TECHNOLOGY ASSESSMENT

AND THREE YEAR PLAN

A REPORT AND RECOMMENDATIONS

TO THE COLLEGE COMMUNITY AND

GOVERNING BOARD

NAPA VALLEY COLLEGE DISTRICT TECHNOLOGY ADVISORY

AND INSTRUCTIONAL TECHNOLOGY COMMITTEES

MAY, 2008
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FOREWORD

The 2008 Napa Valley College Technology Plan is a document created by the District Technology Advisory Committee. Many technology plans were considered before work began and a format paralleling that used by Santa Rosa Junior College was selected for readability and pertinence. Input was gathered from the Instructional Technology Committee, faculty division chairs, and heads of administrative units. Content from the Napa Valley College Audiovisual Master Plan conducted in October, 2006 was integrated. Each section details the current state of technology at NVC, recommendations to consider going forward, and stakeholders thought to be needed in order to do so. This work is truly a compilation of many writers listed in alphabetical order as follows:

Robert Butler, Network Administrator
Shawna Bynum, Math instructor
Dan Clemens, Biology instructor
Emily Cosby, English instructor
Mark Cratty, Computer Support Technician/Microcomputers
Stephanie Grohs, Librarian
Jesse Imbach, Technology Specialist
Vanessa Mullally, Information Technology Director
Jill Schrutz, Dean of Financial Aid
Robyn Tornay, Assistant Registrar

The plan is written in support of the NVC Mission which is to engage students by providing high quality programs and services that promote learning, enhance individual development and prepare life-long learners for their roles in our diverse, dynamic and interdependent world. It also correlates with goal four of the NVC Strategic Plan which is to effectively use appropriate technologies to support programs and services and to improve communication.

The writers understand that, like any technology assessment, there will be many opportunities for readers to have differing points of view. Why were some areas covered and others not? Why are points made thought to be valid? We respond that we have done what we could to be objective and to offer information thought to be helpful for the college and district. It is our hope that the document be used as "food for thought," dialogue, direction, and prioritization in order to make Napa Valley College even better than it is today.

Questions and comments concerning this document and future technology planning can be sent to techplanning@napavalley.edu.

Thank you!
Vanessa Mullally
IT Director
Community Colleges across California are infusing technology into teaching, the delivery of learning resources, and the execution of professional responsibilities at an increasing pace. At Napa Valley College, the Office of Instruction has initiated several successful instructional technology initiatives, such as: setting and implementing technology standards in classrooms, supporting the Title III Teaching and Learning Center (TLC), promoting online instruction, and funding positions for Instructional Technology staff. While our Instructional Unit is realizing gains in the adoption and integration of technology, there is an expressed urgency across constituency groups for NVC to quickly advance, our instructional technology in order to attract and retain students and quality instructors and staff.

In their effort to retain students, one such strategy identified by NVC Division Heads and other stakeholders is to support accelerating, inter-divisional collaboration to develop “technologically rich” projects and classes. Potential areas for teaching across division lines were identified in areas such as: Art (sculpture) and Welding, BTV utilizing streaming video technology to support Online Education, GIS Technology utilized in Social Science coursework, and Learning Resources collaborating with Art to build a functional digital slide database. Faculty, the Office of Instruction, and Information Technology (IT) recognize that cooperation and sharing of technology resources across divisions is an effective way to maximize resources and to support students.

Napa Valley College is fortunate to have passed a bond to renovate our existing buildings and to move forward in building new facilities that will meet the needs of the students and community. Moving forward to maximize the positive impact of the bond on teaching requires clear vision and an effective coordinated effort among campus technology practitioners. This position was strongly articulated as one of the top priorities by Instructional Unit members. To achieve this end, ideas put forward were to either 1) fill the Assistant Dean of Learning Resources and Instructional Technology on a full-time basis or 2) look at organizational structures at other higher education institutions and determine if change is necessary. Successful infusion of technology in the Instructional Unit also requires recognizing the interdependence of groups. Currently, administrative and instructional technology are administered independently of each other, affecting coordination and communication. Creating synergy, unifying direction, streamlining processes, and avoiding duplication of effort would be the impetus of aligning expertise within Instruction, Learning Resources, Title III programs, and Information Technology and would serve to support the core business of NVC, which is to engage students and promote learning. Instituting an identified best practice of appointing representative(s) from campus technology to the President’s Cabinet could also increase efficiencies and effectiveness in planning.

Regularly scheduled funding for campus network and student computer refreshment is critical to maintaining currency and will improve NVC’s ability to support instructional technology. Instructional technology is dependent on the campus network which is
nearly ten years old, reaching end of life and therefore subject to failure, and unable to meet current instructional demands such as real-time streaming media. Network performance in older buildings will be substantially poorer than in new buildings, which will impact student learning. Student computers are placed in classrooms and labs without plan for refreshment and often are not replaced until performance impacts student learning. As identified ten years ago, a total cost of ownership model (TCO) needs to be implemented in our planning processes and adopted campus wide. The model will help to provide a more balanced approach to purchasing, distribution, and maintenance of electronic assets.

1 INSTRUCTIONAL COMPUTING

There are currently almost 1000 instructional desktop computer systems in a variety of teaching/learning environments across the district. Access is provided to the Internet, Library services, instructional resources, printing, and related networked services.

1.1 Academic Computing Systems Replacement

Current Environment
Napa Valley College has 12 computer classrooms and labs with 20 or more computers and 11 labs with 15 or fewer computers. Half of these classrooms have computers that are five years old, have an adverse effect on instruction and are in urgent need of replacement.

Recommendation
Treat computers and peripherals on campus as district assets and not as departmental property. Replace and upgrade classroom and lab computers over the next five years or as instructional need dictates to place students first. The following is a sample scenario:

- Replace Electronic Classroom and Geographic Information Systems computers one year
- Replace needed Business and Computing Studies (BCS) classrooms the next year
- Replace the computers in the Diagnostic Learning Services classroom and move those computers to faculty and staff the following year
- Replace Electronic Classroom computers, using existing computers to refresh the Media Center. Move the computers from the Media Center to classrooms.

Resources/Responsibility
Office of Instruction
Division Chairs
President’s Cabinet
1.2 District Academic and Operational Software Site Licenses

Current Environment
The district currently pays for site licensing for the Microsoft campus agreement through the Foundation for California Community Colleges. This agreement also allows faculty and staff to use a variety of Microsoft products to do college-related work at home due to an affordable per staff FTE price. Media can be purchased or checked out from the Library for home software installation. Visit http://www.foundationccc.org/FCCC/msca/ms_home.html for product and media purchase information. The agreement is subject to annual change. The student option, also FTE based, has not been affordable for NVC.

The district also pays for Symantec Enterprise anti-virus software which protects the campus electronic mail server and PCs.

Lastly, a campus-wide license exists for web content management of the district website using Campus Platform by School Web Services. Training on this product is available through the Teaching and Learning Center (TLC).

Recommendation
Continue to explore purchase of site licensing agreements where possible cost efficiencies exist.

Resources/Responsibility
The Information Technology Support Specialist and TLC trainers may be used as resources.

1.3 Instructional Laboratory/Classroom Computer Technologies

Current Environment
Student/Classroom computers are in a variety of areas on campus: Adaptive Physical Education, Business and Computing Studies, Criminal Justice Training Center, Digital Design and Graphics Technology (DDGT), electronic classroom, Health Occupations, Library, Machine Tool, Mathematics, Media Center, MESA, Music, Nursing, Photography, Respiratory Therapy, Writing Center, UVC classroom, UVC Library/Learning Skills Center, Sciences (Biology, Chemistry, Physics, Geology, and GIS), Spanish Language Lab, Transfer Center, and Veteran's Home Simulation Lab. Several of these areas have obsolete computers that do not support current operating systems and/or programs. The budgetary process for technology acquisitions and replacements is guided by the principles of student success.
Recommendation
Upgrade student computers every two to four years based on instructional need and standards established in NVC’s 1998 Technology Plan, including but not limited to:

1) Replacing the hodge-podge of obsolete district and grant equipment from Diablo Valley College with fully functional lab(s) for Geology, Chemistry, and GIS.
2) Fulfilling the district obligation to replace CJT laptops as required by the POST grant awarded in 2002.

Redeploy replaced computers to other campus locations requiring less demanding use. Areas are encouraged to consent to redeployment based on greatest campus need.

Plan for replacement of computers prior to obsolescence in annual unit budget planning. For example, district-wide, twenty percent of computers and peripherals should be replaced each year in order for equipment to be no more than five years old. Another model would be for twenty percent of replacement costs to be set aside each year.

Provide new computers, software, and network access in science laboratory classrooms for data collection, analysis and simulation exercises.
Increase use of instructional software in teaching laboratories.
Increase student access to instructional software via network access in laboratory classrooms.
Ensure physical security of technology assets to prevent theft.
Track student outcomes, including jobs, resulting from technology training.

Develop a technology resource clearinghouse for monitoring and coordinating equipment and site license purchases and maintain an up-to-date list of college equipment holdings so that sharing, exchange, and redistribution of resources can be easily coordinated.

Resources/Responsibility
Bond funding
Lottery funds
Collect student hours of attendance in computer labs and ensure entry into Datatel to generate FTE. Use funds to offset costs of equipmentrefreshing and staffing.
Combine requests and resources from individual departments for instructional software and software upgrades to be pooled so that the college can take advantage of reduced prices on large quantity purchases.
Regularly scheduled centralized purchasing of instructional equipment technology including computers and projectors would result in reduced pricing and facilitate tracking.

1.4 Support for Instructional Laboratory/Classroom Computer Technologies

Current Environment

- Instructional assistants support instructional computing in areas throughout campus
- There are two Computer Support Technicians/Microcomputers who cover the I.T. Help Desk and respond to technical problems referred by instructional assistants or instructors
- Media Services is staffed by learning resource assistants and student workers who monitor the media center computers and AV equipment in classrooms

Recommendation

Consider hiring a Computer Support Technician/Microcomputers to reduce computer to technician ratios, improving help desk performance and making workloads more manageable. This recommendation was identified as a priority by the District Technology Advisory Committee (DTAC) and in a study done for NVC by Net Xperts (now Clare Computers).

Examine job descriptions of Media Center and Learning Resource staff and identify potential areas of increased training to support the delivery of instructional technology. Faculty have identified an increased need for technology support for the classroom such as research, scanning, recording of podcasts, blogging, and creating media presentations. Assistance would allow them more effective use of instruction time and would allow students to engage in more active learning activities. This is beyond the current scope of the Teaching and Learning Center activities.

Consider providing staffing for evening and weekend instructional support.

Hire an instructional assistant for the Science, Math, and Engineering division which would support hardware and software throughout the division. Use IT to help evaluate skills and quality and quantity of work performed. Determine whether pay rates for technical IA’s are sufficient to attract and retain successful employees.

Resources/Responsibility

Human Resources
Learning Resources
Office of Instruction
Network Administrator
SME Division Chair
1.5 Student Wireless Campus Network

Current Environment
Currently Napa Valley College has four areas for which wireless networks are implemented for student use: the Criminal Justice Training Center; the Science, Math, and Engineering building; the Library, and the 800 building in the form of a transportable cart checked out from TLC staff. We also have a service provided by AT&T Wi-Fi for free student intranet use in the Cafeteria, Gymnasium, Library, mall, and some classrooms. Students can use the resources offered on the campus website including searching for classes and registering. Internet access requires payment by non-AT&T wireless subscribers.

Recommendation

1) Design and install a pervasive free-to-the-user wireless Internet service to replace the more limited and subscription-based AT&T service.

2) In order to maintain network integrity, security, and reliability, IT must be the central authority for implementing and maintaining the district wireless network, and will maintain the highest standards for wireless implementations throughout the campus. The following procedures are currently in effect and will be updated as needed:

   All wireless access points will be with 128 bit encryption enabled, and mandatory Lightweight Extensible Authentication Protocol (LEAP) authentication against the central campus user directory.

   Network address translation (NAT) routing is prohibited on all access points.

   Wireless Network Interface Cards (NICs) may not be configured to serve as an access point.

   All access points will be installed and maintained by the IT Department.

2) Design and install a pervasive free-to-the-user wireless Internet service.

Resources/Responsibility
President’s Cabinet
IT
2 LIBRARY AND INFORMATION RESOURCES

Technology and library services are inseparably connected through the integration of information technology. This is reflected in the significant growth in usage of the instructional collections and information resources that directly support student and faculty learning at the college. From a technology planning perspective, the focus needs to be on three critical areas: instructional collections and information resources, access services, and the proper facilities and infrastructure to support learning.

2.1 Information Resources and Instructional Collections

Current Environment

This category represents the primary collections that directly support student success at Napa Valley College. These collections include 65,000 book titles, 295 periodical titles, 25 online databases containing thousands of magazines and journal titles, statistical reports, reference collections, and links to selected web pages. A collection of slides and photographs donated to the Library represent a growing collection. All of these collections are available at the Napa and Upper Valley campuses and Solano Napa And Partners (SNAP) libraries.

Critical to the issue of technology-based collections and resources is the physical format and the related storage requirements. This single element has a primary role in the acquisition and organization of our information resources. Physical buildings, the network and remote databases are all part of our storage solution.

Recommendation

Continue to acquire a wide variety of information formats to meet student needs.

Explore technology that will lead to the development of digital collections consisting of image files, audio and video based files, e-books, and special on-line collections that support specific departments and subject disciplines.

Provide high quality, current collections accessible from a single easy-to-use interface to support learning at Napa Valley College.

Resources/Responsibility

Explore grant opportunities for funding digital projects.

Partner with other Napa Valley College divisions, SNAP Libraries and community organizations to purchase technology and develop collections.
2.2 Access Services

**Current Environment**

Access services focuses on providing the tools and services necessary to support usage of information resources. It specifically addresses the technological interface, organization and cataloging of collections, and the format and storage medium. There are three critical systems currently used to provide access to the Napa Valley College’s information resources: the library automation system, the campus network and the Internet. All three of these systems are linked via a central page or portal that streamlines access. In addition, the Napa Valley College Library provides reference services and supports instructional programs in the effective use of these systems.

The Napa Valley College website platform implemented in 2006 provides for management of web content at the department level and allows for improved currency and accuracy of information including html links, and the ability to make customizations supporting the dynamic nature of our information environment.

**Recommendation**

- Design and teach a one-unit research information competency course.
- Strengthen ties with faculty by providing workshops in the TLC on library technology for teaching and student support.
- Conduct website user surveys and analyze usage reports to ensure services and collections are relevant.
- Library staff continue to work with the SNAP consortia and Napa Valley College Information Technology Department to ensure that staff and users have access to a robust system.
- Participate in a campus-wide initiative needed to convert slides to digital images given that slides are obsolete and even used slide viewers are expensive. Economies of scale and a planned approach to indexing and storage could be achieved through coordination.
- Provide checkout of digital camcorders from Media Center in order to share lesser used resources and record in current technology.

**Resources/Responsibility**
- Media Services staff
- Library staff
- TLC staff
- District/instructional technology funds
2.3 Facilities and Infrastructure

Current Environment

Facilities, equipment and infrastructure have a significant impact on the Library's ability to respond to users' needs.

Library users have access for research purposes to 11 new PCs, two old PCs, and two accessibility-enhanced PCs for a total of 15.

A wireless network and a wireless laptop checkout program allow Internet access throughout the Library to support instruction. In partnership with AT&T Wi-Fi, the College established the Library as a “hotspot” for public wireless access. This allows students to establish an account with the provider and use their personal laptops to access the Internet. IT continues to upgrade on-line public access stations (OPAC), old hub, switches and wiring.

Public wireless accessibility is now available at the Upper Valley Campus as well.

Recommendation

Continue to focus on instructional collections and information resources and their attendant technologies.

Acquire the technology to convert, create and store digital/online resources.

Resources/Responsibility
Learning Resources
Office of Instruction
Information Technology

3 MEDIA SERVICES

Media Services is responsible for district media equipment and services used in the process of transmitting content using sound, images or light transmission technologies to groups of users. Additionally, systems used in the creation of sound and/or image content are supported by the department. The department oversees the management of the district's media collection.

3.1 Circulation Equipment Replacement Fund

Current Environment

The department maintains a centralized collection of equipment (laptops, projectors, digital cameras, camcorders, overhead projectors, etc.) available
to faculty. Planning is under way to design an effective work space in the new Library/Learning Center. Services supporting classroom technology are now provided by Media Services, the Teaching Learning Center, and IT.

**Recommendation**

Clearly articulate roles of units supporting classroom technology to assist in planning for the new Library/Learning Center.

Commit a regular annual amount to replace equipment in order to keep it current and in good working order.

Replace circulation equipment on a three to five year cycle.

**Resources/Responsibility**

Instructional equipment monies
Office of Instruction
Associate Dean, Learning Resources and Instructional Technology
Teaching and Learning Center

### 3.2 Classroom Media Systems Replacement Fund

**Current Environment**

As the result of the Office of Instruction's procurement of grant funding, many classrooms are equipped with technology. At the most basic level, classrooms are equipped with a DVD/VCR playback system and LCD projector. Many have a computer with network access. As funding allows, classrooms will be refreshed into smart-type classrooms featuring a central control panel integrating projector, document camera, DVD/VCR, computer, and speakers into push button “activities”.

At the time of this writing, November 20 2007, rooms 802, 830, 831, 834, 835, 836, 837, 838, 1434, 1530, 1630, 1631, 1637, 2220, & 2240 are fully equipped with a PC with DVD player, a DVD/VCR player, a document camera, a Pixie Pro control-panel equipped podium with amplified video and sound, a 1024 x 768 projector and an approximately 100” screen. Additional classrooms will be outfitted to this basic classroom standard as budgeting allows.

**Recommendation**

Media Services replace all classroom media systems on a regular, periodic replacement cycle.
Upgrade classroom media systems in the remainder of general assignment classrooms to the NVC “basic classroom technology” standard.

**Resources/Responsibility**

Learning Resources/Media Services

Office of Instruction

### 3.3 Collection Format Conversion and Instructional Playback Systems

**Current Environment**
A mixture of VHS media (not all closed captioned) and DVD media are currently used in the classroom. Current ADA (Americans with Disability Act) law, Office of Civil Rights, and the Chancellor's Office mandate that DVD and VHS media must be captioned in order for it to be shown in the classroom. NVC has purchased needed equipment to caption media. Disabled Students Programs & Services (DSPS) staff is currently assisting with this responsibility. See section 3.4 for more information.

Audiocassette-to-digital format conversion equipment has been purchased in order to convert audiocassette tapes into the CD or mp3 format by the Media Center staff.

**Recommendation**

Make a DVD playback unit available in each classroom to replace aging VHS technology.

Purchase new media in DVD format with closed captioning. VHS media to be used for instructional purposes after five years will need to be converted to DVD, copyright and close-captioning requirements permitting. If it is not closed captioned, it will need to be at the time of conversion.

Dedicate a computer to the activity of converting and archiving old VHS tapes into digital format by Media Center staff for future use.

**Resources/Responsibility**

Media Services personnel

Vendors as needed

DSPS funding as allowed and available
3.4 Collection Organization and Access

Current Environment
The Media Center is located to the rear of the 800 building near faculty offices. Media is cataloged in the SNAP online catalog and can be checked out by NVC faculty and staff. Students can check-out and view media. In addition to media, the collection consists of laptops, projectors, sound systems, DVD players, document cameras, and headphones. Delivery of equipment to classrooms is available upon request.

ADA requires that instructional media shown in classrooms be closed-captioned. Existing titles which are closed-captioned have been identified. Remaining titles produced before 2001 will be closed-captioned by the Alternative Media Specialist.

The California Community College Hi-Tech Training Center at DeAnza College maintains the AMX Database which provides a resource for managing and producing captioned videos for students with a hearing disability. At this time the Alternative Media Specialist has sole access to this resource as training is required for access.

Faculty express the desire to have more support for research and display of digital content in and for the classroom in order to generate student enthusiasm for subject matter. Teachers using teaching best practices and meeting individual student needs, including factoring in cultural diversity, would appreciate assistance integrating technology. Students are receiving and creating information in a variety of modes and formats. The Media Center and Library are positioned to support student learning in providing both traditional media and emerging technologies.

Recommendation
Authorize Learning Resources staff to access the AMX database in order to determine if closed-captioning exists for particular titles, to use the information to complete cataloging, and to research closed-captioned media options.

Periodically assess Media Center staffing levels and responsibilities. As classrooms become more fully equipped, Media Center staff will spend less time delivering physical equipment, and media and could be freed up to provide more support for digital content, students working on multimedia projects, and faculty employing digital content in their curriculum.

Resources/Responsibility
Alternative Media Specialist/Associate Dean of Special Services
Associate Dean, Learning Resources and Instructional Technology
3.5 Electronic Classroom

Current Environment
The term electronic classroom (EC) is becoming dated; it was created when the district only had one classroom with computers. In addition, the EC formerly housed in room 1011 (now 812), was moved to the basement of the SME/1800 building to make room for the Spanish Language Lab, and will need a new space after the 1800 basement is repurposed for facility needs. One option for a proposed new location is the 2200 modular, but that will displace small and large cross-functional groups conducting on-going Datatel implementation and testing needed for increased functionality and software upgrades, and faculty and staff training on client and web applications. Committees and groups of people using the room for planning and collaboration benefit from computer projection.

Recommendation

Rename the EC to general computer classroom (GC) or similar.

Provide a conference room(s) with projection capabilities and ease of booking for technology planning and implementation groups and technology committees such as Instructional Technology Committee (ITC), District Technology Advisory Committee (DTAC), Datatel CORE, Datatel Implementation Steering Committee (DISC), etc.

Ensure large enough spaces are designed for faculty and staff trainings.

Identify a place large enough for cross-functional groups of employees to plan for, implement, and test Datatel functionality securely. It must be off the instructional network so that hackers cannot run sniffers and access sensitive data and away from unmonitored casual traffic where password crackers could be used to login to the Datatel client.

Resources/Responsibility

President’s Cabinet
Office of Instruction
IT
Media Center
Facilities
3.6 Media Systems Repair and Maintenance

Current Environment
At this time repairs, are done as needed and when classrooms are available. Increasingly, repairs are performed during the semester because instructors are the main troubleshooters and typically find problems when they attempt to use classroom equipment.

Often repairs are delayed because users are unsure how and to whom to report problems. Many times the problem is computer-centric which would indicate IT as the responder, but Media Services performs in-class repairs and ad hoc fixes creating duplication of effort by IT staff and Media Services and confusion for users.

Recommendation
- Establish and publish a repair request procedure.
- Set time aside each week for maintenance.
- Establish and mandate a user training program.
- Place a written troubleshooting guide in each room
- Clarify roles of IT and Media Center staff related to repair and maintenance.

Resources/Responsibility
- Media Center
- IT
- Facilities

4 OPEN LEARNING

Faculty and staff professional development is provided by the TLC (Teaching and Learning Center), which provides a cluster of instructional support services and facilities, focusing on the use of technology in the instructional program at NVC. Within this general charge, TLC directly supports open learning and provides technology training for the instructional program as follows:
- Acts as the central portal for open learning.
- Provides training and limited direct support to faculty.
- Provides professional development opportunities for its own staff, and the campus at large, to ensure currency and quality of services.

IT supports the campus open learning program by providing network, server, computer lab and classroom, individual PC, software, and telephone support. User guides are developed and/or made available via the campus website and group training is offered on a limited basis.
The Associate Dean of Learning Resources and Instructional Technology has the responsibility of supporting open learning by investigating and implementing emerging technologies relevant to meeting the needs of the instructional program.

4.1 Develop Video Content for General Open Learning Usage

Current Environment
There is no formal support for developing video content for online or traditional courses. The Broadcast Television Engineering (BTV) program is filming and posting student digital content. Using Articulate Presenter, the TLC staff has trained instructors on recording PowerPoint lectures which are included as part of online courses. Audio podcasts are currently used extensively in the Nursing and Health Occupations programs.

The TLC has full video production facilities for basic video footage recording, editing, and assembly. They do not currently have adequate compression software to get all of the data onto a DVD but the editing suite, including Sony 1001 and Adobe Premiere, are located on a powerful dual-processor editing machine in the TLC Technology Specialist’s office. The TLC has green-screen and spotlight ability, as well as wireless microphones and wired microphones for voiceover.

TL Video Production Inventory

<table>
<thead>
<tr>
<th>3 CCD video camera</th>
<th>DVD burner</th>
<th>Green screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-camera lighting</td>
<td>2 Microphones</td>
<td>Editing PC</td>
</tr>
</tbody>
</table>

Recommendation
Expand creation and use of video content for online and traditional courses in order to maintain instructional currency in a media-driven age.
Consider using students or employees to operate cameras, edit recordings, and index and post content for a better, more accessible product. Media Center personnel and BTV students are potential resources.
Make video podcasts of exemplary instructors available from the college website to build public image and attract students.
Define format and content standards as well as storage, retrieval, and archival parameters.
Purchase good compression software, like Sony Vegas.
Invest in additional resources and plug-ins to streamline the process of content creation.

Resources/Responsibility
Office of Instruction
TLC
4.2 Training and Support Services for Online and Interactive Courses

Current Environment
More than eighty online classes are offered each semester at NVC by ten instructors. The TLC and Distance Ed Coordinator offer support to faculty developing online courses. IT uploads course shell and student enrollment data to WebCT/Blackboard, sends informational letters to online students on behalf of the Assistant Dean of Admissions and Records, and provides logon support to faculty and students via email. More advanced technical support is provided by the TLC Technology Specialist.

Recommendation
Fill the Associate Dean, Learning Resources and Instructional Technology position on a permanent full-time basis to assist with increasing distance education course offerings and to maximize students’ access to education at Napa Valley College (The Armond Phillips study lists responsibility for distance education as part of that position).
Examine alternatives to WebCT/Blackboard due to technical difficulties experiences in Fall 2007. Former Blackboard institutions are reportedly satisfied with award winning Angel Learning and Desire2Learn which bear looking into
Resolve outstanding issues of course ownership, if any.
Strive for an online offering of courses equal to or better than other Community Colleges of similar size.
Continue to offer assistance to faculty who would like to design online classes.
Examine how to provide faculty with financial incentives for authoring online courses (a negotiable item). Title III currently provides a $500 stipend which is helping with online course creation. Discuss standards regarding online class size and load factoring which is also subject to negotiation.
Continue to expand the NVC offering of online student services to fulfill the requirement of providing services to online students.

Resources/Responsibility
Distance Education instructors
Office of Instruction
Instructional Technology Committee
Distance Education Committee
TLC
IT
4.3 Facilities remodel: Faculty workstation

Current Environment
After the passing of bond Measure N, faculty computer workstations were reviewed and furniture models were selected with campus input. Faculty offices are outfitted with new furniture as areas of buildings are remodeled. Note: Faculty can also use computers in the TLC which have specialized software installed and receive technology assistance from staff.

Recommendation
Continue to refurbish faculty offices as much as possible in light of rising construction costs causing difficulty completing Measure N projects.

Resources/Responsibility
District decision-makers
Office of Instruction
Learning Resources
TLC
Facilities
IT

4.4 Software

The TLC provides an opportunity for faculty to create web pages and fully manage enrollment, lectures, grades, and more for online course development using Web CT/Blackboard courseware system.

Current Environment
Web CT 6.0 online course management software
Campus Platform 5.0 web content management software
Microsoft Office Professional (Word, PowerPoint, Excel, Access)

Recommendation
Provide other required software (such as Acrobat Developer and Photo Shop) to the TLC and appropriate faculty.
Provide an annual allocation of funds to purchase software for TLC and faculty computers.
Load assistive technology on at least one computer in the TLC to accommodate faculty and staff with disabilities.
5 STAFF DEVELOPMENT AND TRAINING

Technology training opportunities are available to faculty and staff through the Teaching and Learning Center (TLC).

5.1 Support services for technology related training

Current Environment
The TLC holds workshops open to faculty and staff. These workshops range across a number of subjects and software programs and are performed both in the TLC and through special “At Your Desk” trainings. In addition, the TLC Technology Coordinator and the Technology Specialist each hold drop-in office hours to address technology needs across a spectrum of topics.

There is also a Tech Tips and Training webpage located on the Teaching and Learning Center Internet website which provides online copies of all of the technology documentation created for these classes and well as technology tips.

Current classes include:

<table>
<thead>
<tr>
<th></th>
<th>WebCT</th>
<th>PowerPoint 1, 2, &amp; 3</th>
<th>Articulate</th>
</tr>
</thead>
<tbody>
<tr>
<td>MyNVC 1 &amp; 2</td>
<td></td>
<td></td>
<td>Picasa2</td>
</tr>
<tr>
<td>Excel 1, 2 &amp; 3</td>
<td></td>
<td>Zoomerang</td>
<td>Using a Flash Drive</td>
</tr>
</tbody>
</table>

A major constraint is time. The Technology Coordinator is a 40% reassign of a faculty member and the job description for the Technology Specialist does not specify understanding or conversancy with the technologies for which the position trains. The Technology Specialist also serves as a distance education technologist with the combined role not explicitly stated or funded.

Another issue is less than desired attendance at scheduled and advertised trainings. Despite attempts to best schedule sessions, attendance is mostly sparse but sometimes overcrowded.

IT provides a help desk to answer questions and resolve computer hardware and software issues in classrooms, computer labs, and offices. The Business and Computer Studies (BCS) division has a computer support technician to support their technology training who runs another instance of a help desk which requires support by IT when server and applications software is upgraded.
Applications experts are an integral resource for employee training. For example, faculty in BCS are an excellent resource for Microsoft Office, accounting personnel are well-versed in Excel, Datatel module team leaders routinely identify screens needed by other users and provide training, and the webmaster provides support on a variety of web applications.

**Recommendations**

- Explore expanding the Technology Specialist job description to incorporate specific necessary technical skills including possible support for online education.
- Create a more formalized Datatel training plan.
- Plan for maintaining web applications knowledge and expertise as the current webmaster position transitions to a web applications specialist in order to support users and best practices.

**Resources/Responsibility**

- BCS
- Facilities
- Human Resources
- IT
- Office of Instruction
- TLC

### 5.2 Training and support services for technology-related curriculum

**Current Environment**

- Frequent, relevant workshops are offered to faculty and staff through the Teaching and Learning Center funded with Title III funds.
- Intermittent technology trainings are offered during college-wide staff development days.
- Mini-Grants are available for faculty use to increase their technology knowledge.
- Almost 100 instructors have web pages on the NVC website.

**Recommendation**

- Continue to offer trainings at various times on different days in an effort to capture more faculty/staff.
- Begin offering night classes to reach more adjunct faculty.
- Explore the feasibility of establishing a fund that provides faculty with financial incentives and/or release time from committee/teaching responsibilities to incorporate innovative technology in the classroom.
5.3 Conferences and seminar support services for technology related curriculum

Current Environment
Conference and seminar funding can be obtained through budget centers and staff development funds. However, technology trainings can be expensive and even combining the two sources may not sufficiently fund particular trainings.

Recommendation
Provide increased and ongoing funding and release time if needed to technical support staff to attend in-depth training to increase their knowledge and expertise and better support and train students and college employees.

Use programs such as @ONE to attend high-quality, low cost trainings.

6 TECHNOLOGY FOR THOSE WITH DISABILITIES

Current Environment
The Diagnostic Learning Services classroom has 23 computers, three scanners, two printers and one overhead projector and smart board. Room 1810 has five towers, three monitors, three high speed scanners, one printer and close captioning equipment. Room 861a has four computers, one printer and one scanner. Additionally, there are accessible workstations available in the major computer labs, computerized classrooms, and the Library.

Recommendation
Develop alternate media guidelines in accordance with the Chancellor’s Office to meet the legal obligation of making instructional materials and other information resources available in alternate formats, including, but not limited to: audio, Braille, tactile graphics, large print, and electronic text.

Increase the number of accessible stations above the minimum percentage to afford campus-wide access to students with disabilities.
STUDENT SERVICES

Student Services is responsible for college support for students through admissions/registration, counseling, financial aid, and support programs. All programs have significant responsibility for managing and maintaining student records. Datatel Colleague, third party applications, and shadow systems are used in various ways to manage data.

7.1 Admissions and Records

Current Environment

There are currently 6 personal computers situated in the lobby of Admissions and Records (A&R). The PCs are networked to provide self-service access to the college online application, registration, transcripts, parking permits, grades, financial aid, and forms necessary for admissions and registration.

Full-time staff members are responsible for providing Web Advisor logon assistance and password resets for students and staff via phone, e-mail, and in person.

Managing incoming transcripts for all students, particularly Nursing applicants presents challenges for A&R. Evaluated transcripts must be manually entered into Datatel.

Recommendation

Plan for replacement of the PCs in the lobby. Use replaced A&R full-time staff computers augmented by at least three units.

Add six more student stations to the lobby and coordinate use with Counseling.

Examine need for additional staff to process transcripts. Implementation of the Hershey transcript module speeds processing but manual intervention and checking is still required.
Implement formalized workflows and use of built-in tracking for communication with students.

Continue training in and use of Datatel Communications Management and Hershey workflow in order to promote capacity building and system maturation.

Resources/Responsibility
A&R Assistant Dean
A&R Staff
Counseling Division Chair
IT
VP of Student Services

7.2 Assessment

The CAPP system is used to scan, score and store assessment tests. Automated processes pick up test data, place it in a Structured Query Language (SQL) database for intranet look-up, and load it into Datatel for prerequisite processing and look up. Assessment data for MIS is extracted directly from CAPP and transmitted to the State Chancellor’s Office.

Room remodeling and implementation of a computer-based testing facility with seven stations took place in Fall 2006, allowing students to test year-round. Staff is noticing that the second-hand computers are slow to boot and plan to allow more time for start-up prior to morning testing sessions until the computers are replaced in their new facility.

Expansion of computer-based testing to the Upper Valley Campus is desired. IT has a test instance of a PC protected by Deep Freeze running in the Testing and Tutoring Center. If the test is successful, the testing program can be added to UVC computers. Otherwise, the program will need to be run from a CD-ROM. (Deep Freeze is a program which keeps systems within a computer lab uniform and functioning correctly by preserving the software image).

Expansion to proctored testing at off-campus locations such as local high schools is the next phase of computer based testing desired to be implemented. Other colleges share that the project can be time-consuming since another institution and network is involved and that it is helpful for IT to take the lead. There can be various issues associated with high school counselors administering tests, including training and test security. This next level of expansion will also require sufficient time for collaborative planning, implementation, and testing. Security of tests and test data is paramount to preserve test integrity and licensing.
Paper and pencil testing is planned to be continued for students who express anxiety associated with computer usage.

**Recommendations**
- Continue to ensure CAPP program interoperability with new Windows operating systems.
- Lock the CAPP PC when not in use for data security.
- Consider hiring a third technician with basic skills funding.
- If possible, add evening CELSA testing and have counselors available to augment outreach services.
- Ensure a smooth and successful expansion, much like the initial implementation, through careful and systematic implementation and testing.
- Expand online student testing and assessment off-campus with librarians, ministers, or government officials serving as proctors

**Resources/Responsibility**
- High school representatives
- IT
- Testing and Tutoring Center staff
- UVC Dean

### 7.3 College Police

**Current Environment**
College Police Officers currently do not have vital information available to them when they are in the field. As an interim step, static information could be made available to officers in their cars using Personal Digital Assistants (PDAs) and other mobile devices. Information downloaded to their mobile devices would be updated via a secure office-based connection to a system hosted by the State of California’s Department of Justice (DOJ).

The NVC Police Chief subscribes to a monthly Verizon service to facilitate updating of phone numbers in cell phones upon phone replacement.

**Recommendations**
The College Police have three objectives which follow in prioritized order:

1) Plan for and implement a solution which will provide real-time data, including pictures and Datatel information, to officers in their vehicles in order to minimize risk and support decision-making.
   - Develop an equipment standard for a rugged small tablet PC for use by officers.
   - Implement an interim solution for providing static information to officers working in the field.
Monitor wireless contract negotiations by the City of Napa. Explore solutions to satisfy DOJ security requirements. Provide secure wireless access to student and employee emergency information in Datatel.

2) Continue to roll-out the AlertU project for text messaging of emergency notifications. Continue to advertise with fliers and signs. Implement sign-up widgets on various pages on the website.

3) Plan and budget for campus-wide pervasive wireless access with sensitive data secured from unauthorized access.

Resources/Responsibility
NVC Police Department staff
IT

7.4 Career Center

Current Environment
All but one of the PCs in the office is four or five years old.

Currently there are three student stations, but an additional two to three PCs are planned for the December 2010 remodel.

A job development program called Interfase.com is used to manage employers and students seeking jobs. Students end up having to enter and manage profiles in Interfase and Datatel. There are also employers in both systems. Workability III has yet another instance of a separate database used to facilitate job placement of Vocational Rehabilitation clients.

Recommendations
Provide web or wireless access to employers as part of the base Career Fair registration and include a surcharge which will reimburse NVC for AT&T day passes bought in advance to smooth setup and NVC technical support if desired. Ensure laptops are plugged into the campus network at least monthly in order to be updated. Use digital signage to promote student access.

Resources/Responsibility
VP of Student Services
Career Center staff
IT
7.5 Child Development Center

Current Environment
The program formerly used for federal and state reporting is so outdated and inadequate that it was abandoned and children’s hours of attendance and meals are tracked manually.

Workstations for office staff and classrooms are currently adequate but the director’s PC is too slow. Computer use consists primarily of electronic mail, administrative reporting, and documenting children’s activities, artwork, and experiences.

Another workstation is needed for use by instructors and hourly staff.

Recommendations
Explore using NoHo software to automate attendance and meal tracking and reporting. Use existing SQL 2005 licensing, server, and file storage available in the campus data center if possible. Using a computerized application will free staff from routine, tedious work and enable them to spend time on marketing, outreach, interacting with students and agencies, and mandated training.

Replace or upgrade the director’s PC and plan for refreshment of other departmental PCs.

The director desires to convert a rarely used sick child room (#3010) to another office with network access.

Resources/Responsibility
VP of Student Services
Childcare Center Director
IT
Cabling contractor

7.6 Counseling

Current Environment
Datatel e-Advising implementation is in its beginning stages. Training is currently taking place and business processes are being reviewed.

Sars-Grid appointment system was purchased as a third-party software to be integrated with Datatel in order to provide an updated appointment system and elements of matriculation data for MIS reporting. Web-based access was added in Summer 2007.
Recommendation

Provide counselors electronic access to external transcripts via the Hershey project.

Continue to develop the application of Datatel e-Advising.

Expand counseling resources for electronic and telephone advising.

Identify and/or develop a short-term class (possibly three weeks in length) featuring applications training specific to NVC such as WebAdvisor, e-Advising, and Assist. Consider supplying a student CD. Explore how the class fits in current or future curriculum and program offerings and advertisements.

Integrate the SARS-Grid appointment system with Datatel Colleague.

Counselors who participate in district meetings should manually download their SARS schedules into Outlook daily in order for college personnel to efficiently schedule meetings. (The Counseling Secretary can provide steps). Student IDs may be displayed but no names or SSNs should be viewable in the downloaded calendar to maintain student confidentiality.

Resources/Responsibility

A&R staff
Counselors and Counseling staff
IT staff
Vendors

7.7 Disabled Student Program and Services (DSPS)/Special Services

Current Environment

The Diagnostic Learning Services (DLS) classroom serves 150-200 DLS students per year.

Recording of lectures happens on a very limited basis for online courses only.

DSPS has a custom software application written by a consultant which tracks student disabilities, services, and accommodations including items checked out. The program flow has evolved somewhat over time rather than at design conception.

Recommendations

Identify space for an assistive technology computer lab to serve DLS, Workability III, and Department of Rehabilitation students and offer a) assistive technology classes using 24 workstations and b) a drop-in lab with 6 workstations. Each workstation would cost approximately $2500. Furniture would also be needed.

Napa Valley College provides a nurturing environment with robust assistive technology solutions and one-on-one support which is often not replicated upon transfer. The above lab would give students more time on computers in which to learn transfer and life skills and widely available Microsoft assistive
technology products and thus increase transfer success. Associated recommendations include:

- Explore the feasibility of using funds brought in by FTE to refresh computers.
- Teach web design using assistive technology.
- Obtain Department of Rehabilitation referrals.
- Retain an instructional assistant to support instruction.
- Purchase a tablet PC and enable projection.
- Retain assistive technologies in existing locations.
- Improve the design of the custom software application developed for the program to match workflow.

Pilot recording DSPS course sections such as Math 10, English 15 and 17 and making content available from the college website after one day closed captioning by an outside company. Students will be able to review content as many times as needed to achieve mastery. Garner interest on campus and expand recording of classes transferable to California State University and University of California through department and district buy-in. Recorded material quality would benefit from live camera operations and video editing. Explore the feasibility of having students in the BTV program film and edit the aforementioned courses. Note: An eight-week pilot of DSPS course section recording is $3400, and an ongoing solution is estimated at an additional $20,000.

Provide unified messaging client to Alternative Media Specialist to convert voicemail into electronic mail and boost productivity.

**Resources/Responsibility**

Diagnostic Learning Services  
DSPS staff  
IT  
Office of Instruction  
Software application consultant

### 7.8 Financial Aid/EOPS/CARE/CalWorks/TRIO

**Current Environment**

The office is successfully using Datatel and very interested in continuing to move away from processing paper documents and using workflow to establish a paperless system.

An older scholarship software application written in Microsoft Access is used to facilitate NVC awards. A separate software application is used to coordinate scholarship information with the Business Office, the Foundation, and Financial Aid. It’s been expanded to interface with the campus website. However, it is reaching end-of-life but is not a top priority for IT programming.
Recommendation

Purchase or rewrite scholarship program, possibly by outsourcing. This new application would ideally provide applicants and recipients with web access to information regarding the status of their application and award.

Use Datatel document management workflows, and Hershey e-forms to move toward paperless management of student forms needed for financial aid applications and awards.

Implement e-check (EFT) financial aid payments in Datatel.

Resources/Responsibility

Financial Aid staff
IT
Vendors

7.9 Transfer Center

Current Environment
There are four student computer stations which are aging. Presentation space that requires technology support is inadequate for the needs of the center.

The counseling station at UVC was noted as being deficient. This was subsequently upgraded with a PC from the Datatel modular to facilitate the UVC continuing education implementation and take care of the counseling need.

Recommendations

Install projection equipment and screens in Transfer Center.
Expand counseling resources for electronic and telephone advising.

Resources/Responsibility

A&R staff
Counseling staff
Testing and Tutoring Center
Transfer Center staff
VP of Student Services
Community
7.10 General Student Services Issues

General Student Services issues are thought to fall into four categories listed below with recommendations for addressing:

i. Support the development of student services technology applications
ii. Provide a baseline of student support systems and services
iii. Update technology to provide a level of service expected by students and the college
iv. Support maintenance costs for related software.

Recommendations

Introduce a student “Smart Card” with photo, SARS integration, and funds available for use in the bookstore and cafeteria. Place optic readers in strategic locations. Integrate with WebAdvisor if possible.

Increase smart offices and smart rooms, mobile counselor/advisor/student stations, student stations well-configured for student/advisor use, and student computer stations in areas such as the Student Union and/or Library.

Improve Web Advisor self-help for students.

Introduce a computer literacy class for students.

Conduct online workshops like those at Diablo Valley College to familiarize students with technology in general and student software applications used on campus.

Have a campus technology component of the marketing plan and include key people in planning.

Implement the Hershey transcript module to scan external transcripts into Datatel and facilitate degree audit and e-Advising.

Consider hiring additional IT staff devoted to student services.

Expand offerings of online transfer classes

Post more advising forms online.

Expand online routing of forms through electronic signature

Implement online budget lookup

Increase wi-fi access on campus

Continue support for staff training

Address technology refreshing to replace campus hardware & software.

Explore the possibility of placing flat panel screens promoting NVC classes and services in areas where people congregate. Costs are estimated at $2,000 each plus possible monthly connectivity charges in the $40-$50 range. Conduct a site visit to other area colleges that have this technology already in place.

Increase use of SARS Call to provide information to students.

Expand use of Datatel Colleague correspondence capabilities.

The Assistant Dean of Admissions and Records and the college Webmaster can work together to make registration error messages more user friendly, but it is time intensive and slow-going due to workloads.
Resources/Responsibility
Assistant Dean of Admissions and Records
Vice-President of Student Services
Student Services staff
Human Resources
IT
Webmaster
8 BUSINESS SERVICES AND HUMAN RESOURCES

8.1 Business Services and Human Resources Support Software

Current Environment
The Datatel Colleague Financial (CF) module is used for general ledger and accounts payable activities. The Colleague HR/Payroll module (HR) is used for managing and paying employees based on positions, assignments, steps, and benefits. The Colleague Accounts Receivable module (AR) handles all types of monies owed to the district including student accounts.

Recommendation
Continue to work on developing reports to increase accuracies and efficiencies, improve communication, and increase data-driven decision-making.

- Implement more web-based self-service functionality for employees and students including but not limited to timecard entry, budget lookup, and debt payment.
- Implement workflow processes to increase efficiency and improve data security and integrity.

Resources/Responsibility
Datatel implementation teams

8.2 Document Imaging System

Current Environment
NVC is currently using Laserfiche supported by ECS Imaging.

The IT Director coordinated with Strata Information Group consultant Edgar Coronel and the Datatel CORE team on the following process:

- Software demonstrations to educate users about features and functionality of market leaders (February 2006)
- Interviews with key areas (February 15 and 16, 2006)
- Establishment of functional requirements, scripted demos based on requirements, requests for proposals, and a selection process.
- Identify a functional leader and negotiate best and final pricing.

Hershey Systems was determined to have the winning product and proposal. A bond budget shortfall was overcome and the project was funded by President’s Cabinet in Spring 2007. Implementation began in July 2007, was
delayed while R18 issues were resolved by the vendor, and recommenced in November, 2007. Full implementation will occur in 2008.

**Recommendation**

Improve productivity in document imaging by:

1. Eliminating manual entry of external student transcript data by using Optical Character Recognition (OCR) Technology
2. Integrating with Datatel Colleague for more automated indexing
3. Providing image access through a standard web browser
4. Improving staff productivity and levels of service through on-line retrieval of active and historical student records
5. Partnering with a vendor who will provide better support and allow more timely application of critical Microsoft security patches
6. Implementing workflow and digital imaging in Human Resources to reduce paper circulation and to improve efficiencies of processes.
7. Assisting with workflow implementation in additional offices such as Financial Aid to reduce paper flow.
8. Identify other areas that could benefit from digital imaging and prioritize implementation.

**Resources/Responsibility**

Datatel CORE team

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### 8.3 Printing Resources

**Current Environment**

There are approximately 70 networked printers located throughout the campus in addition to a prolific number of desktop printers. The following multi-function printers (MFP's) are also deployed:

1. DSPS has two Xerox 432 Docucenters
2. CJTC, the NVC PD, Health Occupations, and P.E. have HP LaserJet 4345 MFP’s
3. Faculty use two Savin 4075 network copiers/MFP’s in the 800 building.

**Recommendation**

Strive to meet the Chancellor’s Office recommendation for “sufficient printers for students” and “50-to-1 faculty and staff” ratio for advanced laser printers. One scanner per 100 faculty is also advised.

The following recommendations will help achieve the Chancellor’s Office guidelines and lower the total cost of ownership (TCO) of printing devices for faculty, staff, and administration:
1. Printing Services has the lowest cost per page on campus. Therefore, centralize Printing Services and expand services to include automated network printing services, color scanning, and walk-in self-service capabilities.
   a. Have clear, predictable, and reasonable turnaround times
   b. Give priority to faculty at peak times
   c. Ensure location will maximize usage
   d. Explore expanded hours for print request processing and reliable delivery services.

2. Have the district pay for multi-function printers (MFPs), copiers, scanners, networked printers and fax machines used by faculty and staff. Purchase should include an extended warranty/maintenance program of three to five years.
   a. Include secure fax capability to save time and money and protect the network from hackers.
   b. Discourage purchase of desktop printers which are much more expensive per page of printing, require more maintenance due to paper jams and failed ink cartridges, and are often not repairable. If acquired, the department making the purchase should be responsible for service, maintenance, and supplies.
   c. Add color scanning to meet demand.
   d. Train IT personnel to create accounts and perform basic troubleshooting.
   e. Consider accessibility and security when placing printers.
   f. Student computer classrooms should have sufficient laser printers; student computer labs that are open to the general student body should have an MFP (closed labs will be treated as a department classroom).

Budget center managers of non-categorical programs should set an example by consolidating printers to centralized locations within buildings. Confidential printing needs would be excluded.

Consolidate budgets for computers and printers, thus enabling bulk purchases and limiting funds spent without approval or adherence to established guidelines. (See section 9.1 for more information).

Resources/Responsibility
President’s Cabinet
Budget Center managers
Facilities Committee
Printing Services
9 FACULTY, ADMINISTRATOR, AND STAFF COMPUTERS

9.1 Total Cost of Ownership for hardware and software

Total cost of ownership (TCO) is potentially a key concept in the whole area of improving the provision and use of technology. Put at its most general, TCO is the sum of all of the costs associated with acquiring technology. This concept was introduced to NVC in the 1997 Technology Plan.

Current Environment
NVC is successful in keeping its purchases standardized within the Dell Optiplex desktop and Dell Latitude laptop lines. Configurations are changed quarterly so no more than eight variations per year are introduced to the landscape of machines requiring support. However, equipment sometimes remains on campus as long as seven or eight years before being replaced. Technicians are left to make time-consuming refurbishments to equipment to keep it operating but without satisfying the user.

Individual desktop printers are prolific with negative fiscal ramifications to departmental budgets due to expensive toner and ink costs per page. The district is responding with placement of network copiers and multi-function copiers/printers.

Recommendation
- Establish replacement cycles and set aside funds for equipment refreshment.
- Place used classroom computers on faculty and staff desktops if they meet employee productivity requirements
- Continue to educate campus personnel on the hidden costs of desktop printers in terms of cost per page, and paper jams and print head problems requiring technician visits and possible disposal of equipment.
- Continue to consolidate printers, copiers, and fax machines where practical and cost-effective.
- Continue to train on use of network MFPs.
- Create a secure network printing process which includes easily accessible locations where sensitive material (i.e. exams, memos) is available only to the author.

Resources/Responsibility
Vice-President of Business and Finance
Budget center managers
9.2 Implement Total Cost of Ownership to support infrastructure

Current Environment
The college had a Cisco network installed over ten years ago. Since that time, the CORE switch has been updated to improve routing and bandwidth monitoring for the bond-funded Datatel Colleague Enterprise Resource Planning (ERP) implementation. Memory was also added to perimeter switches to be able to load current software releases. However, most of the equipment is end-of-life: software updates to address network security vulnerabilities are no longer available, and after hardware support ends in March 2008, replacement parts will no longer be provided or guaranteed.

Recommendation
Replace/upgrade network equipment every five to seven years. See section 13.3 for more information.

Resources/Responsibility
NVC District

10 HELP DESK AND SUPPORT SERVICES

Current Environment
The Help Desk provides technical software, hardware and network problem resolution to district computer users by performing question/problem diagnosis and guiding users through step-by-step solutions from the call center. Users call x3114 or send an email to support@napavalley.edu. A help desk technician or the Information Technology Support Specialist enters the call into Parature web-based help desk software and if it cannot be resolved over the phone, it is assigned.

Recommendation
Complete set-up so that 1) campus users can access Parature without logging in again and 2) user information is automatically populated in the system.
Continue to build the knowledge base of problems and solutions so that technicians can look-up known issues and users can self-help.
Examine the need for user training and plan accordingly.
Expand the use of help desk software to applications support staff.

Resources/Responsibility
IT
Staff from campus departments
District funds
11 RESEARCH, PLANNING & DEVELOPMENT / MIS REPORTING

11.1 Research, Planning & Development

Current Environment
The workstation used by the Director of Institutional Research and the program Secretary are in need of replacement. The Director’s PC should be replaced every three years due to demands of statistical computing and need for productivity of the 1.0 campus research FTE.

Planning processes are paper intensive. The office has a desire to use online planning software and processes.

There is increased emphasis on student learning outcomes (SLOs) but appropriate software programs are needed to guide and support NVC’s assessment efforts. A large amount of data is expected to need to be stored and tabulated.

The office has a desire to improve delivery of services.

The Director of Institutional Research has a desire to more graphically portray data and to be able to better access data from Datatel Colleague.

Recommendation
Select software which best fits NVC based on pre-established criteria and collaborative input. Analyze and modify processes as needed, implement software, and train users. Use this process for strategic planning, SLO tracking, research and planning activities and delivery of services.

Convert surveys to online forms to reduce printing and handling of paper.

Explore most affordably and efficiently merging GIS software with student information system data for state-of-the-art data mining.

Continue to train in SQL reporting for extracting Datatel Colleague data.

Resources/Responsibility
Dean of Research, Planning and Development
Director of Institutional Research
SLO Specialist
GIS Specialist
IT
Campus stakeholders
District funds
11.2 MIS (Management Information Systems) Reporting

Current Environment
MIS data resides in Datatel Colleague in the student, HR, and finance modules.

Recommendation
- Refine business processes, timelines, and end-user training in order to optimize completeness and accuracy of data, i.e. data integrity.
- Monitor and research changes in data for data conversion, Colleague setup, or Colleague extract problems.
- Invite Chancellor’s/System Office MIS staff to conduct an on-site special focus training to educate users on the MIS system, the importance of data integrity, and upcoming projects and changes. An in-depth examination of NVC MIS data will be performed.

Resources/Responsibility
IT
Datatel implementation teams
Datatel technical support personnel

12 INTERNET SERVICES

12.1 Campus Website

Current Environment
NVC implemented a new website powered by Campus Platform/School Web Services in January, 2006. The IT Director, Public Relations Officer, and Webmaster made up the implementation team with the CEO of School Web Services. The product was chosen due to ease of use, clean structure, integration with Active Directory, and an affordable campus-wide web content management license. The implementation was smooth and on time and the site has been almost universally well-received due to its professional look and feel. Many faculty and staff have attended training and are actively using the product.

Recommendation
- Continue to train faculty on use of Campus Platform beginning and intermediate/advanced topics with the goal of every faculty member having at least a basic webpage with other faculty using the product to post syllabi and homework assignments and use collaboration tools.
- Continue to train staff on creating and maintaining departmental content including newsletters, publications, and calendars.
Convert the intranet site. Intranets are systems that allow users to securely access documents and other content on a network through familiar web-browser technology. However, access is limited to internal users only—users from outside of the network (e.g. home) cannot access the content. Campus Platform/MyNVC will facilitate converting our existing intranet to an extranet—a portion of our intranet that is securely extended outside of the campus across the Internet to allow employees access to information and documents not available to the public at large.

Developer School Web Services is moving the Campus Platform product to a Share Point platform and will be providing more limited support for the current version. The web support team needs to evaluate the new product offering and costs, compare to other offerings, and determine a direction and timeline for migration.

Resources/Responsibility
TLC, Webmaster, IT Director

12.2 E-mail Systems

Current Environment
We are currently using Exchange 2003 on our email server and Outlook 2003 as client software for our institutional employee electronic mail environment. Exchange is the software application that routes the mail to each recipient and Outlook is the software that reads and creates messages. NVC does not provide student email accounts.

On-Campus services

Those users who use the full Outlook client have access to the following services:

- E-mail (including attachments from any of the Microsoft Office products)
- Electronic scheduling for group meetings and facilities
- Personal calendar for appointments and automatic notification
- Personal task lists
- Access to Public Folders
- Ability to send/receive routed forms
- Access to college-wide address book and distribution lists
- Ability to create and maintain personal address lists
Off-Campus services

If users need to connect to Microsoft Exchange Server from remote locations they can use a Web browser like Netscape or Internet Explorer. When they use the Outlook Web Client they have access to the following features:

- Basic e-mail. Outlook Web Access users can address mail using the Microsoft Exchange Global Address Book, send and receive file attachments and hyperlinks, set messaging priorities, and request delivery and read receipts. Also, they can use hierarchical folders and the Outlook bar, and group and sort messages in a folder based on standard fields or a conversation thread.

- Basic calendar and group scheduling. Users can create one-time or recurring appointments in a personal calendar, and access daily and weekly views of the calendar. Also, they can view free/busy times for multiple users and resources when scheduling a meeting, and automatically send and respond to meeting requests by using e-mail.

- Basic public folder access. Users can access custom table views in public folders, and group and sort messages in a folder based on standard fields or a conversation thread.

Recommendation

Troubleshoot why America Online (AOL) users have trouble connecting to our email server. (Note of problem resolution: AOL users need to open another browser session and connect to email.napavalley.edu rather than connecting from within AOL).

Encourage users to use and share their Outlook calendars to facilitate scheduling of meetings. Provide on-line resources, tech tips, and Outlook classes.

Partner with an experienced and reasonably priced vendor to plan for and migrate to Exchange 2007 to stay current on software and provide increased functionality to users.

Partner with Microsoft or Google to provide student and alumnae email accounts with the napavalley.edu domain name.

Resources/Responsibility
President’s Cabinet
IT staff
ITC/DTAC Committees
TLC staff

12.3 Campus Portal

Current Environment
None
Recommendations
Implement the new Datatel portal which uses Microsoft Sharepoint software and a SQL database, would tie-in well with the district website and database environment, and enable separating visitors into constituent groups with customized and targeted messaging. The cost is $20,000 plus $4,000 per year maintenance.

Resources/Responsibility
IT staff
Datatel CORE group
ITC/DTAC Committees
Student Life Coordinator/ASB
TLC

13 NETWORKING INFRASTRUCTURE

13.1 Wireless Technology

Current Environment
Currently Napa Valley campus has four areas for which wireless networks are implemented: the Criminal Justice Training Center; the Science, Math, and Engineering building; the Library, and the Teaching & Learning Center. We also have a campus-wide service provided by SBC FreedomLink for student intranet use. See section 1.5 for more information.

Recommendation
Provide wireless capability in buildings as they are built or remodeled.
Continue to explore funding for pervasive free campus wireless Internet service.

Resources/Responsibility
Campus Planning and Construction
Information Technology
President’s Cabinet

13.2 Target 24 x 7 up-time for core network devices

Current Environment
24x7 up-time is difficult with limited normal business day (8x5) staffing. However, all core and mission-critical devices are monitored through the network operations center (NOC) during business hours. Off-hours alarms will allow notification of problems to IT management when fully implemented.
Scheduled maintenance occurs on the first and third Friday of each month and is performed in a manner to minimize impact to users.

Core network devices serving the entire campus currently suffer from a harsh environment that includes excessive dust, flooding/water problems, lack of fire suppression, and space limitations. Some improvements have been made to minimize excessive heat and power interruptions but construction projects are causing an increased number of power outages. Devices serving individual buildings are also in unfavorable conditions that potentially could cause systems failures such as: shared access with other campus facilities; inadequate space and security; poor ventilation and cooling; lack of grounding; minimal lighting; excessive dirt/dust; and water/moisture.

Without redundant core equipment residing in NVC’s main campus Main Distribution Frame (MDF), the campus could experience a complete network outage for several hours up to the next business day, or possibly longer, if components fail.

NVC’s data center has a 12kv back up system, able to provide power to core systems for approximately 60 minutes. Backup uninterruptible power supplies (UPS) exist for network equipment in individual buildings. These UPS devices provide power for approximately 30-60 minutes as well as condition power levels and protect equipment during spikes and outages.

**Recommendation**

Increase warranty coverage on core devices from 8x5 next business day to 24x7 same day.

Expand the data center and MDF (see section 19 glossary) to include improved environmental conditions and space, including raised flooring. If the location is to remain in the basement of the 1500 building, steps should be taken to ensure no overhead plumbing or backed up drains can result in flooding which has repeatedly occurred.

Establish a backup power generator to feed and sustain power to the data center during extended outages.

Establish a replacement strategy for UPS devices, as their effective life is only 18 to 36 months.

Establish space with adequate environmental conditions to locate core network devices serving buildings.
Examine options for providing on-call staff capable of responding to off-hours problems.
Consider purchase of redundant core network equipment to minimize downtime during failures.

Resources/Responsibility
IT
Campus Planning and Construction (CPAC)

13.3 Wired Infrastructure, Switches, and Routers

Current Environment
NVC’s network systems infrastructure has been built around Cisco Networks routers, switches, and operating system software. While core network equipment is fairly current, most of NVC’s Cisco equipment, purchased circa 1998-99, has reached end-of-life and most of it is at full capacity.

Routers provide wide-area network (WAN) connectivity, while switches are typically interconnected via a mix of gigabit Ethernet (1000 Mbps), dual Fast Ethernet (200 Mbps) and Fast Ethernet (100 Mbps) uplinks over the campus fiber optic backbone cable system. Almost all of this backbone cable system was installed in the late 1990s.

While most network connections are switched 10/100 mbps Ethernet to the desktop, current computer and server network interface cards are capable of gigabit Ethernet. Current and future network switches will need to meet increasing network bandwidth and throughput requirements, including increased uplink interface speeds of 10 Gigabit and higher.

Recommendation
Upgrade to current generation of (layer 4-7) switching to meet current and future anticipated bandwidth, traffic management, and security requirements.

Replace/upgrade network equipment every five years.

Upgrade network equipment and cabling if needed in buildings as they are renovated.

Establish space with adequate environmental conditions for network infrastructure serving buildings.

Involves IT during design and planning phases of construction projects.

Upgrade and maintain UPS devices for all network switches.
14 PROMISING NEW TECHNOLOGIES

14.1 Video Instant Messaging

Current Environment
Videoconferencing has tended to be hardware-centric and required a number of components to create a total solution, which often gets very little use in organizations. By contrast, video instant messaging makes video communications available to the desktop user. The promise of the technology is that it integrates with desktop applications and groupware, including voice, video and web collaboration tools, making video available to users through standard applications and workflow processes. The typical user records a video message and delivers it via electronic mail or a web link. This recorded message is a type of super electronic mail with recorded video, audio, and attachments. Ultimately it becomes videoconferencing when the link between two or more participants becomes interactive.

Recommendation
Explore, adopt, and provide training for video instant messaging.

Resources/Responsibility
Technology Committees
TLC
IT

14.2 Voice over IP and IP Telephony

Voice-over-IP (VoIP) is the technology that allows users to exchange voice data over an Internet connection through their computers or phones. IP Telephony allows data, voice, and video to be transmitted over a single network infrastructure.

Some of the projected benefits include:

- Reduced administrative costs
- More flexibility in application deployment to the desktop
- Increased personal and workgroup productivity
- Direct classroom support line
Current Environment

No application

Recommendation

Consider voice-over-IP technology to replace the obsolete UVC campus telephone switch, to provide phone service to new buildings, and to add telephones to classrooms to address instructor needs. Existing network jacks can be used.

Resources/Responsibility
District budget
IT working with vendor(s)

14.3 Virtualization

Virtual infrastructure simplifies IT so institutions can leverage their storage, network, and computing resources to control costs and respond faster. Virtual services are created out of the physical IT infrastructure, enabling administrators to allocate these virtual resources quickly to the areas with greatest need. Hardware management is completely separated from software management, and hardware equipment can be treated as a single pool of processing, storage and networking power to be allocated and deallocated on the fly to various software services. In a virtual infrastructure, users see resources as if they were dedicated to them while the administrator manages and optimizes resources globally across the enterprise.

Virtual infrastructure allows IT to achieve:

60-80% utilization rates for x86 servers up from today's 5-15%, meaning fewer servers for skilled technology workers to manage, proactively maintain, and repair.
New applications provisioned in hours, not days
Change request response times measured in minutes
Zero-downtime hardware maintenance

Recommendation

Adopt the virtualization model so that additional software applications and functionality can be implemented with existing IT personnel and additional steps can be taken toward disaster recovery.
15 SECURITY

Current Environment
Cisco Private Internet Exchange (PIX) Firewall
Network access control (NAC) appliance purchased June 2007.
Two free security assessments participated in during 2006/2007.

Recommendation
Address remaining items in the security assessments as workload and budget permits.
Continue to work with vendors to add layers of security which best fit the environment and budget, ideally adding network monitoring and intrusion prevention for the network perimeter and servers.
Create and system-enforce standards for password creation and change, giving users advance warnings about pending password expirations.
Pilot and implement NAC to check mobile devices health (current operating system patches, virus definitions, and absence of malicious software) before allowing the device to join the network.
Continue to patch server operating systems in a timely manner.
Address any remaining servers not housed in IT and not properly patched, upgraded, or backed up.

Resources/Responsibility
IT budget
IT to work with vendors

16 SERVERS

16.1 Windows and Linux Servers

Current Environment
Currently there are two Unix based servers on campus used for Unix instruction, system testing, and network management.
There are thirty Windows based servers housed in the data center for security, cooling, and centralized server management. Under the current environment, when a new application is to be implemented, it often requires a hardware specification, purchase, and configuration phase prior to software installation. We are at the place where rack space is limited in the data center (although servers now have a much lower profile) and we must
question the proliferation of servers due to technical demands of proper server management as well as energy consumption.

**Recommendation**

Implement virtual servers where possible to mitigate server proliferation, save energy, and wisely use funds. See section 14.3 for more information.

- Purchase additional disk drives for the storage area network (SAN) to grow the virtual environment.
- Migrate servers from physical to virtual servers where possible and as IT workload permits.

**Resources/Responsibility**

IT

### 16.2 Primary Administrative Servers

**Current Environment**

We are currently running the Datatel Colleague ERP release 17 and Web Advisor 3.0 applications on several Dell Power Edge servers using the Microsoft Server 2003 Enterprise Edition operating system and Unidata database.

More powerful Dell servers were purchased to handle Datatel Colleague Release 18 which transfers more of the processing of web transactions to the ERP server and has a distributed environment for applications software and a SQL database. A SAN is being leveraged for use by Colleague, virtual servers and applications, and network storage.

**Recommendation**

Utilize SQL database snapshots to 1) provide a database for end user reporting which will not impact production performance and 2) improve the ability to roll-back transactions should database corruption or interruption occur.

Use virtual server technology to create test environments.

**Resources/Responsibility**

IT

Bond funding
17  TELEPHONE, FAX, AND VOICE MAIL SYSTEM

Current Environment
The NEC 2400 IMX phone switch provides services to the main NVC campus, while smaller 2000 IVS systems serve the UVC and Small Business Development Center. Leased circuits and trunk lines ensure four digit dialing between sites as well as least cost routing. NVC’s phone system has over 1000 analog and digital ports that provide phone and fax connections. Overall, it has performed well in meeting the needs of the institution. However, the IVS systems have reached end-of-life and the IMX switch is currently at full capacity and needs to be upgraded, expanded, or replaced in order to accommodate new buildings being added to the campus.

The NEC AD40 voice mail system provides voice-messaging service to all NVC users. While the capacity of this system meets current needs, it runs on the old OS2 operating system on aging equipment. Furthermore, it does not support integrated messaging which allows voicemail to be retrieved via email and vice-versa.

A project to review and revise the setup structure of voice mailboxes, both overall and within areas, to increase ease of use and reduce caller frustration was recently completed.

Recommendation
- Explore implementing integrated messaging to increase employee productivity.
- Develop and implement a plan to expand or replace existing phone systems.
- Review voice mail structure on an on-going basis and recommend improvements.

Resources/Responsibility
IT, Supervisors, President’s Cabinet
**18 GLOSSARY OF TERMS**

**Extranet:** A portion of our intranet that is securely extended outside of the campus across the Internet to allow employee access to information and documents not available to the public at large.

**Integrated messaging** Integrated messaging allows voicemail to be retrieved via email thus reducing time accessing voicemail. Voicemail can still be retrieved from on and off-campus via phone if desired and email can also be retrieved via phone if desired.

**Intranet** Intranets are systems that allow users to securely access documents and other content on a network through familiar web-browser technology; however access is limited to internal users only—users from outside of the network (e.g. home) cannot access the content.

**Main Distribution Frame (MDF):** Connects the private or public lines coming into a building with the internal network.

**Management Information System (MIS):** A system or process that provides the information necessary to manage an organization effectively. The State System Office collects information from each community college district to determine activities taking place on campuses.

**Network Access Control (NAC)** computer security products which control access to a network through authentication, performance of real-time security audits and remediation, and enforcement of post-admission policies over where users and devices can go on a network and what they can do.

**Extranet:** A portion of our intranet that is securely extended outside of the campus across the Internet to allow employee access to information and documents not available to the public at large.

**Storage area network (SAN):** A network of storage disks. A SAN connects multiple computers to a centralized pool of disk storage in enterprises.

**Structured Query Language (SQL),** pronounced "sequel", is a language that provides an interface to relational database systems.