology. These servers must be operational 24X7 for the network and other critical services to operate.
SQL: Microsoft SQL is fast becoming the preferred database of choice of many applications. Our internal web programmers utilize this database to store all of our web data. Blackboard also uses SQL for storage of all class data for the learning system application. Even Datatel is implementing SQL for new customers now, and will be offering it to existing customers very soon. In the future, we will need to move to a SQL infrastructure that is redundant and able to house lots of data.

Active Directory: The Active Directory infrastructure is the framework behind the single-login authentication model on campus. E-mail, web, modem pool and wireless are all already using Active Directory for login credentials. New e-services will use Active Directory for their user authentication. Active Directory is maintained by six servers. This system is considered mission critical.

Network Attached Storage: This system is an extremely large storage device used by faculty, staff and students.

Unity Messaging: Unity Messaging is the technology to merge voice mail with e-mail. Anyone who has an IP telephone can have this functionality. We are looking into offering this service to students for a fee.

Wireless Authentication: All accounts that use wireless authenticate against Active Directory via a separate system.

Digital Certificate Authority: Three new servers perform the function of Digital Certificate Authority on campus. This function, which allows for the SSL transmission of online transactions, is required for many of the e-commerce and security projects being implemented. This system is considered mission critical.

A chart of mission critical services and servers as described above is included in the Appendix.

Below is a chart showing the growth in the number of users since 1999. The technology plan was implemented in 2000 and the growth technology use is apparent by the growth in user accounts. The accounts represent users in Blackboard, e-mail, Web servers, network storage, wireless networking and active directory. Each user is a unique account in active directory. Once a user is established in active directory, they can be assigned access to any of the services listed above that are appropriate to the user.
### User Account Growth Statistics

<table>
<thead>
<tr>
<th>Number of Accounts</th>
<th>Spring 1999</th>
<th>May 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty and Staff</td>
<td>691</td>
<td>905</td>
</tr>
<tr>
<td>Students</td>
<td>3708</td>
<td>4753</td>
</tr>
<tr>
<td>Org/Special/Retirees/Etc</td>
<td>50</td>
<td>324</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4449</strong></td>
<td><strong>6872</strong></td>
</tr>
</tbody>
</table>

Each year around 1500 new students are added, while only 800 are removed. Also, additional faculty, staff, and organizational and special accounts are created.
Description of Common, Supported Software

Instructional & Campus Technologies licenses several software packages for the use by the whole institution through site licenses. Below is a list of the site licenses that Elon has purchased.

- Microsoft—Elon provides all students, faculty and staff Microsoft Office Professional, FrontPage, Publisher, Operating System upgrades.
- SPSS—Elon provides a 100 user license for on campus use only of SPSS, a statistical software package primarily used by social sciences.
- McAfee virus protection—Elon provides all university owned equipment virus protection. The protection includes anti-virus software for the email system so that no email viruses can be propagated through Elon University.
- SAS—Elon provides 100 copies in labs and on faculty machines of the SAS statistical software. This software package is primarily used by business and science faculty.
- Mathematica—Elon provides this software to faculty and computer labs
- Norton Anti-virus software—Elon provides this anti-virus software free of charge to students.

It should be noted that in addition to these commonly used and supported software packages, there are more than 115 software packages used and operated by smaller sections of the university faculty and staff. These packages are unique to the academic or administrative departments’ needs.

Datatel

Datatel is an enterprise level ERP (Enterprise Resource Planning) software package, Datatel handles financial information, student information, classes, human resources and fundraising for the university.

Exchange

Elon’s email system runs on Microsoft’s Exchange system.

Blackboard

Blackboard is a comprehensive, university-wide academic course management system, including a portal system and a web e-services transaction system.

- Blackboard Learning System is a course management system that software lets faculty members place course materials on-line. It provides content organization and presentation, facilitates communication and assignment submission. It also has assessment tools, an electronic grade book, and functions that helps to manage class materials and activities. Faculty use Blackboard in teaching and learning to supplement their lecture materials,
increasing contact with and among students, and to support the work of their academic departments, organizations, and projects.

- The Blackboard Portal provides a flexible, single point of entry to campus information and is a front-end to the Blackboard Learning System, Phoenix Card, email, OnTrack and other campus e-services.
- Blackboard’s Transaction System is the backbone of Elon’s Phoenix Card—a one card system that is a combination of identification card, debit card, meal card, library card and door access card.

Description of Other Services

Training

Instructional Design & Development (IDD) offers training to faculty and staff on a regular basis and, by request, provides instruction to classes of students. The elite (Emerging Leaders In Technology @ Elon) program provides workshops for students throughout the fall and springs semesters and also provides leadership training to its student representatives. The elite (Emerging Leaders In Technology @ Elon) program also provides mentoring to faculty on technology projects.

Faculty and staff are offered a wide range of professional development opportunities by IDD. These include:

- Weekly workshops on pertinent topics. These workshops are typically 50-minutes in duration and are offered approximately 10 to 12 weeks of each 16-week semester. The workshop format is usually a combination of demonstration by the session facilitator and hands-on application by attendees. Workshop topics are defined narrowly enough to enable participants to learn what they need to know during that one session. Each workshop is presented at least twice, on a staggered schedule so that as many faculty and staff as possible can attend. Those interested in learning more about the subject are encouraged to attend more advanced sessions or work with an IDD staff member individually.

- Multi-session and multi-week courses. Workshops that consist of two or more classes are also offered during the fall and spring semesters, either during the same week or spanning a number of weeks. In the past, multi-week workshops have delivered hands-on instruction on developing multimedia CDs, using Dreamweaver, and learning Photoshop, among other topics.
• Intensive faculty development programs. Each summer, IDD offers faculty the opportunity to participate in either one- or two-week workshops, which typically include approximately 35 hours of instruction. Over the past several years, these intensive workshops have enabled participants to gain in-depth experience with creating websites, creating multimedia CDs, creating Blackboard sites, and acquiring basic computer skills. These intensive faculty development workshops have also been offered during January’s winter term.

• Individual assistance. IDD offers any individual or staff member individual assistance with instructional technology matters on an as-needed basis. In the past, IDD staffed ‘walk-in hours,’ which provided assistance for anyone who chose to call or visit during certain days and times. This open-door policy has now been reconfigured as the ‘just in time’ program, which enables individuals to request individual assistance on their schedule and for as many sessions as needed to meet their goals. Informal ‘just in time’ training also happens daily via telephone calls IDD receives from faculty and staff.

Perhaps the least known professional development opportunity IDD provides faculty is instructional design consulting. Two additional instructional designers have been added to the department staff since February 2003, and they offer faculty their expertise as requested. Demand for this service is growing as the instructional designers successfully work with faculty on incorporating new strategies and technologies into their teaching.

For the most part, training for students is provided by the elite (Emerging Leaders In Technology @ Elon) program, which offers student-led workshops during the evenings in the fall and spring semesters. A variety of technology-related topics is taught; examples include how to use Microsoft Outlook; how to use Blackboard; and how to design, create and give presentations. elite (Emerging Leaders In Technology @ Elon) students also staff the Student Technology Center in Belk Library. Any Elon student can request assistance with scanning, creating PDF files, burning CDs, creating Web sites, etc. from the elite (Emerging Leaders In Technology @ Elon) student on duty. As the Student Technology Center is open evenings and weekends, faculty and staff also can (and do) obtain assistance there when IDD is closed or when IDD staff are not available to provide one-on-one assistance.

Building Access Using Phoenix Card
Nine residence halls and six academic/administrative buildings on the university campus have been outfitted with a card access system. Doors in these buildings are keyed to the Phoenix card through the use of twenty-six card swipe mechanisms. The
traffic through these secure doors is logged in a computer for reference and reporting. The buildings with secure doors have the capability to operate while isolated from the network; but are attached to a central server for file storage, back-up, renewal and updates.

The central processor is used for traffic reporting and statistics on access granted or denied. In addition, notification is brought to a central location around the clock indicating if a door is left ajar for a predetermined length of time. The system is monitored in The Campus Safety and Police Department and the Physical Plant Department.

The door system was installed and operational in August, 2003 at a cost of $162,000. It is scalable and buildings may be added to the system as the need arises.

The major goals expected from the card security system were to:

- Improve quality of life on campus
- Improve campus security
- Consolidate many functions in a single card
- Improve centralized record-keeping and audit trails for building access
- Reduce administrative costs by reducing metal key production and issue administration
- Provide better quality services to students

We believe that the system has met the established goals.

ACT System

The ACT system is a suite of software modules used by admissions and the physical plant. Admissions uses the scheduling function of the ACT software for all their touring appointments as well as information regarding the people that are coming to Elon for a tour.

The physical plant uses an entirely different set of modules within the ACT software. For them it is a vast and comprehensive system, that they use to track work orders, inventory, purchasing, vehicles, etc. Any functions of the physical plant are tracked and monitored through the ACT system. Work orders are entered, tracked and completed; inventory is tracked, monitored and reordered; physical plant stores are monitored; vehicle inventory and maintenance is tracked. There is also a web module called Requestline that enables resident directors and other building supervisors to enter work orders and check on the progress.
III. Assessment of Three Year Technology Plan

Below are a number of assessments, both internal and external, of the technology plan. There are comprehensive assessments (covering every unit and activity of the technology plan) done by external consultants and two done routinely by the most active of our internal units.

Additionally, there is a “gap-analysis” of the faculty’s opinions about currently available technology and those technology enhancements that they desire. This survey determined what the faculty perceived as lacking in technology needs. The results of that survey can be found at http://www.elon.edu/technology/vision.htm

Finally, there were individual meetings with each stakeholder group on the campus about technology needs. The results of these meetings are shown in the appendix.

SACS Consultant Report
In 2002, Elon University went through its accreditation process. Part of the process included a self-study of technology at Elon. While only into the second year of the plan, Earving L. Blythe, vice president at Virginia Tech for Information Technology, one of the most eminent consultants and leaders in technology in the United States, was engaged to review the technology plan and its implementation. In his summary review of technology Dr. Blythe said:

“Good, innovative activities are occurring at the ‘grass roots’ level using existing University resources. Essential to the success of any organization is having some very committed and talented staff. Elon is fortunate to have such staff, often accomplishing more than one might expect. Additionally, timely, good technology choices and decisions have been made that are making a big difference (e.g. reflected by in place network technologies, personal computer based software environments and tools, etc.) in the functional utility of Elon's information technology resources.

“Elon has a very good, reliable communications network supporting a highly distributed (with the exception of the appropriately centralized administrative systems) computer infrastructure. It has an up-to-date, well-maintained and supported workstation environment for its faculty and students. What Elon has achieved in this arena may be unmatched by any mid-sized, liberal arts centered higher education institution (private or public).”
Assessment by Kaludis Consulting

At the end of this past three-year technology plan, Kaludis Consulting was again hired to assess the implementation of the plan. Elliott J. Haugen, vice president of Kaludis Consulting, did the original assessment of Elon’s technology in 1999 and returned to assess the technology plan in 2003. After interviewing faculty, staff and students, Mr. Haugen produced an in-depth assessment that praised Elon’s efforts. In the cover letter to the report, Mr. Haugen said:

“It is clear that Elon University’s current IT plan and its associated implementation actions effectively addressed campus demands and future opportunities regarding expanded and enhanced information technology planning, leadership, service and resources. The stated IT goals and resulting priorities and investments were extremely well aligned with where Elon was moving institutionally and what the campus community needed and expected. Elon has not only caught up in terms of its IT environment, it has moved to a significantly higher level of service, performance and reliability.”

Comments by AACSB Visiting Team

In February, 2004, Elon University completed a visitation from AACSB as part of the process for accrediting the Love School of Business. The visiting team members specifically commented on the level of technology and support of faculty who use technology, as “a model for other institutions.”

Self-Assessment of Event Support by Media Services

Prompted by faculty feedback regarding classroom support, Media Services began looking at the services they provide and found that support for meetings, convocations and other similar events had increased significantly. Below are parts of their findings regarding these increases.

Media Services provides both event set up and classroom support division. They primarily handle university-programmed events for the President’s office, Cultural Events office, Institutional Advancement and some campus wide organizations. In
the summer of 2002, They reorganized the scope of the event set up and tracked the number of events and their complexity. Below are the findings:

<table>
<thead>
<tr>
<th>Size of Event/Delivery</th>
<th>Narrative</th>
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<tbody>
<tr>
<td>Large</td>
<td>VIP type events that requires a number of days, equipment and people to set up</td>
</tr>
<tr>
<td>Medium</td>
<td>Special Attention type event that requires more than three pieces of equipment</td>
</tr>
<tr>
<td>Small</td>
<td>Routine type event that requires more than two pieces of equipment</td>
</tr>
<tr>
<td>Other</td>
<td>Routine type event that requires one piece of equipment</td>
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**Fall Semester 2002** *(Date range 8/18 to 12/10)*

<table>
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<th>Totals</th>
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<tr>
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**Fall Semester 2003** *(Date range 8/18 to 12/10)*

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<td></td>
<td>128</td>
<td></td>
<td>242</td>
</tr>
</tbody>
</table>

**Growth**

\[ +124\% \quad +51\% \quad +78\% \]

**Behind the Numbers**

In the beginning of the Fall Semester, Media Services saw an increase of 115% in the medium style events because of more events and more technology elements in those events. Included in medium events are very high profile customers like Admissions, Alumni Relations and the Chaplin’s Office. Media Services also saw an increase of
600% in the small style of events. Included in small events are International Studies and a number of professors that have set-ups outside of the classroom.

**Self Assessment of PC Support**

Since the implementation of the previous technology plan, the helpdesk has undergone major change. The helpdesk underwent major reorganization to create a professional and modern helpdesk. Staff were hired and trained on how to give service rather than just take messages for technicians. As the helpdesk grew more proficient, services were added (e.g., password verification and resetting, 1st level trouble shooting, 1st level resolution of problems, etc.) with the number of calls dramatically increasing over the past 3 years.

*History of calls to the Helpdesk*

In developing the new three year technology plan, we were advised by several of our consultants that our original areas of emphasis and the goals under each area were of sufficient breadth that we should strongly consider keeping them in the new plan and merely change the strategies and objectives under each one from the previous plan.

After some consideration, we decided that this advice was very sound and we accepted it. Consequently, we have repeated the areas of emphasis and goals from the previous plan. We have made significant changes, however, in the objectives and strategies under each one.

There were two overarching themes uncovered in the assessment, both internally and externally, of the past plan. We determine that these two themes should be prominently incorporated in the fabric of the new plan. These two themes were:

1. **Add to the existing infrastructure (hardware, software and staffing) to make the technology activities even more reliable and responsive.**

   While the technology infrastructure is widely seen as stable, reliable and supportive, any interruption of that structure (hardware that fails, software that crashes or any absent staffing) causes stress. In the case of classroom instruction, for example, if a data projector fails to work for a class presentation, the faculty member will be hesitant to rely on the classroom technology for future classes. Over the past three years, major disruptions have been minimal, but they rarely are without consequences. Improvements in this area can provide higher confidence and less stress in both the learning and working environments.

2. **Add new initiatives that respond to pedagogical enhancements, new pedagogical requirements as well as time/effort saving activities.**

   There are significant pedagogical imperatives that need to be met. Significant among these are the requirement to move from analog to digital technologies in the School of Communication. There are other pedagogical enhancement that should also be contemplated (e.g. new methods in foreign language instruction; accounting, finance and economics instruction; the continued need for technology in the curriculum in the School of Education).

   Even though Elon University has added significantly to the faculty and staff over the last decade, the potential existed for a larger increase if not for labor
savings of technology. Further efforts in finding and implementing labor savings via technology will be pursued.

Below, are the areas of emphasis with goals and the new objectives or strategies for completing them in this three-year plan. Clearly, many of these objectives and strategies cross over several goals simultaneously. They are, however, only listed under one goal to keep from being redundant.

**Enhance the teaching, learning and research of faculty, students and staff**

Goal (1): Develop and support curriculum and program initiatives for teaching and learning through the use of appropriate technologies.

- Improve and expand classroom technology
- Develop the program for the Koury Business Center with technology staffing and resources
- Expand the support given by Instructional Technologies (IDD & ITS)

Goal (2): Develop the capability for distance learning through the use of remote technologies.

- Provide space in the Koury Business Center (Digital Theater) to use remote technologies
- Expand bandwidth, and partner with NC-REN (North Carolina Research and Education Network) to allow for satellite and remote video traffic
- Improve the networking and server capability on the campus

**Prepare students for a life and career in a rapidly evolving age of technology**

Goal (3): Develop college-wide and discipline-specific technology objectives, define ways to enable students to meet these objectives.

- Migrate from analog to the newly required digital technology, throughout campus, but primarily in the School of Communications
- Upgrade software packages in academic departments and throughout the campus
- Focus on academic departmental 5-year plans when adding new Instructional Technologies staff to maximize student learning outcomes
Goal (4): Infuse technology throughout the curriculum, internships and work experiences so that Elon University students become known nationwide for their expertise in the use of technology.

- Expand on-line offerings consistent with educational and pedagogical goals (supported and subsumed in numerous other objectives: servers, bandwidth, remote technologies, etc.)
- Provide on campus student work experiences in technology fields that allow students to work with the newest technology and methods (supported and subsumed in numerous other objectives: elite [Emerging Leaders In Technology @ Elon] Program, Help Desk, Events Management, Scheduling Software, Print Management System, E-services, etc.)

**Improve efficiency and effectiveness of communications and operations**

Goal (5): Provide the infrastructure and support that enable improved communications and operations technologies to be introduced in a timely and efficient manner

- Continue to deploy Voice Over Internet Protocol (VOIP) as a cost savings and efficiency measure
- Improve technology staff development opportunities
- Expand E-services, including scheduling software and a print management system
- Provide additional support for database creation and management

Below are these objectives or initiatives for the next three year plan. Each area or initiative is described and a [recommendation] made with a [cost] associated with the recommendation.
Classroom Technology

Classroom technology needs to be available, reliable and easy to use. Faculty are very clear in stating that all classrooms need technology whether or not it will be used during every class meeting. Faculty should not have to do two preparations for the same class—one if they are assigned a classroom with technology and another if they do not. Teaching two sections of the same class complicates matters even further when a faculty member teaches one section in a classroom with technology and the other section in a classroom without. If faced with creating the same class twice, anyone would take the path of least resistance and not use technology.

Additionally, the technology needs to be reliable and easy to use for students. Today’s students do not view technology in the same manner as faculty. They don’t even view it in the same manner as students five years ago. Instead, students see accessing information through technology much like someone from the faculty’s generation views turning on a light in a room. Faculty don’t think about the bulb and the electricity when turning on a light, they just expect it to work—it is taken for granted. Students think the same way. They expect it to be available and to work all the time.

Many classes, as part of their engaged learning component, require students to make presentations. Once again, students expect the technology to be available in the classroom to support their class work. If equipment has to be checked out from Media Services, carried across the campus and time taken from the class to set the equipment up, it is a great deterrent to successful presentations. Removing roadblocks to using the technology is a step towards more engaging classes.

Equipment also needs to be reliable. Sufficient support staff need to be available for quick response to problems in the classroom as well as available for daily checks of the equipment in the classroom and monthly maintenance. Equipment needs to be current. Elon currently replaces computers on a 3 to 4 year cycle. As far as faculty and students are concerned, if their computer is not compatible to the classroom equipment, then it is unusable. Often times the calls for technical assistance is because a faculty or student’s computer is current, but a projector will not recognize the laptop. The responding technician has to reduce the resolution of the laptop so it will work with the projector—not an intuitive process.

There are eight recommendations associated with classroom technology:
**Recommendation:** Fund a renewal and replacement (R & R) budget for classroom equipment so that classroom technology can be replaced on a regular basis.

Cost: $220,000 per year implemented in year two (2) of the plan.

**Recommendation:** Equip all remaining (68) classrooms with a computer, data projector, and the current instructional technology. A typical classroom would have the following equipment:

- Data projector
- Video playback device
- Computer
- Input for a laptop computer
- Sound system
- Control interface for equipment
- Projection screen
- Document camera (optional)
- Image splitter (optional)
- Digital Pad (optional)
- Computer for each student (optional)
- Transparency projector (optional)

Cost: **$512,244** if implemented at one time. Suggest doing it over time through the R&R fund for classroom equipment.

**Recommendation:** Put a phone in each classroom so faculty can get quicker response to problems in the classroom.

Cost: **$102,000** if implemented at one time. Suggest doing it over time through the R&R fund for classroom equipment.

**Recommendation:** Hire another staff person to support classrooms. This person should be scheduled to work at a time when classrooms are unused. Classroom checks should be performed daily and regular maintenance should be performed monthly. Having a person check classrooms daily will allow problems to be found and corrected before faculty and students use the equipment in classes.

Cost: **$38,750** for salary and benefits.
**Recommendation:** When purchasing classroom equipment, make sure there are two extras of each make and model of equipment so that equipment can be changed out quickly, rather than having a class wait while someone troubleshoots and repairs the equipment in the classroom.

**Recommendation:** Have a knowledgeable person or team of people responsible for teaching space design. Classrooms and computer labs should be designed in consultation with faculty who are most likely to use the classrooms.

**Recommendation:** The equipment interface should be standardized, flexible and easy to use. The design of such an interface should be reviewed and tested by faculty and students, then modified based on feedback.
**Koury Business Center**

The addition of the Koury Business Center will enhance entire the campus in terms of 20 highly mediated classrooms. The design is such that technology is pervasive in and out of the classrooms allowing for free flow of instruction/learning throughout the building. The whole building will be wireless with strategically placed hard-wired access points to the network. A flexible multimedia lecture hall/auditorium/teleconference facility will accommodate up to 250 people. A trading room/finance center will be fully mediated giving the impression of walking into a live, working financial center one would normally find in a major city, complete with an electronic stock ticker.

The amount of technology within this one building and the extended hours of operations will require additional technical support.

**Recommendation:** Add two technicians who can support all the technology within the building for the extended hours of operations this building will need to accommodate the MBA and Executive Education programs.

**Cost:** $78,000 for salaries and benefits for two technicians.
Instructional Design & Development

Elon prides itself on being a teaching and learning institution on the cutting-edge of instructional innovation. However, increasing demands on faculty time and the complexity of some of the technology needed to create multimedia material leaves little time to master innovative instructional technologies and experiment with new software and techniques. Faculty are expected to focus on teaching, stay current in their field, partake in scholarly research and be involved in their community.

Faculty often talk of wanting to use technology in their teaching, but cannot invest the added time learn how to create materials as well as learn how to incorporate them into their teaching. In an effort to improve efficiency and to meet the needs expressed by faculty, Instructional & Campus Technologies has added support staff to design, develop and produce instructional strategies and products to help faculty make classroom teaching progressive.

Instructional designers provide pedagogical support and technological assistance to faculty, elite (Emerging Leaders In Technology @ Elon) students focus on technical support for students and individual faculty projects while multimedia developers create interactive projects that combine video, sound, and animation. Under the previous technology plan, 2 instructional designer, 2 multimedia developers and one system integrator were hired to support faculty. We see a shift at Elon and at other institutions where technical experts work with content experts, the faculty, to produce effective teaching materials. Instructional designers also help faculty learn how to effectively integrate the technology into their teaching.

We should have enough instructional designers and multimedia developers on staff in technology that each academic area would be supported by one instructional designer and one multimedia developer. The identified academic areas are: math and sciences; humanities; social sciences; education; business; communications.

**Recommendation:** Over the next three years, hire 4 more instructional designers and 3 more multimedia designers.

**Cost:** Total cost = $287,500 or $43,750 for each instructional designer and $37,500 for each multimedia developer salary and benefits.
Software

Prior to the previous technology plan, Elon University had a problem with multiple makes and versions of the most basic productivity software. Support of the software was extremely difficult. Technicians couldn’t become proficient in all types of word processors or desktop publishing and the various versions that were in the different computer labs, academic/administrative departments and students. Often, students had more recent versions of the software and couldn’t turn in their papers to faculty in electronic form, because the faculty member’s version wouldn’t open the file. The technology plan called for standardizing on one productivity software package for faculty, staff and students. Microsoft Office was chosen and the annual licensing agreement allowed for campus-wide upgrades as they became available.

Today we face a similar problem with Web and multimedia software. More classes are requiring Web pages or multimedia projects. Four majors use the software extensively—Communications, Computing Sciences, Digital Art and Education. We recently found ourselves with three different versions of Dreamweaver, a Web development software package, in our computer labs and faculty offices. Academic departments found that they couldn’t afford to upgrade software on a regular basis, so departments were getting out of sync with their versions.

Recommendation: Purchase a 1,000 user license of Macromedia Studio MX, a suite of software packages for Web and multimedia development. The 1,000 user license is for 2 years and provide for free upgrades within that 2 year license. Studio MX provides the most popular combination of software for Web and multimedia development in a single suite.

Cost: $128,420/ 2 years.

Recommendation: Use the 2nd year of the $128,420 to purchase other popular software that is needed by the university like Adobe Reader/Writer, Final Cut Pro (a video editing software), etc.

Recommendation: Require all university software purchases to funnel through PC Support so licensing information can be maintained and volume purchases can lower our unit cost. PC Support could purchase a large volume of a software package at a lower price and charge back the lower cost to requesting departments.
**Technology Helpdesk**

When a problem occurs with technology, who do you call? If you are in your office and it is your computer broken, people generally know to call the helpdesk. When you are in a classroom, your computer is on and working, the data projector is on and working, but they aren’t talking to each other—who do you call then? Media Services installed the projector and the classroom equipment while PC Support takes care of the laptop computer, but where is the problem? This is just an example of the dilemma as technology converges.

The problems don’t clearly fall in one area—telephones are on the data network; computers are integrated into the classroom technology; administrative functions and services are on the Web. There needs to be a single helpdesk number that anyone (faculty, staff and students) can call to report their problem. We also have found a steady and significant increase in the calls to the helpdesk as they continue to offer more support over the phone.

Also, this area is one of the most important places where students get technology training and experience. While the work student funding for this area is sufficient it is important to make sure that we continue to provide a large numbers of students access to this experience. The same can be said for the PC repair shop operation, which hires a significant number of student workers, too.

**Recommendation:** Use the helpdesk as the single number to call for all technology problems. This additional function and the significant increase in calls over the last two years will require an additional helpdesk associate.

**Cost:** $33,750 for salary and benefits.
Networking

Elon’s networking infrastructure is in very good shape. We have invested more than $750,000 in the last three years to upgrade our networking equipment and wiring. Network reliability and internal bandwidth have improved significantly due to the upgrades. Redundancy and resilience features have been added to improve overall uptime. Network security has been strengthened with the introduction of intrusion detection and access control. Staley, Moffitt, Maynard, Virginia, West, Sloan, Carolina and Smith are the only residence halls still needing an upgrade in networking equipment. We need to keep upgrading equipment on a regular basis so faculty, students and staff can take advantage of new technologies that use the network such as voice over IP, video and audio streaming, wireless communications, file sharing, video and audio on demand, etc. Currently, we have over $1 million in networking equipment. As the network grows and more services ride on our network, we will need to keep staffing appropriate for the size. In two years, we will need to add another staff member who has extensive training in network implementation, maintenance and repair.

**Recommendation:** Upgrade the networking equipment in Staley, Moffitt, Maynard, West/Virginia, Sloan, Carolina and Smith residence halls.

**Cost:** $86,622

**Recommendation:** Establish an R & R fund for networking equipment. The life cycle of building networking equipment is about 5-6 years, but core network equipment has a life expectancy of 8 years.

**Cost:** $150,000 per year.

**Recommendation:** In year three of this plan, add another networking engineer.

**Cost:** $69,000 salary and benefits.
Servers

Server reliability needs to be maintained. We as a community have become more dependent on electronic services, so that it becomes more important that we ensure those services are available 24/7 (see attached equipment list). Part of this issue is making sure that services are on solid equipment with built in redundancies. The model Elon has used for critical services is a clustered environment for each service, rather than a single server that provides a single point of failure. Regular replacement of equipment is also important. We find that a 3-year life cycle is average for most servers. At the end of the 3 years, the service has often outgrown the equipment on which it is housed. Server technology and speed of processors usually have advanced significantly in 3 years that it is desirable to change the hardware to meet the continued growth of a service. Manufacturers typically start a dramatic increase in maintenance and support costs after 3 years to the extent that the price of maintenance contracts alone could pay for equipment replacement 2 to 3 years beyond the equipment’s original 3-years. At the end of 5 years, parts are difficult to obtain, making repairs longer than what is acceptable for down time. At the end of 6 years, manufactures often stop supporting the equipment. Staffing should be sufficient to support the hosting of services on the servers.

**Recommendation:** For electronic services that are deemed extremely important or critical to the whole institution, make sure the equipment is in a clustered environment with appropriate redundancies at the time of purchase.

**Recommendation:** Establish a 3-year R & R fund for servers that support extremely important or critical services.

**Cost:** $350,000 per year. Increase the budget $175,000 in year two and again in year three for a total increase of $350,000.

**Recommendation:** Each system administrator should not administer more than two mission critical systems or 10 servers. Once we have reached the maximum for existing staff, a staff member should be added to spread the work load so that we can ensure equipment reliability and dependable services. We currently have 32 servers and 2 system administrators. We should add an additional system administrator in the first year of the technology plan and a second system administrator in year three.

**Cost:** $60,000 in year one for salary and benefits and an additional $60,000 in year three.
Events supported by Media Services

The number of events at Elon University has continued to grow over the last 10 years. Event support with technology continues to grow at an even faster rate. In one year, Elon saw an overall growth rate of 78% in the number of events requiring equipment and technical support. Media Services primarily handles university programmed events for the President’s office, Cultural Events office, Institutional Advancement and some campus wide organizations. In the summer of 2002, we reorganized the scope of the events that we set up and tracked the number of events by their complexity.

In the beginning of the Fall of 2003 Media Services supported saw an increase of 124% over the same time period in the previous year of supported events because the university continues to add more events and more of the events are requiring sophisticated technology elements. The rest of the semester had a 51% increase in events supported. While comparing both numbers, it looks like the rest of the semester was easier, but it has to be remembered that it still is a 51% increase over the same time period in the previous year. The increased support was met by a significant increase in overtime of existing staff, an increase in the use of student workers and the use of staff that normally support classrooms. Pulling a support person out of the classrooms means that faculty are not being supported. When faculty have problems with the classroom technology, they end up wasting time and are reluctant to use the technology the next time. We will need to add professional staff to event support because the use of technology will not decrease in events and as we have seen over several years, Elon University events will not decrease in numbers either.

**Recommendation:** Add another event support position in year two of plan.

**Cost:** $38,750 for salary and benefits
School Of Communications Technology

Elon’s School of Communications is becoming one of the nation’s premier communications programs. A major strength of our program is student accessibility to technology and early participation in student media. Students can get involved in media production activities from the moment they begin their college career at Elon. This unique and competitive advantage of our program is made possible by an institutional commitment to technology and the staffing resources that support our technology infrastructure.

Communications programs are expensive, and there is really no way around this if we are committed to maintaining a regionally and nationally competitive program. The School of Communications and the Office of Television Services must continue to work together to ensure that the available inventory of equipment for student checkout is adequate for meeting the pedagogical needs of the academic program. Lack of equipment due to insufficient quantity, disrepair, or loss has a direct impact on the rigor of courses and the expectations that faculty can establish for student quality of work.

Students edit video and film production projects on computers, through the use of non-linear editing software. Their raw video must be uploaded to a computer hard drive in order for students to work with it. Video projects consume massive amounts of hard drive space and are simply too big to store on removable storage drives such as floppy and zip disks.

The Advanced Audio Production Lab (McEwen 008) is used by students in advanced audio production and cinema courses. The area is a shared space that supports both the academic program and the institution at large.

The television studios and production truck are not only impressive to see on admission tours, they are heavily used by students in production classes, by students creating productions for ESTV, and by Television Services for press conferences and advanced institutional productions.

**Recommendation:** Create an R & R fund for audio and video equipment used by the School of Communications based on an average 8 year life expectancy of equipment.

**Cost:** $103,000 per year. Increase the budget $51,500 in year two and again in year three for a total increase of $103,000.
Digital Video

The FCC has mandated that by 2006 all television facilities must broadcast in a digital format. Elon’s current television studio facility has an analog infrastructure and equipment. The mandate directly impacts Elon by making the current equipment obsolete and digital conversion inevitable. Maintenance and replacement of equipment is growing increasingly difficult because of the incongruities that exist between currently available digital technology and our older analog equipment, some which are more than 10 years old. Where possible, we have purchased equipment that can easily be converted to digital by replacing a chip or two. However, the time is fast approaching where we will no longer be able to avoid the inevitable digital conversion. Delaying the conversion means Elon students will be learning on out-of-date equipment and a fast approaching out-of-date format. Our students will lack the kind of experience necessary to compete for internships and jobs. We believe that the total funding needed to convert to digital will be approximately $1 million to upgrade the equipment that the School of Communications uses.

Our classrooms also need conversion from analog video to digital. The classroom issue is not as pressing as the School of Communications’ need. It will take longer for our library’s extensive video collection to be converted over to digital media. We will continue to need analog equipment in the classrooms.

**Recommendation:** Fund the digital upgrade of the School of Communications equipment over a 3 year period. Slow migration will allow us to use the existing studios by purchasing equipment, which is capable of both analog and digital. The last phase of the conversion will be the infrastructure and equipment where an analog/digital conversion isn’t an option. After the conversion, the recommended R & R fund will enable Elon to keep the equipment current.

**Cost:** $350,000 per year for three years.

**Recommendation:** Fund the digital conversion of classrooms out of the proposed classroom R & R fund.
Voice Over Internet Protocol (VOIP)

The next evolutionary step in telecommunications is IP telephony. IP telephony uses the data network technology to send and receive voice communications. This allows the university’s telephone system to expand beyond the reach of traditional telephone copper cables. IP telephones can be deployed to distant locations and communicate back to campus over the Internet. IP telephones can use the campus wireless network, allowing telephones to be installed where cable is unavailable or impractical. IP telephony software can be used on laptop computers to make telephone calls from any location with a good broadband connection to the Internet. This could greatly simplify calling home from study abroad.

Cost savings can be realized in new construction by simplifying the cable infrastructure. Traditional telephones require a separate cable for each telephone. IP telephones use the same cable as a computer. This can significantly lower the cost of cable installation and management. IP Telephones can be easily moved by unplugging in one location and plugging in the new location. The telephone number follows the IP address on the phone automatically, which simplifies office moves and renovations.

IP telephony has the potential for generating new revenue streams for the university. Residence halls currently offer one telephone per room. Adding a second analog telephone requires running a second pair of telephone cable. The cost of retrofitting an older building for traditional telephones can be extremely costly. Multiple IP telephones can be added at any time. Only a single data cable is required to support a student’s computer and IP telephone. Since each residence hall has a data outlet for each student, no infrastructure additions are required. It is also possible for students to take their IP phones with their Elon phone number home during breaks if they have broadband Internet access at home. Additional voice services can also be offered to students in new ways and with new applications, such as unified messaging. Unified messaging allows people to check their voice mail from their email account and vice versa. Other applications include news, weather and phone directories can be deployed on these IP telephones.

As current analog telephone switches age to the point of replacement, colleges, universities and businesses are replacing the older technology with IP telephony. Elon is currently deploying IP telephony in any new structure or where additional phones are requested. We believe that this gradual conversion is preferable to continuing to add onto an already aging telephone switch. By gradually switching to IP telephony, we will minimize the impact of total conversion when our current phone switch must be replaced.
Recommendation: As new construction, major renovations or additions take place; replace existing telephones with IP telephony. These costs will be borne by the construction budget for each project.
Technology Staff Development

Technology is constantly changing. Moore’s law states the number of resistors that can fit on a circuit board doubles every 18 months. This has a profound effect on anyone working in the technology area. Staff are bombarded with enhancements and new products everyday. To keep current, we must invest in training our staff. In the first three-year technology plan, money was set aside for professional development. Since the beginning of the previous plan, the technology staff has increased by 26 positions.

Recommendation: Increase the professional development budget by $10,000 per year to help keep staff current with the new technologies.

Cost: $10,000 per year.
Bandwidth

Attention must remain focused on campus bandwidth requirements as well as bandwidth to the Internet. The R & R fund for networking will enable us to respond as applications like streaming video require more bandwidth on campus. A systematic upgrade of equipment should always be mindful of the growing bandwidth needs.

In June of 2004, Elon will increase its access to the Internet by increasing its pipeline to 100 MB/second (currently it is 45 MB/second) and connecting to NC REN (North Carolina Research and Education Network) as a second Internet Service Provider (ISP). By connecting to NC REN, we will have the option to automatically increase and decrease bandwidth and charged according to usage. NC REN also will give Elon University access to Internet II, MCNC Super Computing, MCNC Grid Computing Project, Satellite Video Up-link, and teleconferencing.

The latter two items in this list will allow our professors to be interviewed as experts for national commentary for news reports or other televised events. The teleconferencing connection will allow us to receive classroom broadcasts of, for example, the Chairman of General Motors as he or she addresses our students in a marketing class.
**Web E-Services**

“E-services” is the idea that many the normal business services can be provided using the Web, offering 24/7 customer service. Elon’s current e-services offer students an opportunity to register for classes, housing, and parking on the web. Faculty enter grades, register for parking, submit documents for printing, and post documents for students to view. Staff check vacation and sick leave balances, submit budget requests, and register for staff development opportunities. Financial transactions include tuition & rent payment, Phoenix Card funds transfer & balance inquiries, and textbook purchases.

More e-services are currently in development. Within the next three years, users will have access to complete all university business through a single integrated interface on a variety of devices (desktop computer, tablet PC, wireless devices like PDA’s & phones, etc.). Most of these services will be accessed through a single sign-on and will connect to an integrated database so all appropriate information about the user will be accessible and current.

Among the new E-services that will be developed in the next three years are:

- On-line requisitions
- Purchase orders to vendors issued electronically
- Elon payments to vendors payments made by internet transaction
- Textbook purchases and delivery to residence hall room made on-line
- Scheduling software
- Print management system
Integration of Database Technology

All over campus people are asking for help integrating technology into the work they do. Many requests are covered under e-services, but one that has not been addressed is the creation and maintenance of databases. During the research for this plan, both faculty and staff expressed the need of someone who could help them create sophisticated databases using products such as Access, Oracle or SQL. Once created, most databases need minor adjustments and needs change.

**Recommendation:** Hire a database manager to help department create and maintain databases.

**Cost:** $56,250 for salary and benefits
Scheduling Software

Knowing whom to call is half the battle when it comes to scheduling rooms. The problem is which of the 25 different people schedule the room you want. A committee recently studied the room scheduling problem and has made a recommendation to the budget committee that Elon should purchase a scheduling software package. The software has a Web interface that allows anyone to see which rooms are available and to request the room on-line. It also has options for notifying support departments if they are needed. The package that was recommended interfaces with Datatel and can be used to schedule classrooms and labs for academics as well as meeting spaces, playing fields, athletic facilities, theatre facilities and the motor pool. By integrating all scheduling we will be able to use spaces more efficiently, people will be able to schedule easier and with less conflicts, and we will have easy access to space utilization reports.

The software will need a server and a database manager to initially create the database. Once the database is created, minor updates will need to be made periodically.

**Recommendation:** Purchase the scheduling software and hardware.

**Cost:** $42,075 for the software and $22,000 for the hardware.

**Recommendation:** Hire the database manager as recommended above in the section titled Integration of Database Technology. Once the scheduling software is implemented, the database manager will be free to work on other university databases.
Mobile Computing

Mobile computing is growing in popularity. 85% of faculty have laptop computers that are wireless capable. A similar percentage of the Elon students who bring computers to campus, bring laptops. Wireless PDA’s (Personal Digital Assistant) are also popular among faculty, staff and students. The technology of wireless phones are developing to include Web browsers and the ability to access various wireless appliances.

As more wireless devices are developed and find their way to Elon’s campus, we must be aware of the capabilities of the devices and create services that enable their use. While our wireless network is pervasive in academic areas and areas where student gather, we need to continue to deploy, refine and enhance the wireless network and its capabilities.
Print Management

Three issues have arisen that need to be addressed regarding printing in the library and computer labs. The first is the enormous waste of paper and toner cartridges. Many times people will print multiple copies of an article in the library thinking it had not printed only to find them on a printer other than the one they expected. Another problem with waste is during the research process, people find articles that they think might be good and then they find a better article. The waste paper from the library is increasing exponentially each year.

The second issue is the high cost of color printing. The color print outs are 20 times the cost of a black and white print out. It would be beneficial if people realized there was a cost differential.

The third issue is due to mobile computing. As students move from location to location with their wireless laptops, they are unable to print without plugging into a hardwired outlet. A print management system would enable students to send their print job to a print server, then go to the closest printer and choose their job from the print cue via a kiosk.

Most universities are implementing a print management system in one of two ways. Some institutions are charging students directly for each sheet that is printed. Another option is to give students an allotment each semester with color printing using more of the allotment than black and white. In either case, all institutions have seen a reduction in waste. Even the institutions that have given students an allotment have seen enough savings to justify and in some cases pay for the hardware needed for a print management system.

**Recommendation:** Purchase a print management system from existing technology funds and recoup the funds from savings.

**Cost:** None as they will be recovered from savings.
**NEW FUNDING PLAN**

Ongoing Expenses for the Technology Plan

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Year 04-05</th>
<th>Year 05-06</th>
<th>Year 06-07</th>
<th>Year 07-08 (projected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Fund R &amp; R of classroom equipment</td>
<td>$220,000.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Hire a classroom support technician</td>
<td>$38,750.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Hire 2 technicians to support Koury Center</td>
<td></td>
<td></td>
<td>$78,000.00</td>
<td></td>
</tr>
<tr>
<td>4 Hire 4 instructional designers</td>
<td>$43,750.00</td>
<td>$87,500.00</td>
<td>$43,750.00</td>
<td></td>
</tr>
<tr>
<td>5 Hire 3 multimedia developers</td>
<td>$37,500.00</td>
<td>$37,500.00</td>
<td>$37,500.00</td>
<td></td>
</tr>
<tr>
<td>6 Software upgrade fund</td>
<td></td>
<td>$128,420.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Hire a helpdesk associate</td>
<td>$33,750.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Fund R &amp; R of network equipment</td>
<td></td>
<td>$150,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Hire a network engineer</td>
<td></td>
<td>$69,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Fund R &amp; R of server equipment</td>
<td></td>
<td>$175,000.00</td>
<td>$175,000.00</td>
<td></td>
</tr>
<tr>
<td>11 Hire 2 system administrators</td>
<td>$60,000.00</td>
<td>$60,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Hire an event support technician</td>
<td></td>
<td>$38,750.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Fund R &amp; R of audio &amp; video equipment for Communications</td>
<td>$51,500.00</td>
<td></td>
<td></td>
<td>$51,500.00</td>
</tr>
<tr>
<td>14 Hire a database manager</td>
<td>$56,250.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>$270,000.00</td>
<td>$687,170.00</td>
<td>$664,750.00</td>
<td>$51,500.00</td>
</tr>
</tbody>
</table>

Notes: ¹ Not a continuing expense after year 2007-2008.
### One-Time Expenses for the Technology Plan

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Year 04-05</th>
<th>Year 05-06</th>
<th>Year 06-07</th>
<th>Year 07-08 (projected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Upgrade Staley, Moffitt, Maynard, West/Virginia, Sloan, Carolina and Smith residence halls</td>
<td>$86,662</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Upgrade remaining classrooms to the level 3 equipment</td>
<td></td>
<td>$512,244</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Put phones in all classrooms</td>
<td></td>
<td>$102,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Purchase the recommended scheduling software</td>
<td>$42,075</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Purchase the hardware for the scheduling software</td>
<td>$22,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Fund digital conversion for School of Communications</td>
<td></td>
<td>$350,000</td>
<td>$350,000</td>
<td>$350,000</td>
</tr>
<tr>
<td>Total One Time Costs</td>
<td>$150,737</td>
<td>$964,244²</td>
<td>$350,000</td>
<td>$350,000</td>
</tr>
</tbody>
</table>

Notes: ¹ these upgrades could be funded over time out of the proposed R & R fund for classrooms.

Notes: ² this figure presumes that all of these initiatives for the year are done in one year, instead of funded over time as noted in Note 1, immediately above.
## APPENDICES

Chart of Mission Critical Services and Servers

<table>
<thead>
<tr>
<th>Service</th>
<th>Server Count</th>
<th>Date of Purchase</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datatel</td>
<td>1</td>
<td>June 2001</td>
<td>$240,000</td>
</tr>
<tr>
<td>OnTrack</td>
<td>1</td>
<td>June 2001</td>
<td>Included above</td>
</tr>
<tr>
<td>Blackboard Phoenix Card</td>
<td>1</td>
<td>June 2001</td>
<td>$35,000</td>
</tr>
<tr>
<td>Active Directory</td>
<td>6</td>
<td>May 2002</td>
<td>$200,000</td>
</tr>
<tr>
<td>E-Mail &amp; Lists</td>
<td>8</td>
<td>May 2002</td>
<td>Included above</td>
</tr>
<tr>
<td>Web</td>
<td>3</td>
<td>January 2002</td>
<td>Donated equipment</td>
</tr>
<tr>
<td>Blackboard Learning System</td>
<td>4</td>
<td>October 2003</td>
<td>$160,000</td>
</tr>
<tr>
<td>SQL</td>
<td>1</td>
<td>September 2001</td>
<td>$60,000</td>
</tr>
<tr>
<td>Web Statistics</td>
<td>1</td>
<td>September 2001</td>
<td>Included above</td>
</tr>
<tr>
<td>PALS</td>
<td>2</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Unity Messaging</td>
<td>1</td>
<td>February 2002</td>
<td>$10,000</td>
</tr>
<tr>
<td>Wireless Auth.</td>
<td>1</td>
<td>April 2003</td>
<td>$3,000</td>
</tr>
<tr>
<td>Network Storage Appliance</td>
<td>1</td>
<td>May 2002</td>
<td>$70,000</td>
</tr>
<tr>
<td>Network Storage Server</td>
<td>1</td>
<td>July 2003</td>
<td>$100,000</td>
</tr>
<tr>
<td>Digital Cert. Authority</td>
<td>2</td>
<td>January 2003</td>
<td>$10,000</td>
</tr>
<tr>
<td>Blackboard Door Readers</td>
<td>1</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>TouchNet</td>
<td>1</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Notes from stakeholder, academic department or administrative department meetings

Notes from the Business School Meeting October 9, 2003

Accounting
The CPA exam is now completely computerized. During the exam, students have to go out and access databases to answer questions. We need the hardware/software/pedagogical help so we can prepare accounting students to take the CPA exam. We need to teach in a way that models this use.

Auditing class—how do we teach a whole class using computers and software?

We would like a way to administer exams on computers:
   Whole classes simultaneously
   Individually on demand
   Address security issues

They rely more on technology in the profession and our students need to learn to be self-directed learners using the technology. We would like to put a self-directed learning element as a hurdle to a higher level course. For example, we would like to pull bookkeeping out of a course, put it online with self assessment and tutorials.

Need tax software for classes and labs

Others
Need an ERP system to simulate transactions going through a system (accounting, management and operations)

Would like Bloomberg in a whole lab and not on 2 machines

Want a computer in each classroom. Standardize the equipment and hardware!!! Make it reliable. “The equipment should be a conduit to everything I need on a server. I should be able to come into a room, log in and everything I need, which may be different than another class, is on the computer setup the way I need it.”

Need more classrooms designed for interactive use of technology (like the collaborative lab).
Need a tech cart (a cart with wireless computers and a printer) so we can make any classroom a computer lab as needed.

Would like handheld devices for quizzes/surveys in classes with instantaneous results.

GIS could be used in Marketing & Statistics

Would like help in developing databases.

Simulations in capstone class would be nice.

Even better would be simulations for use in any class.

Pay attention to the furniture in the room as well as the technology

One suggested lab would be:
Notes from Education Meeting on September 30, 2003

- Ease of use is important for the classroom equipment
- We need to have more rooms with the technology. It is difficult to carry the equipment to class, spend 10 minutes setting the equipment up, then teach, and have to take the equipment apart as another class is coming in.
- Put computers in the rooms with technology. It is easier than shutting our computer down, bringing it to class and waiting for it to boot up.
- We need a collaborative classroom/lab in Education
- More smart boards
- We would like multiple screens (images) e.g. Show a computer program on one side and a PowerPoint presentation on the other.
- Video editing made easy for students and faculty
- DVD (portfolio) of every student teacher
- Digital video equipment available to faculty and students
- Handheld computers for PE classes
- More staffing in technology to help us produce materials
- Tech Carts—carts that have wireless laptop computers and a projector that can be moved from room to room. These are available in the public schools and we need to be able to teach student teachers how to use them effectively
- Document cameras—we need more of them in classrooms for showing 3-D objects.
- We need a technology liaison for Education.
Notes from BF&T Retreat on June 30, 2003

Print Services
• Phoenix Card reader
• Expand Digital Storefront software
• Continue staff training

Mail Services
• Email access for all employees
• Continue working with major departments for cost saving mailing
• Continue to work with Pitney Bowes for software upgrades
• Continue staff training

Food Services
• Web cam in McEwen & Varsity?
• Keep track of large $ equipment replacement schedule
• Continue to keep web page current adding services as needed – example nutrition
• Installed new forecasting software
• Bar coding in retail locations coming this fall (Aramark project)
• Phoenix Card – limit to one per meal in retail locations while allowing all you care to eat in dining halls (unlimited meal plan)
• Streamline invoices

Campus Shop
• Technology plan draft – alumni e-mail accounts – what are possibilities for Campus Shop?
• Technology plan draft – community demands – what are possibilities for Campus Shop?
• Continue to market ordering textbooks online
• Continue to improve web site
• “Fast Text” in testing – links B & N w/ Missouri Book Svcs. If textbook is out of stock, B & N can order online & receive in 2-3 days.
• Digital course packs
• Ebooks – B & N partnering w/ Microsoft Reader. Ebook Task Force established to understand trend & how to provide best solution
• iUniverse – Print online and print-on-demand company. Writer can publish & promote their own works online & in print.
• Rocket eBook – First hand-held device developed expressly for the ebook market. B & N supports development of technology.
• Use of technology to streamline sales at Rhodes Stadium (wireless?)
• Textinfocenter.net - program for faculty to order desk copies of textbooks, review textbooks, etc. Will introduce this fall.
• B & N corporate office moving this fall. Will begin to download daily cash & sales reports – no more paper copies.

Police & Safety
• Video Cameras in all Parking Lots
• Mobile Terminals in Police Cars
• 800 Trunking (Mobile Radios)
• A Parking Ticket System using Bar Codes
• Card Access for all Buildings
• Digital Wireless Fire Alarm System
• Voice Sensorlizer Equipment
• Color Printer
• Pop-Up’s for Emergency Announcements

Physical Plant—Utilities
• Precise mapping of underground utilities
  • GPS accuracy
  • GIS map
• Campus calendar listing all events for all buildings
• Ultrasonic testing device
• Web-access for Energy Management Control System

Physical Plant—Landscaping & Grounds
• Improve communication methods
• Segway Human Transporters
• Irrigation systems
  • Automated controllers linked to soil moisture meters and rain sensors
  • Irrigation line locators
• Goose control system
• Sign making equipment
Physical Plant—Environmental Services
• Bar Coding System
• UV Floor Coating System

Physical Plant—Key & Lock Shop
• Expand card access system
  • Proximity readers
  • Bio-metric readers

Physical Plant—Paint Shop
• Color matching computer and tinting machine

Physical Plant—Automotive Services
• Explore use of hybrid fuel cell vehicles

Physical Plant—Carpenter Shop
• Computerized sign maker

Physical Plant—Moving & Setups
• Campus calendar listing all events for all buildings

Physical Plant—Plant Administration
• Paperless work orders
• Information kiosk/plasma screen/audible
• Upgrade CMMS
• Automated/Paperless time sheets
• Engineering copier

Accounting
• Flat monitors
• Two Laptops for mobility if power is out
• Registers connected to printers
• Direct deposit for student refunds
• Toll free connection from off-site
• Special billing capability for deferments, etc.
• EDI payments
• On-line viewing of pay stubs
• On-line time sheets
• Electronic signatures for check requests, budget revisions, payroll forms, etc.
• Secure handling of HR & PR forms electronically
• Regular Datatel query training
• Voice activation for data entry
• Pay vendors on-line

Purchasing
• Manage surplus inventory (i.e. Gibsonville) using PDA’s
• E-Faxes
• Enhanced “user-friendly” reporting capabilities
• On-line shopping
• Data sharing
• Document on closed PO’s
• Commodity codes
• Keyword search function to find vendors
• Regular Datatel query training

Phoenix Card
• Ability to use handheld devices to verify status at the university. This could be used for intramurals, Greek functions, etc.
• DataCard SP35 printers
• Payroll Deduction auto-post to card system
• Daily auto-updates from Datatel for changes in meal plans, etc.
• New students/faculty/staff will be auto-posted to the card system daily

Risk Management
• PDA’s for chemical inventories
• Cooling capability for servers during power outages

Real Estate
• GIS downloads from county web-site

Human Resources
• On-line Registration for benefits
• Work Flow Mgt. System (D)
• Communications Mgt. System (D)
• Applicant tracking system
• Position Budgeting (D)
• Datatel Upgrades
• Video Interviewing
• Generation of Benefits Statements
• Computer stations at Physical Plant
• Computer for Business Service Building lobby for position look-ups
• General hardware upgrades for office
• Color laser printer
• Color copier
• Laptop and LCD projector for Business Services conference room
• Wireless technology issues
• Training
Notes from Institutional Advancement meeting on November 10, 2003

**Systems/Services**
- Implement point and click upgrades (GUI everything)
- Reach the maximum potential of University technologies with system upgrades (update Benefactor capabilities to 5.1)
- Provide equipment to facilitate expanded print services (e.g. duplex printing for donor communications; color scanners) that save time and money
- Provide capabilities for video teleconferencing
- Phone-a-thon automation

**Integration**
- Develop an integrated system of data communication among Accounting, Financial Planning and Institutional Advancement re: endowment reporting and record maintenance
- Develop capabilities for the integration of document scanning with Datatel information collection, and provide more support in Campus Technologies for maintenance of scanning systems such as FileMagic
- Develop capabilities for the integration of external constituency data (e.g. alumni info, event registration, e-mail addresses) with Datatel
- Explore the replacement of IDs with a bar coding system (fully integrated with Datatel) for gift processing and recording event attendance

**Web/E-mail**
- Address the online giving password system to make it less complicated and reach goal of having one log-in for Web site guests
- Become fully Web-accessible: expand and enhance OnTrack-related systems, remote access/data entry for Datatel and files on network (ex. entering call reports from the road with PDA’s or laptops)
- online Matching Gift documentation and registration
- E-mail video solicitation
- E-mail video alumni birthday congratulations
- E-mail video Christmas or thanksgivings cards to alumni, parents, and friends
- Online registration for Homecoming and other Alumni/Parent events (ex. Evenings for Elon, Alumni Chapter Events, Reunions, etc.)
- Targeted email marketing to alums/parents in a specific geographical area (ex. Baltimore)
• Increased e-mail capacity due to our large constituency base and magnitude of daily inquiries (Inbox)
• Transfer a download of Datatel lists (ex. 1983 graduate emails) to email listserv without manually entering each name
• On-line ticket purchase
• On-line RSVP
• On-line registration for events

Training
• Implement more training for reporting functions so that standard report requests can be handled by more than one staff person
• Institute University-wide technology training courses that apply real-life department needs
• Conduct more training on Benefactor upgrades as they are introduced

Other
• IT department hosts an annual technology/vendor fair to demonstrate achievements of Elon IT and faculty/student technology applications, and to invite vendors to demonstrate state-of-the-art products and services
• Would like to be able to access Datatel on the road—call up reports, make additions to records, etc.
• The university should have a group account to an ISP so people who are on the road would have easy access to campus services
• We need color scanners
• A color copier/printer/scanner (all-in-one unit) would work great in the building
• Barcode tickets so we can collect info about ticket holder
• Barcode pledge cards so we can pre-populate records when entering data
• Auto dialing for Phone-a-thon
Notes from Arts & Science meeting on October 23, 2003

- Computer labs that are used as classrooms (e.g. Mooney & Powell) are not good for teaching hands on learning. We need to be able to demonstrate what the students need to do without them having to look over their shoulders.
- Would like to change the keyboard room in the Center for Fine Arts by adding Midi’s and computers to make it a piano lab/classroom for teaching more than keyboarding. It would be used for music theory, music editing, composing, etc.
- Need a computer lab in the Center for Fine Arts that has music editing software (use same software as Communications so they can work both places).
- Would like to teach Music Technology.
- We need a site license for Dreamweaver/Photoshop
- We need another digital art lab somewhere other than the Center for Fine Arts. The building is too full and more classes/students need the hardware and software.
- We need automatic version upgrades on the digital art software. The versions need to be updated at the same time all across campus.
- Card swipes on labs and buildings so students can work after hours in labs. The faculty wants to decide who can get in and when. They would also like to be able to monitor it from home.
- The wireless coverage in Duke has dead spots
- Put a central color copier in the Center for Fine Arts that faculty could print to.
- Mobile computer lab (a lab on a cart)
- Would like software for computational chemistry available to all students (server based) so we can start working with it at Freshman level
- More SAS software available (enterprise level)
- Would like to standardize on statistical software so we can afford a site license of one package. [there was discussion about SPSS needs to continue to be supported]
- FTP server so we can transfer large audio and video files to each other as well as to colleagues off campus
- USB wireless mouse for PowerPoint
- Change the 2nd floor Alamance computer lab into a mini CUPID lab (no big screens)
- Grants for faculty to attend off-campus workshops on technology
- Grants for consultants in technology
- Bring someone in to teach technical tools like ProTools
- Full-time technologist in buildings
- Would like an engineer to adjust and maintain all of the science equipment
• More digital video cameras for general use. We would like to assign projects in our class, but Media Services only has 3 and Communications is reluctant to let theirs go out to others because their students need the cameras. We also need simple video capture and editing capability.
• Voice recognition for oral history projects
• Shared storage space for departments, classes, etc.
• Religion doesn’t know how to teach their discipline using technology. How do you use technology in active learning?
• Need to be able to develop or purchase databases in the disciplines
• Use Phoenix card swipes for recording attendance at recitals and performances. They must swipe as they go in and as they leave.
• Would like some way to ensure student knowledge of technology before they come to class.
• Want forms on the web
• Need help with our departmental Web sites in design and functionality. Want forms, streaming audio, streaming video, facility requirements, scheduling of Fine Arts events like recitals, juries, etc.
• Would like to stream live performances
• Need more staff to do the work in technology—let faculty focus on teaching, interacting with students, scholarly work
• Would like to be able to block students from accessing email, instant messaging or even the internet during class. Needs to be flexible to allow some things and not others.
• Expand the allotment of email. Some people need to save large amounts of email and don’t have laptops, but need access from off campus (so it needs to reside on server).
• More classrooms with technology. Make it dependable and flexible.
• There appears to be a caste system developing at Elon concerning technology. There are the people who use technology and understand its use—they get a lot of attention and support. There are those people who don’t understand or use technology and they are regarded as Luddites. There also seems to be a glass ceiling where the support stops. We need to support the efforts of those who are advanced and pushing the envelope. Those who don’t understand how to use technology would like a non-threatening environment to learn.
• Would like release time to learn technology and produce specific projects (grants)
• Would like a way to develop and fund personal professional development plans in technology (grants) [this sounded like the technology fellows with release time and
access to funds to go learn technology, but it also sounded like more than one or two people and only for one semester]
Notes from Admission and Financial Planning Meeting in October 2003

Goal: To maintain a current, sophisticated and user-friendly electronic system of communication with prospective students, including email and Web, and to support greater efficiency and accuracy in office operations through the use of current hardware and software.

Enable students to customize their Website through the use of an Elon portal Enable admissions and financial planning to update Web information on a constant basis

Email:
- Add flash/HTML-formatted e-mail capacity in order to present more contemporary messaging for activities such as in-house e-Search
- Capture email addresses from e-correspondence for direct upload into Datatel

Add more dynamic and interactive capabilities to Web:
- Current audio and visual capabilities such as streaming video
- Personalized Elon portal
- Customized information based on interest input (information on demand)
- Capacity to recognize and personalize future correspondence from e-contacts (personal recognition upon log-in)

Implement automatic upload of key information that is available electronically:
- Application
- Transcripts
- Notice of loan counseling

Implement upload of paper-based information (paper transcripts, reply cards, scholarship essays, letters of recommendation, etc) directly into Datatel or into a searchable database through digital scanning technology or other appropriate technology

Implement and support both an in-house online application and a writeable PDF format for all admissions application types

Hardware:
Present an appropriate image of campus technology with current equipment in all public areas (i.e., flat screens at Powell desks, wireless laptop in Welcome Center).
Add flat screens with each computer upgrade in order to save space in all processing areas.
Equip staff with docking laptops that are as small and light as possible for travel and remote use

Three color printers for three major areas

Software:
Upgrade all computers of professional staff to latest version of Windows and MS Office
Add software which enables individual departments to update their Web information (Reef-type software)

Replace current appointment scheduling software with potential for Web-based self-scheduling

Implement an auto debit system for refunds such as enrollment deposits, loan fund returns, etc.

Chat room support

Publications inventory tracking system that is campus wide and network accessible
Notes from Athletics meeting on October 17, 2003

- Upcoming athletic events announced on the portal
- Voice streaming of play-by-play on the Web
- Want to be able to print reports from Datatel
- Want to be able to check email while on the road recruiting
- Need training on Datatel (new person)
- Middleware for Datatel (make reports easy & GUI)
- Card reader for athletic study hall check in and out
- Secure site for medical information for athletes and team physicians
- Video exchange via the Internet for Southern Conf.
- Need digital video editing so they can take team videos and edit what they need
- Online job requisitions and hiring forms with online approvals
- Online time sheets
- Progress reports on athletes class progress. Something that is customized (within Datatel?) and sent to appropriate faculty member, but is automated. Currently it is manual and very labor intensive. (Barbara Boyette)
- A better way to flag athletes in Datatel so that refunds are not given directly to student when it is athletic scholarship? Doug and Clay worked on this, but it needs to be more visible.
For Admissions and Alumni/Parent Relations we would like to be able to target audiences with electronic communications.
  - HTML emails
  - Use Datatel to get targeted audience emails
  - Need training in Datatel to get the information
  - Need to build the database of email addresses that can support emailing PDF’s or HTML messages
  - Customized PDF’s to target audiences
• Need full version of Acrobat in specific offices that we work with so we can send proofs electronically
• Need version control on software (need to be consistent with other departments and businesses)
• Photograph storage—what should we do?
  - Need back-ups of existing storage – server external to our office
  - Need to be able to archive photos – long-term historical value
  - Need to be able to access for day-to-day use
  - Need to be able to share some photos with campus community
  - Equipment/software to store and manage?
• Job tracking software—what is available?
• Would like to be able to brainstorm on a board and save materials to a computer disk (smart board)
• Would like to provide news stations/networks with live video feed
• Would like to stream video and/or audio of major events on Web
• We need to have pictures of dorm rooms and dimensions of those rooms available on the Web
• On-line check requests
• Mailing service—fill out the forms on the Web for FedEx & UPS
• Would like to custom print in color within house
• Send electronic corrections/proofs/blue lines to vendors
• Need an FTP server so vendors can pickup and drop off large jobs electronically
• Would like campus-wide training so support staff in other offices are better able to deal with files for formats we provide
School of Communications Technology Plan
Leading to a 2005-06 Accreditation Visit
October 2003

Summary of Recommendations

1. Extend the Replacement Cycle to Cameras, Software, and Production Labs
   - Develop a policy for the replacement of non-computer hardware such as video cameras and accessories and the upgrade of software used by students and faculty.
   - Place computer workstations located in the video editing suites on the same three-year replacement cycle.

2. Complete Classroom Upgrades and Standardize Operation of Equipment
   - Upgrade the Conference Room and the remaining “no-tech” classroom spaces in McEwen to Multimedia Level 3.
   - Upgrade the audio/video system in the Film Screening Room to provide greater support for the Cinema program and other activities scheduled in this space.
   - Standardize the operation of presentational technologies in all classrooms and lab spaces.

3. Add a Multimedia Developer Position and Increase ‘Production Assets’
   - Hire a technology support liaison, as planned for other schools/divisions, to enhance the school’s growing emphasis on interactive media.
   - Increase inventory of “production assets” (for instance, royalty-free music and sound effects) that can be used by students and faculty in media production projects.
   - Install a departmental server to house all production assets in a centralized location accessible to students and faculty via the campus intranet. This same server could also be used for hosting the personal web sites of students in the Digital Media Convergence, Corporate Publishing, and Web Publishing courses.

4. Plan for the Digital Conversion of the Television Studio Facility
   - Support the Office of Television Services in its planning for the digital conversion of the television studio facility.

5. Create a Faculty Technology Committee
   - Coordinate technology needs and initiatives through a faculty committee to advise the dean and interact with campus constituencies (such as PC Support, Instructional Design & Development, Media Services, and Television Services) on how best to meet instructional need.
### Inventory of Classrooms and Level of Technology

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Classroom level key:

- **High Tech**: 34
- **Medium Tech**: 32
- **Low Tech**: 36
- **No Tech**: 13