



OUS Technology Plan, 2001-2003

Oregon University System
April 2002



♦ *Eastern Oregon University ♦ Oregon Institute of Technology ♦ Oregon State University ♦ Portland State University ♦ Southern Oregon University ♦ University of Oregon ♦ Western Oregon University ♦ Oregon Health and Science University—Affiliated*

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OUS Technology Plan, 2001-2003: Executive Summary

The *Oregon University System Technology Plan, 2001-2003* has been prepared pursuant to the Budget Note attached to Senate Bill 5524 (authorization of the 2001-2003 Department of Higher Education operating budget) which states:

“The Subcommittee approves the operating budget of the Department of Higher Education with the understanding that the Department of Administrative Services will unschedule \$3.9 million of the General Fund appropriation for Education and General services. The Department of Administrative Services will not reschedule these funds until the Department of Higher Education reports to the Joint Legislative Committee on Information Management and Technology on an updated Technology Plan for the Oregon University System (OUS). This Plan shall be consolidated for all OUS campuses, and shall include strategies for the efficient purchase of information technology assets and for the systemwide management of information technology assets.”

Following the 2001 Legislative session, OUS Information Technology directors and Chancellor’s Office staff met to discuss questions that arose during legislative hearings on information technology in OUS. In addition, OUS campus and Chancellor’s Office staff recognized the need to provide ongoing information to the State Board of Higher Education, DAS and the Legislature related to technology goals and strategies in the context of campus missions, benchmark data on technology indicators, and evidence of effective organization, communication, and management of IT

resources. The resulting OUS Technology Plan is aimed at addressing both the requirements of the Budget Note and these planning and management issues.

▪ Highlights

- The role of technology in higher education has expanded dramatically over the past two decades. Technology is ubiquitous; it plays an important part in every aspect of campus life.
- Technology in OUS supports the broad mission of instruction, research, and public service through:
 - electronic classrooms;
 - support of distributed learning;
 - connection to Internet2 for research;
 - online catalogs connecting regional, state, and national libraries;
 - access to video networks; and
 - creation of a broadband intrastate backbone, saving network costs and providing service to public schools, community colleges, and state government partners.
- Technology is employed to support the Board’s strategic goals of access, quality, employability, and cost effectiveness.
- OUS technology is viewed as a partnership with a larger community, including public schools, libraries, community colleges, state and local governments, and a national and international research community. In addition, organized

efforts are being made to promote connections with private sector IT professionals to share expertise, enhance the base of knowledge available within OUS, and develop an expanded community of IT professionals reflecting both public and private sector concerns.

- Examples of IT activities during 2001-2003 include:
 - Web technology (portals, e-commerce, online classrooms, distributed learning)
 - Technologies in support of the statewide wide-area network (OWEN)
 - Further development of Voice over Internet Protocol (VoIP) for distance delivery of courses and programs
 - Addressing IT security issues with comprehensive and coordinated policies and plans
 - Development of the Oregon Public Higher Education Information System (ORPHEIS)
- OUS' combination of centralized and decentralized IT organization provides both flexibility to the larger campuses in managing resources and efficiency in supporting the administrative computing needs (student, finance, and human resource information systems) of the regional campuses through a centralized "fifth site" support organization.
- There are numerous points of communication and coordination throughout the OUS system, and many examples of collaborative IT projects among campuses.
- IT purchase and development decision structures reflect the complexity and level of decentralization of each campus.

- IT assets are managed using a variety of software applications. More collaborative and coordinated approaches will be developed over the next year or two, particularly as the Department of Administrative Services (DAS) Portfolio Management Committee proceeds with its work. OUS staff will be directly involved with DAS in that effort.
- Mission, size, pedagogical choices, and environmental factors affect the level of IT costs and commitments for each campus.
- Expenditures and staffing per student/faculty/staff reflect the level of each university's commitment to research and broader public service activities, the nature of the curriculum and forms of instruction, as well as efficiencies in resource management.
- OUS faces challenges in accounting for IT expenditures in an environment that is both centralized and decentralized. A framework for presenting IT expenditure data has been developed in consultation with staff of the Legislative Fiscal Office. In addition, a set of IT metrics common to every campus has been developed to provide ongoing benchmarking of IT activity within OUS. Future steps will be taken within the guidelines of the OUS Fiscal Accountability Framework (presented to the Board in February 2002) to develop a more streamlined and consistent financial reporting process.

I. Technology and the University Enterprise

- **Technology is ubiquitous**

Twenty years ago, desktop technology was just emerging. Large mainframe computers were the primary source of administrative and instructional computing support. Library patrons thumbed through drawers of card catalogs in a campus library. The word “Internet” had not yet been invented.

Ten years later, desktop computers were in wide use by university students, faculty, and staff. Patrons could access library catalogs online. Universities were just starting to bring a limited number of degree programs to remote locations via telecommunication technology. The World Wide Web was in its infancy, and the acquisition and consumption of bandwidth had not yet emerged as a central concern.

Today, information technology is as much a part of daily campus life as the telephone. Every department and discipline, from Engineering to English, has integrated technology into its administrative, instructional, and research functions. “Distance education” has become “distributed learning” as online instruction has taken its place in the mainstream of campus-based teaching. With the advent of Internet2 and the Portland Research and Educational Network (PREN), Oregon University System faculty can connect to over 170 US research universities via Internet2 and a growing number of counterpart international networks via high-speed circuits. Technology has put on the desktop of every student and professor a world of journal articles, museum holdings, news services, data sets, and monographs, available at any time or place through access to online library systems. E-mail has fundamentally changed the way we communicate, and the

Web so pervades our lives that “dot-com,” “dot-org,” and “dot-gov” have left the confines of tech-jargon to enter our collective vocabulary.

Viewed from the perspective of the past two decades, the Oregon University System Technology Plan must be flexible and forward-thinking enough to adapt to the future as it unfolds.

While the IT environment is dynamic, we do not approach it as if it were a white-knuckle carnival ride. Instead, our aim is to manage and develop technology for Oregon’s public universities through effective infrastructure—in new buildings, networks, telecommunications, information systems, and security. We seek efficiencies and a reservoir of “best practices” through productive partnerships—within the OUS, with other education sectors, with state and local governments, and with the private sector. Threaded through these elements is our attention to organizational and management structures, as well as decision-making processes and practices that will best serve university missions and the State Board of Higher Education’s strategic goals.

- **Technology is ubiquitous**
- **Technology is connected to university missions**
- **Technology shares in advancing strategic goals**

- **Technology is connected to university missions**

Today, the accomplishment of OUS' mission of education, research and public service relies on robust information technology support. IT strategic planning must be defined by the careful alignment of university mission and technology resources.

Instruction. Computers, computing skills and Internet access are a required component of a university education. Increasingly, campus classrooms are equipped with projectors and wired for full Internet access. Many academic areas require specialized software, technology and support that match current applications within the various fields of study. Software engineering, civil engineering, journalism, architecture, and law are examples of academic areas that require very different, but highly sophisticated software applications and networking support to adequately prepare students for professional service.

Faculty are increasing their use of technology in teaching. More and more content and learning modules are computer-based and placed on the Internet as part of regular classroom teaching. At the same time, entire courses and degrees are now available online to better serve working adults and other place-bound students.

Research. The OUS research mission requires investment in technology that in many cases is experimental or must adhere to national and international standards. Such research expenditures must also adhere to federal and/or foundation guidelines and requirements. Research work undertaken at Oregon State University and the University of Oregon for NASA and other

federal programs must interface with national networks. The development of technology in OUS research has had a direct benefit to the state. For example, the early participation by Oregon's two large research universities, Oregon State University and the University of Oregon, led to the creation of a broadband intrastate backbone. This backbone saves thousands of dollars in network costs and has allowed Oregon to be one of the first states to introduce Internet2 applications to high schools.

Although federally sponsored research is an important activity on every campus, Oregon State University, University of Oregon and Portland State University emphasize research in their missions. Many of the research projects require the purchase or construction of extremely sophisticated technologies.

OSU research on creating earthquake-safe structures and the space telescope work at UO are just two examples of projects that require unique technological investments and support that extend far beyond the scope of standard IT management.

Public Service. Finally, the System's public service mission requires extensive publication and content development capabilities, distribution networks, libraries and archiving services, a strong Internet presence, and access to statewide video networks. The OSU Extension Service operates facilities and provides local information services in every county in Oregon. OUS libraries have made their entire collections searchable via databases and the Internet, and established a statewide interlibrary loan service.

Connected to university missions:

- **Instruction**
- **Research**
- **Public service**

With the growing availability of computers and Internet service to homes, OUS campuses have undertaken the huge task of organizing and placing more and more information online. This process is ongoing and requires the creation of extensive databases, complicated search engines, computer storage capacity, technical staffing and broadband networks. The result of this work is quick access to a wealth of agricultural, technical/scientific, economic and social information and services.

- **Technology shares in advancing strategic goals**

The Board of Higher Education’s strategic goals—access, quality, employability, and cost effectiveness—are tied to the core mission of instruction, research, and public service. In turn, technology is connected to the Board’s strategic goals:

Access. Technology provides access to higher education through networks, support of distance learning, online access

to libraries as well as the Internet, and multi-media capabilities in classrooms and lecture halls.

Quality. Technology is tied to at least two of OUS’ performance indicators: (1) technology is essential in developing critical thinking skills; and (2) high quality, state-of-the-art technology will enhance the satisfaction of OUS graduates with their education.

Employability. Technology is critical in all disciplines in preparing students for the technologies of their future careers, and especially in fields such as engineering, computer science, teacher education, architecture, journalism, business and law.

Cost effectiveness. Technology in OUS is structured around an organizational model that provides for both institutional flexibility and systemwide efficiency. This model will be described later in this document.

Advancing strategic goals:

- **Access**
- **Quality**
- **Employability**
- **Cost effectiveness**

II. Technology Partnerships

The Oregon University System plays a leadership role in a number of public sector technology partnerships. Several recent collaborative projects as well as the organization of various steering committees and coordinating groups, have reinforced and strengthened these partnerships.

- **Oregon Wide Area Network (OWEN)**

The Oregon Wide Area Network (OWEN) is a statewide network, the product of a collaboration among three state entities to realize cost savings by sharing bandwidth and access to Internet providers. The three networks include the OUS NERO network, the Oregon Department of Administrative Services (DAS) network, and OPEN, the state's K-12 network. OWEN partners include all of the OUS campuses, Oregon Health and Science University, Oregon public schools through the Oregon Department of Education, DAS, and other state and local governments and organizations. In addition, several community colleges now access the network. The number of partners has been expanding each year. Managed by OUS, OWEN provides citizens a gateway to electronic information at Oregon libraries, state agencies, and to distance education offerings from higher education, and is needed for advanced research by OUS universities.

The OWEN partnership was formed in late 1996 as a means to pool statewide resources to more efficiently meet the growing demand for telecommunications services and to share higher education's breadth of engineering expertise with all of Oregon. OWEN's K-20 collaboration played a key role in Oregon becoming one of the early participants in the national Internet2

K-20 Initiative, which is aimed at bringing advanced networks and services directly to innovators across all education sectors.

- **Oregon Health and Science University**

As an affiliated member of OUS, OHSU integrates with OUS technology systems and planning. OHSU shares the systemwide telephone infrastructure with OUS and attends the bimonthly OUS IT and telecommunication directors meetings. OHSU's distance education efforts are also closely tied with OUS. OHSU is a member of the OUS Distance Learning Steering Committee. The OHSU School of Nursing offers several bachelor degree completion and graduate-level distance learning programs in collaboration with OUS campuses. OUS campuses host OHSU distance learning courses and OHSU coordinates distance learning course scheduling and delivery with the OUS Office of Distance Learning.

Technology partnerships:

- **OWEN**
- **Oregon Health & Science University**
- **Oregon Network for Education (ONE)**
- **K-12 & community colleges**
- **DAS/IRMD**
- **Libraries**
- **Geographic Information System (GIS)**

- **Oregon Network for Education (ONE)**

The Oregon Network for Education (ONE) collaborative network was established in 1996 to develop a one-stop educational mall to inform current and prospective students, parents, school counselors, employers, and others about educational programs and services available in Oregon. In fall 1998, the Oregon University System, on behalf of a statewide partnership of educational providers (public universities, community colleges, independent colleges and universities, K-12) received a three-year federal grant in support of key initiatives of the ONE project. ONE is guided by a steering committee led by staff from OUS, with one representative from each of the twenty-four participating institutions, as well as K-12 and agency level representatives.

ONE has developed a Web-searchable common college catalog of distance education courses, degree and certificate programs, courses recommended in a selected number of degree and career pathways, and services available from Oregon postsecondary institutions. ONE is maintained on the OUS server in the Chancellor's Office in Corvallis, with technical assistance provided by OUS Information Technology Services staff to all ONE users. Discussions are underway for improved linkages to K-12 online course opportunities.

A new feature of ONE, introduced in 2001, is the online Faculty/Staff Center, providing information for faculty and staff in distance education.

- **K-12 and Community Colleges**

K-12's recent expansion of statewide networks and interest in distance education creates many potential partnerships. Several

partnerships already in place include OPEN's involvement with OWEN and the OUS/Oregon Department of Education agreement that allows high schools to host OUS distance learning courses.

SB622 provided K-12 with funds to implement a statewide interactive video network with sites at every high school in the state. As the network resolves operational issues, OUS and the various K-12 groups continue to develop shared access to the network for distance education purposes. As K-12 distance education and infrastructure continues to grow, Oregon's public universities, the community colleges and K-12 continue to work toward partnerships through K-20 planning groups.

Oregon community colleges have been an important OUS partner in the area of distance education for over a decade. Community colleges hosted many OUS programs and provided services for OUS upper-division and graduate-level students from 1990 to 2000 when ED-NET was a major distance education network in the state. The community college/OUS partnerships in distance education led to the creation of university centers on the campuses of Southwest Oregon Community college in Coos Bay and Central Oregon Community College (COCC) in Bend. (The university center at COCC is now the Oregon State University Cascades Campus.) With the termination of ED-NET in June 2001, OUS and community colleges continue to collaborate in the development of a new Internet Protocol video network managed by DAS.

OUS and community college collaboration is expected to continue in the area of distance education as campuses share access to interactive video networks and expand the ONE site to include additional faculty and student services through the new Faculty/Staff Center.

- **Oregon Department of Administrative Services (DAS)**

In addition to sharing a partnership in the OWEN network, OUS and DAS work collaboratively on the state's policy-making Information Technology Executive Council (ITEC), and OUS staff serve on DAS committees on portfolio management, IT security, and e-commerce. As the re-engineering efforts of DAS Information Resource Management Division continue, we anticipate moving the relationship toward a sharing of best practices. For example, IRMD staff can provide useful templates and training for quality assurance planning, and OUS staff can provide advanced expertise in wide area networks and telecommunications.

- **Libraries**

Online catalogs have revolutionized libraries. In OUS, library technology supports distance learners through the Orbis database, a library catalog that combines information from many academic libraries into a single unified database; and PORTALS, the Portland Area Library System. While these databases have been available through single campuses, large-scale partnerships involving multiple campuses and agencies are a relatively recent development. A good example of such a collaboration is the

online catalog partnership led by Eastern Oregon University, which includes Blue Mountain and Treasure Valley community colleges, twenty-seven public libraries, and forty school libraries in a ten-county area of Eastern Oregon.

- **Geographic Information System (GIS)**

The Geographic Information System (GIS), now called the Oregon Geo-spatial Data Clearinghouse (OGDC) is a clearinghouse maintained by DAS. As a major user of OGDC, OUS was assessed \$226,000 for the 2001-2003 biennium. A portion of this amount is paid by state General Fund and the OUS campuses contribute the balance. The GIS is actively used by several OUS universities, including OSU's Library and several research units. At UO, at least 100 students a year are trained in GIS techniques and many go on to fill positions in state and local government agencies. Many faculty members, graduate students and undergraduates extend the value of the data that OGDC provides by using it for research projects that benefit Oregon. Faculty members and staff in research labs work on projects for and with various state, local, and regional agencies and organizations to help agencies fulfill their mandates and provide enhanced GIS products that benefit the public.

III. Directions for OUS Technology

- “Smart” buildings

Providing for state-of-the-art technology is now automatically assumed in proposals for new construction. For example, the new classroom building at the OSU-Cascades Campus in Central Oregon features “smart classrooms,” with state-of-the-art wiring and equipment for both on-site and distance learning instructional delivery, including Internet video technologies. The facility, owned by Central Oregon Community College, will be leased to OSU-Cascades Campus.

The recent completion of the Center for the Visual Arts at Southern Oregon University provides an example of technology’s important place in facilities supporting academic programs, such as the fine arts, that traditionally have not incorporated technology in classrooms or labs. Two new multi-media labs will support instruction in animation and video, and the facility is able to support new Web-based art exhibits. Future plans include an additional multi-media lab for theater students, with costume and set design applications as well as support for students studying lighting using digital formats.

A third example is the new construction/remodel next year of Gilbert Hall at the University of Oregon, which will provide business administration students a cutting-edge learning environment.

- Web technology

Few areas of technology demand as great an expenditure of human and fiscal resources as Web-based systems development

and integration. Web technology is strategically important to OUS in many areas, including e-commerce, portal technology, online classrooms, distributed learning, student services, and student advising. OUS campuses are testing and acquiring new Web software applications, such as Blackboard and Pipeline. Most OUS campuses have plans to upgrade existing classrooms or create new classrooms to make use of Web technology in teaching. Southern Oregon University has successfully implemented its e-commerce project for student registration, and the Chancellor’s Office ITS is in the final stages of completing the enterprise-wide e-commerce website project for credit card processing.

- **New buildings**
- **Web technology**
- **Networks**
- **Telecommunications**
- **Security**
- **Information systems**
- **Campus initiatives**

- Networks

The OWEN network, managed by OUS, receives usage-based contributions from its partners. Partner contributions in the 2001-2003 biennium increased by 56% over contributions in 1999-2001, reflecting the rapidly expanding use of the Internet. As traffic on OUS networks has increased, the cost per megabit has decreased, permitting campuses in the future to increase bandwidth at much lower cost, or to pay less for maintaining current bandwidth support. While the larger campuses have already expanded their network configuration to support both the larger volume of Internet users and the research needs of their faculty, the smaller campuses are just now installing DS3 lines

(equivalent to 28 T1 lines), permitting both cost savings and greatly expanded capacity. For example, Eastern Oregon University, in partnership with the Umatilla-Morrow Education Service District, is acquiring a DS3 line that will allow EOU to eliminate current expenses for video services and the need for two T1 lines. Future developments for OWEN and the OUS campuses will include expanded capacity to support distance education video services and video conferencing.

- **Telecommunications**

Replacing telephones with computers will have the kind of dramatic impact on daily business that e-mail had ten years ago. The further development and evolution of Voice over Internet Protocol (VoIP) is the most significant change now beginning to impact telecommunications. VoIP is already in use in several pilot sites within OUS and there will be further expansion as the technology develops. VoIP is expected to bring savings in long distance transit costs.

- **Security**

Technology security has been, and will largely remain, a campus function. However, as technology has become more complex, as partnerships and collaborations have increased, and as potential violators have become more sophisticated, there is need for a set of coordinated policies and standards. Under the policy guidance of the state Information Technology Executive Council, DAS/IRMD has developed a statewide IT security policy, which requires that all state agencies comply with the International Standard ISO/IEC 17799 security standard. Within this policy framework, OUS campuses are submitting individual campus plans as part of a systemwide effort to coordinate IT security planning. A detailed security policy, as well as a proposed

disaster recovery plan, has recently been developed for the Chancellor's Office Information Technology Services. These plans can serve as a model for campuses. Issues related to backup systems and redundancy have funding implications that will need to be addressed and which will pose a challenge in the current environment of fiscal limitations.

- **Information systems**

As Web technology permits greater access to and manipulation of large databases, OUS is taking advantage of what the technology offers by developing a single source, interactive knowledge base, called the Oregon Public Higher Education Information System (ORPHEIS). ORPHEIS, which is being developed and managed by OUS Institutional Research Services, will contain refined data on students, courses, and degrees, with direct links to information on faculty, staff, finances, and facilities. It will serve as the foundation of the Board Information System, enhance reporting to the Department of Administrative Services and the Legislature, and be connected to the OUS Fiscal Accountability Framework. The ORPHEIS knowledge base is currently being pilot tested with an HRIS portal project. The implementation of ORPHEIS will involve a broad array of technology and analytic staff at the Chancellor's Office and the campuses.

- **Other campus initiatives**

Campus-specific plans for technology are displayed in Exhibits 1 and 2. These initiatives will support technology goals related to academic missions, administrative systems, infrastructure, asset management, IT purchasing, and business operations (including e-commerce and portals). Some examples include:

- Enhanced electronic classrooms and labs

- Investment in faculty development projects to integrate technology into teaching and research
- Increased bandwidth
- Further development of partnership networks (for example, among Portland State University and other institutions in the Portland area)

- A new software application for tracking students' academic progress toward degree completion, saving the time of university advisors and administrators and giving students a tool for determining the most effective course selections for their programs
- Increased online business applications
- Enhanced data warehouses

IV. How Technology is Organized and Managed in OUS

- Levels of responsibility

The technology enterprise within the State of Oregon and in the Oregon University System is large, complex, and multi-faceted. Responsibility for technology policy, acquisition, and management takes place at multiple, cascading levels. Exhibit 3 displays the levels of responsibility, ranging from the broad responsibilities at the state (DAS) level to the more specialized and specific responsibilities at the campus department level. The state level IT organization is primarily concerned with articulating the state's vision for technology, developing broad policy on behalf of state agencies, creating or monitoring common systems and interfaces, managing state level contracts, and providing consultation and training. At the system level, OUS develops systemwide technology policy and plans, administers the OWEN network, provides telecommunications support for all campuses, creates common data warehouses, manages the "fifth site" operations (described below) on behalf of the four small campuses, and administers special start projects that enable multiple campuses to collaborate in transitioning courses and degree programs to more online media.

As Exhibit 3 shows, coordination and communication at the various levels are facilitated by advisory, managerial and policy committees. At the state level, the Information Technology Executive Council, chaired by the State Chief Information Officer, provides policy guidance. At the OUS system level, inter-institutional standing committees of IT and telecommunications directors provide regular opportunities for policy review, brainstorming, and problem solving. The OWEN Steering

Committee, composed of representatives from nearly all the partners, reviews the budget administered by the OUS Chief Information Officer and advises the OWEN network engineering staff on network needs. The Administrative and Academic Councils, chaired by the Administrative and Academic Vice Chancellors, respectively, and composed of the administrative and academic vice presidents from each OUS university, serve as decision-making authority on technology proposals affecting their respective campuses.

At the campus level, Chief Information Officers and IT directors are responsible for campus technology planning, network infrastructure, central email, academic computing, open access computer labs, courseware support, and campuswide reporting from campus data warehouses. At the larger campuses, significant activity takes place at the departmental level as well, including the purchase and management of workstations and desktop software, local calendaring systems, specialized courseware purchases, and management of specialized student computer labs. Campus IT coordination and

- **Levels of responsibility**
- **Centralized and decentralized structures**
- **Coordination**
- **Inter-institutional collaboration**
- **Campus IT organization**
- **IT purchasing**
- **IT asset management**

communication take place with various special interest committees (e.g., Technology Resource Fee Committee) as well as with deans, directors, department heads, provosts and vice presidents. Department level coordination includes, in addition to the campus committees and administrators, unit heads and research lab administrators, depending on the specific project or purchase.

- **Centralized and decentralized structures**

The Oregon University System is a diverse collection of campuses with a wide range of missions and enrollment size, and different resource and management needs. Large universities with many graduate programs find it necessary to place some IT decisions within research and academic departments where individuals are familiar with the research standards and current academic applications. This helps to minimize central IT staffing needs, permits the greatest flexibility in areas of rapid change, and allows centralized IT staff to concentrate on critical campus networking issues and adequate support of campus-wide IT applications and services. Smaller campuses with fewer graduate programs find efficiency in centralizing IT staff and many IT services and applications for the entire campuses.

Reflecting this diversity, OUS employs an organizational model that is both centralized and decentralized. In this hybrid approach, OSU, PSU, and UO, like most large comprehensive universities, have a decentralized configuration of technology activity.

Reflecting very different needs, the four smaller campuses (EOU, OIT, SOU, and WOU) plus the Chancellor's Office constitute a "Fifth Site" group, collectively drawing upon centralized IT support provided by OUS Information Technology Services, for the purpose of achieving operational efficiencies and cost savings.

OUS campuses have centralized many administrative information services with the systemwide adoption of Systems and Computer Technology Corporation's Banner suite of enterprise software. Banner financial and human resource information systems are managed by the Chancellor's Office Controller's Division with technical support provided by OUS Information Technology Services. The large universities have implemented the Banner products on their campuses but coordinate with the Chancellor's Office on upgrades and modifications. Finally, all campuses contribute unit record data to a centrally managed warehouse of data on students, courses, and degrees, from which federal reports and enrollment projections are centrally developed.

- **Coordination**

Overall systemwide coordination is achieved through the bimonthly meetings of IT and telecommunications directors. At these meetings, the directors review systemwide contracts, meet with vendors, share information on operations, and forge new agreements and contracts as needed. These two groups review and adhere to state, system and campus IT procurement and development policies and are the central coordinating bodies for IT planning. In addition, network planning activities are coordinated through regular meetings of the OWEN steering committee. More recently, systemwide coordination has been achieved through the development of the OUS Technology Plan.

- **Inter-institutional collaboration**

In addition to the formal committee and council coordinating groups, OUS campuses collaborate with each other on a number of technology projects. These collaborations achieve cost savings, enhance the level of shared expertise, and foster a sense of

cooperation and professional community. Just a few examples are displayed below.

- All OUS campuses, including OHSU, collaborated on a telecom system maintenance contract and the centralized Intelcom Network Operations Center for technical support, the result of which has saved 26% in maintenance costs.
- OSU, PSU, and WOU share telecom wiring and cabling contracts for materials.
- All campuses collaborated in selection and implementation decisions for the administrative enterprise system software (SCT Banner).
- All campuses collaborated on the selection of a common query tool.
- OSU, PSU, and the Chancellor's Office have collaborated on data warehouse design and development.
- OSU, UO, and the Chancellor's Office have made plans for shared disaster recovery space.
- SOU and OHSU achieved cost savings by collaborating on the acquisition of Microsoft products.

▪ Campus IT organization

Campus IT organizations follow a variety of models, reflecting the size, mission, and culture of the particular campus. In some cases, the IT director reports to the Vice President for Administration; in other cases, to the Provost. Organizational charts displaying the location of IT units are shown in Exhibit 4.

▪ IT purchasing

Senate Bill 271, adopted by the Oregon Legislature in 1995, delegated authority for purchasing to the Oregon University

System. As a result, this authority and the related responsibility for management of these procurements has been further delegated to the campuses and the Chancellor's Office. Procurement practices and record-keeping, including inventorying of equipment, is a responsibility of the individual campus, in keeping with prevailing statutes, Board policies, and best business practices.

While authority for procurements has been delegated to the OUS campuses and Chancellor's Office, they may purchase off the state's contract which is, of course, competitively bid with equipment vendors. In addition, all campuses may purchase off OSU's and UO's competitively bid contracts with vendors for these items. In some cases, campuses have been able to make practical use of the state contract by negotiating even better deals with equipment vendors. The net result is that there is plenty of opportunity to achieve economies-of-scale purchasing power by everyone.

A further feature available to public universities is the educational discount from vendors on hardware and software which, when combined with the discounts provided for quantity purchases, result in discounts as high as 40% to 50% for high-end machines, and over 80% on software.

The decision processes used in acquiring technology are displayed in Exhibit 5. These tables show for each campus the process and points of communication for acquisitions ranging from low cost (less than \$25,000) to high cost (over \$50,000). The tables also show the process and locus of responsibility for each step in the acquisition: assessment of need, definition of solution, communication process, designation of funding, acquisition of the technology, and implementation. Consistent with the level of IT centralization described earlier, small campuses tend to have a more centralized decision process, even for low cost purchases made by departments. In contrast, at large campuses, low cost

purchases are handled at the local departmental level, with the exception of the designation of funding and the actual purchase, which are carried out by the central campus administration.

- **IT asset management**

The Oregon University System uses the SCT Banner System, which includes the FIS Fixed Asset module. This system includes a database of all capitalized equipment, including capitalized computer equipment. Current OUS policy requires capitalization of all individual assets that cost \$5,000 or more and have a useful life of more than one year. Purchases not meeting the dollar and useful life thresholds are expensed as minor equipment—a category of supplies—when purchased. Therefore, many IT purchases, including most PCs, do not qualify for capitalization as

equipment and, thus, are not recorded in the fixed asset system. However, such items are monitored at the department level on the campuses.

Individual campuses use a variety of software applications for specific IT asset management. Some campuses use commercial packages such as Remedy, Zenworks, or an Oracle-based tracking system. Other campuses use a home-grown product. Several campuses have expressed an interest in exploring the asset management options being developed at the state level. The Chancellor's Office IT director serves on the DAS/IRMD Portfolio Management Committee and will coordinate the developments of that committee with OUS campuses. The recently adopted OUS Fiscal Accountability Framework should also provide some help in coordinated IT asset management.

V. Technology Costs and Resources

▪ Factors affecting costs

Many factors affect the cost and level of commitment in the use of IT resources. These factors include:

- **Enrollment**—larger campuses face higher demands for instructional and network services and support
- **Curriculum**—technical programs generally require a higher level of IT instructional support
- **Distance education**—serving students at a distance involves more IT support
- **Choice of pedagogy**—commitment to using technology to deliver instruction affects IT costs
- **Graduate programs**—graduate programs generally require more expensive IT support
- **Research and grants**—IT support costs are not always covered by external funding, and research projects may require high levels of IT infrastructure
- **Public service mission**—public service IT support varies depending on whether the mission is regional or statewide
- **E-commerce**—commitment to Web-accessible services to alumni, vendors, and other stakeholders will affect IT costs
- **Student services**—the accessibility of online and Web-based student services affects costs
- **Degree of IT centralization**—the extent to which IT functions and costs are borne by a central IT unit on campus; costs of IT services provided by individual departments are not reflected in the central IT budget

The levels of cost and commitment (low, medium, or high) for each campus are displayed in Exhibit 6. In some cases, the campus

responses are predictable—for example, both OSU and UO show high costs in the area of research, PSU shows a medium cost, and the regional universities show low costs, consistent with the campus missions. In other cases, the responses are not as predictable. For example, under Curriculum, OIT and OSU report high costs, consistent with the broad array of technical programs at those campuses. However, PSU, UO, and WOU also report high costs because of their curriculum, despite the fact that their array of technical programs is smaller. These responses reinforce the recognition that many disciplines today have a strong technology component, not just those traditionally considered technical. In WOU's case, the designation of high cost is the result of a large grant aimed specifically at integrating technology into the curriculum. It is necessary to understand the particular situation of each campus with respect to the cost variables in order to understand IT budgets and expenditures.

- **Factors affecting costs**
- **IT expenditures**
- **IT staffing**
- **Ratios**

▪ IT expenditures

Exhibit 7 displays All Funds IT Expenditures for the Oregon University System. As in most other higher education budgets, personnel expense constitutes the largest expense item in the budget (54% in the estimated 2001-02 annual IT budget). The second highest expense item is desktop workstations, reflecting

the pervasiveness of and need for such technology for all campus users.

Technology expenditures total approximately \$55 million in 2001-02.

- **IT Staffing**

Exhibit 8 displays the distribution of IT staff FTE by functional area. The largest proportion are in Computing Services which, when combined with managers/coordinators, telecommunications, and Web development staff, constitute 60% of all IT staff. With their more decentralized organizational model, the large universities show significant numbers of IT staff in campus departments—43% of total IT staff at OSU, 25% at UO, and 17% at PSU. Oregon State University's number in that category includes IT staff support in the statewide public services (OSU Extension, Agricultural Experiment Station and Forest Research Laboratory) as well as the OSU-Cascades Campus.

- **Ratios**

Exhibit 9 displays several measures and ratios related to IT costs. Included are the number of students, both headcount and FTE enrollment, per IT staff; the total number of campus users

(students, faculty, and staff) per IT staff; and IT dollars per student and per campus user. In addition, IT dollars as a percentage of total campus budgets are displayed. We have included sponsored research dollars as a percentage of total campus budget to address the additional IT expenditures in non-instructional areas made by campuses with a large percentage of the budget in research. Those campuses would naturally show a lower ratio of students per IT dollars or students per IT staff.

For the system as a whole, IT expenditures are \$739 per student headcount, ranging from \$1,282 at OSU (including IT expenditures for statewide public services) to \$341 at EOU. IT expenditures per FTE student are \$874, with a range of from \$1,354 at OSU to \$451 at EOU. OSU's sponsored research percentage is 21.6%, compared to 3.8% at SOU and 4.5% at EOU.

Likewise, headcount enrollment per IT staff FTE is 148 systemwide, ranging from 277 at WOU to 110 at OSU. Again, OSU's level of IT staff includes those budgeted in research and public service units who do not provide direct service to students.

While it is difficult to find precise comparisons of these ratios to those of other universities or states, the best peer data available indicate that the average ratio of headcount enrollment to technology support staff in public universities is 169 to 1.

VI. Accountability

- IT audits

The computer systems, applications, and equipment in the Oregon University System are reviewed annually by the internal and external audit functions. The external audit is conducted as part of the audit of the annual financial statement, and in recent years it has been performed by Deloitte & Touche (D&T) under contract with the Secretary of State Audits Division. D&T focuses primarily on risks related to financial data associated with these computer systems.

In January 2001, the OUS Internal Audit Division assigned 1.0 FTE to the area of IT audits. This position provides a more detailed annual review of the financial and operational risks associated with information technology in OUS.

- Expenditure reporting framework

It is a challenge to report IT expenditures in an environment that is both centralized and decentralized. Over the past year, much work has been done to create a framework for defining and reporting IT expenditures in useful categories. This framework has been developed in consultation with staff in the Legislative Fiscal Office to ensure that it meets the needs of a legislative audience as well as those of administrators in the Oregon University System. The expenditure categories are reflected in Exhibit 7.

The OUS Fiscal Accountability Framework will provide central coordination in reporting IT expenditures. As implementation of the FAF gets under way in FY 2003, we will establish a task group of IT directors and budget staff to develop a more streamlined mechanism for reporting IT expenditures and revenues, both centralized and distributed. Over the next year, we will explore the potential for such reporting within the Banner FIS system.

- Common IT metrics reporting

During the 2001-02 academic year, the Chancellor's Office and campus IT directors developed a set of data definitions for reporting IT indicators as part of annual IT activity reporting. These indicators, or metrics, will provide useful benchmarks over time. The initial data set is included here as Exhibit 10. The data include detail on measures related to bandwidth, modem use, email, telecom, enterprise system statistics, distance education, computer labs, and IT staffing. The complete list of data elements and their definitions is included as Exhibit 11.

- IT audits
- Expenditure reporting framework
- Common IT metrics reporting

VII. Summary

In the Oregon University System, technology is tightly woven into the fabric of campus and public life. Technology serves the missions of OUS campuses through the creation of electronic classrooms and online degree programs. It provides the network infrastructure necessary for distributed learning and effective research, not only in OUS, but also in partner agencies. Through innovative partnerships and state-of-the-art technology, OUS libraries provide quality learning opportunities for students, a robust research environment for faculty, and access to a rich information resource for the public. Through the ORPHEIS project, university and state level administrators, policy makers, and analysts will have an accessible knowledge base for higher education management and policy development.

The System accomplishes this through a hybrid organizational structure that works effectively. It is centralized for the smaller campuses to achieve cost savings and take advantage of collective expertise. It permits flexibility in the management of distributed technology in the large campuses, to meet the needs of multiple missions and a diverse customer base. It provides system level oversight and coordination through strong inter-institutional councils.

The Oregon University System has faced the accountability challenges posed by this hybrid environment by developing a new template for expenditure reporting, and a new set of IT metrics for benchmarking IT activity. Over the next year, OUS will create a mechanism for reporting under the Fiscal Accountability Framework, and will work to streamline the regular reporting of IT budgets.

As we proceed through our task list in the coming months, we hope to include in our discussions staff from the Oregon Department of Administrative Services and private sector IT professionals. Our goal is to share expertise, enhance the base of knowledge available within OUS, and develop an expanded community of IT professionals reflecting both public and private sector concerns.

Finally, we will continue to provide the Board, the Department of Administrative Services, and the Legislature regular, biennial updates of the OUS Technology Plan.

IT Management Tasks for FY 2003:

- **Coordinate IT security and disaster recovery planning, within OUS and with DAS**
- **Participate in asset management developments with DAS committee**
- **Connect IT fiscal reporting to OUS Fiscal Accountability Framework**
- **Develop a mechanism for streamlining IT expenditure reporting**
- **Further refine IT metrics**

OUS Technology Plan, 2001-2003

Exhibits

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- 2 Top Technology Goals for OUS Campuses: Fifth Site Campuses, 2001-2003
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Exhibit 1
Top Technology Goals for OUS Campuses: Large Campuses and Chancellor's Office
2001 - 2003

Area	OSU	PSU	UO	Chancellor's Office only
Support of academic/organizational mission	<ul style="list-style-type: none"> Enhance and expand Internet2 capability and availability Continue to replace traditional classrooms with enhanced, high-tech classrooms Expand instructional portal technology Provide additional faculty development opportunities so that advanced technology can be optimally used Develop better tools to support Extended Education 	<ul style="list-style-type: none"> Identify instructors & courses that can be shared among PSU, OCATE, OHSU, MHCC, and PCC using regional partnership networks and Internet based standards; increase efficiencies in delivery through technology Expand capabilities of PSU Distance Education Center; create new 60-seat 2-way interactive classroom in Urban Center; create 3 more high-tech classrooms 	<ul style="list-style-type: none"> Participate in the Quilt/Internet2 on next generation & advanced network applications; sponsor K-12 & all OUS campuses as supported participants in Internet2 Provide national leadership for Internet2 via Network Policy & Planning Council, the Abilene Technical Advisory Council, & selected Internet2 working groups Invest in faculty development projects to further integrate technology & research into undergraduate education 	<ul style="list-style-type: none"> Develop HR portal pilot project With Institutional Research, help develop Oregon Public Higher Education Information System (ORPHEIS) Support systems needs related to Fiscal Accountability Framework project Provide IT support for Building Renewal Initiative Provide Web based products and support for Chancellor's Office (e.g., PASS, Legislator Notebook, BillWatch, Oregon Network for Education) Develop statewide licensing agreements for technology-supported courseware
Administrative systems	<ul style="list-style-type: none"> Implement SCT Banner Workflow to improve administrative operations and reduce costs Expand end-user Data Warehouse capability 	<ul style="list-style-type: none"> Implement a complete, all online PSU admission application for graduate, transfer, international and quick-entry students Improve efficiency of common HR procedures through technology: reporting time and attendance via Web; create HR based automated system create computer access accounts and directory entries for new faculty & staff 	<ul style="list-style-type: none"> Implement Degree Audit Reporting System (DARS) Implement Web Grade Entry to improve efficiency and collecting and managing grade reporting 	<ul style="list-style-type: none"> Implement Banner upgrades Enhance data warehouses and TCMS GASB 35 implementation Degree Audit Reporting System (DARS) implementation for OIT Payroll contingency plan

Exhibit 1
Top Technology Goals for OUS Campuses: Large Campuses and Chancellor's Office
2001 - 2003

Area	OSU	PSU	UO	Chancellor's Office only
Infrastructure	<ul style="list-style-type: none"> Design and implement wireless solutions in the Valley Library, and in Foreign Language and English in College of Liberal Arts Plan and implement a major upgrade to the campus enterprise computer system Replace all ThinNet wiring in all campus buildings 	<ul style="list-style-type: none"> With OHSU, build Internet Exchange point in Portland area for improved service to schools, local governments and business Begin transition off legacy campus servers to secure, unified account system to permit PSU faculty & students simplified sign-on for authentication, file, web and email services 	<ul style="list-style-type: none"> Implement wireless classroom in Condon Hall; wireless connectivity campus wide Extend OWEN/NERO to Cascades Campus in Bend Campus network upgrades (single mode fiber cable installation & gigabit Ethernet deployment) Work with local & regional fiber initiative groups 	<ul style="list-style-type: none"> Enhance Chancellor's Office desktops (add 100 megabits) Continue improvements in IT security (secure gateway, robust firewall) Implement CO IT security policy and plan, coordinating guidelines with DAS/IRMD IT security policy Complete a detailed Disaster Recovery Plan GS80 installation
Asset management	<ul style="list-style-type: none"> Expand campus tracking mechanism for minor equipment Review portfolio management system being considered for ODOT and other state agencies 	<ul style="list-style-type: none"> Track all desktop computer and customer IT assets using Remedy help desk ticketing software Develop a single, enterprise wide, tactical plan for server asset consolidation, upgrade and redeployment 	<ul style="list-style-type: none"> Work with OUS and DAS/IRMD on asset management programs 	<ul style="list-style-type: none"> Implement Remedy software in all Chancellor's Office sites Participate in DAS/IRMD Portfolio Management Committee
IT purchasing	<ul style="list-style-type: none"> Expand software site license agreements Develop a system to standardize equipment and software between OSU Main Campus and the Cascades (Bend) Campus 	<ul style="list-style-type: none"> Collaborate with DAS, OUS, and regional partners to reduce and share local bandwidth, Internet, and Internet2 costs Participate in campus licensing agreement under OETC statewide pricing to reduce costs for university-wide Microsoft license 	<ul style="list-style-type: none"> Implement site licensing agreements with Mathematica, SAS, ArclInfo, and Norton AntiVirus 	<ul style="list-style-type: none"> Expand software site license agreements Add more middle tier servers to accommodate more three tier applications Buy more CPU memory Add more disk storage

Exhibit 1
Top Technology Goals for OUS Campuses: Large Campuses and Chancellor's Office
2001 - 2003

Area	OSU	PSU	UO	Chancellor's Office only
Business operations (including e-commerce, portals)	<ul style="list-style-type: none"> • Investigate e-commerce capability of Blackboard, and establish pilot projects for evaluation that could lead to campus-wide business solutions • Improve business processes for OSU's Cascades Campus 	<ul style="list-style-type: none"> • Provide a means for collecting common student payments electronically; implement a secure system for accepting credit card payments via Web and Interactive Voice Response (IVR) systems • Continue automating common customer interactions such as employment applications, transcript checks, parking permits, etc. 	<ul style="list-style-type: none"> • Office Business Affairs secure server • Continued evaluation of Pipeline and other portal software • Staff participation on DAS E-Government subcommittee 	<ul style="list-style-type: none"> • Implement SOU credit card e-commerce application • Participate in DAS E-commerce committees

Exhibit 2
Top Technology Goals for OUS Campuses: Fifth Site Campuses
2001 – 2003

Area	EOU	OIT	SOU	WOU
Support of academic/organizational mission	<ul style="list-style-type: none"> Increase data bandwidth Continue evolution of web services for both instructional delivery and administrative services (e.g., student registration, faculty advising) 	<ul style="list-style-type: none"> Migrate to thin-client implementation Upgrade video capabilities Segregate administrative and student systems/servers 	<ul style="list-style-type: none"> Provide appropriate technology in the classroom Support "high-end" applications for research 	<ul style="list-style-type: none"> Create three new high-tech classrooms in 2001-02 as part of the ongoing annual implementation of high-tech classrooms Continue 3-year cycle of computer lab upgrades Upgrade 4 multi-media workstations in ITC multi-media lab; 4 new multi-media workstations in ITC computer lab
Administrative systems	<ul style="list-style-type: none"> Enhance SIS data warehouse Move Banner products, SIS and FinAid to ITS 	<ul style="list-style-type: none"> Administer routine Banner upgrades Implement Degree Audit Reporting System (DARS) Enable direct deposit payments 	<ul style="list-style-type: none"> Upgrade Banner systems to current versions Review priorities for custom programming 	<ul style="list-style-type: none"> Implement SIS data warehouse Implement Admissions enrollment management web applications Migrations and new applications on various servers (e.g., centralized email, central calendar)
Infrastructure	<ul style="list-style-type: none"> Increase data bandwidth to DS3 level for data, video, and voice over IP Continue improving infrastructure for classroom and lab initiatives 	<ul style="list-style-type: none"> Upgrade campus backbone to switched Gigabit Upgrade campus infrastructure to fully switched ethernet Implement server farm strategy 	<ul style="list-style-type: none"> Maintain and enhance campus WAN Complete "next generation" enterprise network recabling project bringing 100baseT switched network capacity to all workstations (offices, labs & classroom); upgrade to gigabit backbone 	<ul style="list-style-type: none"> Increase bandwidth; move from T1s to DS3 Increase available disk space Implement high availability and clustering on the Sun servers Develop wireless network for (in order): Hamersly Library, ITC, Natural Science, HSS, Werner University Center

Exhibit 2
**Top Technology Goals for OUS Campuses: Fifth Site Campuses
 2001 – 2003**

Area	EOU	OIT	SOU	WOU
Asset management	<ul style="list-style-type: none"> Using EOU's IT inventory system, update to include desktop hardware and software 	<ul style="list-style-type: none"> Implement ZAC 2001 for software and hardware 	<ul style="list-style-type: none"> Work with OUS campuses to implement asset management program Fully implement Zenworks for tracking desktop computer and software assets 	<ul style="list-style-type: none"> Implement new Oracle-based inventory tracking system
IT purchasing	<ul style="list-style-type: none"> Coordinate purchases, especially PCs, with departments and EOU purchasing agent Support both centralized and decentralized IT funding components 	<ul style="list-style-type: none"> Centralize IT organization 	<ul style="list-style-type: none"> Implement purchasing identification system to better categorize and track expenditures Collaborate with other OUS campuses and DAS to obtain best pricing Accelerate centralization of software purchasing for cost efficiencies and copyright compliance 	<ul style="list-style-type: none"> Standardize hardware platforms and software products Continue centralized purchasing of computer equipment and software
Business operations (including e-commerce, portals)	<ul style="list-style-type: none"> Explore web portals use within OUS and other state agencies Define and fill portals framework, determine product selection Enhance secure credit card transactions over the web, especially for receipt of student account receivables 	<ul style="list-style-type: none"> Migrate Student Services to the Web (portalize) 	<ul style="list-style-type: none"> Evolve from website to portal Implement credit card payment for tuition and fees in 2001-02 	<ul style="list-style-type: none"> Continue to implement programs to reduce operating costs and/or improve service for WOU departments and students

Exhibit 3

Higher Education IT Responsibilities by Organizational Level

State	System	Campus	College/Department
<ul style="list-style-type: none"> • Vision • State technology policy • Administrative rules • Common systems and interfaces • State level contracts • IT development support and consultation (e.g., Quality Assurance templates) 	<ul style="list-style-type: none"> • Systemwide technology policy, planning, coordination • Biennial reporting to Board of Higher Education and to Legislature on OUS technology (including common metrics) • OWEN (Oregon Wide Area Network) administration • Telecommunications billing system (all campuses + OHSU) • Fifth site operations and enterprise software contracts • Common reporting databases (data warehouses) 	<ul style="list-style-type: none"> • Campus technology planning • Enterprise systems, software licenses, maintenance contracts (fifth site campuses coordinate with OUS ITS) • Network infrastructure • Central email • Central academic computing • Open access labs • Courseware support and infrastructure • Campus wide reporting (data warehouses) 	<ul style="list-style-type: none"> • Grant funded technology • Specialized student labs • Specialized courseware funding • Courseware development • Work stations, desktop software • Local calendaring • PDA support
Primary Technology Decisionmakers			
<ul style="list-style-type: none"> • State Chief Information Officer 	<ul style="list-style-type: none"> • OUS Chief Information Officer • ITS Director 	<ul style="list-style-type: none"> • IT Directors/CIOs 	<ul style="list-style-type: none"> • Local technical support
Coordination and Communication			
<ul style="list-style-type: none"> • ITEC (Information Technology Executive Council) 	<ul style="list-style-type: none"> • OUS IT Directors Group • OUS Telecommunications Directors Group • OWEN Steering Committee (OUS, DAS, OPEN) • Administrative & Academic Councils 	<ul style="list-style-type: none"> • Provosts & Vice Presidents • Deans, directors, department heads • Faculty Senate, Technology Fee Committee, Banner Coordinating Group, other advisory committees 	<ul style="list-style-type: none"> • Directors and department heads • Research unit administrators

Exhibit 4
IT Organization
Eastern Oregon University

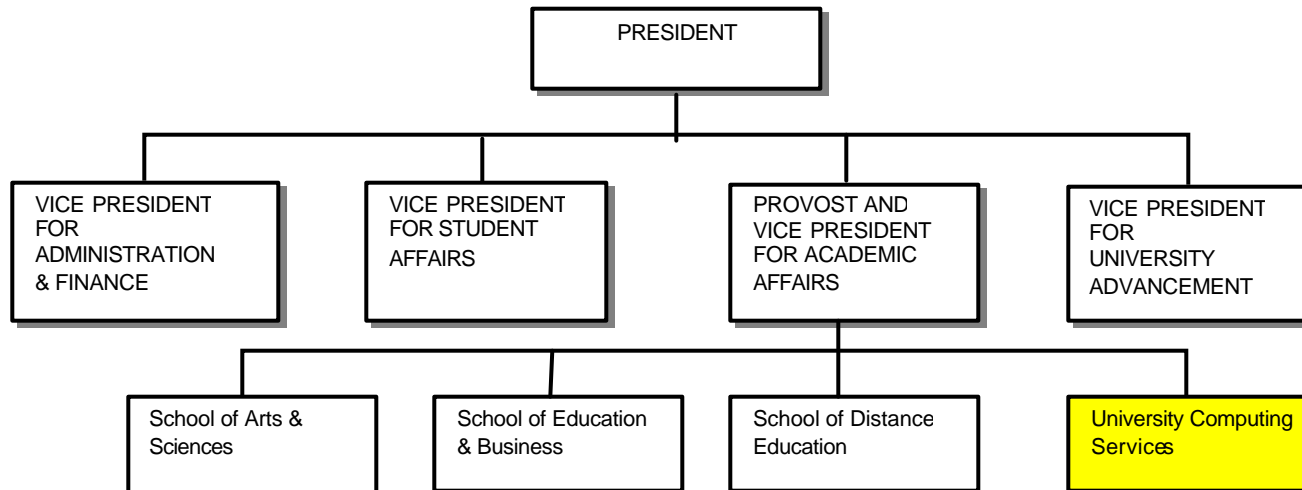


Exhibit 4
IT Organization
Oregon Institute of Technology

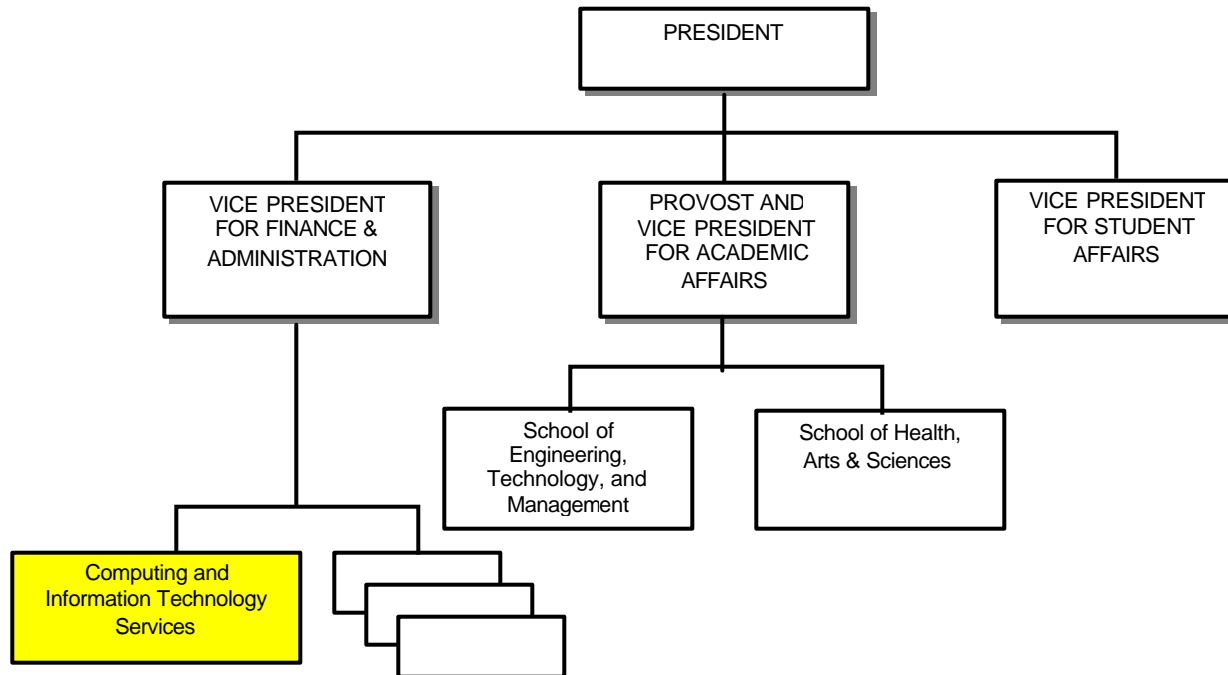


Exhibit 4
IT Organization
Oregon State University

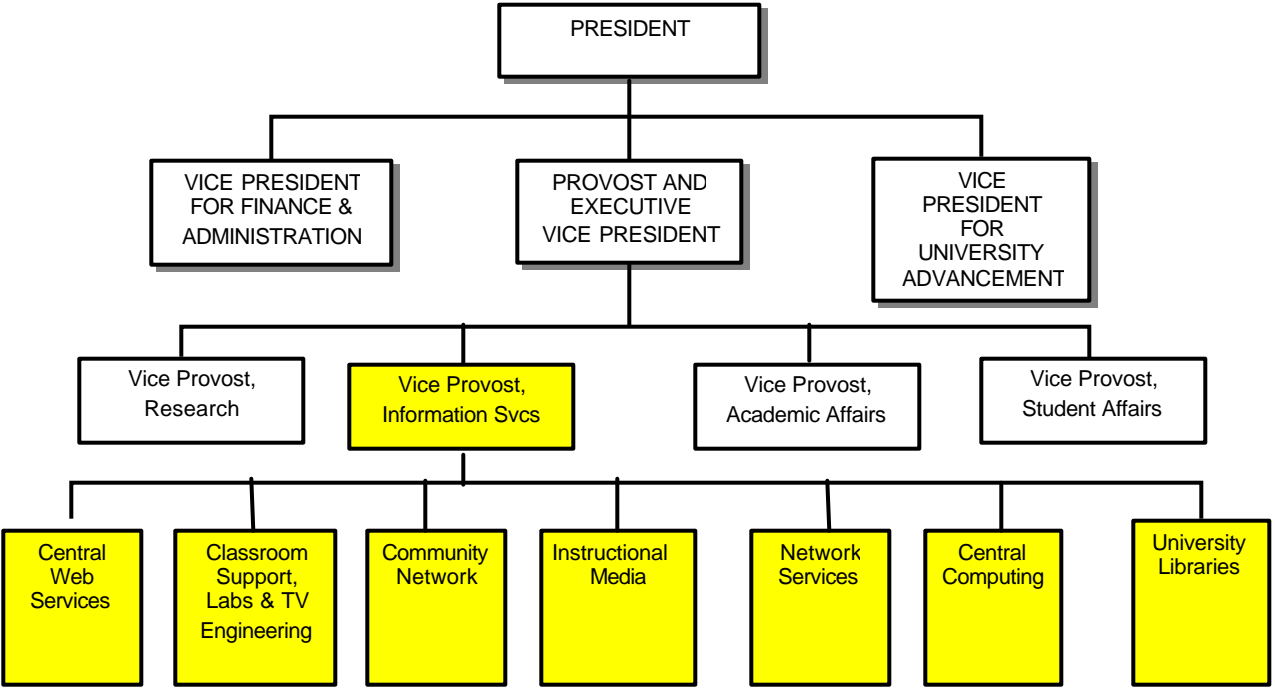


Exhibit 4
IT Organization

Portland State University

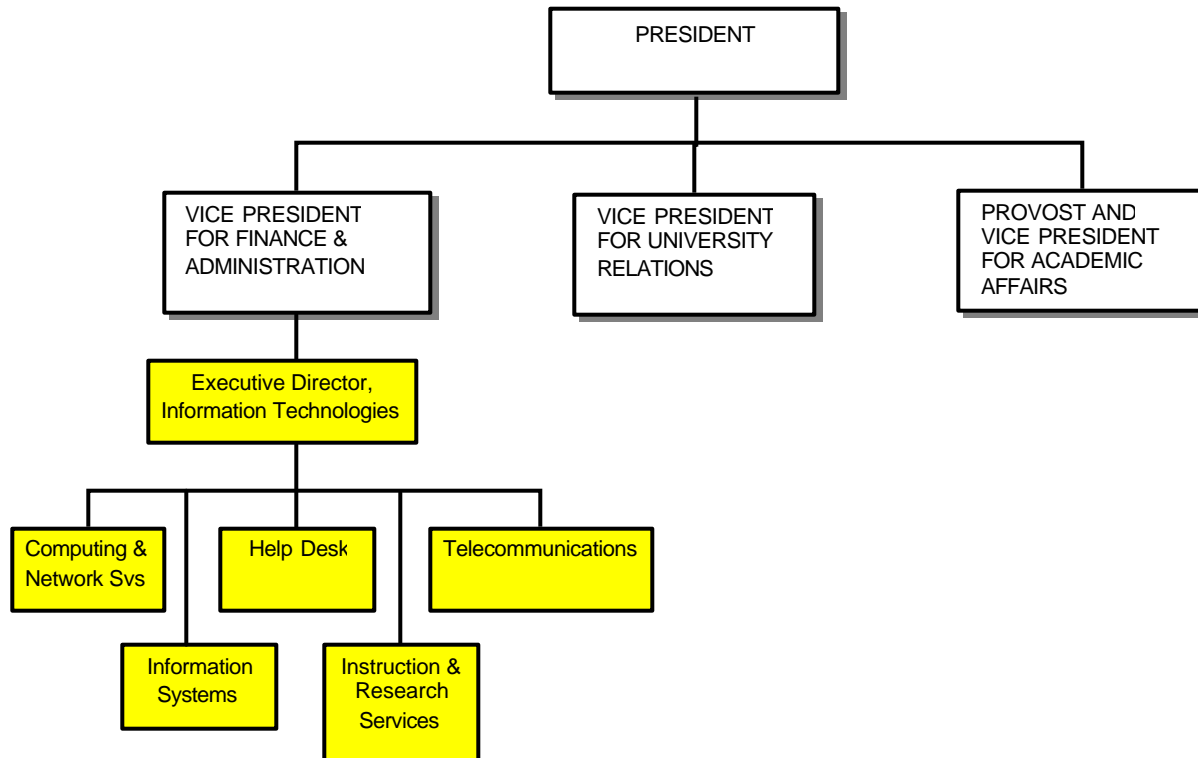


Exhibit 4
IT Organization
Southern Oregon University

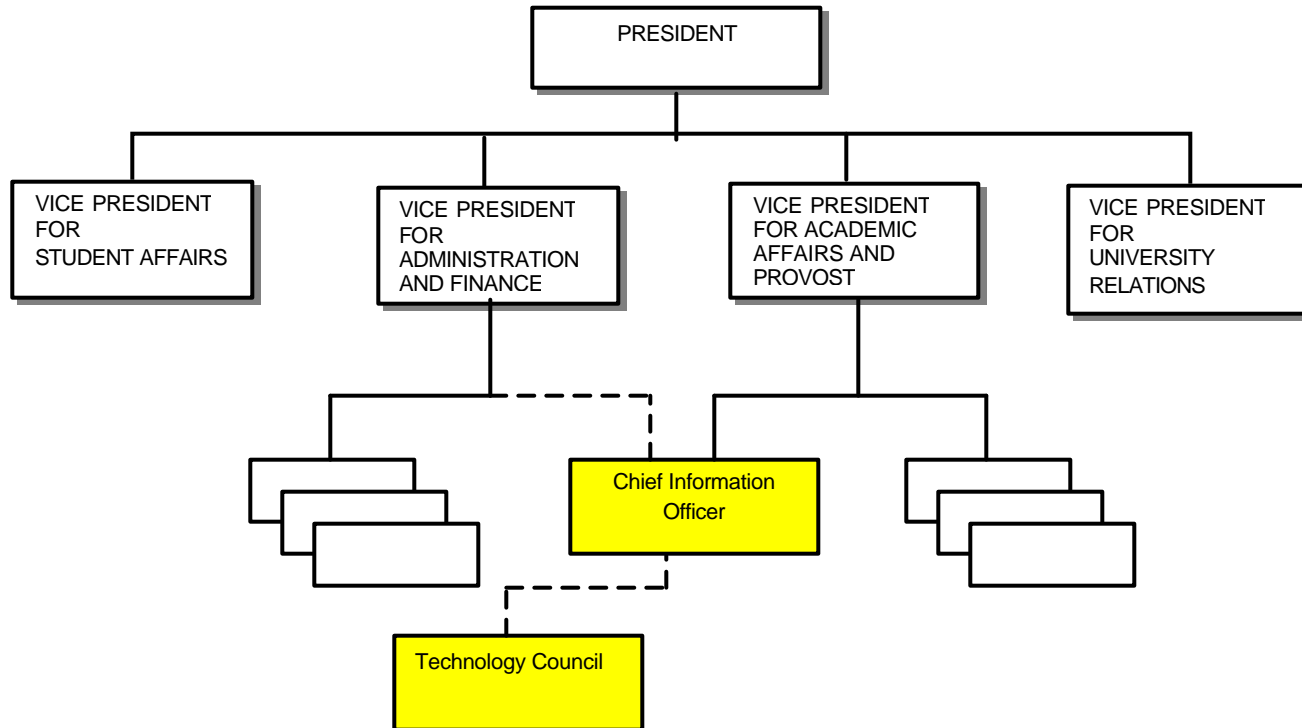


Exhibit 4
IT Organization
University of Oregon

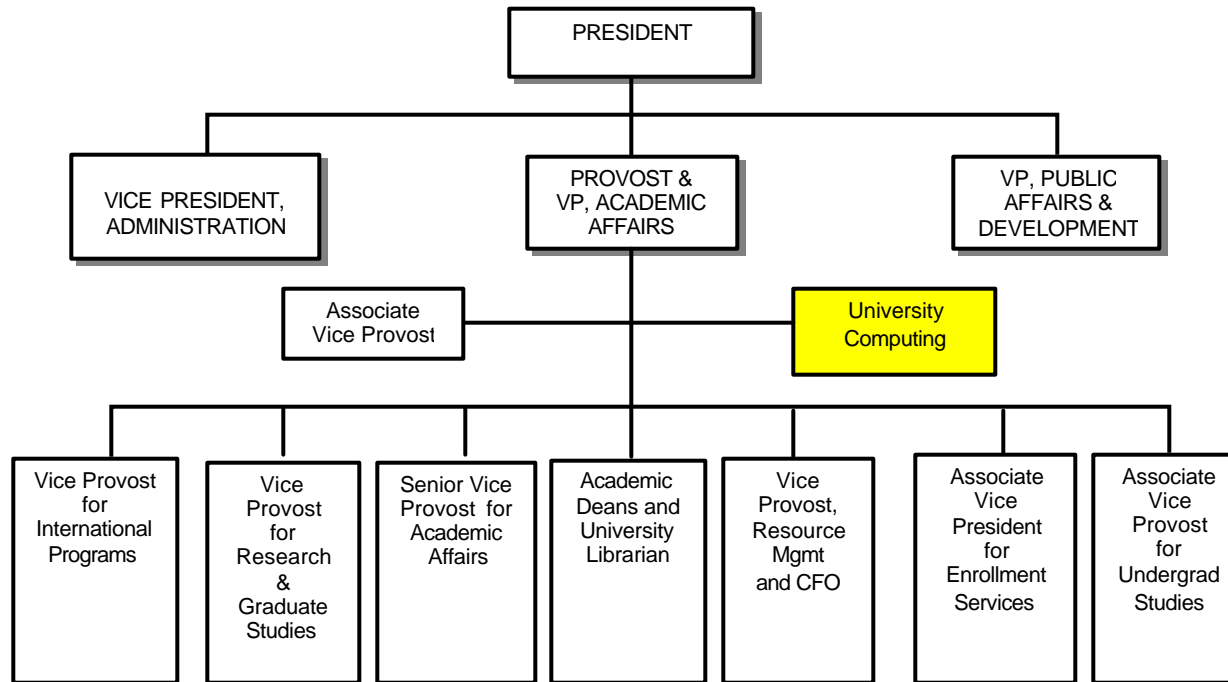
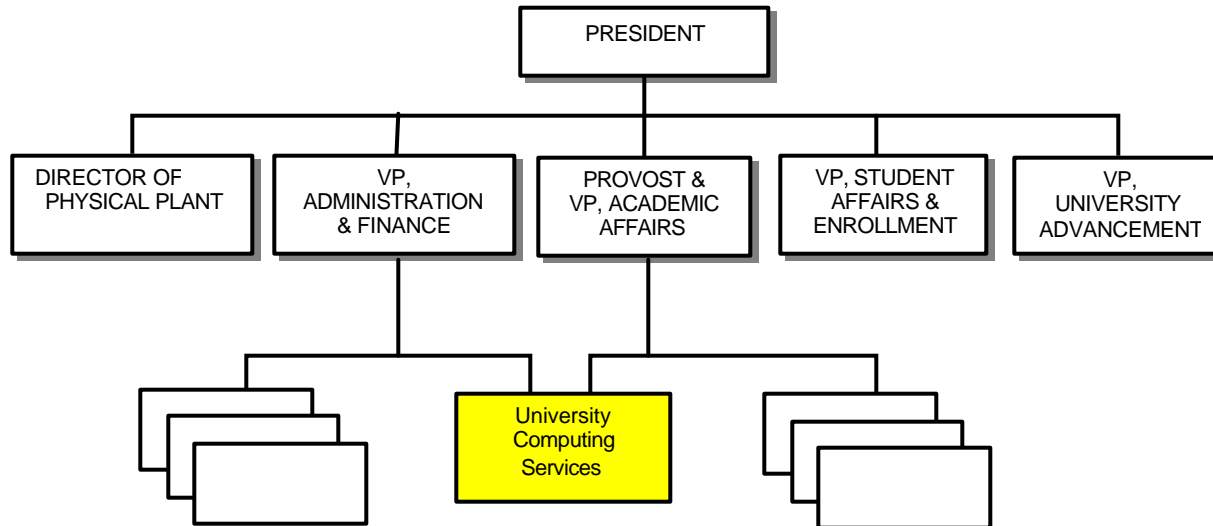
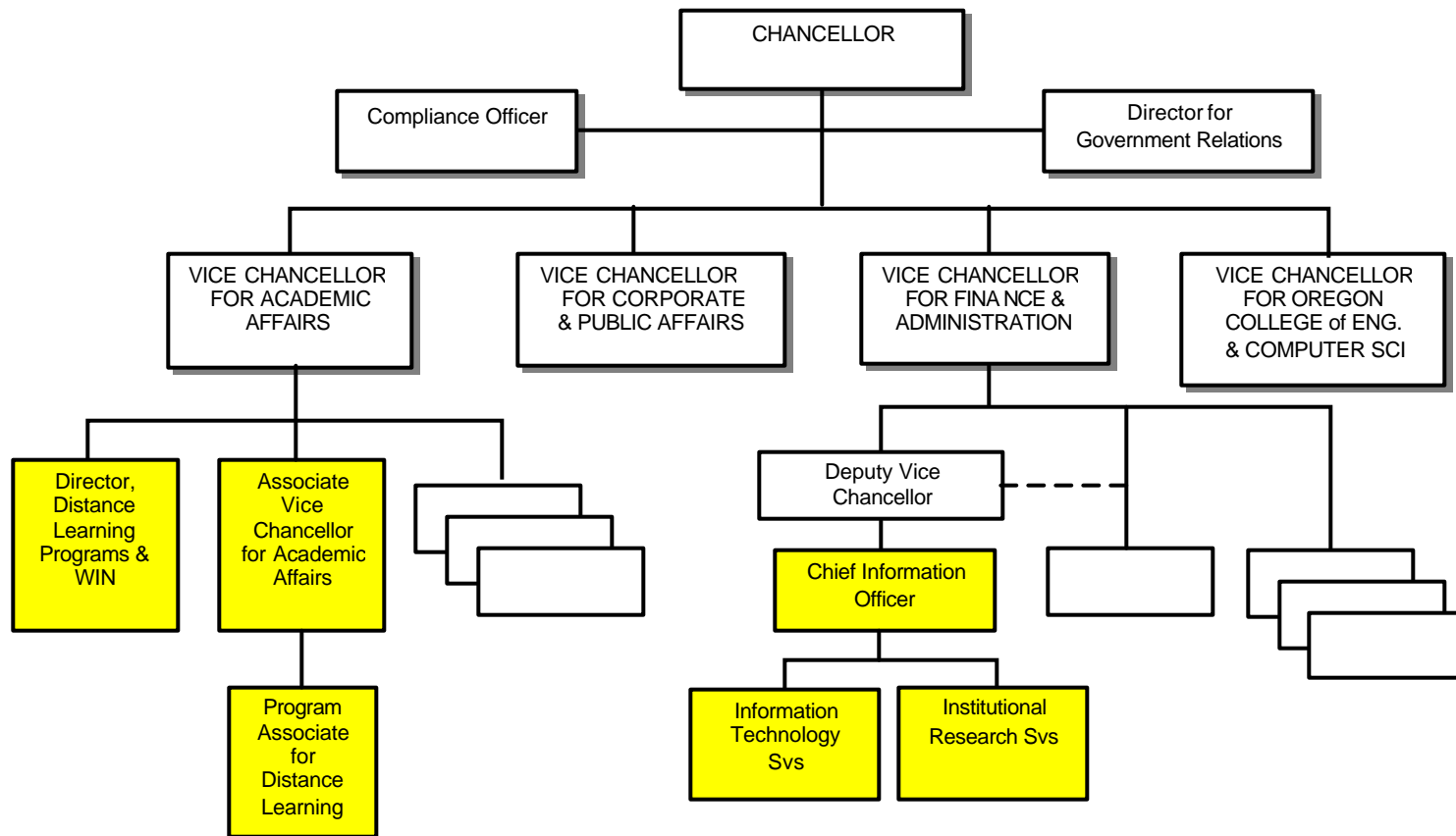


Exhibit 4
IT Organization

Western Oregon University



**Exhibit 4
IT Organization
Chancellor's Office**



**Exhibit 5
IT Decision Making**

Eastern Oregon University			
Step in the Process	Cost of IT Project or Purchase		
	High (>\$50K)	Medium (\$25K-\$50K)	Low (<\$25K)
Assessment of needs	Strategic Plan, organizational units, faculty, IT staff, OUS ITS and INOC, DAS DVS, other consultants recommendations.	Strategic Plan, organizational units, faculty, IT staff, OUS ITS and INOC, DAS DVS, other consultants recommendations.	Organizational units, faculty, IT staff, students (through faculty sponsors) or staff.
Definition of solution	The vast majority of organizational units consult with campus IT in defining alternatives; organizational units and IT jointly confer with external consultants.	The vast majority of organizational units consult with campus IT in defining alternatives.	The vast majority of organizational units consult with campus IT in defining alternatives.
Communication process (offices, committees)	Through Dept/School, Academic Support, Technology, Techfee Committees, reviewed and approved by Directors, Deans, VPs, Provost, usually with IT Director recommendation.	Through Dept/School, Academic Support, Technology, Techfee Committees, reviewed and approved by Directors, Deans, VPs, Provost, usually with IT Director recommendation.	Through Dept/School, Academic Support, Technology, Techfee Committees, reviewed and approved by Directors, Deans, VPs, Provost, usually with IT Director recommendation.
Designation of funding and other resources	President, Provost, VPs, Deans, with recommendations from Academic Support, Technology, Techfee committees, IT Director, and other Directors/Dept Heads.	Provost, VPs, Deans, Directors/Dept Heads, IT Director.	Provost, VPs, Deans, Director/Dept Heads, IT Director.
Acquisition of technology	Campus IT in conjunction with Purchasing Agent, OUS ITS and INOC, and DAS.	Campus IT in conjunction with Purchasing Agent, OUS ITS and INOC.	Campus IT in conjunction with Purchasing Agent, OUS ITS and INOC. Organizational units make small purchases directly, but most IT purchasing is consolidated with campus IT and Purchasing Agent for most effective buying power.
Implementation	IT staff in consultation with implementing organizational unit.	IT staff for the majority; Organizational unit staff for some.	IT staff for the majority; Organizational unit staff for some.

**Exhibit 5
IT Decision Making**

Oregon Institute of Technology			
Step in the Process	Cost of IT Project or Purchase		
	High (>\$50K)	Medium (\$25K-\$50K)	Low (<\$25K)
Assessment of needs	Strategic Plan, organizational units, faculty, IT staff, OUS ITS and INOC, DAS DVS, in conjunction with IT.	Strategic Plan, organizational units, faculty, IT staff, OUS ITS and INOC, DAS DVS, in conjunction with IT.	Strategic Plan, organizational units, faculty, IT staff, OUS ITS and INOC, DAS DVS, in conjunction with IT.
Definition of solution	Usually IT staff and/or other external consultants in consultation with institutional units.	Usually IT staff and/or other external consultants in consultation with institutional units.	Departments typically consult with IT in defining alternatives.
Communication process (offices, committees)	ITS Steering Committee, Resource Fee Commission, Web Page Announcements, Email and RFP process.	ITS Steering Committee, Resource Fee Commission, Web Page Announcements, Email and RFP process.	ITS Steering Committee, Resource Fee Commission, Web Page Announcements, Email and RFP process.
Designation of funding and other resources	Vice President Finance, Provost or Dean.	Vice President Finance, Provost, Dean, or Resource Fee Committee.	Vice President Finance, Provost, Dean, Department Head, Resource Fee Committee.
Acquisition of technology	Through purchasing with quotes generated by ITS or department personnel.	Through purchasing with quotes generated by ITS or department personnel.	Through purchasing with quotes generated by ITS or department personnel.
Implementation	By ITS personnel or department IT personnel.	By ITS personnel or department IT personnel.	By ITS personnel or department IT personnel.

**Exhibit 5
IT Decision Making**

Oregon State University			
Step in the Process	Cost of IT Project or Purchase		
	High (>\$50K)	Medium (\$25K-\$50K)	Low (<\$25K)
Assessment of needs	Department Department would consult with users to evaluate needs and options.	Department Department would assess needs based on documented evidence.	Department Department would assess needs based on documented evidence.
Definition of solution	Department & Central University Administration, including advisory committees Based on documented needs and a cost/benefit analysis, the best solution would be selected.	Department Based on documented needs and a cost/benefit analysis, the best solution would be selected.	Department Based on documented needs and a cost/benefit analysis, the best solution would be selected.
Communication process (offices, committees)	Department & Central University, including advisory committees Information would be distributed via e-mail, campus publications, and appropriate campus meetings, such as Faculty Senate.	Department Information would be distributed via e-mail, campus publications, and appropriate campus meetings, such as Faculty Senate.	Department Information would be distributed via e-mail, campus publications.
Designation of funding and other resources	Department & Central University, Funding sources would be reviewed, and would include COPs, University Reserves, and Departmental budgets.	Department Funding sources would be reviewed, and would include University Reserves, and Departmental budgets.	Department Funding sources would be reviewed, and would include University Reserves, and Departmental budgets.

**Exhibit 5
IT Decision Making**

Oregon State University			
Step in the Process	Cost of IT Project or Purchase		
	High (>\$50K)	Medium (\$25K-\$50K)	Low (<\$25K)
Acquisition of technology	Department & Central Purchasing Standard bidding process, including RFP for large items.	Department & Central Purchasing Standard OSU/OUS purchasing processing.	Department & Central Purchasing Standard OSU/OUS purchasing processing.
Implementation	Department Department would work with users to ensure success of implementation, and avoid disruption of normal operations for customers.	Department Department would work with users to ensure success of implementation, and avoid disruption of normal operations for customers.	Department Department would work with users to ensure success of implementation, and avoid disruption of normal operations for customers.

**Exhibit 5
IT Decision Making**

Portland State University			
Step in the Process	Cost of IT Project or Purchase		
	High (>\$50K)	Medium (\$25K-\$50K)	Low (<\$25K)
Assessment of needs	Users in partnership with staff of the Office of Information Technologies	Will follow the process of High or Low depending on the department and the project	Departmental level staff and IT staff will assess
Definition of solution	Users & technical staff define the need and work with senior IT staff to plan	Will follow the process of high or low depending on the department and the project	Departmental staff and IT staff will define
Communication process (offices, committees)	One of the following committees will be involved based on type of technology: 1) Administrative Priorities Committee, 2) Network Administrators Group, 3) Lab and classroom Managers group, 4) Advisory Committee on Academic Information Technologies	Will follow High or Low depending on the department and the project	Departmental staff communicate with their own administration and often involve IT staff and managers as consultants. If multiple departments are involved, typically a senior IT manager will be involved to manage communication and the project.
Designation of funding and other resources	Resource choices made by IT Directors with Executive Director oversight. Large purchases will be discussed with financial Vice President and Advisory Committee on Academic Information Technologies	Will follow High or Low depending on the department and the project	Departmental chairs/directors and/or senior IT managers/Directors

**Exhibit 5
IT Decision Making**

Portland State University			
Step in the Process	Cost of IT Project or Purchase		
	High (>\$50K)	Medium (\$25K-\$50K)	Low (<\$25K)
Acquisition of technology	Office of Information Technologies Staff with IT management approval only	Office of Information Technologies Staff or departmental managers with IT/Departmental management approval only	Departmental level staff and/or same as High
Implementation	Office of Information Technologies Staff with some departmental staff	Office of Information Technologies Staff with some departmental staff	Departmental staff and assistance from Office of Information Technologies Staff as needed

Note: Grants and information technology acquisition in support of grants are under the control of the Principal Investigators (PIs) for that grant. However, IT staff are typically consulted and involved in acquisition at the PI's request.

**Exhibit 5
IT Decision Making**

Southern Oregon University			
Step in the Process	Cost of IT Project or Purchase		
	High (>\$50K)	Medium (\$25K-\$50K)	Low (<\$25K)
Assessment of needs	Faculty, IT staff, Administrative units, InTelCom consultant recommendations, OUS ITS 5 th site recommendation.	Faculty, IT staff, student or staff requests, survey research.	Faculty, IT staff, student or staff requests, survey research.
Definition of solution	Usually administrative units in consultation with IT staff and or other consultants.	Departments almost always consult with IT experts.	Most departments consult with IT in defining alternatives.
Communication process (offices, committees)	Either through Dept/School or response to Technology Council RFP reviewed and approved by Deans and Directors. Eventually approved by CIO, Executive Council & President.	Either through Dept/School or response to Technology Council RFP that is reviewed and approved by Deans and Directors. Eventually approved by Vice President, CIO, Executive Council & President.	Either through Dept/School or response to Technology Council RFP reviewed and approved by Deans and Directors. Usually approved by CIO or VP.
Designation of funding and other resources	VPs, Deans, CIO, VP, Faculty Senate, Executive Council, President.	VPs, Deans, CIO.	VPs, Deans, CIO.
Acquisition of technology	IT Purchasing or Business Services purchasing.	IT Purchasing or Business Services purchasing.	IT Purchasing or Business Services purchasing. Sometimes departments purchase directly, but most IT purchasing is centralized.
Implementation	IT staff in consultation with implementing unit (e.g., Library, Geography Dept., etc).	Departmental staff and/or IT staff.	Departmental staff and/or IT staff.

**Exhibit 5
IT Decision Making**

University of Oregon			
Step in the Process	Cost of IT Project or Purchase		
	High (>\$50K)	Medium (\$25K-\$50K)	Low (<\$25K)
Assessment of needs	Users in partnership with staff of Computing Center.	Will follow the process of High or Low depending on the department and the project.	Departmental level staff and or same process as High.
Definition of solution	Users define the need and work with Computing Center staff on a solution and Educational Technology Committee when appropriate.	Will follow the process of high or low depending on the department and the project.	Departmental staff an/or same process as High.
Communication process (offices, committees)	Banner Coordinating Group, appropriate Vice President.	Will follow High or Low depending on the department and the project.	Departmental staff and College administration and/or same as High.
Designation of funding and other resources	Unit in cooperation with appropriate Vice President and/or Educational Technology Committee.	Will follow High or Low depending on the department and the project.	College and/or appropriate Vice President administrators.
Acquisition of technology	Computing Center staff.	Will follow High or Low depending on the department and the project.	Departmental level staff and/or same as High.
Implementation	Partnership of Computing Center staff with user offices.		Departmental level staff and/or same as High.

Note: Grants and information technology acquisition in support of grants are under the control of the Principal Investigators.

**Exhibit 5
IT Decision Making**

Western Oregon University			
Step in the Process	Cost of IT Project or Purchase		
	High (>\$50K)	Medium (\$25K-\$50K)	Low (<\$25K)
Assessment of needs	Strategic Plan, organizational units, OUS ITS, INOC, DAS DVS, OWEN/NERO, in consultation with IT and other consultants.	Strategic Plan, organizational units, OUS ITS, INOC, DAS DVS, OWEN/NERO, in consultation with IT and other consultants.	Organizational units, OUS ITS, INOC, DAS DVS, OWEN/NERO, in consultation.
Definition of solution	Organizational units consult with IT in defining alternatives.	Organizational units consult with IT in defining alternatives	Organizational units consult with IT in defining alternatives.
Communication process (offices, committees)	Through Banner groups, Technology Fee Committee, Dept/School, Academic Support, reviewed and approved by Directors, Deans. VP's, Provost, with IT Director recommendation.	Through Banner groups, Technology Fee Committee, Dept/School, Academic Support, reviewed and approved by Directors, Deans. VP's, Provost, with IT Director recommendation.	Through Banner groups, Technology Fee Committee, Dept/School, Academic Support, reviewed and approved by Directors, Deans. VP's, Provost, with IT Director recommendation.
Designation of funding and other resources	President, Provost, VP's, Deans, with recommendations from Techfee committees, Directors/Dept Heads, and IT Director.	President, Provost, VP's, Deans, with recommendations from Techfee committees, Directors/Dept Heads, and IT Director.	Provost, VP's, Deans, with recommendations from Techfee committees, Directors/Dept Heads, and IT Director.
Acquisition of technology	IT in conjunction with Purchasing Agent, OUS ITS and INOC, DAS, and OWEN/NERO.	IT in conjunction with Purchasing Agent, OUS ITS and INOC, DAS, and OWEN/NERO.	IT in conjunction with Purchasing Agent, OUS ITS and INOC, DAS, and NERO. IT purchasing is centralized for most effective buying power.
Implementation	IT staff for all projects	IT staff for all projects.	IT staff for all projects.

**Exhibit 5
IT Decision Making**

Chancellor's Office ITS			
Step in the Process	Cost of IT Project or Purchase		
	High (>\$50K)	Medium (\$25K-\$50K)	Low (<\$25K)
Assessment of needs	Strategic Plan, organizational units, Chancellor's Office Units (e.g. IR), ITS staff, 5 th Site Institutions and the 3 large campuses, INOC, DAS, other consultants recommendations	Strategic Plan, organizational units, Chancellor's Office Units (e.g. IR), ITS staff, 5 th Site institutions and the 3 large campuses, INOC	Chancellor's Office Units (e.g. IR), ITS staff, 5 th site institutions
Definition of solution	ITS Staff in consultation with 5 th Site Institutions as well as the 3 large campuses, INOC, external consultants	ITS Staff in consultation with 5 th Site Institutions as well as the 3 large campuses	ITS Staff
Communication process (offices, committees)	Campus administrators involved in the project; specific campus/ITS project committees; 5 th Site FISCO/HRISCO/SISCO groups as appropriate; communication through listserv, ITS News Letter	Campus administrators involved in the project; specific campus/ITS project committees; 5 th Site FISCO/HRISCO/SISCO groups as appropriate; communication through listserv, ITS News Letter	Campus administrators involved in the project; specific campus/ITS project committees; 5 th Site FISCO/HRISCO/SISCO groups as appropriate; communication through listserv, ITS News Letter
Designation of funding and other resources	Vice-Chancellor, CIO, Director, Dept Heads, 5 th Site Institutions and the 3 large campuses	CIO, Director, Dept Heads, 5 th Site Institutions and the 3 large campuses	Director/Dept Heads
Acquisition of technology	ITS in conjunction with Chancellor's Office and campus Purchasing Agent, 5 th Site Institutions and the 3 large campuses, and INOC, DAS	ITS in conjunction with Chancellor's Office and campus Purchasing Agent, 5 th Site Institutions and the 3 large campuses, and INOC	ITS in conjunction with Chancellor's Office Purchasing Agent
Implementation	ITS staff in consultation and cooperation with implementing organizational unit	ITS staff in consultation and cooperation with implementing organizational unit	ITS staff in consultation and cooperation with implementing organizational unit

Exhibit 6
Variables Related to IT Cost or Level of Commitment, by Campus

Cost Variable	EOU	OIT	OSU	PSU	SOU	UO	WOU
Enrollment —Campuses with higher enrollment face higher demands for instructional and network services and support. [Fall 2001 headcounts are displayed here.]	2,978	3,088	18,277	20,185	5,469	19,008	4,878
Curriculum – Generally, technical programs require a higher level of IT instructional support.	Medium	High	High	High	Medium	High	High
Distance and Distributed Learning – Serving students at a distance involves more mediated instruction and IT support. Off-campus centers can also add to costs.	High	Low	High	Medium	Medium	Low	Medium
Choice of Pedagogy – Commitment to deliver instruction using technology affects IT costs.	Medium	Medium	Medium	Medium	Medium	Medium	Low
Graduate Programs – IT resources/support for graduate programs are generally more expensive than for undergraduate programs.	Low	Low	Medium	High	Low	High	Medium
Research and Grants – Support costs are not always covered entirely by external funding. Research projects may require high levels of IT infrastructure (e.g., Internet2 connectivity).	Low	Low	High	Medium	Low	High	Low
Public Service Mission – Public Service IT support varies depending on whether mission is regional or statewide.	High	Low	High	Medium	Low	Medium	Medium
E-commerce – Commitment to Web-accessible services to alumni, vendors, and other stakeholders affects IT costs.	Medium	Low	Low	High	High	High	High
Student Services – The accessibility of online and web-based student services affects costs.	High	High	High	High	High	High	High
Degree of IT Centralization – Extent to which IT functions and costs are borne by a central IT unit on campus. The cost of IT services provided by individual departments is not reflected in the central IT budget and may be difficult to estimate.	High	Medium	Low	Medium	High	Medium	High

High = High cost or level of commitment

Medium = Medium cost or level of commitment

Low = Low cost or level of commitment

Exhibit 7

OUS All Funds IT Expenditure Summary, 2001-02

Expenditure Categories	2001-2003 Biennium				Estimated 2001-02 Annual Budget ¹	
	Base Budget	Self Support	Gifts, Grants & Contracts	Total	Dollars	% of Total
Personnel (salaries & OPE) ²	\$50,173,358	\$5,495,000	\$3,570,248	\$59,238,606	\$29,619,303	54.2%
Personal Services Contracts	575,922	73,000	83,062	731,984	365,992	0.7%
Enterprise Hardware	2,804,611	123,000	182,248	3,109,859	1,554,929	2.8%
Other Hardware	2,266,310	640,000	599,372	3,505,681	1,752,841	3.2%
Desktop Workstations	11,979,395	2,562,000	2,413,248	16,954,643	8,477,321	15.5%
Enterprise Software	3,237,611	191,000	237,000	3,665,611	1,832,805	3.4%
Other Software	2,128,271	1,581,000	931,000	4,640,271	2,320,135	4.2%
Maintenance	3,846,496	557,000	217,000	4,620,496	2,310,248	4.2%
Bandwidth Support	3,876,968	1,378,349	430,473	5,685,789	2,842,895	5.2%
Security	248,450	38,000	26,000	312,450	156,225	0.3%
Training	888,248	117,000	56,000	1,061,248	530,624	1.0%
Supplies & Materials	4,017,239	702,000	391,000	5,110,239	2,555,120	4.7%
Professional & Trade Services	182,124	14,000	16,000	212,124	106,062	0.2%
Other Contract (COCC/Cascades campus)	423,800	0	0	423,800	211,900	0.4%
TOTAL	86,648,801	13,471,349	9,152,650	109,272,799	54,636,400	100.0%
COP Requested Financing Capacity for IT Projects	19,841,000	0	0	19,841,000	9,920,500	

¹ Reflects legislatively approved budget prior to any budget reductions decided in the 2002 Special Session.

² Expenditures for salaries and OPE in 2001-02 are for 498 IT staff FTE systemwide.

BASE BUDGET: For the purposes of this analysis, includes OSU Statewide Public Services (AES, ES, FRL), COP Debt Service financing capacity; expenditures related to Student Technology Fees; Education and General expenditures, including Limited Other Funds expenditures (e.g., tuition, student resource fees, and indirect cost recovery from sponsored research programs), as well as State General Fund expenditures.

SELF SUPPORT: includes Service Departments (e.g., Printing Operations), Designated Operations (workshops, field trips, Continuing Ed-no credit), and Auxiliary Enterprises (Athletics, Housing, Parking, Student Union).

GIFTS, GRANTS, and CONTRACTS: includes Sponsored Research, Federal, State and/or private dollars.

Source: Oregon University System, Report to the Joint Ways and Means Advancing E-Government Subcommittee, May 16, 2001, page 7. Subsequent revisions to OSU, PSU, SOU and Chancellor's Office data, Feb. 2002.

Exhibit 8
Distribution of OUS IT Staff (FTE), 2001-02

Functional Area	EOU	OIT	OSU	PSU	SOU	UO	WOU	CO	Total
Manager/coordinators	1.00	1.00	14.00	10.00	4.00	14.20	1.00	7.00	52.20
Computing Services	6.00	10.50	23.00	49.50	14.00	46.20	13.00	28.50	190.70
Telecom	1.00	1.00	16.00	8.00	3.00	15.00	1.00	2.00	47.00
Registrar/Admissions/Financial Aid	1.00	0.00	18.50	1.00	1.00	4.00	0.00	2.00	27.50
Business Services/Human Resources	0.00	2.00	16.00	3.00	3.00	4.50	0.00	0.00	28.50
Student Services	0.00	1.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00
Library	1.00	1.00	5.00	2.00	2.00	7.50	1.60	0.00	20.10
Web development/support	1.00	1.00	2.00	0.00	1.50	0.00	1.00	4.00	10.50
Other (includes departmental FTE)	2.00	0.00	72.25	15.50	0.00	31.00	0.00	0.00	120.75
GRAND TOTAL – IT STAFF FTE	13.00	17.50	166.75	91.00	28.50	122.40	17.60	41.50	498.25

Source: OUS Technology Plan metrics table; data supplied by OUS IT directors.

Exhibit 9
IT-Related Campus Measures and Ratios, 2001-02

	Fifth Site *				
	EOU	OIT	SOU	WOU	Centralized Services
MEASURES					
IT Staff (2001-02 FTE), including vacant positions	13.00	17.50	28.50	17.60	41.50
All funds IT budget (2001-02, estimated from 2001-2003 biennial budgets) ¹	\$1,016,000	\$1,950,000	\$2,837,500	\$2,031,000	\$4,735,000
Student enrollment (Fall 2001)					
Headcount	2,978	3,088	5,469	4,878	NA
FTE	2,255	2,357	4,275	4,341	NA
Total faculty & staff (Fall 2001 headcount)	373	376	742	752	171
All funds total campus budget (2001-02) ²	\$47,358,978	\$39,316,819	\$83,226,454	\$77,992,432	\$28,046,121
Sponsored research and other support (2000-01) ³	\$2,148,766	\$2,605,111	\$3,193,740	\$7,739,545	\$6,896,151
RATIOS					
Students per IT staff					
Student headcount per IT staff	229	176	192	277	NA
FTE enrollment per IT staff	173	135	150	247	NA
Total campus users (headcount of students, faculty, staff) per IT staff	258	198	218	320	NA
IT dollars per student					
Per student headcount	\$341	\$631	\$519	\$416	NA
Per FTE enrollment	\$451	\$827	\$664	\$468	NA
IT dollars per headcount student/faculty/staff	\$303	\$563	\$457	\$361	NA
IT budget as % of total campus budget	2.1%	5.0%	3.4%	2.6%	16.9%
Research as % of total campus budget	4.5%	6.6%	3.8%	9.9%	24.6%

* OUS' "Fifth Site" refers to the group of the four smaller campuses (EOU, OIT, SOU and WOU) plus the Chancellor's Office, collectively drawing upon centralized IT support provided by OUS Information Technology Services, for the purpose of achieving operational efficiencies and cost savings.

Exhibit 9
IT-Related Campus Measures and Ratios, 2001-02

	Large Campuses			Total System
	OSU **	PSU	UO	
MEASURES				
IT Staff (2001-02 FTE), including vacant positions	166.75	91.00	122.40	498.25
All funds IT budget (2001-02, estimated from 2001-2003 biennial budgets) ¹	\$23,431,900	\$8,957,500	\$9,677,500	\$54,636,400
Student enrollment (Fall 2001)				0
Headcount	18,277	20,185	19,008	73,883
FTE	17,303	13,884	18,113	62,528
Total faculty & staff (Fall 2001 headcount)	4,213	2,145	3,547	12,319
All funds total campus budget (2001-02) ²	\$524,326,994	\$274,573,628	\$420,462,689	\$1,495,304,115
Sponsored research and other support (2000-01) ³	\$113,292,514	\$26,446,984	\$59,380,847	\$221,703,658
RATIOS				
Students per IT staff				
Student headcount per IT staff	110	222	155	148
FTE enrollment per IT staff	104	153	148	125
Total campus users (headcount of students, faculty, staff) per IT staff	135	245	184	173
IT dollars per student				
Per student headcount	\$1,282	\$444	\$509	\$739
Per FTE enrollment	\$1,354	\$645	\$534	\$874
IT dollars per headcount student/faculty/staff	\$1,042	\$401	\$429	\$634
IT budget as % of total campus budget	4.5%	3.3%	2.3%	3.7%
Research as % of total campus budget	21.6%	9.6%	14.1%	14.8%

** Includes centralized and decentralized technology on campus and throughout the state with OSU's leadership of Extension, Agricultural Experiment Station, Forest Research Laboratory, and the OSU-Cascades Campus.

Exhibit 9
IT-Related Campus Measures and Ratios, 2001-02

Notes

¹ Includes IT revenues from State General Fund, Technology Resource Fee, and Sponsored Research.

² Includes State General Fund, Other Funds Limited, and Other Funds Non-Limited.

³ Restricted funds expenditures, including sponsored research, teaching/training grants, student services grants, library grants, and similar support. Excludes student aid.

Sources

1. "OUS IT Metrics, 2001-02." Data supplied by OUS campus information technology directors.

2. Oregon University System, "Report to the Joint Ways and Means Advancing E-Government Subcommittee," May 16, 2001, page 9 (All Funds IT Budgets by Institution). Revisions in OSU, PSU, SOU and Chancellor's Office data, February 2002.

3. OUS Institutional Research Services, Fall 2001 Headcount and FTE Enrollment; Fall 2001 Staff Data.

4. OUS 2001-02 Annual Operating Budget, report to the Board Committee on Budget and Finance, October 19, 2001.

5. OUS Annual Financial Statements, Year Ended June 30, 2001. "Statement of Current Funds Revenues, Expenditures, and Other Changes." (For sponsored research data.)

Exhibit 10
OUS IT Metrics, 2001-02

Measure	EOU	OIT	OSU (see note 7)	PSU	SOU	UO	WOU	CO
Bandwidth Support	<i>See note 1</i>			<i>See note 9</i>				<i>See note 20</i>
Bandwidth maximum (Mbps)	3	3	22	14	4.5	21	9	6
Bandwidth per user (bits/sec/user)	300	300	700	621	620	620	1,400	750
Dial-up Statistics	<i>See note 2</i>			<i>See note 10</i>				
Number of 56Kbps modems	0	0	284	248	48	596	39	1
Number 33.6Kbps modems	48	13	0	54	45	0	0	10
Number of modems slower than 33.6Kbps	30	5	0	0	10	0	16	0
Centrally Hosted E-Mail				<i>See note 11</i>	<i>See note 14</i>	<i>See note 15</i>	<i>See note 19</i>	
Type of system (e.g., Outlook, GroupWise, RFC822-standard Unix mail, etc.)	UNIX Sendmail + POP3	Linux/ Sendmail	UNIX/Sun [ONID]; Exchange 5.5 for some fac/staff; UNIX iMAP for students & others	UNIX (PSU Webmail on Sun Solaris); GroupWise (being phased out)	GroupWise	UNIX, VMS, iMAP, POP3, Webmail	Iplanet messenger running on Sun Solaris	GroupWise, 2 Solaris
User counts by system	7,300	3,000	14,600	34,100	8,000	33,900	5,300	1,300
Hardware/software platform cost	\$50,000	\$2,200	\$300,000	Hardware: \$128,000 Software: UNIX is free, GroupWise is \$15,000 (will phase out in 2002)	\$15,000	\$355,000	\$60,000	\$20,000
Supporting staff	0.2 FTE	0.2 FTE	3.0 FTE	1.25 FTE	0.25 FTE	3.0 FTE	0.7 FTE	0.5 FTE

Exhibit 10
OUS IT Metrics, 2001-02

Measure	EOU	OIT	OSU (see note 7)	PSU	SOU	UO	WOU	CO
IT Enabled Distance Education	<i>See note 3</i>			<i>See note 12</i>		<i>See note 16</i>		
Number of for-credit courses available online	165	20	228	94	50 (est)	245	10	NA
Number of students in for-credit online courses	1,381	121	9,434	4,800	400 (est)	9,021	119	NA
Telecom Statistics	<i>See note 4</i>							<i>See note 21</i>
Number of voice lines	1,114	1,189	9,139	5,098	1,950	8,104	1,614	NA
Long distance usage (paid to vendor)	\$117,100	\$75,000	\$355,230	\$298,300	\$118,900	\$564,000	\$157,300	NA
Lab statistics						<i>See note 17</i>		
Number of stations in all labs	230	497	1,821	809	630	800	267	NA
Enterprise system measures	<i>See note 5</i>							
Number of Banner users	212	564	1,222	1,663	1,132	1,100+	635	145
Number of data warehouse users	49	119	778	1,663	178	360+	12	96
Student registrations via Web (12 months)	6,875	5,166	284,914	65,202	8,000	128,216	3,473	NA
Student registrations via voice (12 months)	0	0	4,786	17,594	0	17,231	0	NA
Student registrations via manual entry (12 months)	3,298	7,362	14,657	68,683	14,000	12,804	1,405	NA
Size of administrative database (gigabytes)	29	19	93	53	24	84	24	4.5

Exhibit 10
OUS IT Metrics, 2001-02

Measure	EOU	OIT	OSU (see note 7)	PSU	SOU	UO	WOU	CO
Central system student accounts	<i>See note 6</i>			<i>See note 13</i>		<i>See note 18</i>		
Number of student accounts on central systems	6,300	2,500	12,575	40,459	6,500	26,238	4,800	NA
IT Staff (FTE)								
Manager/coordinators:	1	1	14	10	4	14.2	1	7
Computing Services:	6	10.5	23	49.5	14	46.2	13	28.5
Telecom	1	1	16	8	3	15	1	2
Registrar/Admissions/Fin.Aid.	1	0	<i>See note 8</i> 18.5	1	1	4	0	0
Business Services/HR	0	2	16	3	3	4.5	0	0
Student Services	0	1	<i>See note 8</i> 0	2	0	0	0	0
Library	1	1	5	2	2	7.5	1.6	0
Web development/support	1	1	2	0	1.5	0	1	4
Other (includes departmental FTE)	2	0	<i>See note 8</i> 72.25	15.5	0	31	0	0
GRAND TOTAL – IT STAFF FTE	13.0	17.5	166.75	91.0	28.5	122.4	17.6	41.5

Exhibit 10
OUS IT Metrics, 2001-02

NOTES:

- 1 EOU: Two T1s at 1.544 Mb each. Also using 3 DAS/DVS provisioned T1/PVC's, @ 384 KB each, to support H.323/IP Video.
- 2 EOU encourages off campus use of local ISP accounts and is phasing out modem pools.
- 3 EOU: Distance education enrollment includes EOU video courses totaling 27 classes and 626 students for fall term 2001.
- 4 EOU telephone system is served by 5 Verizon inbound/outbound T1 lines (115 trunks) plus 2 AT&T OUS tie-line T1s (46 trunks).
- 5 EOU supports SIS/Financial Aid at EOU; FIS/HRIS are supported at ITS (5th site).
- 6 EOU: Beginning 1999, EOU offers "lifetime" accounts for EOU alumni, included in these numbers.
- 7 OSU: All metrics data for OSU include OSU main campus, OSU Cascades campus, and Statewide Public Services (Agricultural Experiment Station, Forest Research Laboratory, and OSU Extension).
- 8 OSU: IT staff in Student Services are included under Registrar. Both are part of OSU's Network Services/Community Network. The "Other" category includes Communication Media as well as Statewide Public Services and OSU departments.
- 9 PSU: PSU residence hall are operated by a separate non-profit; bandwidth is paid for directly by resident students. Some non-PSU-owned residence halls have independent ISPs.
- 10 PSU: Utilization peaks with all lines used everyday during academic session. PSU modem service is limited to 6 hours/day per user, 90 minutes session maximum.
- 11 PSU: Email hardware costs should be spread over a 36-month system life; these are not e-mail only platforms.
- 12 PSU: Numbers include distance learning courses available fully online and "hybrids" (on-campus mixed with online). Numbers do not include campus-based course sections using WebCT courseware to augment the course (600 courses and 15,388 enrollments per year).
- 13 PSU: Number includes 11,500 Microsoft based lab servers which overlap somewhat with the other systems. PSU policy allows students to keep accounts for up to two terms since last enrollment.
- 14 SOU: Email and network accounts—offer lifetime accounts for emeritus faculty. Allow new graduates to retain accounts for one year after graduation. SOU leaves student accounts on the system for one full term if the student is no longer registered.
- 15 UO: For all servers, email is just one of many applications being run; there is not a dedicated email only server. Cost and FTE numbers should be viewed in this context.
- 16 UO: Enrollment number reported is the number of students enrolled in at least one blackboard course. Total student-course enrollments equal 12,839. Total enrolled users (including instructors and GTFs) equal 9,461.
- 17 UO: Includes 700 PCs and 100 servers.
- 18 UO: There is some overlap among the host servers with students having the need for multiple accounts.
- 19 WOU: Email is just one of many applications run on this server, and constitutes a small portion of the two staff assigned to it.
- 20 CO: Bandwidth per user for the Chancellor's Office includes users of FIS and HRIS systems at four 5th site campuses (EOU, OIT, SOU, and WOU) and users of SIS systems at three campuses (OIT, SOU, and WOU).
- 21 CO: Telecom statistics for Chancellor's Office locations in Eugene, Corvallis, and Portland are included with data for UO, OSU, and PSU, respectively.

Exhibit 11
OUS IT Terms Dictionary

Data Element	Definition/Description
Administrative Web System	Web pages that provide campus administration information and/or services
Administrative Web System Accesses	Definition to be further developed and refined for next plan report
Administrative Database	<ul style="list-style-type: none"> ▪ Includes SCT Banner and data warehouse databases ▪ Size measured in giga bytes, GBs
Bandwidth Maximum	<ul style="list-style-type: none"> ▪ Contracted bandwidth level ▪ Internet capacity in Mbps (E.g. how much we buy from OWEN)
Bandwidth per User	<ul style="list-style-type: none"> ▪ Internet transit bandwidth only (no Internet2 or peering bandwidth) ▪ Bits/sec/user is the unit of measure. (1 k-bit = 1,000 bits; 1 mb = 1,000 k-bits) ▪ Determine user count by summing: <ul style="list-style-type: none"> - The headcount of students, faculty and staff - Add 1 user for each kiosk and public access station
Banner Users	Includes student users, accounting users, human resources users and financial aid users
Central System	Non-departmental, campus-wide application hardware/software system that may have multiple user accounts
Central System Student Accounts	A given student should be counted only once even though the individual has accounts on many systems
Centralized IT-Staff	See "IT Staff"
Data Warehouse Users	Includes Institutional Research staff, Hummingbird BI users, and others using software to access and/or analyze collections of data extracted from operational systems
Decentralized IT-Staff	See "IT Staff"
Desktop PC	<p>Single-user computer (Mac, Wintel, Linux or...) with an economic value greater than \$250 in use on a University campus (i.e. allocated for specific purposes, not in reserve or awaiting resale), regardless of ownership. This includes:</p> <ul style="list-style-type: none"> ▪ X-stations ▪ Workstations ▪ Laptops ▪ Network Computers (e.g. Terminal server/Citrix clients) <p>And excludes:</p> <ul style="list-style-type: none"> ▪ Servers ▪ Printers ▪ Personal Digital Assistants (PDAs) ▪ Dedicated systems (e.g., PCs controlling lab equipment) ▪ Kiosks
Dialup Count	Number of lines

Exhibit 11
OUS IT Terms Dictionary

Data Element	Definition/Description
Dialup Utilization	Bandwidth graphs (using multi-router traffic grapher or HP OpenView) as shown at http://gupta.uoregon.edu/dialup/uonet-all-modems.html
E-Mail System	A system that is dedicated to e-mail and licensed products only.
E-Mail System Type	E.g., Outlook, GroupWise, RFC822-standard Unix mail, etc.
E-Mail User counts by system	<ul style="list-style-type: none"> ▪ For each e-mail system, this is an estimate of the number of users for whom that system serves as their primary system (e.g., this system provides the account through which the counted user gets e-mail and/or home directory file access). ▪ A given individual should be counted as a user on only one system even though the individual has accounts on many systems.
Enterprise Hardware	Comprised of administrative systems and campus networks (e.g., routers, ATM switches, etc.). Components are counted only when the cost exceeds \$5,000. This includes form servers and excludes donated components.
For-credit courses available online	As shown at http://oregonone.org/ (see also "Online Course")
Internet Costs	Includes only Internet transit costs Excludes: <ul style="list-style-type: none"> ▪ Internet2 costs ▪ Peering ▪ Local loop ▪ Line charges ▪ Hardware ▪ Maintenance
Internet2 Costs	Costs associated with providing internet2 capability Includes: <ul style="list-style-type: none"> ▪ Engineering costs ▪ Network Operation Center (NOC) costs ▪ Hardware costs

Exhibit 11
OUS IT Terms Dictionary

Data Element	Definition/Description
IT Staff	<p>Expressed in full-time equivalents (FTE). Includes: Centralized campus IT staff & departmental IT staff (classified and unclassified). Excludes: Student staff, research and grant-supported staff, staff employed exclusively for short-term projects and OUS-ITS staff (except for staff reported by OUS-ITS). To be counted, a staff member must:</p> <ul style="list-style-type: none"> ▪ Provide at least 0.5 FTE of IT products and/or services for others (e.g., in the classified IT series), including: <ul style="list-style-type: none"> Network engineering Help Desk Support for labs Systems Administration Software development/maintenance (programming) Web development/maintenance IT related training (not for credit) Technical support for administrative services ▪ Be employed in an academic department or in a unit that provides enterprise support (this usually includes computing centers, telecommunications, libraries, business services, and registrars)
Long distance usage	Dollars paid to vendor
Online Course	<ul style="list-style-type: none"> ▪ For-credit course that is available online (Web, video, etc., including distance education courses) ▪ Student is not required to set foot on campus in order to be successful with the course. (see also "For-credit courses available online")
PC	See "Desktop PC"
PSC, Consultants, etc.	<p>Includes all outsourced IT work, combining:</p> <ul style="list-style-type: none"> ▪ "Personal Services Contracts" ▪ "Professional & Trade Services"
Security Costs	<p>Include costs associated with:</p> <ul style="list-style-type: none"> ▪ Firewalls ▪ Anti-Virus software ▪ Virtual Private Network (VPN) ▪ Documented security related costs (e.g. recovering from a breach, insurance costs) <p>And exclude costs associated with:</p> <ul style="list-style-type: none"> ▪ Backup
Student Registrations	Count over the last 12 months in each of three categories – Web, Voice and Manual Entry

Exhibit 11
OUS IT Terms Dictionary

Data Element	Definition/Description
Students in for-credit online courses	Average per term over last 12 months
Station	See "Desktop PC"
Supporting Staff	IT Staff FTE dedicated to supporting Email services. (See "IT Staff")
Users	See "Banner Users", "Data Warehouse Users" or "Email Users"
Utilization	See "Dialup Utilization"
Web System Accesses	See "Administrative Web System Accesses"
Workstation	See "Desktop PC"