



Information technology is now well understood as a strategic resource in higher education, a driving force in enabling change, information technology continues to transform teaching, learning, scholarship, research, business and administrative practices, and our relationships with students, alumni, and many other constituents¹.

Information Technology Services Strategic Plan

Fall 2009

Sponsored by Information Technology Services Department

EXECUTIVE SUMMARY

“Information technology today is fundamental to the teaching, learning, and research missions of higher education. Information technology is transforming the way universities do business and is fueling major changes in research, creative activity, and scholarly communication. Information technology offers the potential for major innovation in the entire teaching and learning process.”²

TODAY’S HIGHER EDUCATION STUDENT



In his book, "Grown Up Digital: How the Net Generation is Changing Your World," Don Tapscott states that “information technology is tightly woven throughout the lives of today's college students. They probably do not think of it as technology though. Computers, the Internet, online resources, and instantaneous access are simply the way things are done today. The Net Generation has never known life without the Internet.”

In his book, Tapscott identifies the following eight norms that define Net Geners, today’s college students:³

- ◆ They value freedom and choice in everything they do.
- ◆ They love to customize and personalize.
- ◆ They scrutinize everything.
- ◆ They demand integrity and openness, including when deciding what to buy and where to work.
- ◆ They want entertainment and play in their work and education, as well as their social life.
- ◆ They love to collaborate.
- ◆ They expect everything to happen fast.
- ◆ They expect constant innovation.

These characteristics paint a clear picture of today's ETSU students. These tech-savvy Net Geners have many gadgets (many portable), like to multi-task, and expect to control what, when, and how they learn.⁴

As a result, today’s higher education students are impacting the way institutions teach, research, communicate, collaborate, and manage data and information.



INFORMATION TECHNOLOGY SERVICES AT ETSU

This description of today's higher education student serves as the backdrop for the East Tennessee State University Information Technology Services Strategic Plan.

With technology integrated in all that ETSU does for its students, faculty and staff, the scope of this plan incorporates providers of information technology services across the institution. This plan includes input from all of the major constituent groups and recognizes that teamwork is integral in meeting information technology services needs of ETSU.

Information Technology Services (ITS) sponsored the development of this plan with the purpose of providing strategic direction and guidance for decision making on information technology services at ETSU.

INFORMATION TECHNOLOGY SERVICES VISION/MISSION

Information technology services at ETSU enable students, faculty, and staff to succeed in instruction, learning, research, community service, and administrative efficiency without the constraints of time, space, or other barriers.

ITS MISSION:

The mission of the Information Technology Services is to provide leadership and vision for distance learning technologies; provide faculty and staff training and support in the use of technology to enhance teaching and learning; provide digital media services to create electronic content for the enhancement of online, web- based, and instructional television delivery; and continually search for new and creative uses for technology in the academic environment.

To provide the leadership, guidance, and technical skills required to establish and support information technology architecture and accompanying services that support ETSU's vision, mission, and goals.



INFORMATION
TECHNOLOGY SERVICES

EAST TENNESSEE STATE UNIVERSITY

ENVIRONMENTAL ANALYSIS OVERVIEW

This report outlines the key environmental factors that affect information technology services at ETSU. These factors include the following topics.

- ◆ End User Expectations
 - ◆ Funding IT
 - ◆ Governance, Organization, and Leadership
 - ◆ Staffing/HR Management/Training
 - ◆ Cloud Computing
 - ◆ Infrastructure
 - ◆ Server Virtualization
 - ◆ Disaster Recovery/Business Continuity
 - ◆ Mobiles
 - ◆ Green IT
 - ◆ Identity/Access Management
 - ◆ Unified Communications or Converged Services
 - ◆ Social Software and Social Networking
 - ◆ Students' vs. Faculty's Perception and Use of Technology
 - ◆ Use of Technology in the Classroom
 - ◆ Distributed Teaching and Learning ◆
- Organizational Change
- ◆ Data/Enterprise Mashups
 - ◆ Security

INFORMATION TECHNOLOGY SERVICES STRATEGIC PLAN

The *ETSU Information Technology Services Strategic Plan* is built around the following four guiding principles:

1. Information technology is a vital service and a strategic and competitive resource for ETSU.
2. Information technology is an essential resource for learning, teaching, research, and community partnerships and in providing anytime/anywhere access to learning.
3. Information technology is a critical service for University and community communications and collaboration.
4. Information technology is essential for data and information management, institutional decision-making, and quality service delivery to ETSU constituents.

GUIDING PRINCIPLES & STRATEGIC GOALS OVERVIEW

Following is an overview of the guiding principles and their supporting strategic goals.

Guiding Principle #1:

Information technology is a vital service and a strategic and competitive resource for ETSU.

- GOAL 1.1: Information technology is effectively planned, managed, and governed to reflect the complexity of the environment and to ensure its effectiveness in meeting the needs of ETSU constituents.
- GOAL 1.2: information technology services is appropriately funded and staffed to meet the needs of the institution and its constituents.
- GOAL 1.3: Appropriate access to systems and technologies is available for all University constituent groups.
- GOAL 1.4: ETSU constituents have up-to-date desktop computing capabilities on campus.
- GOAL 1.5: Information technology is supported through seamless, integrated service and support across colleges, departments, and other units.
- GOAL 1.6: Information technology services environment supports and proactively explores new technologies and trends.

Guiding Principle #2:

Information technology is an essential resource for learning, teaching, research, and community partnerships and in providing anytime/anywhere access to learning.

- GOAL 2.1: ETSU attracts and retains technology savvy faculty and staff.
- GOAL 2.2: Faculty are using technology to effectively implement their courses for students regardless of location and are using a course management system to enhance face-to-face education.
- GOAL 2.3: ETSU provides students with access to up-to-date computing technology – hardware and software.
- GOAL 2.4: Information technology services improve the learning environment on and off campus.
- GOAL 2.5: Discipline-specific and research-related information technology needs are supported.
- GOAL 2.6: Facilitate technological partnerships with the educational community, businesses, and other organizations.
- GOAL 2.7: Technology increases access to potential and existing student populations.

GUIDING PRINCIPLE #3:***Information technology is a critical service for university and community communications and collaboration.***

- GOAL 3.1: Information technology supports communications that are effective in meeting the needs and desires of the various ETSU constituent groups.
- GOAL 3.2: The ETSU web presence portrays the University as a student-centered community of learning, reflects high standards, and promotes a balance of liberal arts and professional preparation, continuous improvement, and core values.
- GOAL 3.3: ETSU provides up-to-date collaboration tools to support students, faculty, and staff.
- GOAL 3.4: Appropriate telephone and mobile communication support and service is provided on the ETSU campus.

GUIDING PRINCIPLE #4:***Information technology is essential for data and information management, institutional decision-making, and quality service delivery to ETSU constituents.***

- GOAL 4.1: Effective and efficient ERP support and maintenance is provided to the campus.
- GOAL 4.2: An effective and efficient data network exists and is secure and reliable.
- GOAL 4.3: An effective and efficient server environment and server support exists for the University.

TABLE OF CONTENTS

Introduction.....7

 IT Strategic Plan Purpose.....7

 Background7

 Overall Framework & Planning components7

 Planning Component8

 Description8

 Tactical Plan & Priorities.....8

Four-Phased Approach to Strategic Planning9

 Step 1: Environmental Scan9

 Step 2: Plan Development/Alignment10

 step 3: Tactical Plan Development and Implementation.....10

 Step 4: Monitoring, Measuring, & Adjusting.....10

Environmental Scan Summary.....10

 Students and Information Technology.....11

Vision & Mission14

 ETSU Vision/Mission.....14

 Information Technology Vision/Mission for ETSU14

Environmental Analysis.....16

Strategic Goals & Objectives26

 Guiding Principle #1:.....26

 Guiding Principle #2:.....28

 Guiding Principle #3:.....30

 Guiding Principle #4:.....31

Appendix A: Planning Process & Participants33

Appendix B: Resources for the External Environmental Scan.....34

Appendix C: Online Survey Results Highlights35

Appendix D: References44

INTRODUCTION

IT STRATEGIC PLAN PURPOSE

FOUNDATION FOR OBJECTIVES, PRIORITIZATION, AND MEASURABLE TACTICS

The *ETSU Information Technology Services Strategic Plan* provides strategic direction and guidance for effectively and efficiently managing the portfolio of information technology and eLearning services, projects, and programs at ETSU.

This plan is designed to lay the foundation for the subsequent development of more detailed objectives, time-driven tactical plans, and measures to ensure ongoing effectiveness. In addition, prioritization will occur during the development of the objectives and will be determined using multiple criteria including urgency of need, criticality to the university's mission, breadth of impact, resource requirements, sequencing, and dependencies.



BACKGROUND

In 2005, ETSU developed its most recent Information Technology Strategic Plan that spanned the years 2005 through 2008. In the spring of 2008, ETSU began reviewing that plan and embarked on a comprehensive environmental assessment to help expand the plan and include a robust annual planning process to ensure tactical alignment with the goals and a continual refresh of the strategies.

OVERALL FRAMEWORK & PLANNING COMPONENTS

The Strategic Plan is part of an overall framework for the use of information technology at ETSU. The Information technology guiding principles serve as the foundation for the strategic goals, tactical goals, and ultimately the mission and vision of information technology at ETSU.



PLANNING COMPONENT	DESCRIPTION
Vision	Represents the desired state for information technology at ETSU that is critical to support the University's vision and mission.
Guiding Principle	Is a key value statement that serves as a foundation for the overall planning and implementation of information technology at ETSU.
Strategic Goal	Outlines a major strategic initiative to support the guiding principle that was identified during the environmental analysis. A strategic goal includes what we want to accomplish in a 3 – 5 year time frame.
Objective	Identifies the means to achieve a strategic goal. Objectives associated with a goal are achievable typically in one to two years.
Tactic	Is a specific and measurable activity designed to achieve the strategic goals and objectives. Tactics identify who will do what, when, and how, and they will include the specific tools, activities, steps, or projects. Tactics are achieved generally within 12 months, and tactics may address multiple goals and objectives.
Scope	Defines the boundaries for the information technology strategic plan and clarifies what will be included in the plan.

TACTICAL PLAN & PRIORITIES

The implementation of *Information Technology Services Strategic Plan* will involve two primary steps: 1) prioritizing the strategic goals and objectives, and 2) developing tactics and assigning tasks to specific individuals to ensure attainment of the goals.

The Information Technology Governance Committee (ITGC) will continue to provide the oversight and governance of the strategic as well as the tactical plans for ETSU. The tactical plan will be outlined by December 30, 2009.

FOUR-PHASED APPROACH TO STRATEGIC PLANNING

In today's ever-changing technology environment, a static planning approach no longer fits. The purpose of the 2008-2009 ETSU information technology services strategic planning effort has been to implement a continuous assessment and planning effort that explores the information technology environment and enables ETSU to proactively and effectively respond and further the University Vision and Mission.

The four-phased strategic and tactical planning approach includes the following steps:



STEP 1: ENVIRONMENTAL SCAN

As a foundation for planning, we conducted a comprehensive environmental scan -- both of the internal information technology environment at ETSU and the external broader higher education technology environment.

INTERNAL ENVIRONMENTAL ANALYSIS

The internal environmental analysis included individual interviews with key leadership throughout the University. Focus group sessions included the Student Government Association, ITGC Committee and sub-committees, key technology representatives from university departments, and faculty. See Appendix A for a complete list of these activities and participants.

In addition, 1140 ETSU constituents responded to an online survey. See Appendix C for a complete overview of the results from this survey.

EXTERNAL ENVIRONMENTAL ANALYSIS

An external environmental analysis included research from higher education industry resources such as EDUCAUSE and Gartner Research. It also included a review of ETSU benchmark schools and their technology planning and communications. See Appendix B for a list of comprehensive resources describing the external information technology environment.

ONGOING ENVIRONMENTAL ANALYSIS PROCESS

This year during the information technology services strategic planning process, we completed a comprehensive environmental scan, because the last analysis had been completed more than five years ago. Every other year we will implement a less comprehensive scan to ensure that we are still on the right track and are aware of significant changes in the environment. Then we plan to implement another comprehensive scan in 2015.

STEP 2: PLAN DEVELOPMENT/ALIGNMENT

The second step of the information technology strategic planning process includes the development of the actual plan and strategic recommendations. These recommendations are then aligned with the University vision, mission, and initiatives and the annual budget and planning cycles. Drafts of the plan are reviewed by the ITGC Steering Committee and the ITGC subcommittee members for input and approval.

Once approved by the ITGC and aligned at the University level, we encourage alignment of the goals of the individual departments with information technology responsibilities with the plan. The ITGC will play an important role in this ongoing planning and governance process.

STEP 3: TACTICAL PLAN DEVELOPMENT AND IMPLEMENTATION

Tactical plans will be developed upon approval of the final version of the Information Technology Strategic Plan. The ITGC will support the development of guidelines and criteria for prioritization as needed.

STEP 4: MONITORING, MEASURING, & ADJUSTING

Once the implementation of the tactical plans begins, the technology-related departments will monitor, measure success, and adjust plans as necessary. The University-wide information technology goals will be monitored by the ITGC.



ENVIRONMENTAL SCAN SUMMARY

Higher education institutions are facing dramatic changes being fueled by the rapid advancements in information technology. These changes in information technology



impact both the academic and administrative portions of the institution. In fact, the very nature of the teaching and learning process is under scrutiny.

Higher-education learner profiles, including online, information-age, and adult learners, are changing.

Technology-enabled redesign of administrative processes (ex. ERP systems) is quickly becoming a major influence in changing the higher education environment for stakeholders who are requesting greater integration of data.

Administrators – desire faster and greater information regarding enrollment, performance, and budgets in order to analyze efficiencies and effectiveness, as well as to respond to policy entities, such as boards and elected officials.

Faculty – wish for enhancements to learning, greater access to student data, support for discipline specific trends, greater research and collaboration capabilities, and collegial interfaces regarding best practices.

Students – want greater access to administrative and support services, expansion of traditional service approaches, and more use of technology by their faculty.

Policymakers – want greater, faster, and more reliable information for use in developing funding levels and realistic and feasible policies.

At the same time, the academic function is facing competition from *virtual* universities and from traditional *brick and mortar* universities using information technology to reach out to students across the country and internationally through the use of the Internet.

STUDENTS AND INFORMATION TECHNOLOGY



According to the EDUCAUSE Center for Applied Research (ECAR), "For today's traditional-age undergraduates, information technology services (ITS) plays an integral role in their everyday lives. They actively use technology for school, work, and recreation. As new technologies become available, they readily adopt them as soon as they perceive that the benefits and costs are aligned."

"Most of the 2008 survey respondents belong to the Net Generation, and the ECAR data confirm the IT use characteristics often assigned to this generation. Findings indicate the following about the Net Generation:

- ◆ They value information technology's role in providing convenience and expect IT services to be available when they need them.
- ◆ They actively use multiples modes of IT to communicate, socialize, and stay connected with others.
- ◆ They perceive themselves as net savvy.
- ◆ They choose mobile technologies and use of visual media.
- ◆ They take advantage of Web 2.0 technologies to express themselves on the Internet in varied and creative ways.

At the same time, Net Generation students, along with older students, report that they are not looking for extensive use of IT when it comes to their academic courses. They do not take lots of entirely online courses, and most indicate that even when course lecture materials are posted online, they still attend classes. Instead there is a widespread attitude that IT resources are best situated in learning environments where

technology is balanced with other learning activities, especially face-to-face interactions with faculty and students in the classroom."⁵

Following are some key findings from the ECAR 2008 study:

OWNERSHIP OF TECHNOLOGY:

- ◆ More than 80% of student respondents own laptops, 53.8% own desktops, and 33% own both.
- ◆ Laptop ownership has increased from 65.9% in 2006 to 82.2% in 2008.
- ◆ 66.1% of respondents own Internet-capable cell phones. Most respondents, however, do not yet take advantage of the Internet capability due to the high cost, slow response, and difficulty of use. Almost 25% do access the Internet weekly or more often.

USE OF TECHNOLOGY:

- ◆ Students report spending an average of 19.6 hours per week actively doing online activities for work, school, or recreation. 7.4% spend more than 40 hours.
- ◆ 93.4% use the college or university library website.
- ◆ 91.9% use presentation software.
- ◆ 85.9% use spreadsheets.
- ◆ 85.2% use social networking sites.
- ◆ 83.6% use text messaging.
- ◆ 82.3% use course management systems.
- ◆ Younger students report much greater use of social networking, text messaging and instant messaging than older students.
- ◆ 38.2% contribute content to wikis.
- ◆ 34.1% contribute to blogs.
- ◆ 29.1% use Podcasts.
- ◆ 25% use Webcasts.



IT IN COURSES:

- ◆ 59.3% of students prefer technology in their courses.
- ◆ Students still value face-to-face interaction with instructors.
- ◆ 82% of students indicated they had taken a course using a CMS sometime in their college career -- up from 72%.
- ◆ 57.8% say their CMS experience is positive. An additional 11.7% say their experience is very positive. Only 5.3% report an overall negative experience with CMSs.
- ◆ Just under 50% of respondents agree or strongly agree with the statement: "My institution's IT services are always available when I need them for my coursework."
- ◆ 62% indicate they do not skip classes when materials are available online -- citing importance of interaction with the instructor in learning the course materials.
- ◆ 44.4% of students report that "most" or "almost all" of instructors use IT effectively in courses.
- ◆ Learning: "The use of IT in my courses improves my learning." 45.7% agree.
- ◆ Student Engagement: "I get more actively involved in courses that use IT." 31.8% agree.
- ◆ Convenience: "IT makes doing my course activities more convenient." 65.6% agree.

SOCIAL NETWORKING SITES:

- ◆ 85% of respondents report using SNSs -- an increase from 74.8% to 88.8% for the 44 institutions that participated all three years.
- ◆ 32.8% used SNSs daily in 2006 -- in 2008 58.8%.
- ◆ Respondents report using one SNS -- 52.9%.
- ◆ Respondents report using two SNS -- 38.4%.
- ◆ 28.4% reported having more than 300 SNS friends.
- ◆ Facebook used by 89.3%.
- ◆ MySpace used by 48.3%.
- ◆ Others used -- less than 10%.

**ETSU STATISTICS:**

At ETSU, the findings from the online survey parallel these ECAR 2008 study results. Following are some highlights from the ETSU online survey: (See Appendix C for more survey results.)

- ◆ 99% of students at ETSU indicate that they use a laptop or desktop computer.
- ◆ 77% of students indicate that they use a cell phone with text as a communication device.
- ◆ 81% of students prefer email as the primary means of communicating with them. 46% indicated they would prefer ETSU to use more than one vehicle.
- ◆ 36% of undergraduate students and 48% of graduate students use Facebook.
- ◆ 28% of both undergraduate and graduate students use mySpace.
- ◆ Only 25% of students indicated that all of their courses made use of the course management system (D2L). 4% indicated no courses used D2L, 15% indicated only one course, and 23% indicated only 2 courses.
- ◆ 55% of students have taken a completely online course at ETSU.
- ◆ Of the students who had taken a completely online course at ETSU, the reasons they gave follow:
 - 37% indicated that an on-campus section would not fit their schedule.
 - 21% indicated work/family commitments.
 - 10% indicated they lived too far to attend an on-campus course.
 - 7% indicated convenience.

VISION & MISSION

Information technology affects everyone at ETSU. Nearly all University faculty, students, and staff rely on email as a critical element in their ability to communicate. Most use the basic productivity tools such as word-processing, spreadsheets, and presentation applications on a daily basis. Access to the Internet has become essential for nearly every type of activity that occurs at the University.

Over the past three or four decades, information technology has advanced from being important for some to essential for all. Information technology is analogous with electrical service. If the University loses electrical power, it is impossible to continue operation. Similarly, since so much of what occurs in the University today is information technology-related, reliable and good quality information technology service is critical.

Following are the Vision, Mission, and Guiding Principles of the Information Technology Strategic Plan. These plan components support the achievement of reaching the overall ETSU Vision.

ETSU VISION/MISSION

East Tennessee State University pursues its mission through a student-centered community of learning reflecting high standards and promoting a balance of liberal arts and professional preparation, continuous improvement, and based on core values.

ETSU strives to create a community of learning that actively advances the fundamental values of higher education - the free interchange of ideas, curiosity and the desire for learning, critical thinking and self-reflection, ethical behavior, academic freedom, and appreciation of human diversity.

INFORMATION TECHNOLOGY VISION/MISSION FOR ETSU

Information technology services at ETSU enable students, faculty, and staff to succeed in instruction, learning, research, community service, and administrative efficiency without the constraints of time, space, or other barriers.

ITS Mission



The mission is to provide leadership and vision for distance learning technologies; provide faculty and staff training and support in the use of technology to enhance teaching and learning; provide digital media services to create electronic content for the enhancement of online, web- based, and instructional television delivery; and continually search for new and creative uses for technology in the academic environment.

To provide the leadership, guidance, and technical skills required to establish and support information technology architecture and accompanying services that support ETSU's vision, mission, and goals.

ENVIRONMENTAL ANALYSIS

In developing *Information Technology Services Strategic Plan* for ETSU, we have identified four guiding principles that form the foundation of the plan. The four principles follow:

1. Information technology is a vital service and strategic resource for ETSU.
2. Information technology is an essential resource for learning, teaching, research, and community partnerships and in providing anytime/anywhere access to learning.
3. Information technology is a critical service for university and community communications and collaboration.
4. Information technology is essential for data and information management, institutional decision-making, and quality service delivery to ETSU constituents.

The following section summarizes both the internal and the external environmental analysis organized by the guiding principles.

GUIDING PRINCIPLE #1:

Information technology is a vital service and a strategic and competitive resource for ETSU.

END USER EXPECTATIONS

Both the internal and external analysis indicates that user expectations are constantly increasing. Users – including students, faculty, and staff – demand that academic and administrative services and systems be available anytime and anywhere. Expectations are increasing for technology support on a 24/7 basis, and users want technology support for both their ETSU technology tools and their personal technology tools.

As the criticality of academic and administrative applications increase, end user tolerance for system down time or lack of system availability outside of regular business hours or location is declining rapidly.



FUNDING IT

IT leaders continue to face growing expectations for the application of new and existing IT services. These services often exceed budget capacity, maintenance costs are escalating and take up larger percentages of IT budgets, and funding pressures are increasing at all levels.

As budgets continue to tighten, new funding options are being considered rather than just concentrating on cost cutting.



At ETSU, the Technology Access Fee (TAF) is money students pay each semester to be allocated specifically to initiatives that make technology accessible to all students. ITS, in conjunction with the Technology Access Fee Committee, plans, constructs and maintains open and departmental computer labs at the main campus and also at the remote campuses. In addition, this TAF money supports 175 multimedia classrooms (smart classrooms).

ITS is actively engaged in working with technology vendors to build relationships that increase the effectiveness and efficiencies of technology at ETSU. These relationships help ensure ETSU purchases the right technology and get the best service for the dollars spent. Examples include the high-performance computing cluster for research and the desktop virtualization project.

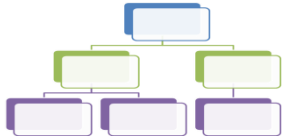
In addition, other funding options are being used and explored. For example, an online course fee helps to fund faculty stipends, bridge technologies with ITV, support for faculty in developing online courses, software and hardware critical to the development and delivery of online courses. The TBR Regents Online Degree Program (RODP) courses and programs also provide funds to support eLearning technologies.

Currently, ITS is exploring opportunities for providing revenue through partnerships and relationships with continuing medical education using bridge technologies and multi-media applications.

GOVERNANCE, ORGANIZATION, AND LEADERSHIP

IT has gone from being nonexistent to being ever-visible and requiring more and more resources in terms of staffing, budget, and time. Information technology touches every aspect of the higher education institution. As a result, IT constituents are concerned about how technology-related decisions are being made.

IT governance structures help ensure opportunities for involvement from all members of an institution. In addition, the information technology services leader(s) at institutions should be involved in the overall running of the institution to ensure a broader perspective when determining information technology strategies.



At ETSU, the existing Information Technology Governance Committee (ITGC) structure that was implemented in 1998 has provided ongoing input and feedback mechanisms as well as guidance for decision making. The purpose of this governance structure is (1) to assist the President in executive level strategic management decisions involving information technologies, (2) to set directions and priorities for information technology in a timely manner, and (3) to develop policies and procedures that will be implemented by the Office of Information Technology and eLearning.

STAFFING/HR MANAGEMENT/TRAINING

According to members of the EDUCAUSE Current Issues Committee and the 2008 Current Issues report, the issue of staffing, human resource management, and training is “IT's Achilles' heel.”⁶



Every IT issue has associated staffing challenges, whether recruiting and retaining talented and qualified staff, providing much-needed professional-development opportunities, or managing staff morale and work environments.

At ETSU, these issues are compounded by its location. Finding talent with up-to-date skills who are willing to come to Johnson City presents problems for hiring as do the low compensation levels within higher education in general.

In addition, IT professionals need continuous training and professional development to keep up with the ever-changing technology. This need also requires dollars that are in short supply and reserved for mission-critical systems.

CLOUD COMPUTING

According to a recent Gartner, Inc. report, cloud computing is a style of computing that characterizes a model in which providers deliver a variety of IT-enabled capabilities to consumers. The key characteristics of cloud computing are 1) delivery of capabilities as a service, 2) delivery of services in a highly scalable and elastic fashion, 3) using Internet technologies and techniques to develop and deliver the services, and 4) designing for delivery to external customers.

According to the 2009 Horizon Report, “the emergence of large-scale “data farms” – large clusters of networked servers – is bringing huge quantities of processing power and storage capacity within easy reach. Inexpensive, simple solutions to offsite storage, multi-user application scaling, hosting, and multi-processor computing are opening the door to wholly different ways of thinking about software, computers, and files.”⁷



Examples at ETSU include the TBR course management system – Desire 2 Learn (D2L) – which is hosted from Canada. Faculty and student use of D2L is redirected to the “cloud.” ETSU also uses Google to host the student email system which is totally free to the University. These two examples are mission critical resources that ETSU does not own.

In addition, due to an ever-increasing demand for the classroom bridge technology, ETSU has purchased the Wimba Classroom™ technology that will enable ETSU to deliver a class from anywhere on campus to any computer anywhere.

INFRASTRUCTURE

According to the EDUCAUSE article, “Top 10 IT Trends in Higher Education,” the challenge of maintaining and enhancing campus infrastructures has become more acute due to a number of factors: more demanding technology users and higher expectations for always-on service; new pressures on sustainability and the environment; and budgets that are never quite sufficient to cover priority investments.⁸

Infrastructure is the *silent partner* in teaching and learning, scholarship and research, student services, administrative applications, and outreach and engagement. Infrastructure includes networking, voice services, storage, back-up facilities, security, disaster recovery, and more.



Newer and emerging aspects of infrastructure are changing how colleges and universities must manage in the future. The necessary focus on *green computing* – in particular, energy conservation – will have a significant impact on future infrastructure decisions. Shared data facilities, virtual machine technologies, consolidation strategies, and power management are a few of the growing expectations for infrastructure plans and investments.

At ETSU, ITS provides networking access to all students, faculty, and staff. Every building is connected to the campus backbone and every classroom and every office has network availability. The student residence halls are also on the campus network and each room has network connectivity. Wireless networking is available in many classroom buildings and a large wireless mesh network has been constructed to give outdoor wireless coverage on the main campus and on the College of Medicine campus.

At ETSU, ITS currently maintains approximately 140 servers for use by the University. These servers are centrally administered, secured, and regularly backed up for the protection of university resources. All servers are housed in specialized facilities with a raised floor environment, HVAC and power protection. Servers include the following: web server, ERP server, file and application servers, departmental servers, email servers, and research computing servers.

ETSU just purchased a high-performance streaming and a storage area network to meet the demand for digital media and electronic course materials

SERVER VIRTUALIZATION

IT systems have become increasingly larger and more complex, thus making it more difficult to build an optimal IT infrastructure in today's rapidly changing environment. Server virtualization represents a base technology for addressing this problem. It enables the flexible construction of virtual servers with almost no hardware limitations, and consequently reduces the Total Cost of Ownership (TCO) and makes it easier to use virtual servers in the changing technology and educational environment and is extremely helpful in maintaining business continuity.



The increase of high-speed Internet connections at home and at work have increased recent interest in thin clients. Thin clients – a client computer or client software in client-server architecture networks which depends primarily on the central server for processing activities – can now replicate an entire operating system using virtualization software that was once not possible. Thin clients with virtualization software and terminal services have been recognized as a cost efficient way to deliver operating systems while also lowering energy costs and consumption.

In 2007, with expanding data and application needs, ETSU implemented a virtual infrastructure based on Dell PowerEdge™ servers and VMware® Infrastructure 3 software. The virtualization infrastructure gave ETSU a consolidated environment to do more with fewer resources. ITS staff can quickly add servers without interrupting user experience, and server capacity has been increased without the cost, energy, and management drain of physical machines. About half of the ETSU servers are virtualized.

DISASTER RECOVERY/BUSINESS CONTINUITY

A 2007 ECAR Study indicated about half of the responding institutions had suffered disruptive events that triggered an emergency response in the previous five years.⁹



According to the “Top 10 IT Issues” May/June 2008 Article in EDUCAUSE Review, the authors stated that “in a world where nearly 50 percent of the business functions in education are considered mission-critical and where expectations of always-on service are the norm, the classic reactive mode of disaster recovery – involving hours or days of downtime while back-ups are retrieved and data recovered – may not be enough.”

Institutions are shifting their focus to proactive planning for organizational resilience, building their capability to respond rapidly to unforeseen change with service-oriented architectures, data mirroring, and server virtualization – among other strategies.¹⁰

At ETSU, ITS maintains two Internet Service Provider (ISP) connections to bring fault-tolerant, redundant connectivity to campus to ensure the ETSU campus resources are always available via the network. The networking infrastructure is centrally secured and protected by numerous security devices to protect the university resources.

In addition, ETSU maintains two server facilities on campus that are centrally administered and physically separate and a redundant server facility. ITS ensures those servers are available and that mission-critical data is replicated between the two centers constantly.

GUIDING PRINCIPLE #2:

Information technology is an essential resource for learning, teaching, research, and community partnerships and in providing anytime/anywhere access to learning.

STUDENT & FACULTY USE OF TECHNOLOGY

Students and faculty continue to view and experience technology in learning very differently. An example is the use of social networking and other online tools. As illustrated earlier by the statistics of the Net Generation, students use technology in all facets of their life, and they want the convenience and accessibility that technology offers for their coursework.



The gap in perception of the importance of the use of technology in learning occurs more along generational lines. Older faculty are less inclined to incorporate technology into their teaching than younger faculty.

According to an ECAR study of faculty use of course management systems (CMS), “the use of course management systems by faculty in the UWS (University of Wisconsin System – the research study group) is increasing rapidly, but much of this use is concentrated on the content presentation tools within the CMS. Faculty members are much slower to adopt the more complex or interactive parts of the CMS, such as discussion tools, quiz tools, or gradebook.”¹¹

To help bridge the gap, ETSU provides a Faculty, Technology, Leadership (FTL) course – a year-long course that faculty take to learn about instructional, educational technologies, and online instructional design.

The ITS department also provides one-on-one support, cohort sessions, workshops, and specialized help to departments as they develop and redesign courses and use D2L and ITV.

DISTRIBUTED TEACHING AND LEARNING

Online enrollments have continued to grow at rates far in excess of the total higher education student population, with the most recent data demonstrating no signs of slowing.¹²

- ◆ Over 3.9 million students were taking at least one online course during the fall 2007 term; a 12 percent increase over the number reported the previous year.
- ◆ The 12.9% growth rate for online enrollments far exceeds the 1.2 percent growth of the overall higher education student population.
- ◆ Over twenty percent of all U.S. higher education students were taking at least one online course in the fall of 2007.
- ◆ Some of the reasons affecting decisions on online courses include the following:
 - ◆ Student demand for flexible schedules - 68%
 - ◆ Providing access to students who otherwise wouldn't have access - 67%
 - ◆ Making more courses available - 46%
 - ◆ Seeking to increase student enrollment - 45%



ETSU is providing a number of options for course delivery to meet the needs of our students and faculty. At the end of the summer 2009, every classroom that seats 25 students or more will have multi-media equipment allowing any of those classrooms to be delivered to the computers anywhere.

ETSU also provides stipends for faculty development in the use of technology in learning. Work continues on the bridge technology, simulations, development of new content and media, and a new flash server and storage area network to support specific eLearning technologies.

Following is a brief description of ETSU credit offerings offered primarily through electronic means and where the students are located.

ETSU delivers electronically approximately 300 courses per semester. The Desire 2 Learn Course Management System provides the primary delivery format for approximately 250 of these courses and the remaining 50 courses are delivered via compressed video over Internet Protocol to students mainly located within the typical ETSU service area.

Some undergraduate and graduate distance learning programs attract students from locations across the state, region, and nation. ETSU partners with other TBR institutions in offering the Regents Online Degree Program (RODP), and offers approximately 40 web-based courses per semester as part of the RODP curriculum. In addition, the foundation courses for the Master of Business Administration are available online.

Bachelor of Science Degrees: General Studies, Professional Studies (RODP), and Interdisciplinary Studies (RODP); state, region, and nation.

Bachelor of Business Administration delivered via Instructional Television (ITV) to Walters State Community College, Sevier County Campus; Walters State Community College, Morristown TN; and Pellissippi State Technical Community College, Knoxville TN.

Bachelor of Science Completion Programs: Dental Hygiene, Radiography, Cardiopulmonary Science, Allied Health Leadership, and Nursing; state, region, nation.

Graduate Programs: Master of Public Health, Master of Science in Allied Health, Master of Science in Nursing (RODP), Master of Education (RODP), and Master of Professional Studies (RODP); state, region, and nation.

Graduate Certificates: Archival Studies and Health Care Management. ETSU also participates in the Tennessee Public Health Workforce Consortium web-based graduate certificate with the University of Tennessee Health Science Center and the University of Tennessee at Knoxville.

HIGH-PERFORMANCE COMPUTING FOR RESEARCH

The speed with which information needs to be processed, the amount of information that needs to be stored, the extent to which information needs to be shared, and the complexity of the information that needs to be analyzed makes high-performance computing capabilities for research a necessity.

With increasing focus on research, ETSU is working with faculty to support their research and help them collaborate with other faculty at other institutions and within the University. To this purpose, ITS has built a 64-node high-performance computing clusters for ETSU researchers across the University and is currently working to with faculty to provide the support needed to effectively use this resource. Staffing remains an ongoing challenge.



GUIDING PRINCIPLE #3:***Information technology is a critical service for university and community communications and collaboration.***

Increasing globalization continues to affect the way we work, collaborate, and communicate.

MOBILES

Higher education is facing a growing expectation to deliver services, content, and media to mobile and personal devices. The Apple iPhone, LG Electronics Voyager, and Blackberry Storm make content almost as easy to access and view on a mobile as on a computer. Mobile technology provides a unique opportunity for higher education institutions to reach their constituents where they may be. Capabilities are increasing rapidly. Prices are becoming more affordable.

In fact, each year, more than a billion new mobile devices are manufactured – that is a new phone for every six people on the planet.¹³ As more than one billion phones are produced each year, mobile phones are benefiting from unprecedented innovation, driven by global competition. Already considered as another component of the network on many campuses, mobiles continue to evolve rapidly.



New interfaces, the ability to run third-party applications, and location-awareness have all come to the mobile device in the past year, making it an ever more versatile tool that can be easily adapted to a host of tasks for learning, productivity, and social networking.

ETSU is one of the biggest universities iTunes University with more than 20,000 downloads per week of video/audio podcasts. ETSU also has a Blackberry Enterprise Server with 100 users that provides faculty and staff to be fully connected to the University.

The new Wimba Classroom™ will allow classroom content recordings to be delivered to an iPod or iPhone and other mobile devices.

GREEN IT

The focus on *Green IT* in higher education will continue to expand. Common conservation practices include implementing cloud computing through server virtualization; providing resource sharing; co-locating equipment to reduce energy consumption, costs, power, and space; buying energy-efficient equipment, donating IT equipment; deploying recycling programs; and supporting teleworking.¹⁴

At ETSU, the Providing Area Schools with Technical Assistance (PASTA) program offers better computers to public schools by reconfiguring used computers from ETSU and donating them to the schools. Also in partnership with Apple, ETSU has coordinated e-waste recycling events and was the lead institution for the state of TN by properly disposing of, or recycled in an ecological manner, 230,000 lbs. of e-waste.

ETSU is implementing the energy star settings on all computers and every desktop being replaced which saves on electricity for the University. By using virtualized servers, ETSU able to avoid adding additional capacity to the server room thus reducing power and HVAC requirements.

UNIFIED COMMUNICATIONS OR CONVERGED SERVICES

Unified communications (UC) refers to a trend to simplify and integrate all forms of communications. In general, UC allows an individual to send or receive a message on one medium and receive on another. For example, one can receive a voice mail message and then read it in their email inbox using a unified communications program.



Colleges and universities are evolving their current communications systems to improve collaboration and the need for increased security. With modernization projects and new construction, institutions are evaluating their existing technologies, and consolidating all voice, data, and video functions into one efficient system.

ITS is currently talking to vendors and determining the needs for unified communications at ETSU.

SOCIAL SOFTWARE AND SOCIAL NETWORKING

According to Gartner, Inc., social software includes a broad range of technologies, such as social networking, social collaboration, social media, and social validation. Social networking is a term used to define the use of tools and sites to develop and build online communities. Social networking is growing at phenomenal rates. In fact, according to a March 16, 2009 article in Information Week, Facebook, a social networking site, enjoyed a 149% increase in visits in February 2009.

The growing use of Web 2.0 and social networking – combined with collective intelligence and mass amateurization (i.e. immediate news through cell phone videos, youtube.com celebrity) – is gradually changing the practice of education and scholarship. The way we work, collaborate, and communicate is evolving as boundaries become more fluid and globalization increases.

At ETSU, the result on the usage of social networking identified in the online survey mirror these industry statistics. ETSU currently has pages on Facebook.com, friendfeed.com, twitter.com, youtube.com, and secondlife.com for various ETSU organizations and effectively uses youtube.com and iTunes for communications, links, and downloads – content distribution.



ITS is currently working with Financial Aid so they can post information one time and distribute it to the various social networks to better communicate with the constituents. Instant Message communities are available with D2L, videoconferencing bridge technologies, and in the Wimba Virtual Classroom™.

GUIDING PRINCIPLE #4:

Information technology is essential for data and information management, institutional decision-making, and quality service delivery to ETSU constituents.

ORGANIZATIONAL CHANGE

IT organizations throughout higher education are under constant pressure to advocate or influence institutional change. For most campuses, the CIO has the dual role of delivering service and support and acting as an agent of collaborative change throughout the institution.

At ETSU, the most important change effort involves the Banner implementation. The implementation of a new Enterprise Resource Planning System (ERP) affects every constituent within the institution at some level. The very nature of ERP implementations force all of the business units to review their processes and every constituent to change how they access or provide information. The ERP system is a natural evolution of technology among administrative systems.

The ERP (Banner) system has mission-critical functionality, and ITS has worked with the functional offices to customize the system to better suit ETSU needs. ITS continues to support the functional offices in ensuring clean data and access to data with the proper tools and is also working on the Occupational Data Store (ODS) by customizing and streamlining it to help users have access to the reporting tools they need. ETSU has developed new forms in self-service Banner to allow departments and advisors to better assist their students.

**DATA/ENTERPRISE MASHUPS**

According to Gartner Research, Inc., by 2010, Web mashups – custom applications where combinations of data from different sources are "mashed up" into a single tool – will be the dominant model for the creation of composite enterprise applications. Mashup technologies will evolve significantly over the next five years. The ability to combine information into a common dashboard or visualize it using geo-location or mapping software is extremely powerful.¹⁵

Data mashups offer new ways to look at and interact with datasets, and the availability of large amounts of data is converging with the development of open programming interfaces for social networking, mapping and other tools.

Data mashups will tap into information generated by collective intelligence to expand our understanding of ourselves and the technologically-mediated world.

ETSU will continue to monitor this trend and determine how it impacts the University and how it could be used to further ETSU goals.

SECURITY



With increasing amounts of critical data and new services that are available electronically, security remains at the top of the list of the top 10 issues for IT according to EDUCAUSE.¹⁶

Persistence of security incidents and reported data breaches and the growing number of compliance requirements, including security-related state and federal regulations and contractual obligations make this a central and acute concern of all IT organizations, no matter their institutions' sizes or missions.

Higher education institutions are continue to grapple with the desire for a culture of openness and access while maintaining security.

Identity and access management (I/AM) is an area closely connected with security and made it to number five in the list of top 10 issues for IT in higher education. Information technology organizations are being called on to educate and inform their campus constituencies about the importance of I/AM because so much depends on the risk awareness and active vigilance of individual network users.¹⁷

ETSU is currently working to provide single sign on with the implementation of Luminus to better control access to networks, servers, and other resources. In addition, the OIT communicates to the University community about the need for password changes.

OPEN SOURCE APPLICATIONS/IP ISSUES

The Internet's growth during the past few years has profoundly affected the way software is licensed and distributed. One of the most important changes that has occurred during this period is the emergence of *open source* licensing. The term *open source* commonly refers to a software program or set of software technologies that are made widely available by an individual or group in source code form for use, modification, and redistribution under a license agreement having very few restrictions.

Along with the many benefits of open source, however, come a number of risks. Perhaps the most obvious risk is potential liability for intellectual property (IP) infringement.

ETSU continues to monitor this issue and support higher education guidelines like the fair use act and the TeachAct in which universities are being held responsible for upholding copyrighting laws, etc. ITS is also working on proof of concept desktop and networking applications to deal with these issues.



STRATEGIC GOALS & OBJECTIVES

The following section provides the details of the ETSU *Information Technology Services Strategic Plan*. Each of the four guiding principles has a set of strategic goals that support the guiding principle, and each of these goals has objectives defined to assist in reaching that goal.

The guiding principles, goals, and strategies provide guidance to ETSU offices and departments relative to eLearning and information technology services and decisions about information technology. The number assigned to each of the principles and goals does not indicate a priority ranking. The principles are interrelated and are meant to provide a cohesive approach to information technology. While goals and strategies are defined for each guiding principle, they should be viewed within the context of the total eLearning and information technology services environment at ETSU.

GUIDING PRINCIPLE #1:

Information technology is a vital service and a strategic and competitive resource for ETSU.

Information technology is a strategic asset with the potential, when properly used, to propel ETSU ahead in achieving its mission and in realizing its vision.

GOAL 1.1: Information technology is effectively planned, managed, and governed to reflect the complexity of the environment and to ensure its effectiveness in meeting the needs of ETSU constituents.

- A. Implement and continually monitor the Information Technology Services Strategic Plan and the resulting tactical plans for effectiveness and adjust as necessary.
- B. Through the Information Technology Governance Committee (ITGC) structure, assist the President and Vice Presidents in setting priorities and determining the direction for eLearning and information technology services in the furtherance of the University's instruction, research, and administrative functions.
- C. Implement and maintain data administration and security policies and procedures.
- D. Develop and implement eLearning and information technology staffing and development plans to include common job descriptions, professional development, and ongoing training.
- E. Establish an information technology operational environment that aligns operations and management of information technology services across the university and is adequately supported so that:
 - ◆ Costs are effectively managed.
 - ◆ Services have the resources required.
 - ◆ Resource alternatives are explored.
 - ◆ Resources are shared and used to their maximum potential.
 - ◆ Collaboration is a priority.
 - ◆ Services are continually assessed and improved.

GOAL 1.2: Information technology services is appropriately funded and staffed to meet the needs of the institution and its constituents.

- A. Continually explore revenue opportunities.
- B. Develop a staffing and payroll plan that acknowledges market value and attracts and retains quality and skilled technology employees.
- C. Investigate current and potential practices for funding information technology services and implement appropriate strategies.
- D. Explore a model where eLearning and information technology services funding and prioritization are supported by the ITGC.
- E. Support the TAF Committee in the effective and efficient use of the TAF funds to support technology at ETSU.

GOAL 1.3: Appropriate access to systems and technologies is available for all University constituent groups.

- A. Provide and ensure reliable, secure, and high-speed local and remote access to local area networks and the Internet for students, faculty, and staff.
- B. Use leading-edge networking technologies where and when appropriate including wireless on campus.
- C. Develop and distribute acceptable use policies for email and Internet access.
- D. Develop and implement acceptable use policies and procedures to effectively utilize social networking tools as well as other web-enabled mobile devices.

GOAL 1.4: ETSU constituents have up-to-date desktop computing capabilities on campus.

- A. Continue implementation and assessment of the computer/work station Computer Replacement Initiative.
- B. Improve recycling opportunities for the University and region.
- C. Continue to explore new technologies for improving desktop computing including the use of thin client technology.

GOAL 1.5: Information technology is supported through seamless, integrated service and support across colleges, departments, and other units.

- A. Establish synergistic relationships among ITS and IT services support in various colleges, departments, and units.
- B. Provide support for designated multiple computing platforms.
- C. Evaluate and improve – where needed – the centralized help desk function.
- D. Minimize downtime on the Help Desk.
- E. Maintain an online reference for common information technology issues, i.e., Frequently Asked Questions (FAQ).
- F. Provide support services that are easy to use and are readily responsive to user needs.
- G. Provide appropriate learning opportunities for faculty, staff, and students to develop a basic level of information technology knowledge, skills, and abilities.
- H. Communicate through multiple means the information technology and eLearning services and support available.

GOAL 1.6: Information technology services environment supports and proactively explores new technologies and trends.

- A. Provide leadership and support of emerging technologies in the innovative uses of existing technology in academics, research, administration, and general university and community life through university-wide internal networks, systems, and support staff.
- B. Continue supporting the TAF innovative projects initiatives.

GUIDING PRINCIPLE #2:***Information technology is an essential resource for learning, teaching, research, and community partnerships and in providing anytime/anywhere access to learning.***

Experience has proven that having adequate technology resources does not ensure corresponding improvements in the quality of services provided. Therefore, technology should not be pursued as an end in itself, but as a means to more effectively accomplish the vital purposes for which the University exists: the creation and sharing of knowledge (learning, teaching, research), and the ability of ETSU personnel to form effective partnerships with our local, state, national and international communities.

GOAL 2.1: ETSU attracts and retains technology savvy faculty and staff.

- A. Provide necessary computing resources for incoming technology savvy faculty and staff (e.g., appropriate computing power, peripherals, and software applications, etc.).
- B. Provide professional recognition for teaching, learning, research, and administrative initiatives (e.g., service awards, merit pay, release time, overload pay, grant support, etc.).
- C. Recommend criteria to include innovative use of information technology in the tenure and promotion review process.

GOAL 2.2: Faculty are using technology to effectively implement their courses for students regardless of location and are using a course management system to enhance face-to-face education.

- A. Encourage the use of the ETSU course management system to enhance learning for students through one-on-one sessions, cohort sessions, and open workshop sessions.
- B. Support the integration of technology into education through the Faculty Technology Leadership in Higher Education annual course.
- C. Increase student access to learning resources by providing faculty with the necessary tools and resources to create pedagogically sound Web-based and Web-enhanced courses.
- D. Provide necessary support staff to assist with instructional and multimedia development.
- E. Provide faculty with the resources to create, improve, and update web-based and web-enhanced courses.
- F. Provide instructional design support through one-on-ones, cohort sessions, and open workshop sessions.
- G. Continually explore new technologies to enhance learning, improve quality, and reduce costs.
- H. Proactively work with departments/disciplines to drive the technology support needed to meet their needs.
- I. Utilize videoconferencing bridge technologies to broadcast ETSU courses and programs to remote locations as well as to individual desktop/laptop computers.

- J. Utilize virtual classroom technologies to enable the synchronous delivery of any ETSU course live to an individual's desktop/laptop computer.
- K. Effectively utilize the network Content Server to deliver live video streams to a flash enabled server for synchronous IP broadcasts.

GOAL 2.3: ETSU provides students with access to up-to-date computing technology – hardware and software.

- A. Provide computer labs to the students with up-to-date hardware and critical software.
- B. Ensure that computer labs are open and available to meet the needs of the ETSU students.
- C. Provide affordable printing capabilities and resources.
- D. Provide help desk support in all computer labs.
- E. Explore the thin client environment to support "green IT," free up TAF money for other technology, provide anywhere/anytime access to specialized software, and allow for efficient management support.

GOAL 2.4: Information technology services improve the learning environment on and off campus.

- A. Ensure that smart classrooms are the standard on campus and they are networked, maintained, and continually refreshed.
- B. Provide a support staff for the effective use of technology in the classroom through regular and just-in-time training for faculty.
- C. Provide effective classroom technology that allows student and faculty access on and off campus (video conferencing, ITV, streaming video, lecture capture, Codian Bridge).
- D. Provide quality multi-media assistance for faculty and staff in the use of technology to provide access to electronic materials produced by the university.
- E. Support creating digital content for online and Web-enhanced courses.
- F. Provide studio capabilities for the creation of Podcasts, videos, and course lecture materials to post on vehicles such as You Tube and iTunes.
- G. Digitize video, audio, and images for academic purposes. Convert content from digital to analog.
- H. Provide artwork/graphic design support for online course material.
- I. Create content for pay-for-download.
- J. Explore Academic Wikis for appropriate use at ETSU.

GOAL 2.5: Discipline-specific and research-related information technology needs are supported.

- A. Establish and maintain a computationally-intensive/high-end computing environment for support of research and instructional activities.
- B. Support the development of a plan to provide specifically trained personnel or contracted consultants to support high-end applications for the University community.

GOAL 2.6: Facilitate technological partnerships with the educational community, businesses, and other organizations.

- A. Develop appropriate partnerships with commercial vendors (e.g., examine lease vs. buy options to exert full advantage for partnership agreements, take advantage of promotional opportunities, etc.).
- B. Maximize collaborative external grant efforts (e.g., matching funds, partnerships, collaborations, consortiums, etc.).

- C. Share equipment and expertise (e.g., applications, instruction, assessment, design, development, etc.) with technology partners.
- D. Determine ETSU's ability to serve as a resource to external organizations: leverage such ability where practical.

GOAL 2.7: Technology increases access to potential and existing student populations.

- A. Encourage the development of new distance education courses and online programs.
- B. Evaluate online delivery trends and implement as appropriate.
- C. Establish University-wide standards for intellectual property rights, security, and copyrighting with respect to on-line class delivery and research.
- D. Extend the University's reach using distributed education and distance education technologies.
- E. Expand the use of the Videoconferencing Bridge with web-conferencing tools that delivers live classroom sessions to the desktop as well as to multiple remote classroom locations.
- F. Increase the number of videoconferencing end points to expand the use of the Videoconferencing Bridge, encourage more content going through the bridge, and explore ways to distribute course materials to take full advantage of the bridging technologies.
- G. Deliver more ETSU courses to off-campus sites.
- H. Deliver more ETSU courses to individual desktop/laptop computers through expanded use of virtual classroom technology (i.e., Wimba Classroom).
- I. Develop a plan to increase access to every ETSU classroom through business education technology (e.g. WIMBA classroom technology) where every class can be delivered to any computer anywhere.
- J. Increasing the number of ETSU online programs

GUIDING PRINCIPLE #3:***Information technology is a critical service for university and community communications and collaboration.***

Emailing is now universal. Text messaging and social network usage is increasing. Students, faculty, and staff spend an inordinate amount of time working on their computers, and they receive constant communications – some targeted and some not. Information technology can help users sort through the communication barrage and better manage the communications they want or do receive. Communications also provides a vehicle for communicating to the community at large and to potential students, faculty, and staff.

GOAL 3.1: Information technology supports communications that are effective in meeting the needs and desires of the various ETSU constituent groups.

- A. Effectively manage and implement general communications to targeted audience groups through the appropriate vehicles.
- B. Proactively plan for special or emergency communications through the most effective means.
- C. Continually assess existing and new means of communications including portals, social networking, email, RSS feeds, university-wide calendaring, etc.
- D. Provide quality multi-media assistance for ETSU in using technology to communicate and provide access to electronic materials produced by the university.
- E. Record special activities and events for departments and units and make it available through streaming media and iTunesU.

- F. Promote the university through social networking and other online environments such as iTunes, YouTube, and FaceBook.
- G. Provide cost-efficient telephony and cable TV services to residence halls and classrooms.

GOAL 3.2: The ETSU web presence portrays the University as a student-centered community of learning, reflects high standards, and promotes a balance of liberal arts and professional preparation, continuous improvement, and core values.

- A. Provide a usable, reliable, up-to-date web presence for the University community.
- B. Develop new home page and upper tiers of information.
- C. Strengthen the responsibilities of the Web Policy Steering Committee.
- D. Create templates for administrative units.
- E. Train departments in content management so they can easily keep their content up-to-date.

GOAL 3.3: ETSU provides up-to-date collaboration tools to support students, faculty, and staff.

- A. Train faculty and staff in the effective use of videoconferencing.
- B. Continually assess current collaboration tools for their effectiveness.
- C. Explore new means of collaboration through technology including social networking.
- D. Promote collaboration through increased use of videoconferencing via bridge technologies and desktop videoconferencing tools.

GOAL 3.4: Appropriate telephone and mobile communication support and service is provided on the ETSU campus.

- A. Implement "Voice over IP" where appropriate including renovations or new construction.
- B. Provide the most up-to-date, effective, and efficient communications support on campus for multiple types of communications devices (mobile phones, smart phones, iPhones, etc.).
- C. Investigate new technologies and new relationships with vendors to improve services and reduce costs.

GUIDING PRINCIPLE #4:

Information technology is essential for data and information management, institutional decision-making, and quality service delivery to ETSU constituents.

The deployment of information technology throughout the administrative and business offices at ETSU provides a valuable resource for administrative decision-making and University business services. These information technology services ensure that the day-to-day running of University is effective and efficient.

GOAL 4.1: Effective and efficient ERP support and maintenance is provided to the campus.

- A. Continue to investigate new, more efficient technologies to implement the ERP (Banner) and other ancillary systems and interfaces.
- B. Provide database support and application level support for all areas of the ERP and the layered projects.
- C. Develop, integrate, and support other administrative systems.
- D. Coordinate with the Tennessee Board of Regents (TBR) for scheduling, upgrades, and patches. Respond to new TBR requirements and other changes required to comply with state audit procedures for account and programming.
- E. Coordinate with the administrative offices -- looking for time to do maintenance and upgrades around academic and administrative schedules.

- F. Work with administrative offices to enhance the ERP system (reports, new forms) to tailor it to ETSU.

GOAL 4.2: An effective and efficient data network exists and is secure and reliable.

- A. Provide Internet connectivity to the world from the campus.
- B. Ensure that every building and every room is connected to the campus network.
- C. Maintain the redundant network connectivity.
- D. Expand wireless reach on campus.
- E. Supply more bandwidth both on and off campus and continually monitor usage of proactive increases.
- F. Coordinate with the security auditor and ensure that the network is safe and secure and that access to information is balanced with that security.
- G. Develop, implement, and continuously update University-wide architecture and standards to optimize efficiency, effectiveness, and support.

GOAL 4.3: An effective and efficient server environment and server support exists for the University.

- A. Host all servers and data centers for administrative and academic computing.
- B. Manage and maintain cluster computing for research.
- C. Use virtual servers to reduce power consumption and have better maintenance tools and business continuity.
- D. Provide back-up services for all of the servers on the campus.
- E. Expand virtualization.
- F. Provide more storage/disk space to meet the expectations and needs of faculty, students, and staff.
- G. Explore the adoption of new operating systems like LINUX for reduced costs and higher efficiency.

APPENDIX A: PLANNING PROCESS & PARTICIPANTS

The environmental scan began in September 2008 with the first series of meetings with stakeholders. The groups included participants from ITS, the libraries, and faculty and others associated with the ITGC and its subcommittees. The participants included the following people:

Tami Baker	Nancy Granberry	Rob Pack
Bob Barhart	Delbert Hall	Sylvester Renner
Loretta Bradley	Rhona Hurwitz	Sharon Riddle
Mark Bragg	Keith V. Johnson	David Robinson
Kevin Burke	Myra Jones	Jerry Shuttle
Karen Cajka	Karen King	Trish Stafford
Rhonda Cole	Michaele Laws	Melanie Storie
Chuck Collins	Cindy Lybrand	Jerry Taylor
David Currie	Robert Nelson	
Debbie Dotson	Robert Nielsen	

Additional meetings and interviews were held during December 2008. Following are the one-on-one interviews:

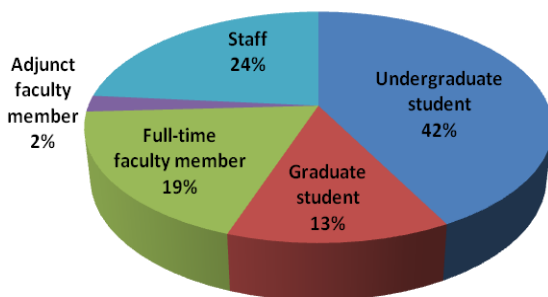
Dr. Bert Bach	Paul Trogen – Faculty Senate President
Dr. Wilsie Bishop	Beth Rutherford – OIT Network/Telecom
Dr. David Collins	Bill Duncan – High Performance Computing
	Trish Stafford – Kingsport Center

Following are the participants who attended the group meetings held in December 2008:

Tami Baker	Daniel McLellan	Sylvester Renner
Lorretta Bradley	Robert Nelson	Sharon Riddle
Rhonda Cole	Robert Neilson	Robert Robinson
Timothy Erwin	Jennifer Owens	David Robinson
Michaele Laws		

The online survey was posted in December and 1140 people responded to at least three questions. Following is the breakdown of the respondents:

Survey Demographics



APPENDIX B: RESOURCES FOR THE EXTERNAL ENVIRONMENTAL SCAN

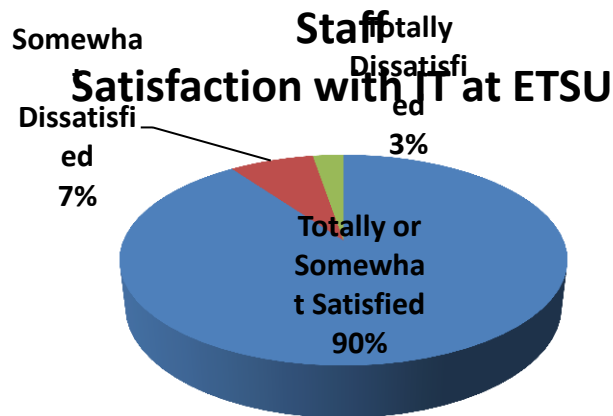
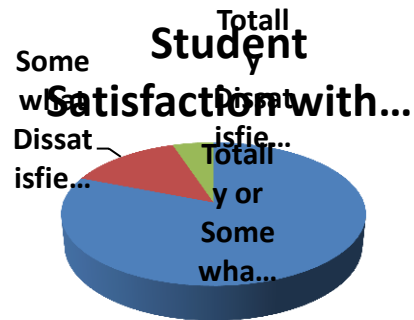
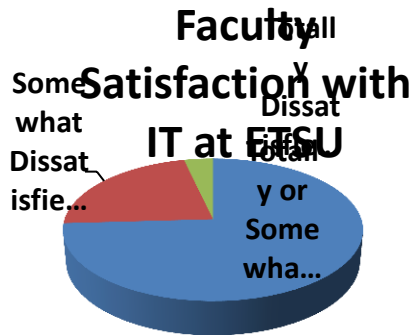
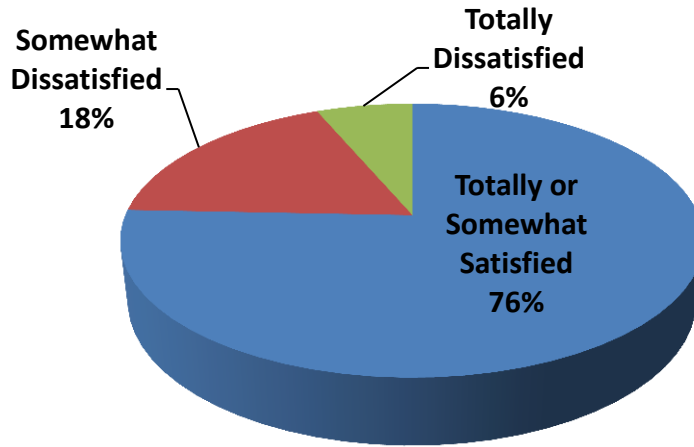
Following is a list of the key reports used for the external environmental scan. These reports are available on the ITS website.

- EDUCAUSE Core Data Survey, Fiscal Year 2007, Summary Report, Brian L. Hawkins and Julia A. Rudy.
- The 2008 Horizon Report, a collaboration between The New Media Consortium and the EDUCAUSE Learning Initiative, ©2008, The New Media Consortium.
- The 2009 Horizon Report, a collaboration between The New Media Consortium and the EDUCAUSE Learning Initiative, ©2009, The New Media Consortium.
- The 2008 Campus Computing Project, www.campuscomputing.net.
- EDUCAUSE Review, *Top 10 IT Issues 2008*, Debra H. Allison, Peter B DeBlois, and the 2008 EDUCAUSE Current Issues Committee, May/June 2008 Issue.
- The ECAR (EDUCAUSE Center for Applied Research) Study of Undergraduate Students and Information Technology, 2008, Judith Borreson Caruso and Gail Salaway, October 2008, © 2008 EDUCAUSE.
- Various EDUCAUSE Review Articles, EDUCAUSE.
- Gartner, Inc., *Top 10 Strategic Technologies for 2008*, October 9, 2007, Gartner, Inc. analysts at the Gartner Symposium/ITxpo.
- Gartner, Inc., *Top 10 Strategic Technologies for 2009*, May 28, 2008, Gartner, Inc. analysts at the Gartner Emerging Trends and Technologies Roadshow.
- *Online Nation, Five Years of Growth in Online Learning*, I.Elaine Allen and Jeff Seaman, The Sloan Consortium (SLOAN-C), October 2007.
- *Staying the Course Online Education in the United States, 2008*, I.Elaine Allen and Jeff Seaman, The Sloan Consortium (SLOAN-C), November 2008.
- *Trends Affecting Distance Education: A Foundation for Strategic Planning*, Scott L. Howell, PhD, Peter . Williams, M.S., Nathan K. Lindsay, M.S., Online Journal of Distance Learning Administration, Volume VI, NumberIII, Fall2003, State University of West Georgia, Distance Education Center.
- *Distance Education at Degree-Granting Postsecondary Institutions: 2006-07, First Look*, National Center for Education Statistics (ies) and Postsecondary Education Quick Information System (peqis), December 2008, U.S. Department of Education.

APPENDIX C: ONLINE SURVEY RESULTS HIGHLIGHTS

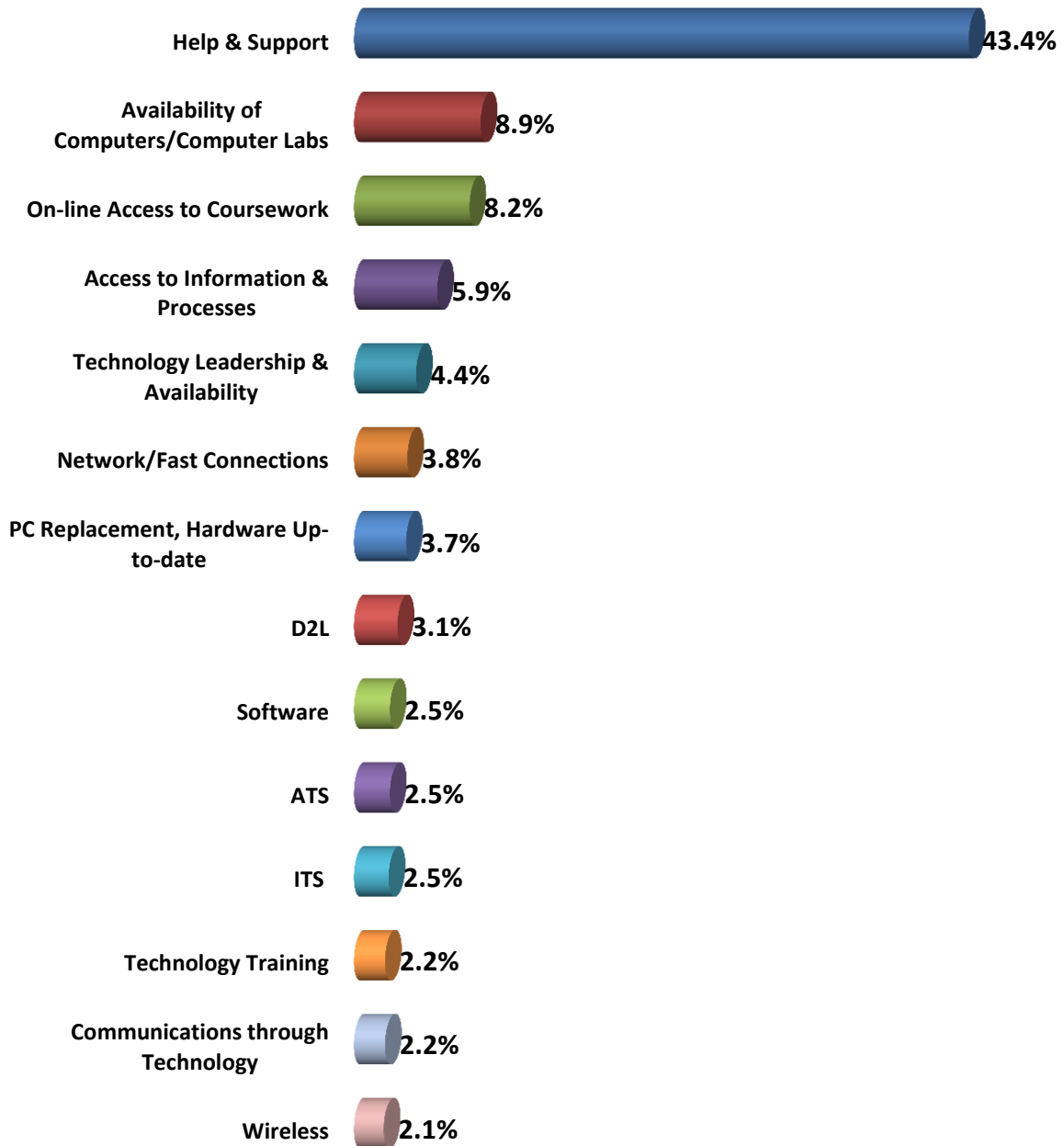
Following are some highlights from the results of the online survey. The complete results are available on the ITS website.

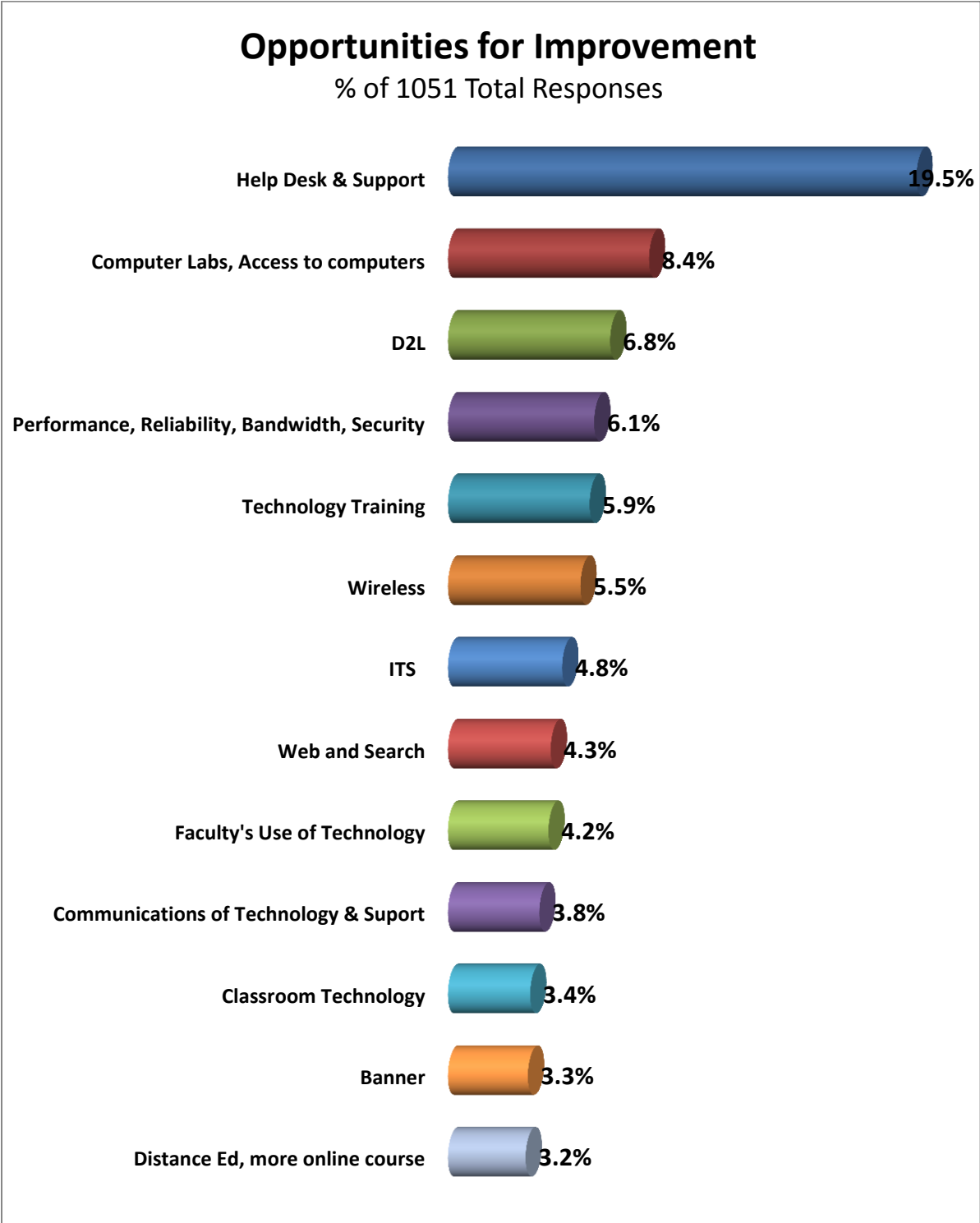
Satisfaction with IT at ETSU

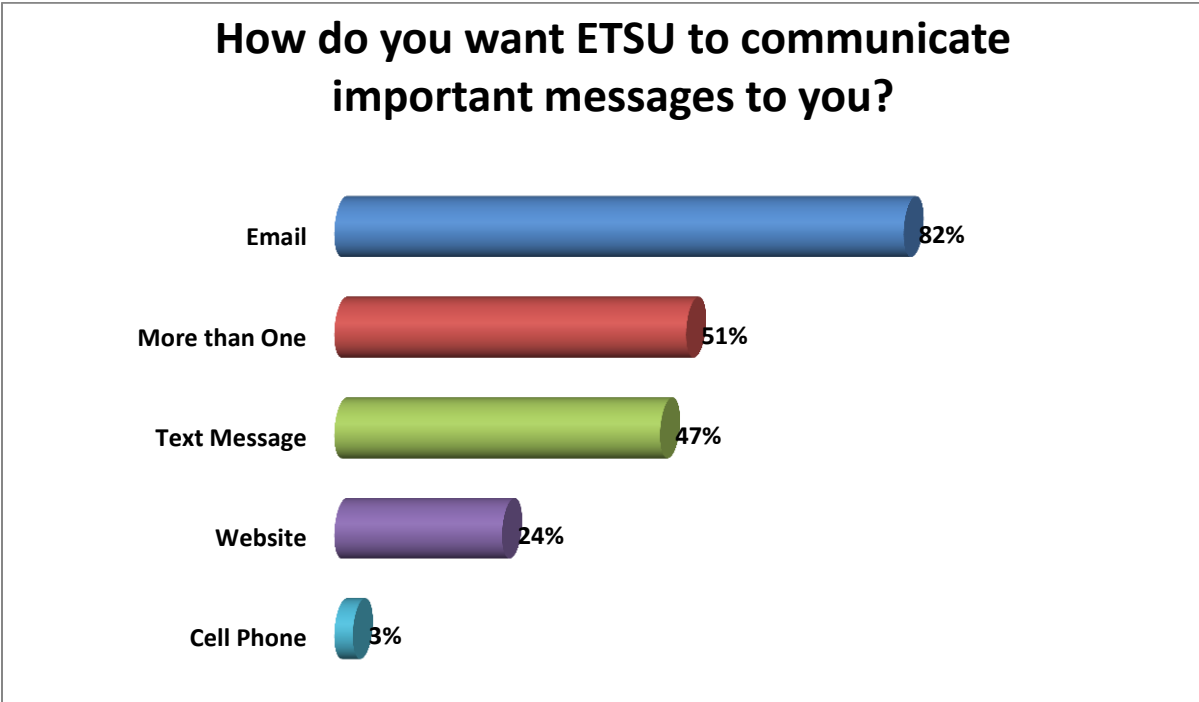
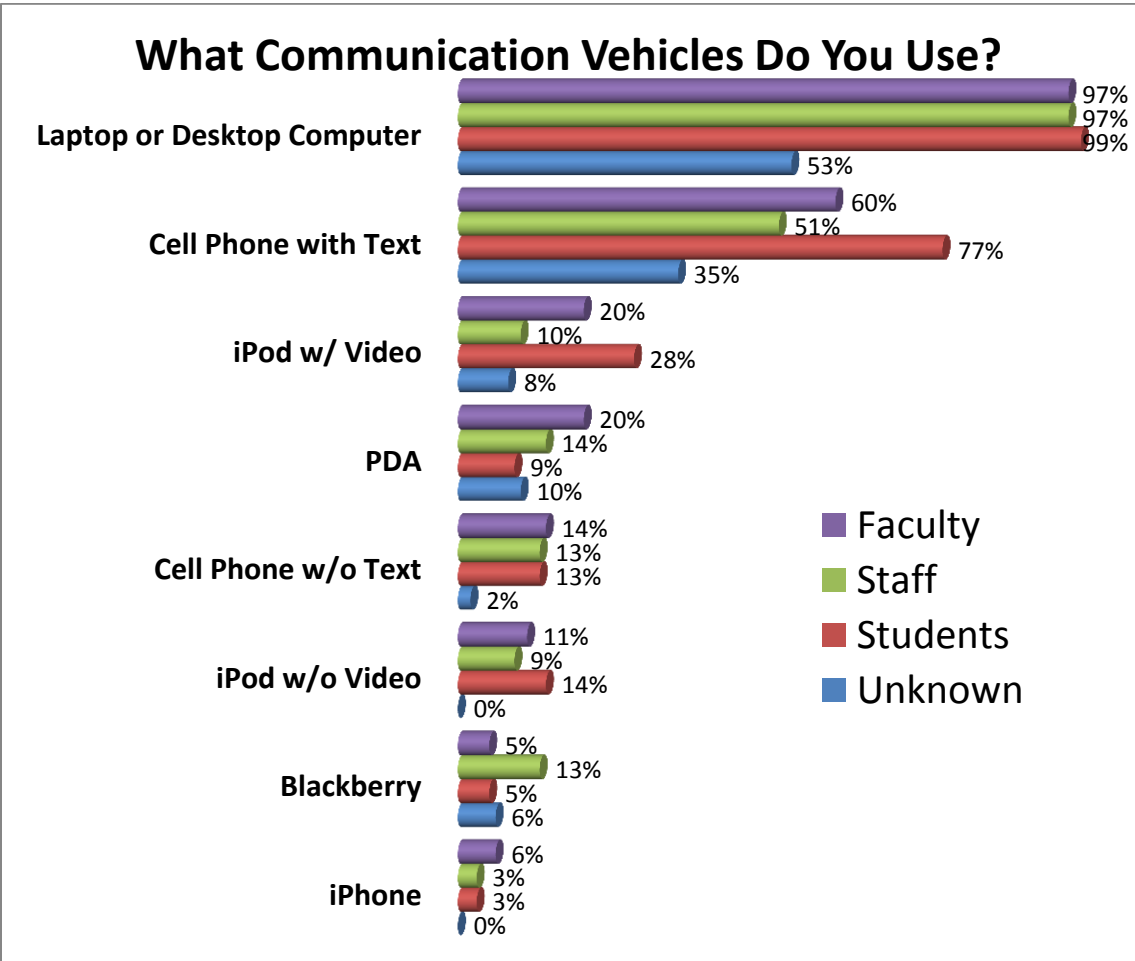


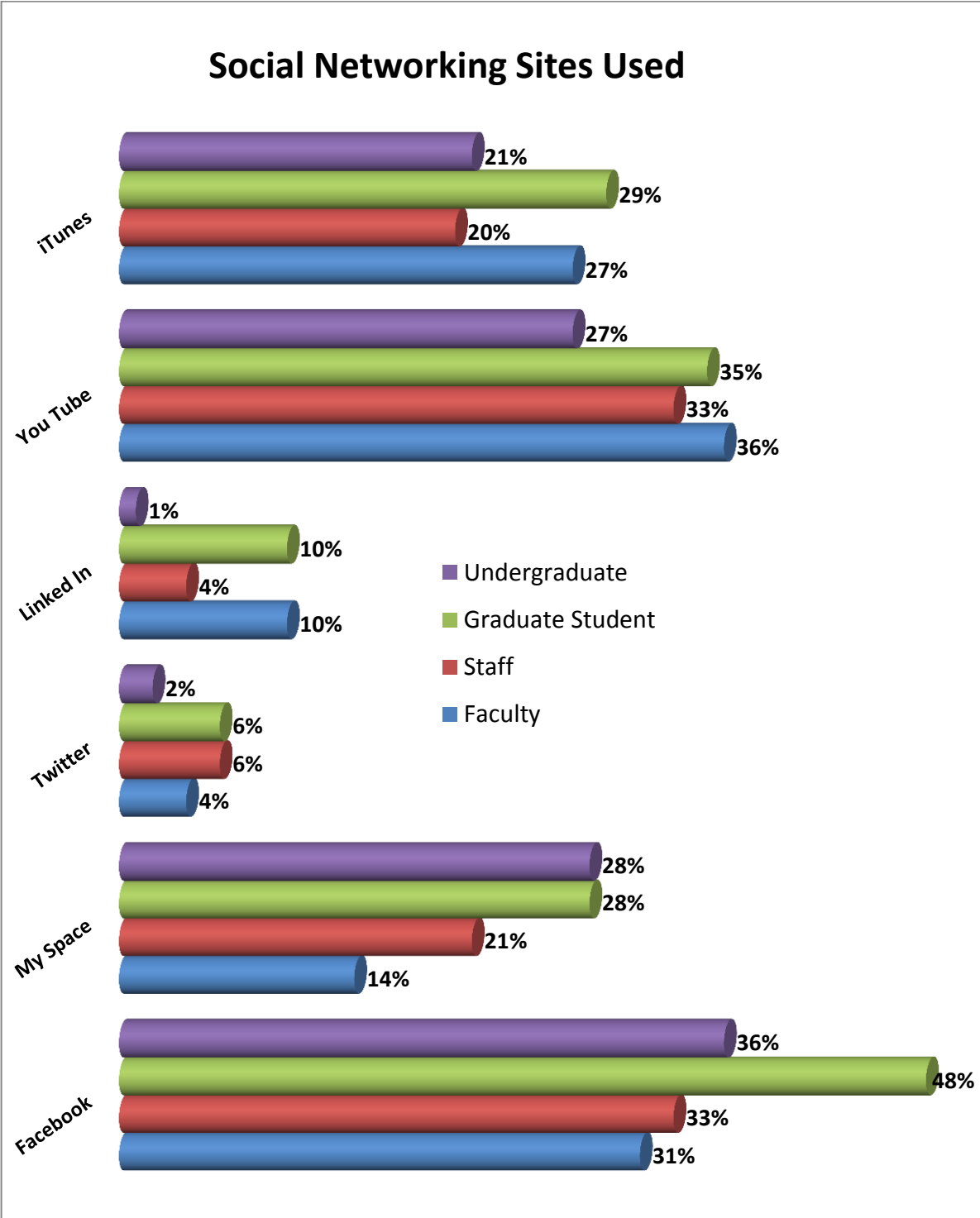
Strengths of Information Technology at ETSU

% of 1140 Responses





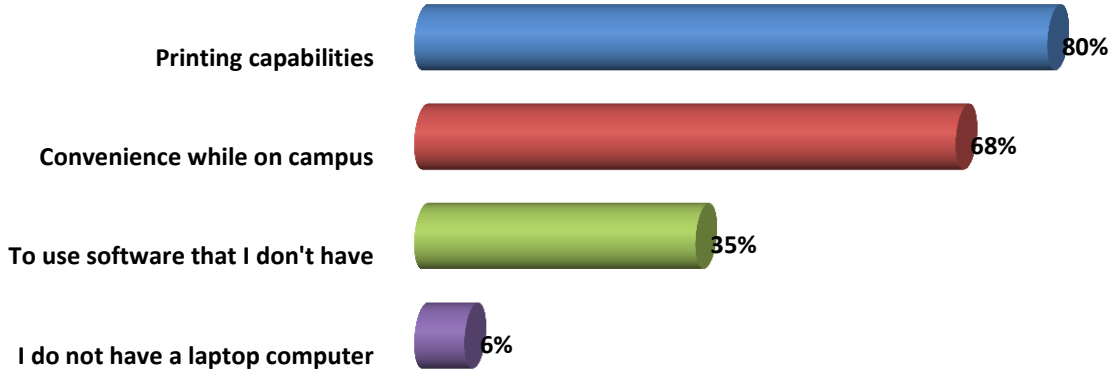




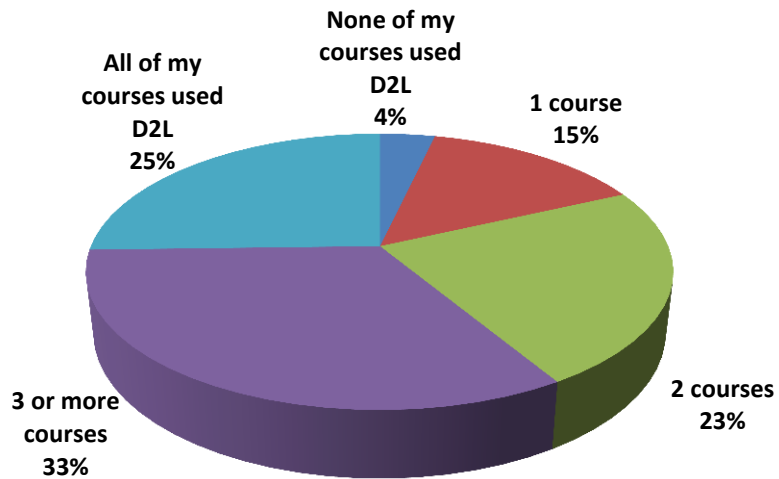
Please rate the support you received from the OIT help desk during your most recent contact.



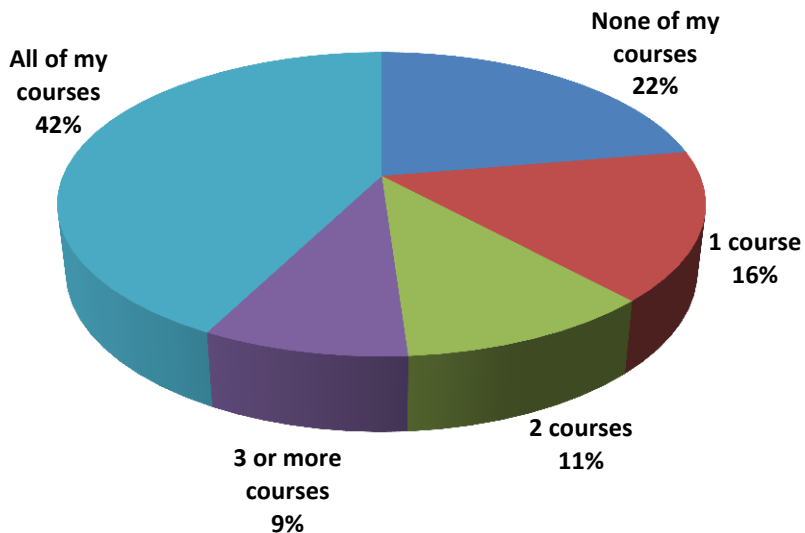
Students Who Use Labs: Why do you use computers in open computer labs?



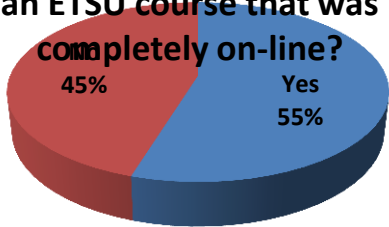
Students: How many of your courses at ETSU this semester used D2L for on-line content?



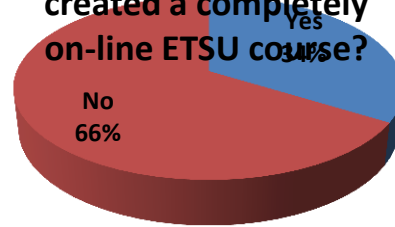
Faculty: For how many of your courses this semester did you use D2L for on-line content?



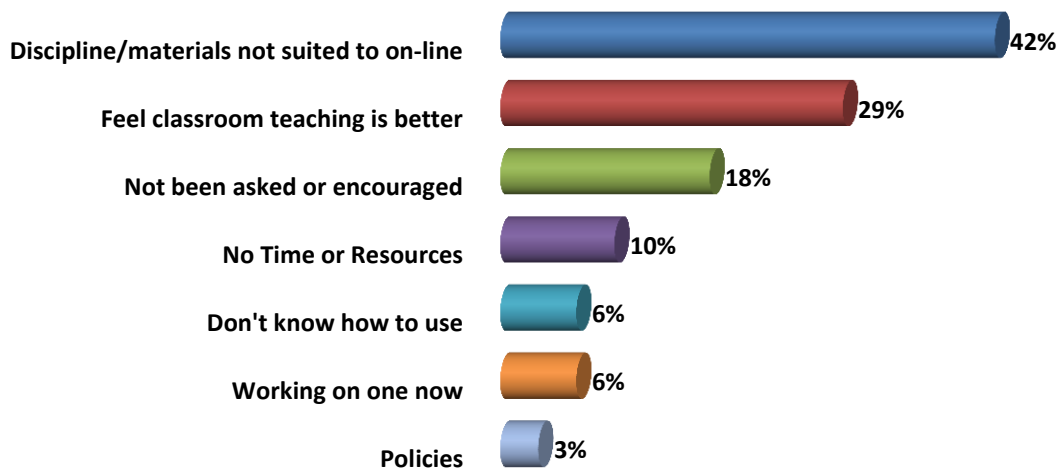
Students: Have you ever taken an ETSU course that was completely on-line?



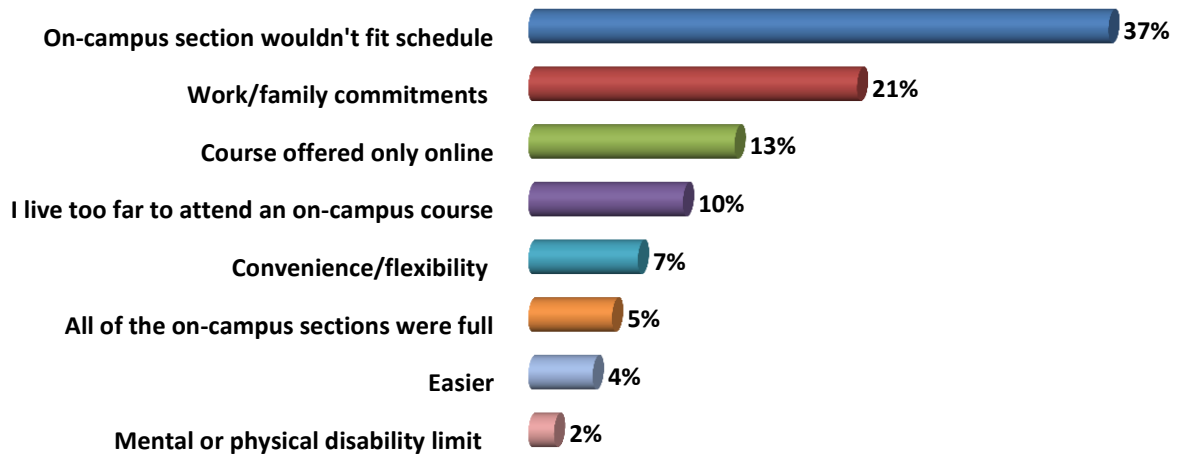
Faculty: Have you ever created a completely on-line ETSU course?



Faculty: If you have not developed an on-line course, why?



Students: Why did you take this course on-line as opposed to on-campus?



APPENDIX D: REFERENCES

- ¹ EDUCAUSE 2002 Conference Promotion.
- ² *Strategic and Financial Planning for Information Technology in Higher Education*, EDUCAUSE Library, 11/06/2002, Michael McRobbie and Judith Palmer of Indiana University.
- ³ *Grown Up Digital: How the Net Generation is Changing Your World*, Don Tapscott, 2009.
- ⁴ The Net Generation Goes to College, Scott Carlson, The Chronicle of Higher Education, Information Technology, October 7, 2005.
- ⁵ *The ECAR Study of Undergraduate Students and Information Technology*, 2008, Judith Borreson Caruso and Gail Salaway, EDUCAUSE, October 2008.
- ⁶ Allison, Debra H. and DeBlois, Peter B. *The Top 10 IT Issues 2008*, EDUCAUSE Review, May/June 2008.
- ⁷ The 2009 Horizon Report, a collaboration between The New Media Consortium and the EDUCAUSE Learning Initiative, ©2009, The New Media Consortium.
- ⁸ Allison, Debra H. and DeBlois, Peter B. *The Top 10 IT Issues 2008*, EDUCAUSE Review, May/June 2008.
- ⁹ Ronald Yanosky. Shelter from the Storm: IT and Business Continuity in Higher Education, ECAR Research Study, volume 2.
- ¹⁰ Allison, Debra H. and DeBlois, Peter B. *The Top 10 IT Issues 2008*, EDUCAUSE Review, May/June 2008.
- ¹¹ ECAR Key Findings, *Faculty Use of Course Management Systems*, May 2003.
- ¹² Staying the Course: Online Nation: Five Years of Growth in Online Learning 2008, I. Elaine Allen and Jeff Seaman, Sloan-C™.
- ¹³ Jacques, Robert (2007). One Billion Mobile Phones Shipped in 2006, *Computing*, January 26, 2007. Retrieved December 2007, from www.computing.co.uk/2173516.
- ¹⁴ Golden, Cynthia. On Being Green, *EDUCAUSE Review*, vol. 43, no. 3 (May/June 2008).
- ¹⁵ Speaking at the Gartner Emerging Trends and Technologies Roadshow in Melbourne today, Gartner Fellow David Cearley, May 28, 2008, Gartner Inc. Press Release.
- ¹⁶ Allison, Debra H. and DeBlois, Peter B. *The Top 10 IT Issues 2008*, EDUCAUSE Review, May/June 2008.
- ¹⁷ Allison, Debra H. and DeBlois, Peter B. *The Top 10 IT Issues 2008*, EDUCAUSE Review, May/June 2008.