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*Youngstown State University
Technology Master Plan*

Draft Report

November, 2003



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1 *Technology Master Plan Development Process*

2 The Technology Master Plan Advisory Committee was appointed in July, 2002, to develop a
3 comprehensive technology plan, building on the foundation created within the University's
4 strategic plan, and incorporating the recommendations from the State Auditor's Operations
5 Improvement Report. A subset of the Advisory Committee was also asked to serve on a Steering
6 Committee to provide guidance, direction, and support.
7

8 The Steering Committee began meeting in the Fall of 2002 to establish the plan development
9 process and define the overall scope of the plan. The Steering Committee also completed a
10 review of technology plans from a variety of universities, including many peer institutions (Refer
11 to Appendix A), assembled background information, brainstormed issues within each goal and
12 strategy, and developed an outline for the Master Plan with the following six major categories
13 identified:

- 14 1. Institutional Governance, Planning, and Funding
- 15 2. Academic Classroom Technologies
- 16 3. Distance Learning/On-Line Education
- 17 4. Academic and Administrative Systems and Processes
- 18 5. Infrastructure and Architecture
- 19 6. Web Strategies

20 Five subcommittees were formed to focus on categories 1-5 over the Spring Semester and
21 charged to further research and debate issues, identify actions and priorities, establish timelines,
22 and determine funding requirements. These subcommittees were comprised of members from
23 the Advisory Committee and solicited volunteers from the University community. The existing
24 Website Advisory Committee was asked to address issues relating to the website.
25

26 A draft document was submitted by each subcommittee and combined into a comprehensive
27 plan. Recommendations from the 6 categories were assimilated into the 11 principles of the
28 *Information Technology Doctrine* that was developed. Each subcommittee completed a review
29 of the draft document, with a final review by the Advisory Committee. This draft document will
30 be widely distributed to obtain University and community feedback.
31

32 ***Technology Master Plan Steering Committee***

- 33 Alice Burger, College of Health and Human Services
34 Renee Eggers, Teacher Education
35 Donna Esterly, Technology**
36 Eileen Greaf, Financial Affairs
37 Rick Marsico, Computer Services
38 Greg Moring, Art
39 Viriginia Phillips, Computer Science and Information Systems
40 Sal Sanders, Health Professions
41 Hy Sockel, Management
42 William Wood, School of Technology**

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45 ** Committee Co-Chair

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Technology Master Plan Advisory Committee

Mary Bodnovich, Records Office
Robert Bolla, College of Arts and Sciences
Alice Burger, College of Health and Human Services
Joseph Calcagni, Alumni
Denise Walters-Dobson, College of Arts and Sciences
Thomas Doctor, Network Services
Renee Eggers, Teacher Education
Donna Esterly, Technology**
Louis Falk, Marketing
Eileen Greaf, Financial Affairs
John Habat, Administration
Cynthia Hirtzel, College of Engineering and Technology
Durk Hutmacher, Student Representative, YSU Foundation
Rajah James, Student Representative
Richard Marsico, Computer Services
Greg Moring, Art
Faramarz Mossayebi, Electrical and Computer Engineering
George McCloud, College of Fine and Performing Arts
Dan O'Connell, Athletics
Virginia Phillips, Computer Science and Information Systems
Sal Sanders, Health Professions
K. J. Satrum, Student Services
Joseph Scarnecchia, Support Services
James Schramer, English
Julie Sharrow, Metropolitan College
Lee Slivinske, Social Work
Hy Sockel, Management
John Spencer, University Police
James Stanger, Financial Aid and Scholarships
Michael Theall, CATALYST
Jeff Trimble, Maag Library
Donna Wainio, Human Resources
William Wood, School of Technology**

** Committee Co-Chair

1
2 *Information Technology Services Vision Statement*
3

4 Information Technology Services will keep pace with an evolving, interactive, student-centered
5 and collaborative electronic learning environment, providing seamless access to data,
6 information, and knowledge, in an effort to meet the academic, student services, and
7 administrative needs and goals of the University community. The framework for this vision will
8 be administered within a global, networked environment, providing bandwidth, and quality
9 services for the campus of the future.

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13 *Information Technology Services Mission Statement*
14

15 Information Technology Services provides a broad range of services in a distinct academic
16 environment to support teaching and learning, scholarship and research, and the administrative
17 and business operations of the University. Its primary mission is to provide the infrastructure
18 and support necessary to enable the University community to use information technology
19 effectively to facilitate the institutional mission of providing “open access to high-quality
20 education through a broad range of affordable certificate, associate, baccalaureate, and graduate
21 programs.”
22

23
24 Information Technology Services is dedicated to:
25

- 26 • **Leadership:** Providing responsible leadership to further advance the
27 University’s technological evolution and to capitalize on future innovations;
28
- 29 • **Commitment to Quality:** Delivering quality services throughout the campus
30 by effectively balancing available resources and projects in support of
31 educational technology, administrative systems, and network infrastructure;
32
- 33 • **Customer Service:** Maintaining a high level of customer satisfaction in the
34 delivery of its services;
35
- 36 • **Communication:** Promoting an interactive electronic learning environment,
37 strengthening communication between and among faculty, students, staff, and
38 the university community;
39
- 40 • **Partnerships:** Collaborating and developing productive partnerships with
41 external local and state constituents to share information and resources, and to
42 further enhance the technological environment.
43
44

Information Technology Doctrine

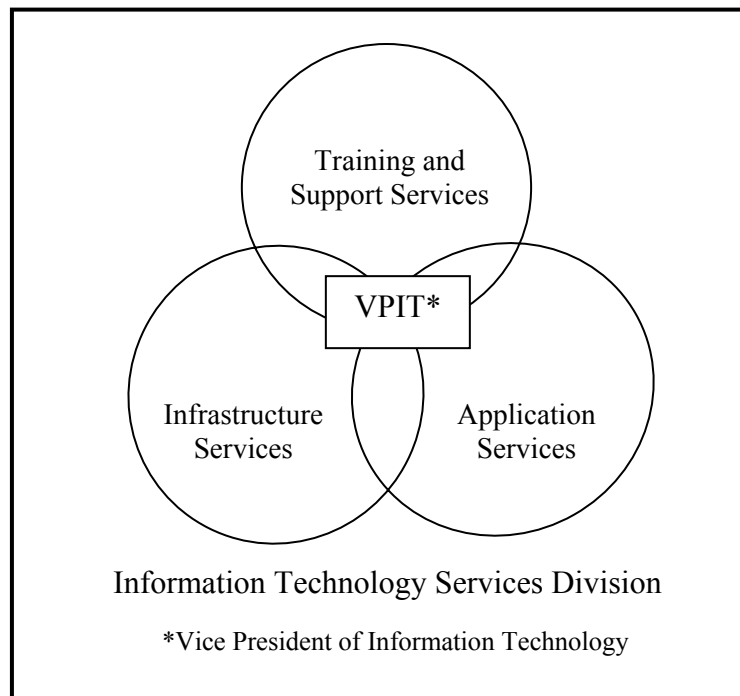
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3 A comprehensive *Information Technology Doctrine* was developed to establish overriding
4 principles that provide the foundation for an ongoing University-wide information technology
5 planning process. A doctrine approach provides the guidelines necessary to ensure the flexibility
6 in the planning process that must be taken into consideration in an ever evolving and shifting
7 technological base. Implications of “Enterprise” should be considered as the guiding principle
8 for the distinction of “centralized” versus “local” administration of specific IT functions and
9 resources. An “Enterprise” function/resource has University-wide ramifications for the entire
10 information technology endeavor (e.g., network, servers, training and support services, etc.), as
11 opposed to a localized need or function. If a function/resource does not have “Enterprise”
12 implications, management resides with the department that can best implement that
13 function/resource, working in collaboration with Information Technology Services.
14

- 15
16 A. Develop an organizational framework that is responsive to the growing
17 technological needs of the University;
- 18 B. Promote compatibility among information technology systems and improve
19 integration between systems and between applications;
- 20 C. Provide technology enhanced classrooms and improved academic support
21 systems;
- 22 D. Enhance distance learning activities and instructional support;
- 23 E. Provide the financial structure to maintain and support technology initiatives;
- 24 F. Increase access to technology and facilitate compliance with local, state, and
25 federal regulations;
- 26 G. Expand training opportunities for faculty, staff, and students;
- 27 H. Provide support for data, voice, video, and future technologies;
- 28 I. Maintain a current, reliable, and secure computing and networking environment;
- 29 J. Improve services to support the administrative functions and business operations
30 of the University;
- 31 K. Develop and implement policies and procedures to address legal and operational
32 issues concerning the University website.

1 **A. *Develop an organizational framework that is responsive to the***
2 ***growing technological needs of the University.***
3

4 1. Establish the “**Information Technology Services**” (ITS) **Division** that reflects the
5 interdependent and shared nature of University-wide information technology systems.
6 This division will provide an emphasis on commitment to customer service and will
7 focus on its “Core Functions” as it strives to fulfill its mission within the University.
8 The division will:

- 9
- 10 • Identify and publish the “core functions” for the division. The underlying
11 philosophy of “Core Functions” is that the division will incrementally shift its
12 focus away from associated, but peripheral services to maximize the effectiveness
13 of central functions;
 - 14 • Realign Telephone Services into the ITS Division to realize the synergy with
15 Network Services due to the many common components, opportunities for
16 purchasing efficiencies, and overlap in services that can and will be provided in
17 the future. A formal relationship between these two departments is needed to
18 ensure that all future communication projects are based on a common vision for
19 telecommunications services at YSU;
 - 20 • Create an overlapping organizational structure that reflects the interdependent and
21 shared nature of ITS, such as:
- 22



- 1 2. **Create the position of Vice President of Information Technology (VPIT)** that has
2 administrative rank for “*Standing and Understanding*” in the University community.
3 Hire a proven technology professional with distinguished academic credentials as
4 well as professional technical and managerial experience in a university setting.
5 Preferred characteristics for the VPIT include:
6
7 • **Academic Preparation:**
8 a. Graduate degree, preferably a PhD, in a field that leads to advanced
9 knowledge of information technology (e.g., a degree in business, engineering,
10 library science, information technology, some aspect of the sciences or visual
11 arts).
12 • **Professional Experience:**
13 a. Extensive experience and demonstrated proficiency with emerging
14 information technology in the IT market, including a working knowledge of
15 computer operations, networking, and software applications that are typically
16 of importance to the successful functioning of a university.
17 b. Substantial experience in planning and managing information systems in a
18 large and complex university environment.
19 c. Proven ability to plan and act strategically and to serve as a senior advisor to
20 the President, Vice Presidents, and Deans on policies related to institution-
21 wide information systems.
22 d. Proven ability to assemble, organize, and manage large and complex budgets
23 and professional staffs.
24 e. Substantial experience with the academic division of a university, including a
25 familiarity with library operations as well as knowledge of research and
26 instructional support functions.
27 f. Substantial familiarity with management problems peculiar to universities.
28
29 • **Personal Characteristics:**
30 a. Strong communication abilities, including excellent interpersonal skill.
31 b. Understanding of the academic culture and an appreciation of the role played
32 by management professionals in universities.
33
34 3. **Establish an “Information Technology Advisory Committee” (ITAC)** with broad
35 representation of University technology stakeholders to prioritize IT related projects,
36 monitor use and allocation of resources, and review and consider policies and
37 procedures.
38
39 • This committee will include faculty (members of the Academic Senate Integrated
40 Technologies Committee) as well as students, academic administrators, and

1 representatives from Academic Affairs, Financial Affairs, Administration,
2 Development and Community Affairs, Technology, and Student Affairs.
3

- 4 4. **Establish a “Board of Visitors on Information Technology”** (BVIT) to advise the
5 University and VPIT on information technology issues.
6

- 7 • This committee will consist of fifteen members, two-thirds of whom will be
8 technology professionals from business and community groups such as local
9 school districts, the regional Chamber of Commerce, and local businesses.
10

- 11 5. **Form a “Creative Media Services”** department that is comprised of existing IT
12 graphic services and audio/visual units to effectively serve the University community.
13

- 14 • The core mission of Creative Media Services will be to concentrate on new media
15 formats that provide state-of-the-art media support services.
16
17 • Strengthen the “*Design*” function for web page development to facilitate
18 communication focus and rhetorical cohesion.
19

- 20 6. **Establish written policies and procedures for “enterprise” issues related to**
21 **technology** (privacy, use, copyright, etc.). Publish these in a prominent location on
22 the University website, making them readily available to the University community.
23

- 24 • Levels of distinction for “Enterprise” statements of authority are:
25

26 a. **Doctrine:** Policy statements of overriding institutional importance with a
27 University-wide “must do” status set by the ITAC.
28

29 b. **Regulation:** Responsibility delegated to the appropriate division level
30 established by the Academic Dean or Vice President. (Example: paper
31 reproduction associated with information technology will be provided on a
32 cost recovery basis).
33

34 c. **Practice:** Responsibility delegated to specifically engage operational
35 departments.
36
37

38 **B. *Promote compatibility among information technology systems***
39 ***and improve integration between systems and between***
40 ***applications.***

- 41
42 1. **Create hardware and software standards for personal computing and**
43 **communication devices** to improve integration between internal and external
44 constituents, and leverage existing resources (staff, training, maintenance).

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- Establish core application software standards and base software (e.g., word processing, browser, e-mail, presentation, spreadsheet, database, graphic, chart, multimedia, virus protection, etc.).
 - Establish core hardware configurations for workstations, laptops, etc. (e.g., memory, network connectivity, wireless, etc.).
 - Exempt specialized software and hardware for individual departments from these core standards and configurations, pending a formal ITAC approval and registration process.
2. **Establish technology purchasing procedures and processes** to effectively manage and monitor institutional technology expenditures and complement the recommended hardware and software standards.
- Establish an approval and registration process with appropriate forms and procedures for all IT purchases with “Enterprise” status (e.g., the approval request process should be tied to an “objection” procedure with an automatic approval policy if no objection is made after a defined and expedient period of time).
 - a. **Level 1 - Signature Purchasing Authority:** Applicable to all purchases in compliance with established hardware and software standards and procurement practices (department level authority).
 - b. **Level 2 - Central Purchasing Authority:** Review of purchase requests by Materials Management to verify compliance with established hardware and software standards and procurement practices. Purchase requests not in compliance are rejected subject to appeal to Level 3.
 - c. **Level 3 - Information Technology Advisory Committee (ITAC) Approval:** This highest level of approval is required for all acquisitions that have *enterprise* implications; when recommended by the VPIT; when requested by Materials Management; or as an appeal of lower level actions.
 - Encourage use of minority vendors for IT purchases when pricing and services are equal to or better than the cost and quality of non-minority vendors.
 - All costs for training, technical support, and upgrades for hardware and software purchased without appropriate authority will be backcharged to the purchasing department/unit.
3. **Promote infrastructure/architecture software application principles** to enhance interoperability and compatibility across systems.

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- Refrain from modification/customization of purchased application software, using a “vanilla version” of software whenever possible.
 - Use industry standard software whenever practical.
 - Select application software based on an enterprise view (as opposed to a silo /departmental view), selecting technology that is scalable, has a linear cost of expanding, demonstrates an established growth path, accommodates sharing/interfaces, and incorporates the use of well-defined exits.
 - Consider the Total Cost of Ownership (TCO) (e.g., total purchasing price, maintenance, periodic upgrades, personnel costs, training, etc.) in the evaluation and prioritization of technology-related projects. Consider non-functional requirements (e.g., performance, information, economics, control, efficiency, security) when selecting application software.
4. **Create a technology standards subcommittee of the ITAC to establish interoperability standards for all applications**, providing highly accessible system architecture, compliant with the Open System Interconnection (OSI) standard for distributed computing, allowing systems installed independently to be integrated and moved toward web-based applications.
- These standards will not dictate the product solutions required but serve as a common set of bridges between physical hardware architecture and client software services.
 - Examples of these international, non-vendor specific standards include: TCP/IP Network Protocol, SQL, XML, ODBC Data Exchange, LDAP Directory Services, HTML, JAVA Web Development, and SSL Security.
5. **Improve integration between administrative and academic application systems.**
- Utilize a common directory services approach (e.g., Lightweight Directory Access Protocol - LDAP), eliminating duplication of efforts, streamlining maintenance activities, and increasing consistency of data.
 - Integrate the course management system (e.g., WebCT, Blackboard) with the student information system through the use of a common directory service. This integration will allow for automated management of functions (e.g., population of courses with enrolled students to produce current and accurate rosters, integrating grade reporting between the course management system and student information system, etc.). (Refer to Section D-5)

- 1 • Improve integration between disparate platforms by continuing to “build bridges”
2 between disparate data on existing platform(s) in an attempt to eliminate re-
3 keying of common data (e.g., classroom utilization data) and ensure integration of
4 newly acquired platforms through adherence to interoperability standards. (Refer
5 to Section B-4)
6
7

8 **C. *Provide technology enhanced classrooms and improved academic***
9 ***support systems.***

- 10
11 1. **Implement wireless access for instructional use in each college building** at a
12 minimum rate of two college instructional buildings each year. (Refer to Section H-1)
13
14 2. **Increase the number of multimedia classrooms and provide access to multimedia**
15 **equipment** for faculty and student presentations.
16
17 • Increase the number of classrooms that have installed multimedia equipment from
18 the current estimated 15-20% to 50% over the next three years.
19
20 • Provide access to those classrooms without installed multimedia (access to a
21 computer network, ability to access and play video and audio files and project
22 computer displays) through mobile and wireless multimedia equipment units,
23 with the goal that 100% of all classrooms have access to multimedia capabilities.
24
25 3. **Coordinate computer lab accessibility and operation** throughout the institution,
26 researching the availability of computer lab resources, the proliferation of labs on-
27 campus, and the need for up-to-date technology for general and specialized labs.
28
29 • Complete data analysis from computer lab survey, identifying the adequacy of
30 computer resources within the labs (software and hardware), availability of and
31 access to labs (open vs. closed), safety, ergonomics, costs, and replacement needs.
32
33 • Develop a process to monitor and fund computer lab needs, establishing a
34 replacement cycle and program to ensure current technology is available to
35 students and faculty. (Refer to Section E-4)
36
37 • Coordinate institutional lab policies (Refer to Section A-6), providing standards
38 for specific lab policies established in each college.
39
40 • Monitor needs and use of computer resources within the labs, and acquire ITAC
41 endorsement to update or create lab environments, addressing software, hardware,
42 and support needs are identified to maintain and upgrade the computer lab with
43 current technologies.
44

- 1 • Increase the availability of disability software in computer labs throughout the
2 campus, and address Americans with Disabilities Act (ADA) compliance in the
3 labs relative to physical space, applicable technology, lighting, classroom layout,
4 design and equipment, electrical power, and networking (wired or wireless).
5 (Refer to Section F-2)
6
- 7 • Provide training, funding, and resources necessary for faculty and staff to
8 reasonably accommodate students with documented disabilities.
9
- 10 4. **Identify specialized instructional information-based equipment** currently in place,
11 level of usage, and project anticipated needs over the next three years. Non-
12 information based teaching and research technology (e.g., nuclear magnetic
13 resonance, X-ray crystallography, injection molding, robotics, musical instruments,
14 kilns, metal-working equipment, etc.) are the responsibility of the academic division
15 and are not addressed by this plan.
16
- 17 5. **Establish and maintain state-of-the-art experimental laboratories** for instructional
18 developmental purposes (e.g., robotics, artificial intelligence).
19
- 20 • Provide high-end computer and server environments to enable students and
21 faculty to create and learn in high-speed computer environments (e.g.,
22 supercomputer cluster).
23
- 24 • Explore potential partnerships with businesses and vendors to create an
25 institutional experimental laboratory with leading edge equipment and
26 technologies.
27
- 28 6. **Establish procedures for the design of classrooms** that consider safety, ergonomics,
29 accessibility, the type of technology to be used, and how it is to be used.
30
- 31 • Identify an ongoing committee to review plans for new classroom designs and
32 renovations, providing guidance on issues associated with technology and
33 identifying how technology will be utilized in teaching and learning. These
34 classroom design features will incorporate a design that facilitates using up-to-
35 date technology in the classroom.
36
- 37 • Address ADA compliance for classrooms, including issues surrounding physical
38 space, applicable technology, lighting, classroom layout, design and equipment,
39 electrical power, and networking (wired or wireless). (Refer to Section F-2)
40
- 41 7. **Establish “low-cost” desktop/laptop programs** (e.g., Laptop Computers, Portable
42 Devices, etc.) **for students, faculty, and staff.**
43

- 1 • Negotiate with vendors to leverage discount pricing for personal low-cost PC
2 programs to make available to students, faculty and staff through on-line sales
3 sites (e.g., Apple, Dell & IBM have well-developed programs).
4
- 5 • Establish purchasing and leasing agreement programs for students, faculty, and
6 staff to acquire affordable personal desktop/laptop equipment.
7
8

9 **D. *Enhance distance learning activities and instructional support.***

- 10
11 1. **Enhance the interactive distance learning (IDL) classroom environment,**
12 providing the capability to deliver multiple concurrent academic courses at a distance.
13
 - 14 • Increase the number of IDL classrooms within each college as required to
15 accommodate the increased number of academic courses taught at a distance.
16
 - 17 • Evaluate support staff, equipment, and software needs to facilitate distance
18 learning activities, and develop and monitor an institutional plan to accommodate
19 the changing needs.
20
 - 21 • Expand training for distance learning activities to accommodate the needs of
22 faculty and staff. (Refer to Section G-1)
23
- 24 2. **Implement advisement-at-a-distance** through the use of Interactive Distance
25 Learning tools to accommodate students and faculty in courses taught at a distance.
26
 - 27 • Pilot a video enhanced advisement project within an individual college (e.g.,
28 Health and Human Services).
29
- 30 3. **Adopt multimedia conferencing software,** including a workgroup messaging
31 system (**groupware**), to use with in-person traditional classes as well as hybrid
32 classes (taught in person with distance learning used to enhance the learning
33 experience) and courses taught completely at a distance.
34
 - 35 • Examine the requirements and applicability of products providing multimedia
36 audio conferencing features (e.g., NetTutor) and voice transmission functionality
37 (e.g., Wimba) for Internet based courses.
38
 - 39 • Create a technology standards subcommittee to establish standards for multimedia
40 conferencing software. (Refer to Section B-1)
41
- 42 4. **Strengthen technical staff support** to monitor hardware and software while
43 delivering courses at a distance, increasing coverage during evenings and weekends
44 to accommodate course offerings. (Refer to Section F-1)

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5. **Improve integration between academic on-line instructional applications** (e.g., WebCT course management system) **and administrative application systems**, to provide seamless access to students, faculty, and staff and improved functionality (e.g., automated download of course rosters, electronic submission of course grades, etc.).

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E. *Provide the financial structure to maintain and support technology initiatives.*

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1. **Establish formal IT accounting and budgeting procedures** to track, monitor and project technology-related resources and expenditures in accordance with the Technology Master Plan.
- Track annual institutional IT expenses through redefined expense categories for IT expenditures (e.g., hardware, software, IT driven consumables, staff support, external maintenance/service, licensure agreements, etc.).
 - Conduct cost analyses to evaluate external support (e.g., outsourcing, Application Service Providers - ASP, etc.) and provide comparative information.
 - Analyze comparative cost procurement alternatives for IT hardware (e.g., leasing).
2. **Establish an Information Technology Initiative Advantage Fund (Initiative Fund)** that will enable the institution to develop and implement multiyear technology fiscal plans and budgets for significant projects to enhance the campus-wide information technology architecture and promote stability and effective long-term management strategies.
- Budget and annually sustain the Initiative Fund at \$2 million, capping the fund at \$10 million. Start-up funding sources include modest increases to tuition and fees, augmented by capital, private, and grant funding. (Refer to Section E-4 for applicable resources)
 - Use Initiative Fund to provide additional resources for special departmental/college based IT projects, to supplement the annually allocated ITS operating budget, and to enhance institutional ITS projects. Resources from the Initiative Fund will be available in response to a Request for Proposals (RFP) issued annually by the Information Technology Services Advisory Committee (ITAC).

- 1 • The VPIT, in consultation with the ITAC, will design a fair, equitable and
2 inclusive process for the expenditure of the Initiative Fund with regular review
3 and defined auditing procedures.
4
5 3. **Establish an Information Technology Replacement Fund (Replacement Fund)**
6 **and emergency equipment reserve** with identified refresh programs, replacement
7 cycles, and recycle programs for mission-critical equipment.
8
9 • Institute a surcharge (percent of original cost) on all IT purchases to subsidize an
10 IT equipment/software replacement fund. Distribution of replacement funds shall
11 be determined by ITAC.
12
13 • Establish a procedure for replacement of equipment and software.
14
15 • Expand and publicize hardware recycle programs.
16
17 4. **Develop existing and additional IT funding sources** in support of the Initiative
18 Fund, the Replacement Fund, and ongoing IT operations.
19
20 • **Develop existing funding resources** including, but not limited to:
21
22 a. **Tuition Revenue:** Evaluate and allocate a percentage of tuition revenue to
23 support IT as determined by need and available funding.
24
25 b. **Student Technology Fee:** Analyze and evaluate the student technology fee
26 and determine allocation and distribution.
27
28 ◦ Review technology fee structures at other institutions and compare current
29 technology fees to other regional institutions. Explore instituting an
30 increase of the technology fee at the sophomore, junior, senior, and
31 graduate levels, justifying the increased fee with more extensive use of
32 technology at the upper division levels.
33
34 ◦ Implement an annual review and adjustment of the student technology fee
35 that reflects the increasing costs of maintaining and enhancing information
36 technology services.
37
38 c. **Computer Intensive Course Fees:** Establish policies and procedures for the
39 distribution and tracking of college technology fees and expenditures.
40
41 ◦ Increase course fees 15%, allocating the additional revenue to the
42 Initiative Fund.
43
44 ◦ Segregate monies spent on technology into accounts separate from
45 material course fees.

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- Maintain course fees at the department level, administering the distribution of fees at the college level, according to demonstrated needs within the college.
 - Utilize college committee(s) to advise the Deans on the distribution of the course fees within each college.
 - Routinely review and monitor the policies and procedures for the distribution of college course fees and annually review expenditures for each college.
 - Evaluate alternatives to individual computer course fees for funding college-wide technology expenses (i.e., apply universal technology fee with dedicated allocations to colleges/departments).
- d. **Capital Biennium Funding:** Allocate a percentage of each capital funding cycle to IT projects.
- **Develop additional funding resources** including, but not limited to:
 - a. **Auxiliary Services:** Implement an IT levy on all auxiliary overhead charges.
 - b. **Private Funding Sources:** Establish financial support of the Initiative Fund as a prioritized goal of the University’s capital campaign.
 - Identify attractive naming opportunities with enduring character (buildings, laboratories, technology programs) that will generate contributions for IT academic and infrastructure needs working with the Office of Development to prioritize and finalize endorsed solicitation strategies.
 - c. **Institutional Bonded Debt:** The University should evaluate the feasibility of institutional “long-term” borrowing strategy (e.g., bonds) to support implementation of the Technology Master Plan, including seed money for the Initiative Fund and the Replacement Fund.
 - d. **External Grants:** Promote the use of external grants as a source of IT funding.
 - Include funds for information technology services in external grant budgets, when appropriate.
 - Provide additional support to identify grant opportunities for technology (e.g., hire technical grant personnel).

1
2 e. **Other Additional Resources:** Explore additional IT funding opportunities.

3
4 ◦ Issue YSU multi-use cards that function as University ID Cards in
5 addition to being a debit/credit card upon activation by individuals. IT
6 receives a return on each transaction.

7
8 ◦ Develop plans for the commercialization of appropriate technology to
9 generate new revenue streams (e.g. media advertisement on the website).

10
11 **5. Expand Cost Recovery for Technology Support.**

12
13 • Expand IT cost recovery (chargeback) operations for ITS to manage demand and
14 better reflect the cost of goods and services rendered.

15
16 • Track service department operating costs to improve accountability and evaluate
17 the feasibility of a small surcharge on activities to be placed in operating reserves.

18
19 • Establish institutional printing charges and associated costs through the
20 implementation of a turnkey solution for management and cost recovery of the
21 printing in the campus computer labs.

22
23
24 **F. *Increase access to technology and facilitate compliance with***
25 ***local, state, and federal regulations.***

26
27 **1. Increase availability of, and support for, administrative and academic**
28 **information technology systems.**

29
30 • Extend hours of availability to administrative and academic IT systems (e.g.,
31 registration, payment of bills, student records, degree audit, etc.), moving toward
32 24 hours a day, 7 days a week availability and incorporate alternative usage
33 modes for administrative and academic IT systems during periods of routine
34 maintenance and/or repair.

35
36 • Increase hours of support staff (e.g., Help Desk) to address faculty, staff, and
37 student needs in relation to increased hours of availability.

38
39 **2. Equip targeted classrooms and labs with an ADA Compliant workstation,**
40 **appropriate furniture, and connectivity. (ADA compliance is an enterprise issue.)**

41
42 • Develop specifications to identify specific accommodations and necessary
43 funding.

- 1 • Provide specialized software (e.g., JAWS) on an enterprise server to
2 accommodate individuals with disabilities.
3
- 4 3. **Validate all official YSU web pages for ADA compliance** (Section 508 of the
5 Rehabilitation Act, 29 U.S.C. 794d) through use of compliance-validation software
6 (e.g., Bobby).
7
- 8 4. **Extend networked environment**, providing access to alternative networks and
9 increasing redundancy capabilities.
10
- 11 • Connect to the ACCESS fiber ring, providing access from YSU's network to
12 secondary schools in Mahoning and Columbiana Counties.
13
- 14 • Provide secondary connections to affiliated offsite locations (e.g., the SMARTS
15 program in Powers Auditorium).
16
- 17 5. **Create an informal Internet-based information sharing environment**, increasing
18 access in the vicinity of typical student gathering areas (e.g., located near food
19 vendors in Kilcawley Center).
20
- 21 • Create a Computer Café on campus, incorporating both wired and wireless
22 network access.
23
- 24 • Increase availability and use of wireless networks (e.g., Maag Library). (Refer to
25 Section H-1)
26
27

28 **G. *Expand training opportunities for faculty, staff, and students.***

- 29
- 30 1. **Expand IT training** to address the needs of faculty and staff.
31
- 32 • Determine IT training needs (additional survey of faculty and staff).
33
- 34 • Publicize and expand the inventory of existing computer software training
35 programs.
36
- 37 • Establish ongoing procedures to identify training needs and initiate new training
38 opportunities.
39
- 40 2. **Implement a program to educate faculty, staff, and students about technically
41 related federal and state regulations.**
42
- 43 • Americans with Disabilities Act (ADA);
44

- 1 • Family Educational Rights and Privacy Act (FERPA);
- 2
- 3 • Gramm-Leach-Bliley Act (GLBA);
- 4
- 5 • Health Insurance Portability and Accountability Act (HIPAA).
- 6
- 7

8 **H. *Provide support for data, voice, video, and future technologies.***

- 9
- 10 1. **Include wireless capabilities as an integral component of the network**
- 11 **infrastructure.**
- 12
- 13 • Complete Maag Library pilot wireless project and document results in a white
- 14 paper to the University community indicating where wired and wireless network
- 15 access is appropriate for a given application, the relative costs of both approaches,
- 16 and the risks and exposure of choosing one over the other.
- 17
- 18 • Implement wireless access for instructional use in each college building at a
- 19 projected rate of two college instructional buildings each year (Beeghly, Bliss,
- 20 Cushwa, DeBartolo, Meshel, Moser, Ward Beecher, Williamson).
- 21
- 22 2. **Enhance digital telephone services.** Implement voice over Internet Protocol (VoIP)
- 23 technology when cost justified to improve client interactions and overall efficiency of
- 24 operations. Investigate the adoption of “soft phones” for desktop use.
- 25
- 26 3. **Participate in a sponsored membership to Internet II** and evaluate the
- 27 demand/need to become a full Internet II member institution.
- 28
- 29 • Establish connectivity as a Sponsored Educational Group Participant (SEGP) of
- 30 Internet II.
- 31
- 32 • Survey faculty to determine interest and research needs that would justify full
- 33 membership in Internet II.
- 34
- 35 • Identify benefits to be derived from full membership and explore the feasibility of
- 36 writing a grant to help fund full membership status.
- 37
- 38

39 **I. *Maintain a current, reliable, and secure computing and***

40 ***networking environment.***

- 41
- 42 1. **Develop and implement a comprehensive electronic security plan,** strengthening
- 43 and securing the networking environment.
- 44

- 1 • **Document a comprehensive security plan**, incorporating a centrally controlled
2 and managed security solution.
3
- 4 • **Adopt End-to-End Industry Standard-based Security Measures** with
5 supporting education. A layered design is required with many levels of security
6 that are transparent to the end users.
7
- 8 • **Require all Internet users to install and update anti-virus software on a**
9 **regular basis** with periodic updates pushed to the desktop from a central server.
10
- 11 • **Incorporate essential administrative, technical, and physical safeguards to**
12 **protect all nonpublic information and data** including financial data identified
13 in the Gramm-Leach-Bliley Act (GLBA), and related issues contained with the
14 Family Educational Rights and Privacy Act (FERPA), Health Insurance
15 Portability and Accountability Act (HIPAA), and Advertising/E-Commerce as
16 related to website security.
17
- 18 2. **Implement an institutional network identification login, using a directory service**
19 **approach** (e.g., Lightweight Directory Access Protocol - LDAP).
20
- 21 • Assign identification logins to all University students, faculty, staff, and clients
22 which will provide access to a variety of facilities and services managed by ITS.
23
- 24 3. **Institute backup, restore, and off-site storage strategy in support of networked**
25 **servers and desktop PCs.**
26
- 27 • Backup all network, switch/router configurations and servers and incorporate a
28 backup/auto recovery facility for all identified devices and applications.
29
- 30 • Explore an automated network backup of individual servers and desktop PCs.
31 Currently, individual servers and PCs are the responsibility of the system
32 administrator and end user respectively.
33
- 34 • Establish and publicize procedures for manual backup of local systems and PCs.
35
- 36 • Create storage and backup plans for public access servers used for specific
37 applications, their files, and related software.
38
- 39 4. **Implement a Disaster Recovery Plan** for infrastructure/architecture, utilities and
40 facilities.
41
- 42 • Complete a recovery plan that will return service to normal operations within a
43 specific period of time after experiencing a major disaster.
44

- 1 • Identify applications that are critical to the operation of the institution and
2 determine how to restore associated hardware, software, and data.
- 3
- 4 • Establish an instant command structure (ICS) and identify individuals and teams
5 to direct operations for the entire campus in the event of a disaster.
- 6
- 7 • Test the overall plan and initiate annual disaster recovery drills.
- 8
- 9

10 **J. *Improve services to support the administrative functions and***
11 ***business operations of the University.***

- 12
- 13 1. **Establish an inventory management system and develop license and warranty**
14 **tracking for IT hardware and software purchases.**
 - 15
 - 16 • Invest in integrated software that will provide a University-wide
17 equipment/software replacement identification system.
 - 18
 - 19 • Develop a centralized registration process to record and track license, warranty,
20 and upgrade information for enterprise and local hardware and software.
 - 21
- 22 2. **Replace administrative computing systems with an integrated Enterprise**
23 **Resource Planning (ERP) software solution**, including associated software and
24 hardware.
 - 25
 - 26 • Initiate a modular implementation based on the following schedule:
 - 27 a. Financial
 - 28 b. Human Resources
 - 29 c. Student Information
 - 30 d. Alumni/Development
 - 31 • Financial Aid has been identified as the most critical need within the Student
32 Information area.
 - 33
- 34 3. **Complete the degree audit system (DARS) implementation** and establish a plan to
35 integrate with a modular ERP software solution.
36
- 37 4. **Acquire an integrated, multi-iteration software tool** to model scenarios for the
38 effective and efficient use of classroom and laboratory space.
 - 39
 - 40 • Effectively integrate the multiple dissimilar data sources to synchronize the data
41 into a single cohesive source.
 - 42
 - 43 • Improve or replace the existing classroom and lab scheduling process.

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- Deliver space and reservation information to the web.
5. **Provide an enterprise-level information system to address reporting, data, and information needs** (e.g., access to data, availability, manipulation, etc.).
- Implement data management procedures to assure data accuracy, quality, integrity, interoperability, and accessibility.
 - Select a web-based reporting solution that reduces the need for programming.
 - Provide capabilities to create new reports, conveniently run existing reports, and preserve the ability to access static historical data.
6. **Acquire and implement an enterprise-wide collaboration and communication tool**, including an integrated calendaring and e-mail solution to service the administrative needs of the University.
7. **Invest in a high-volume document storage and indexed retrieval system** and implement an integrated report and document management solution.
- The solution should provide a web interface for the viewing, distributing, printing, archiving and retention of reports and documents as well as providing indexing and work flow.
8. **Provide a high-volume digital media storage and indexed retrieval system.**
- Develop a means of digitizing, indexing and storing multi-media assets (e.g., audio, video, image) to accommodate institutional needs (e.g., Maag Library, Media Services, Marketing, etc.).
9. **Evaluate and Pilot a “smart card” program** (plastic identification cards with imbedded chips as opposed to magnetic strip, bar codes, or nothing) in a phased approach to provide access to systems (e.g., computer systems, buildings, parking lots, debit/credit services, library checkouts, lab use, etc.).
- Evaluate the implications of a “smart card” program to the University community.
 - Develop a partnership with a financial institution to implement a revenue-generating debit/credit card program to offset associated costs. (Refer to Section E-2)
10. **Create a clearinghouse to share technology-related information** (e.g., share information about the latest security releases, patches, and known problems as

1 reported by the vendor, register software license information and related data on a
2 central database, etc).

3
4
5 **K. *Develop and implement policies and procedures to address legal***
6 ***and operational issues concerning the University website.***

- 7
8 1. **Establish Website Design Guidelines and Standards** (e.g., design, style, content,
9 etc.).
10
11 2. **Develop associated web policies and procedures** (e.g., advertisement, e-commerce,
12 appropriate content, copyright and unauthorized use/distribution of software media,
13 etc.).
14
15 3. **Develop a process to monitor content and copyright on University-owned**
16 **websites** and document-related procedures.
17
18 4. **Provide an enterprise-level portal system**, with a customizable entry point for
19 faculty, staff, and students to the website, combining a mixture of content and
20 services, including personalized start pages, e-mail, chat rooms and message boards,
21 etc.
22
23 5. **Invest in a web content management software system** to provide departments the
24 ability to update and change content quickly, without the need for technical training.
25
26
27
28

- End of Plan -

Appendix A

Technology Plan Review

Arizona State University

Boise State University

Central Connecticut State University

Indiana University

Minnesota State University, Mankato

Mississippi State University

Northern Arizona University

Northern Kentucky University

Salem State College

St. Cloud State University

Suny Brockport Campus

University of Arizona

University of Southern Indiana

University of Tennessee at Chattanooga

University of Wisconsin Oshkosh

Western Kentucky University

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APPENDIX B
COMMENT FORM

