Supporting Brilliance

Texas Woman's University
The Office of Technology's Annual Report for 2013-2014

Supporting Evolved
Learning Spaces

Contents

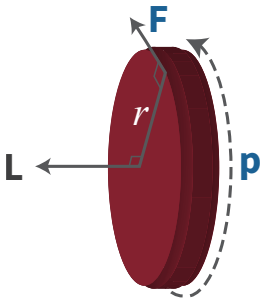
Front cover (left-to-right): Brianna Morris & Stephanie Cantu

Supporting the vision: It's how we roll

In the book *Good to Great*, Jim Collins describes the flywheel effect. Picture a large wheel weighing several thousand pounds and suspended at its center point. If you push upward on the edge of the wheel with all your strength it will barely move. The beauty of the flywheel is that, if you keep pushing, you will build up momentum making it easier and easier to maintain motion and to speed up even more. The lesson is that, although the wheel doesn't move much in the beginning when all your effort appears to be wasted, keep pushing because momentum is building. The flywheel effect is a good analogy for long-term strategic thinking. I have seen many TWU Pioneers pushing at this wheel for some time and now our wheel is moving.

TWU leaders have built up the momentum that our new chancellor has released. I can look all around and find examples of this positive energy (e.g., Learning by Doing, Book-in-Common, Academic Visioning, and new partnerships across our great state). Like the wheel, this positive energy feeds on itself, providing even more motivation, pride, and fulfillment. Texas Woman's University is a wonderful institution and I feel blessed to lead an awesome team that strives to serve in keeping our wheel spinning.

Robert B. Placido
Associate Provost for Technology & CIO



The Physics of a Flywheel

$$\boldsymbol{\tau} = r \times \mathbf{F}$$
$$\mathbf{L} = r \times \mathbf{p}$$

In physics rotational inertia is a measure of an object's resistance to changes in its rotational velocity. The equations above show the relationship between force (**F**), torque ($\boldsymbol{\tau}$), momentum (**p**), and angular momentum (**L**) vectors in a rotating system with r as the radius.

Technology Dashboard

WHO WE ARE

79 Technology professionals

WHO WE SUPPORT[1]

15,075 Students (fall)
436 Professors
404 Adjunct faculty
368 Graduate assistants
835 Staff

OUR ENVIRONMENT

3 Campuses
4,063 Desktop computers
953 Laptop computers
467 Tablet computers
216 Projectors
442 Printers

4.6 technology FTEs per 1,000 institutional FTEs compared with the EDUCAUSE industry benchmark of 9.5 for the same Carnegie classified institutions[2]

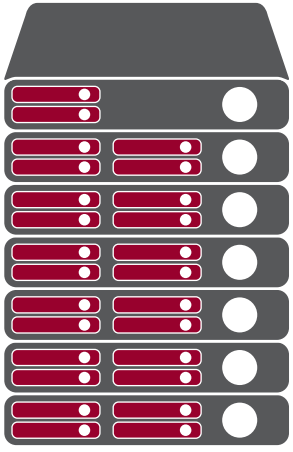
82.9% Technology Service Desk's First-Call Resolution rate, up 3.6% from last year

99.8599% average uptime for production infrastructure hosts is up 425 minutes over last year

Notable Changes

	2012	2013	2014
Virtual Servers	463	324	418
Wireless Access Points	224	440	597
Classroom Lab Hours	71,580	130,959	200,729
Kiosk Users	8,690	6,973	4,356

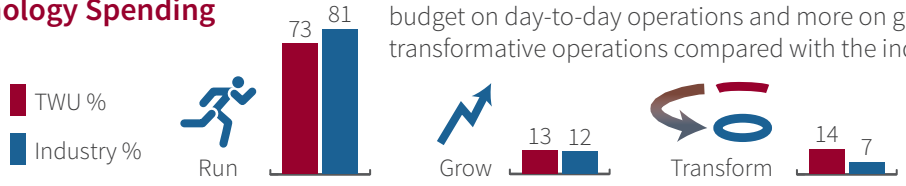
Virtualization Density



418 Virtual Servers

113 Physical Servers

Technology Spending



TWU technology spends a smaller percentage of its budget on day-to-day operations and more on growth and transformative operations compared with the industry[2].

Note: Data estimated using best information available at time of publication
[1]TWU Fact Book (http://www.twu.edu/institutional-research/fact-book.asp) and TWU Campus Stats Report (http://www.twu.edu/compensation-classification/twu-campus-stats-report.asp) [2]EDUCAUSE Core Data (http://www.educause.edu/research-and-publications/research/core-data-service)

Supporting student goals: A focus on purpose

According to EDUCAUSE, the number one technology issue facing institutions of higher education in 2014 is "improving student outcomes through an institutional approach that strategically leverages technology."

The Office of Technology has welcomed this challenge as an opportunity for collaboration within academics for the benefit of students. Two student-centered custom software solutions were provided in FY2014 through collaboration with faculty members in Dental Hygiene and with Dr. Kim Miloch to be used in the TWU Quality Enhancement Plan for the purposes of measuring student learning outcomes. The success of the software projects was possible because of the relationships between the Office of Technology and academic units at TWU.

An effective strategy for writing curriculum is to begin with the student learning outcomes and then work backward. Beginning with the purpose in mind aids the Office of Technology in making decisions to benefit students at each campus and online. These decisions are not made in a vacuum. The Students Advisory Committee for Technology (Students ACT) provides a voice for TWU students in the decision-making process. This is one piece of a comprehensive governance process put into place last year.

Supporting Beginnings

Each summer over one thousand first-year applicants visit the Denton campus to immerse themselves in a day-and-a-half of the Texas Woman's University experience. The Office of Technology has been a dedicated partner in the first-year orientation program, from making the MCL Megalab available for testing and registration, to providing equipment and support at check-in. The TWU technology team also improves the student online sign-up every year and works with students as they register for their first semester of classes at TWU.

Supporting Discovery

Dr. Nasrin Mirsaleh-Kohan in the Department of Chemistry & Biochemistry uses technology and discovery-based pedagogy in teaching physics. The Office of Technology is excited to collaborate with faculty and department leaders to support the classroom technology students need to learn-by-doing, gain technical expertise, and, for many majors, work with the equipment they will be expected to use in the workplace. From the liberal arts to health sciences, technology plays a vital role in the acquisition of knowledge; the Office of Technology enthusiastically supports such learning opportunities in TWU classrooms.

Supporting Insights

The days of graduate students slogging through tomes in dark libraries and typing dissertations on manual typewriters are things of the distant past. Technology has become a vital and essential piece of student research at both the graduate and undergraduate levels. Students in Biology use an atomic force microscope to view surfaces on the scale of nanometers and share those images with research collaborators and other students. While disciplines may differ, technology flows throughout the academy, uniting TWU students in a common goal of furthering knowledge.

Supporting Interaction

Classrooms are no longer characterized by a lecturer facing rows of students. Technology advances the classroom experience in tandem with research about pedagogical best practices. Flipped classrooms, flexible spaces, and student collaboration are the new normal. At TWU, students utilize the software of their field in a learn-by-doing environment. Amy Teague, assistant clinical professor in the Dental Hygiene Program, enlisted expertise in the Office of Technology to create customized software that allows clinical instructors to track student experiences in the Dental Hygiene clinic in real-time without wasting time and resources on paper. This paperless office is preparing students to become practitioners. Portable technology supports peer, patient, and instructor interaction, bridging the gap between the classroom and the workplace. The Dental Hygiene Program at TWU has also entered into a partnership with UT Tyler bringing more potential RDH to BSDH students to TWU.

Supporting Performance

The grace of performance. The power of digital technology. The strength of collaboration. The TWU technology team worked with faculty and staff in Dance to install a digital theater with projection mapping. Video projection mapping has the capacity to transform any object into a screen. Forget flat projection, as projection mapping has the ability to take a real-world object, such as a dancer, and project onto its body without any distortion. Combining motion graphics, 3-D animation, and even video playfully highlights, deconstructs, rotates, recontextualizes, and generally manipulates performance.

Supporting Social Spaces

In the bring your own device (BYOD) revolution, the relationship between space and technology is reimagined. Technology is now a part of students' lived experience. *Wired* magazine recently referred to a smartphone as a "fifth appendage." Across TWU campuses, TWU technology supports socialization by providing wireless access so that students can connect where and when the need arises.

Not all students have equal access to personal technology, so it is incumbent upon the Office of Technology to seek out spaces where students gather and equip them with the technology that students need.

Supporting Excellence

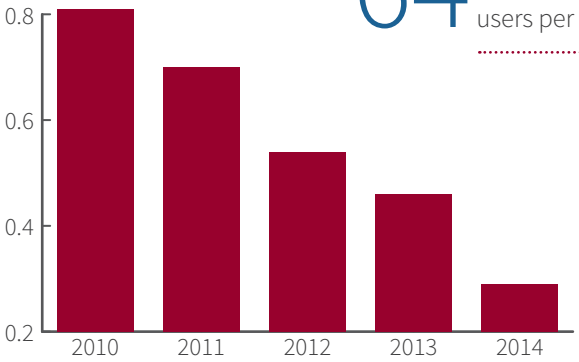
Guiding principles of the Pioneer Center for Student Excellence:

- Learning is embedded within every experience
- Engagement with the curriculum and institution is the cornerstone of all opportunities
- Success is measured individually for each student
- Excellence is achieved through a holistic approach to student development

The TWU technology team worked closely with the Pioneer Center for Student Excellence staff in late 2013 to ready the Center for its grand opening. Its Denton hub is a state-of-the-art, multi-function suite located within the beautiful Blagg-Huey Library. Many positive things are bound to come from a collaboration between academics, administration, student life, and technology.

Supporting Collaboration

The Dallas Center is another place where the Office of Technology's student-centered attitude shines with its collaboration stations within the open computer lab. A growing number of pedagogies encourage collaboration, and many students learn best by sharing their digital works-in-progress with each other. In one of the collaboration stations, each PC can project content onto a large shared screen. The second station has the same setup with an additional five BYOD stations allowing students to project from their own devices onto the shared screen.



64 percent decrease in the number of kiosk users per fall enrollment compared to FY2010, down to 0.29 users per fall enrollment for FY2014

How big is the BYOD trend? Is it really having an impact at TWU? Students, faculty, and staff are increasingly connecting, and yet the decrease in kiosk usage indicates that these connections are happening on individually-owned devices, rather than on TWU kiosks. Such trends point to the need for prioritizing BYOD initiatives over kiosk refreshes. They also support the notion that with the rapid change in technology comes the need for changes in infrastructure and support. The Office of Technology always has its finger on the pulse of student technology needs and responds expeditiously and responsibly.

Supporting Access

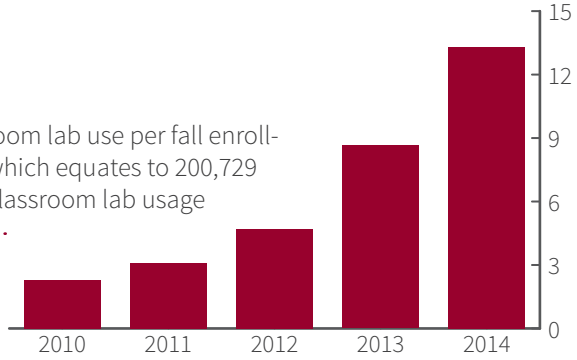
Access demand and the wireless device explosion is the #7 issue of the EDUCAUSE Top Ten IT Issues, 2014. The Office of Technology has proactively advanced wireless connections on all three campuses over the past years. Dallas and Houston are 100% covered, and Denton continues to expand despite infrastructure challenges. Students have always turned any space into a place to share knowledge and forge connections with each other socially. Today such activity increasingly relies on access to the Internet and social media. Technology stands behind students' personal and intellectual growth wherever it may happen.

Supporting classrooms & labs: One size doesn't fit all

Standardization can save money. Yet student learning styles and faculty pedagogies are as diverse as the number of seats in a classroom. Standardization of technology in classrooms can be like forcing a square peg in a round hole.

The Office of Technology works with departments to understand student and faculty needs and the technology that would best support them. Investing in diversity always brings solid returns.

13.3 hours of computer classroom lab use per fall enrollment during 2013-2014, which equates to 200,729 hours of total computer classroom lab usage

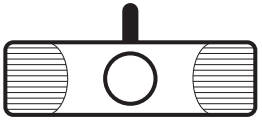


Computer classroom labs are those classrooms with a computer station at each desk. The Office of Technology is closely monitoring the rapid growth in usage of these spaces as space at TWU is evaluated, remodeled, and repurposed to meet the needs of faculty and students. New pedagogies that utilize computers as aids in teaching everything from statistics to nutrition are on the rise. These usage hours represent a 53% increase over last year and a 525% increase since 2010. All first-year English composition courses are taught in computer classrooms. Many mathematics courses are taught in such rooms. Additional disciplines are seeing the benefits of computers in the classroom, making the increase in demand grow exponentially.

Examples of Classroom Technology

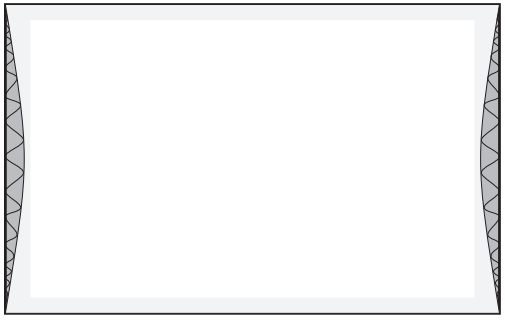
Projector

Classroom refreshes include updated projectors with ***greater lumens*** (6,500 to 11,000 lumens) providing ***enhanced overall experience*** for the audience while also accommodating the creativity of presenters.



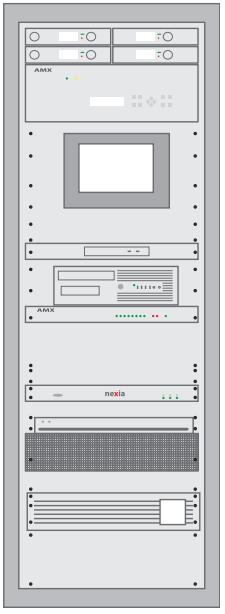
Audio

Classroom refreshes now include a ceiling microphone dedicated to classroom audio capture. The high quality microphones are able to record both the presenter and the audience, even in larger rooms. The audio is now also digital offering ***improved sound quality*** with less signal loss. Lecture-capture software is also now on classroom computers.



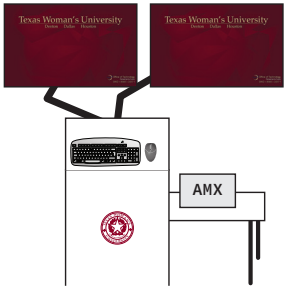
Screen

Classroom refreshes have 16:10 ***high definition*** tensioned fabric screens with varying levels of gain intensity based on the room's ambient light and size. These screens have ***enhanced clarity*** of images, and complement the digital enhancements of the projectors.



Interface

Upgraded wireless keyboards and mice are sleeker, have reduced communication loss, and ***year-long performance*** without recharging the batteries. New classrooms also have HDMI input connections and upgraded touch panels. The panels have a ***faster, improved interface*** with more capabilities. A service desk button connects directly to a representative via the panel.

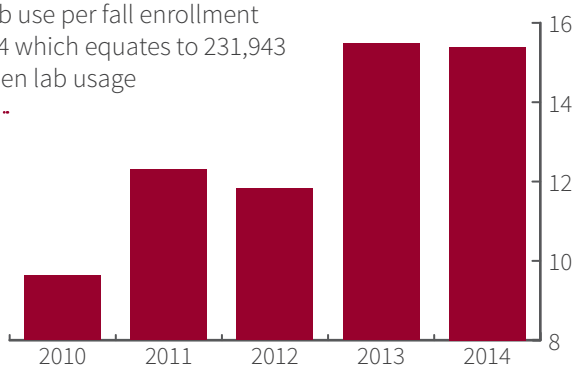


Connection

Through a new versatile way to support BYOD an audience member can now connect personal devices wirelessly to projectors for ***enhanced group discussions***. New components also have better performance, less energy consumption, and less need for rack space.

15.4

hours of open lab use per fall enrollment during 2013-2014 which equates to 231,943 hours of total open lab usage



Open labs are those where students go to study, learn, and connect on TWU-provided technology. Open labs may offer more advanced technology or different options for software than students have available on their personal equipment. The many reasons student opt to use open labs complicate the trend. Printing stands as one of the leading reasons students use open labs. As TWU technology continues to implement more BYOD options, including printing from personal devices, the trend may buckle moving forward. TWU technology continues to use qualitative methods for understanding technology use at TWU in concert with quantitative metrics.

Supporting Open Labs

There were 231,943 hours logged on computers in open labs over the last year. Counterintuitive to the BYOD trend? Not really. Students use different devices for different purposes. While many institutions either charge a per-use fee for printing or do not have printers available to students, TWU supports this high-demand need through the student technology fee, providing industrial printers in nearly all of the open-access computer labs. In 2015, the Students Advisory Committee for Technology will examine student need for computer labs to assure TWU provides its students the technology they need.

Supporting Creative Pedagogy

Students are not the only people bringing their own devices to campus. Many TWU instructors employ their technology in the classroom. For example, innovative solutions such as Apple TV provide a bridge between independent devices and the classroom experience. In another example, Dr. Barney Sanborn in Kinesiology uses her iPad with an attendance app to more easily track attendance. The app allows her to include student photos to help her quickly learn names, supporting part of her teaching philosophy. The Office of Technology stays abreast of trends and best practices in classroom technology, while collaborating with faculty to support classrooms that are wired for student engagement.

Supporting Instruction, On Call

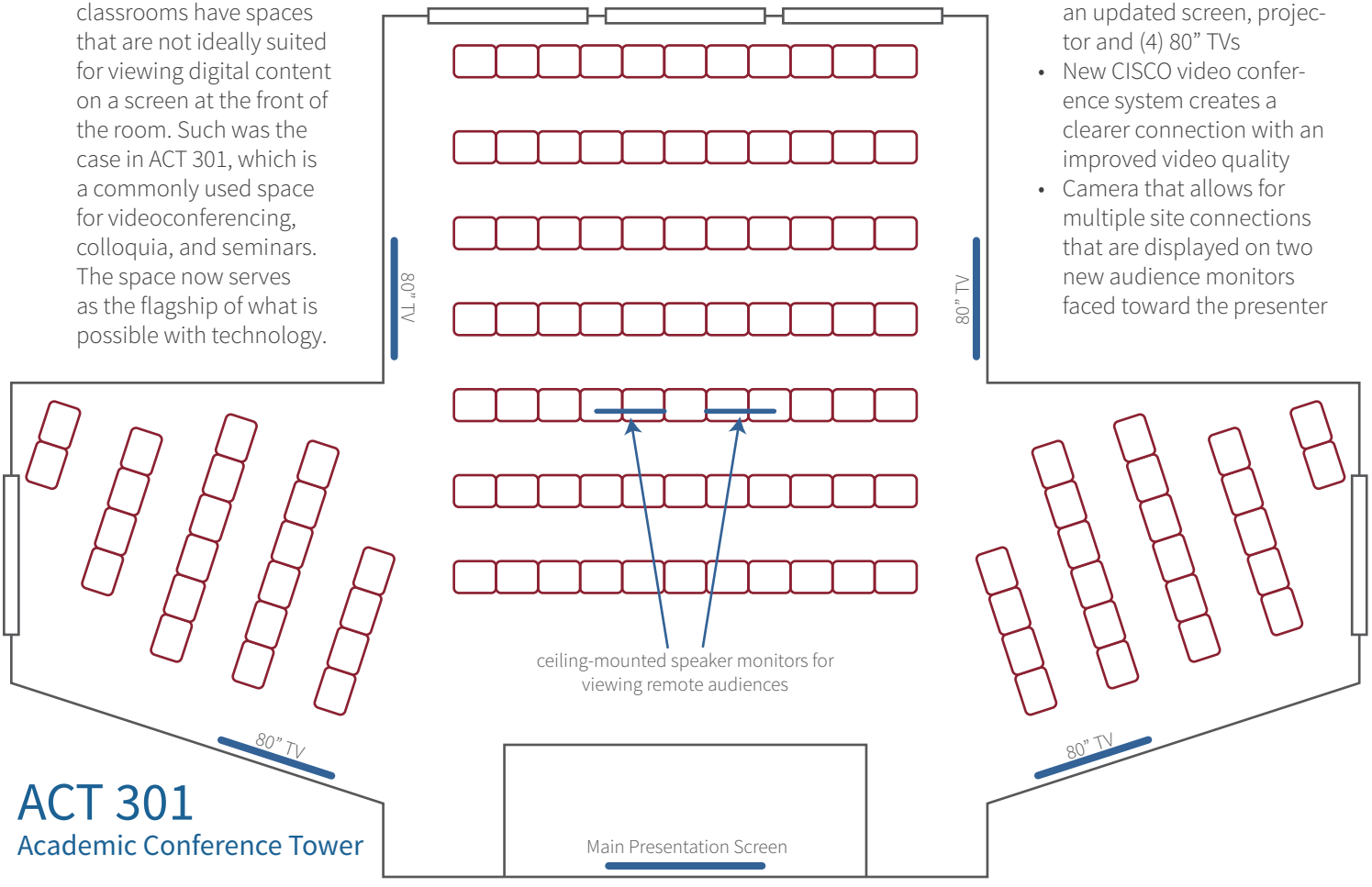
The Office of Technology supports instructors with training on the use of classroom technology, to help mitigate any feelings of technophobia, as classroom technology—from wireless microphones to numerous component interfaces—can be formidable for some instructors. While TWU technology makes every effort to ensure that technology failures never interrupt instruction, it is impossible to preempt every possible issue. When a problem does arise, a team of knowledgeable support staff quickly resolves the issue. Instructors are back to teaching, barely missing a beat.

Supporting Challenging Spaces

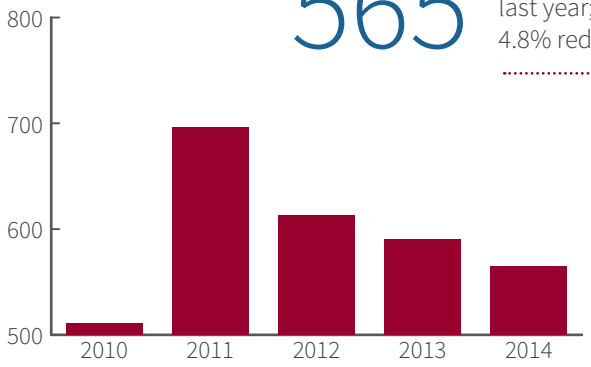
The Office of Technology continues to use the results of last year's research study as a consideration in remodeling classrooms. Many older buildings and classrooms have spaces that are not ideally suited for viewing digital content on a screen at the front of the room. Such was the case in ACT 301, which is a commonly used space for videoconferencing, colloquia, and seminars. The space now serves as the flagship of what is possible with technology.

New Technology Features:

- Dramatically improved presentation visibility with an updated screen, projector and (4) 80" TVs
- New CISCO video conference system creates a clearer connection with an improved video quality
- Camera that allows for multiple site connections that are displayed on two new audience monitors faced toward the presenter



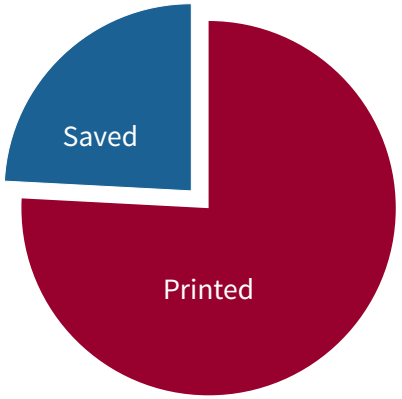
ACT 301
Academic Conference Tower



565 pages per fall enrollment were sent to the TWU print server last year; 8.5 million total pages were sent, representing a 4.8% reduction in total pages sent compared to last year

Student printing continues to consume significant resources; however, the curve does seem to be trending downward. Printing at TWU is a service available to all students, the cost of which is deferred by the student technology fee. Many students continue to request color printing. The Students Advisory Committee on Technology is exploring options. As digital workflows become more commonplace, the need for printing may drop off even more dramatically in the coming years.

24 percent of the pages sent to the printer were saved and never printed because of environment-saving technology installed at each printer.



Habits are hard to break, as is the case with printing. Often people print without thinking about whether they really need to print. The print management solution at TWU requires students to enter their ID and confirm each print job sent to the queue at the printer before the job actually prints. Over the last five years, the technology has saved over 10,000 reams of paper or approximately 626 trees.

Supporting Student Success

Before students become Pioneers, they interact with technology at Texas Woman's University. From orientation to commencement, the Office of Technology is involved in the daily activities of TWU students.

TWU technology takes this responsibility seriously. Students are the center of focus. The TWU technology brand is intimately interwoven with students' experience of technology.

By engaging in a governance process, best practices, research, collaboration, and assessment, the Office of Technology works to provide TWU students with the technology they need. Further, through the Students Advisory Committee for Technology, the Office of Technology directly engages students in technology, empowering them to take leadership and ownership of their technology experience at TWU.

Supporting faculty leadership: Vision & innovation

Students use technology in every facet of their lives; however, the faculty focus their technology use in engaging ways that enhance the educational journey of students. In almost every instance, the faculty's vision is made real, at least in part, through partnerships with technology.

The Office of Technology has collaborated with faculty in more ways than can be recorded in a single document; however, a few examples of collaboration exemplify the value the Office of Technology places on building strong relationships with faculty to provide the tools needed to innovate, educate, and conduct research.

Whether in the classroom, lab, or on stage, TWU faculty shine a spotlight on the excellence of Texas Woman's University. It has been the Office of Technology's privilege to support visionary faculty, serving them in their leadership. Support and service continue to be principles the Office of Technology adopts in defining the way it adds value to the faculty experience at TWU.

Supporting Innovative Programs

Dr. Cynthia Evetts teaches in the School of Occupational Therapy. Recently, the OT program at TWU complemented its existing cohort of online PhD students with the first cohort of fully online clinical doctorate students, the first post-professional OTD program in Texas. The program, approved by the Texas Higher Education Coordinating Board in 2014, has recruited, admitted, and now has started teaching students. TWU offers one of the few OT PhDs in the country and now expands its offerings to bring terminal degree access to even more aspiring OT scholars and clinicians. The Office of Technology eagerly supports all innovative programs that use technology to further the mission of TWU. As chair of the Council of Chairs, Dr. Evetts uses her technology not only for teaching and scholarship but also for service.

Supporting Feminist Pedagogies

Dr. Agatha Beins in the Department of Women's Studies assumed the role last year of Editor for the online journal *Films for the Feminist Classroom*. The journal offers educators lesson plans and film reviews among other resources for use in their teaching. Auxiliary to its purpose, the journal brings more visibility to TWU's scholarship on pedagogy. Dr. Beins pioneered moving the journal from its previous home at Rutgers to TWU. The Office of Technology supports her efforts with the servers, staff, and technology she needs to realize her vision for the journal and the people it serves.

Supporting Experiential Learning

TeachLivE™ is an exciting opportunity for future teachers to interact with a classroom of students in a virtual environment. This practice space allows teacher education majors to work through classroom management, pedagogy, and content in real-time without the consequences of a real classroom and in a supportive environment where they receive immediate feedback. The TWU TeachLivE™ Lab is the first in Texas. TWU uses the latest technology to prepare new teachers for the classroom.

Supporting New Directions

Telemedicine is emerging as an invaluable tool on the frontier of more universal access to healthcare. With the passage of the Affordable Care Act and the resulting demand for more healthcare in rural locations where the number of medical professionals is insufficient to meet the demand, telemedicine stands as a solution. Dr. Mari Tietze teaches students from all disciplines including PT, OT, Nutrition, and MHSM about telehealth and remote monitoring in post-acute care. Using an interprofessional approach to teaching, technology is applied to the advancement of population health. The Office of Technology stands behind her pioneering efforts with solid networking and setup support. [Telemedicine course is supported by an HRSA grant no. D09HP25021-03000]

Supporting Field Research

Dr. Nina Fredland primarily teaches courses in community and public health. Her scholarship focuses on behavioral health in children and adolescents, relationship development, and dating violence, among other areas. Faculty use technology to engage in scholarship on the road, in the field, at their offices, and in the classroom. As is the case for many faculty at TWU, technology enhances Dr. Fredland's experience as a faculty member and in many ways has become integral to her work.

Supporting Teaching & Learning

Dolores Kearney in Nutrition & Food Sciences uses technology in the classroom to demonstrate numerous concepts in nutrition through software and kinesthetic demonstrations. She has been recognized as a favorite faculty member on more than one occasion, in part because of her enthusiasm for her field, but also because of her expert use of technology to support learning. The US Department of Education states, “Technology ushers in fundamental structural changes that can be integral to achieving significant improvements... increases student engagement and motivation; and accelerates learning.”

Supporting Online Education

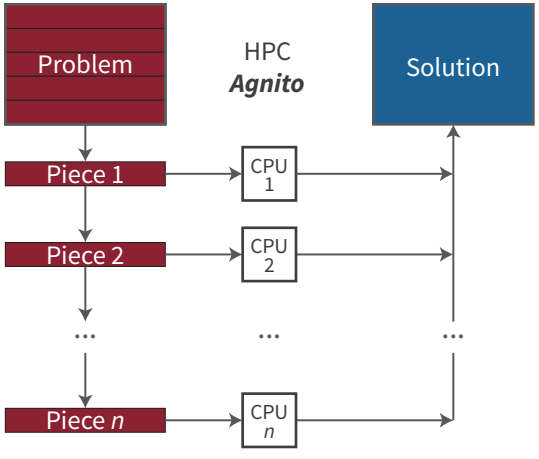
Dr. Gretchen Hoffman in the School of Library & Information Studies received a grant to update her course content with the new cataloging rules that were adopted by the Library of Congress and the British Library in April of 2013. Technology helps Dr. Hoffman take her scholarship in cataloging to new heights. Complementing her scholarship is her excellence in teaching as indicated by her Distinction in Distance Education Award in 2013 and her Quality Matters certifications. She stands as another example of technology supporting the faculty at TWU.

Supporting Nursing

The College of Nursing makes use of state-of-the-art equipment for its innovative pedagogy on all three campuses. The simulation labs in Dallas and Houston afford students the ability to practice care in a low-stakes environment. Students have to think on their feet while also carefully following necessary protocols. Faculty and evaluators can be located remotely creating more fidelity in the students' implementation of techniques and protocols without having the safety net of an instructor's presence in the room. Such pedagogical techniques are proving useful among many disciplines. The Office of Technology supports the use of high tech pedagogy.

Supporting Research Computing

The high performance computer (HPC) cluster, code named Agnito, is a heterogeneous cluster of processors based on the Rocks Cluster distribution. With its current 1.2 TeraFlops the supercomputer can power through data unlike any desktop on campus. It is available for use by faculty and students with a faculty supervisor. Biology faculty are currently the primary colleagues using Agnito, but there are many potential research uses. As servers are refreshed for campus functions, the retired servers will be added to Agnito dramatically increasing the computing power of the HPC. For some grants, access to an HPC is a requirement for funding. TWU technology aims to support all scholarship and creative activity to the best of its ability.



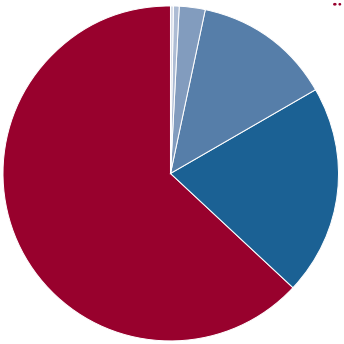
Supporting problem resolutions: The service desk

The Technology Service Desk was recognized at the 2014 Annual HDI Conference as being team-certified. The Help Desk Institute (HDI) is the worldwide professional association and certification body for the technical service and support industry. Facilitating collaboration and networking, HDI hosts acclaimed conferences and events, produces renowned publications and research, and certifies and trains thousands of professionals each year.

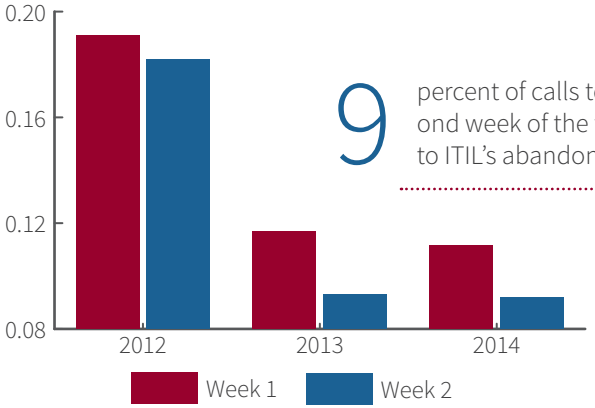
HDI training includes Information Technology Infrastructure Library (ITIL) methodology. ITIL is the most widely-adopted framework for IT service management in the world. By adopting ITIL, TWU benefits from predictable, consistent processes, efficiency in service delivery, and measurable, improvable services and processes.

Team-certification requires only 80% of employees to be HDI certified; 100% of TWU remote team staff are HDI certified! HDI certification is one of several continuous improvement metrics employed by the Office of Technology as it strives to meet goals and objectives while maintaining excellence in service leadership.

36,747 service tickets were logged during FY2014 from all sources



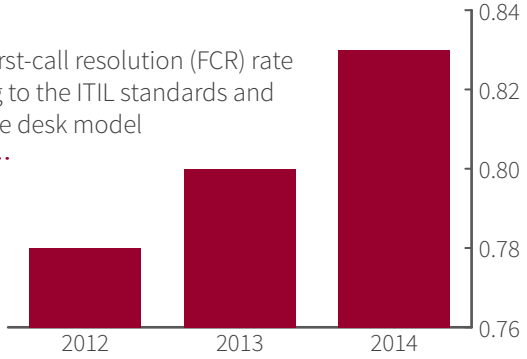
The Technology Service Desk continues to look at ways of interfacing with colleagues to offer the service they need in the most convenient way.



9 percent of calls to the Technology Service Desk during the second week of the fall semester 2014 were abandoned according to ITIL's abandoned call rate standards

Since implementing new practices at the Technology Service Desk in late 2012, the Office of Technology has dramatically reduced the abandoned call rate and continues to incrementally bring down the rate of abandoned calls during the busiest times of the year.

82.9 percent first-call resolution (FCR) rate according to the ITIL standards and the service desk model



According to the service desk model, better training for first-tier responders shifts the workload, allowing colleagues to receive critical support when they need it. Second-tier responders answer on-site needs in classrooms, offices, computer labs, and conference rooms. The model allows third-tier staff to maintain focus on solutions that are less time-sensitive and more project-based. Industry experts generally accept an FCR range of 65 to 80%; TWU exceeds the high-end of this range at 82.9%.

Supporting Monitoring

The network operations center and service desk actively monitor network traffic. Many who visit the site jokingly call this the command center or situation room. But monitoring TWU network traffic is serious business. Service desk staff can easily see where networks are failing or under strain. They can track incidents and outages on outside networks, such as Blackboard and Gmail. The wall of monitors allows the service desk staff to keep an eye on conditions that may affect individuals both on campus and off-site.

2013 | 2014

September

3,586	tickets closed
24	projects opened
13	projects closed

Speech-Language & Hearing Clinic video installation

October

2,930	tickets closed
12	projects opened
7	projects closed

LifeSize conferencing solutions added in Houston

November

2,395	tickets closed
19	projects opened
9	projects closed

TSI pre-assessment survey completed to meet THECB requirements

December

1,603	tickets closed
16	projects opened
14	projects closed

Pioneer Center for Student Excellence technology installed

January

4,133	tickets closed
18	projects opened
23	projects closed

Two iMac stations were placed in the Dallas Megalab and a Mac server used to deploy and customize new Macs was installed

February

2,730	tickets closed
39	projects opened
31	projects closed

Faculty and staff e-mail storage increased from 500MB to 2GB

Year-in-Review Project Highlights

Chrome was installed on all classroom and lab computers to bring greater access to students and faculty

chrome

March

2,588	tickets closed
36	projects opened
39	projects closed

April

3,103	tickets closed
39	projects opened
46	projects closed

Carlos DaSilva named campus manager in Houston and Technology gains Ashley Spinozzi, Dallas campus manager

May

2,670	tickets closed
28	projects opened
31	projects closed

Program fee process automated

June

3,063	tickets closed
25	projects opened
48	projects closed

Dance digital mapping project implementation

July

2,880	tickets closed
26	projects opened
45	projects closed

CourseLeaf project implemented

August

5,066	tickets closed
37	projects opened
41	projects closed

FireEye and Palo Alto added to security; connection established to the high-speed research network

Supporting process innovators: Progress forward

These are exciting times at Texas Woman's University. Change is in the air, but this is not a new phenomenon for the Office of Technology. In fact, the status quo of technology is change. Committed to collaboration and process improvement, TWU technology teams work closely with staff across the institution to improve efficiency as each progresses forward in tandem.

The Office of Technology supports all of the system-wide and department-wide software solutions at the institution. Student systems such as Scholarship Tracking and Review System (STARS), the Degree Audit Reporting System (DARS), Colleague, and WebAdvisor are all used by faculty and staff members in support of student success.

Supporting Finance

Arman Rashid, Sr. Integration Analyst in the Office of Technology, reviews the TWU budget with Pam Wilson, Associate VP for Finance and Administration. This is one of the most complex reports the institution produces, and its accuracy is imperative. Arman worked with Pam through the budget process, providing technical expertise to support her financial leadership. Meeting the demands and regulations of state and federal governing bodies keeps TWU's financial experts on their toes. The Office of Technology provides programming and problem-solving that supports the ever-changing requirements of financial systems.

Phoenix, the financial and HR system, is one of the larger systems supported by the Office of Technology. In the past two years, the institution has implemented many improvements supported by TWU technology professionals.

Another critical component of the Office of Technology is web support for the TWU website, Pioneer Portal, and web forms for departments and offices throughout the institution. New technology, maintaining existing implementations, and changing needs continue to push the Office of Technology in transforming web-data interfaces.

Improving processes at the university is one of the Office of Technology's biggest "wins." Breaking down any barriers between the student and her education is a tacit understanding between the Office of Technology teams and TWU staff.

Whether writing code for an existing solution, such as Colleague, to speed a business process, finding a server to host a proprietary software for a department, or integrating active directory into purchased software to harness the power of TWU's data in support of student needs, the Office of Technology is at the forefront of progress at Texas Woman's University.

Supporting Enrollment

Without quality systems and business processes, Enrollment Services would struggle to keep up with the increased number of applications. Regina Webber and other members of the student team work closely with leadership and support staff in offices such as Admissions Processing to guarantee that admission decisions are made as quickly as possible. In the wired world, timelines are ever-shrinking; and the Office of Technology works to meet the business needs of the institution.

Supporting Procurement

TWU's procurement services provide support across the institution for all TWU purchases, accounts payable, travel reimbursements, and purchase card management. Each of these activities requires heavy use of software, particularly the Phoenix (Oracle) system. As a major purchasing department at TWU, the Office of Technology works closely with staff in Procurement—mutually supporting one another to improve processes and handle issues. When TWU technology works with procurement to make changes, those results benefit everyone working at Texas Woman's University.

Supporting Data Consistency

Summer 2014 saw the implementation of CourseLeaf, an online course catalog solution. Dr. Jennifer Martin led a committee throughout the spring and summer to develop business processes, test the system, and clean up data for entry into the new solution.

Texas Woman's University graduate students can now access clear catalog information in a digital, searchable format while academic departments can more easily edit their own content.

Supporting Webspinners

An exciting new web content management system will be implemented soon at TWU. TERMINALFOUR features responsive design: a device-friendly behind-the-scenes way to build websites so that content adjusts based on the size of the screen on which it is being viewed.

The cross-unit web team is working to bring on the new software. They know that webspinners will find Terminal Four much more intuitive to use. The ease of use will help TWU webspinners maintain accurate, informative, and beautiful websites in support of the TWU brand.

Supporting Human Resources

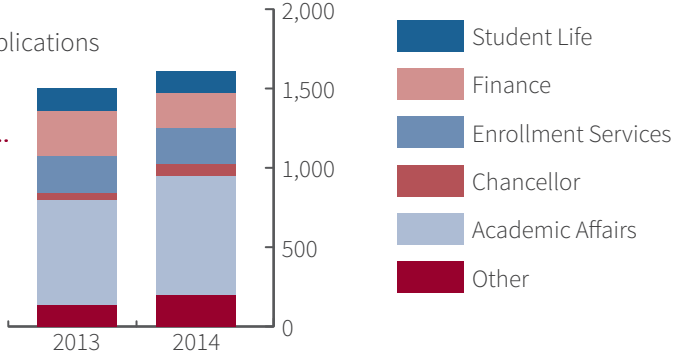
Paperless offices are here to stay. As more people are exposed to the benefits of a paperless workflow, they are adopting technology and business processes that improve the bottom line and sustainability. This year, the Office of Technology worked with Human Resources to implement iRecruitment, a paperless solution with built-in workflow to make the hiring process easier for applicants and less confusing for hiring managers and committees. The software streamlines the application and hiring process, empowering units within the university to make even better decisions on hiring new employees.

Future Projects of the Enterprise Applications team

- New degree audit system
- Student planning
- Privacy flags and student address changes
- New scholarship management software
- SharePoint 2013 implementation
- Course catalog and curriculum workflow software
- Cashiering and point-of-sale implementation
- Student internship and volunteer software
- Terminal Four web content management system
- SQL reports audit, improved access, and security
- Google implementation
- Workflow and forms
- Document imaging

1,609 total tickets were closed by the Enterprise Applications team in a ten-month snapshot period from January to October of 2014

The Enterprise Applications team supports all divisions of the university—up 7.3% in the number of tickets compared with last year.



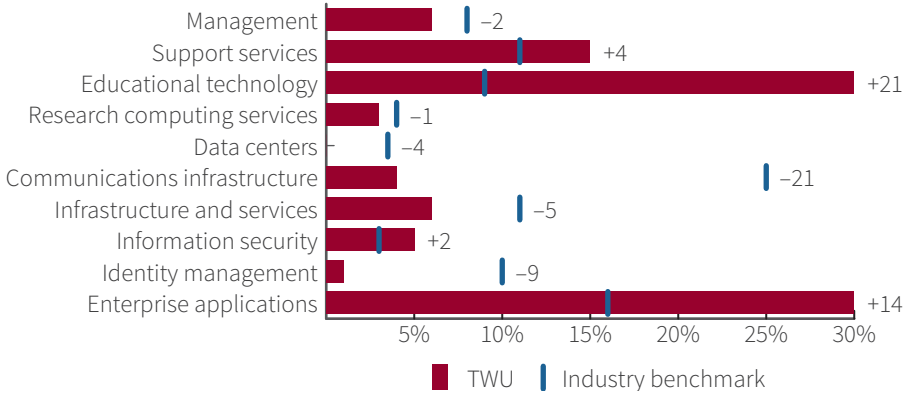
Supporting Financial Aid Processing

Michael Nelson of the Office of Technology and Greta Wheeler of the Financial Aid Office recently co-presented "Eliminating Manual Verifications with WebAdvisor, Colleague, and SSRS," at the Southern Regional Datatel Users Group conference. The presentation gave attendees a look into how a time-consuming manual verification process was converted into an efficient, automated, electronic process through custom development utilizing Ellucian's Student System products [Colleague and WebAdvisor] and SQL Server Reporting Services. Their collaborative effort enabled the presentation to address both the technical and functional perspectives of the overall process.

Supporting shared governance: A solid foundation

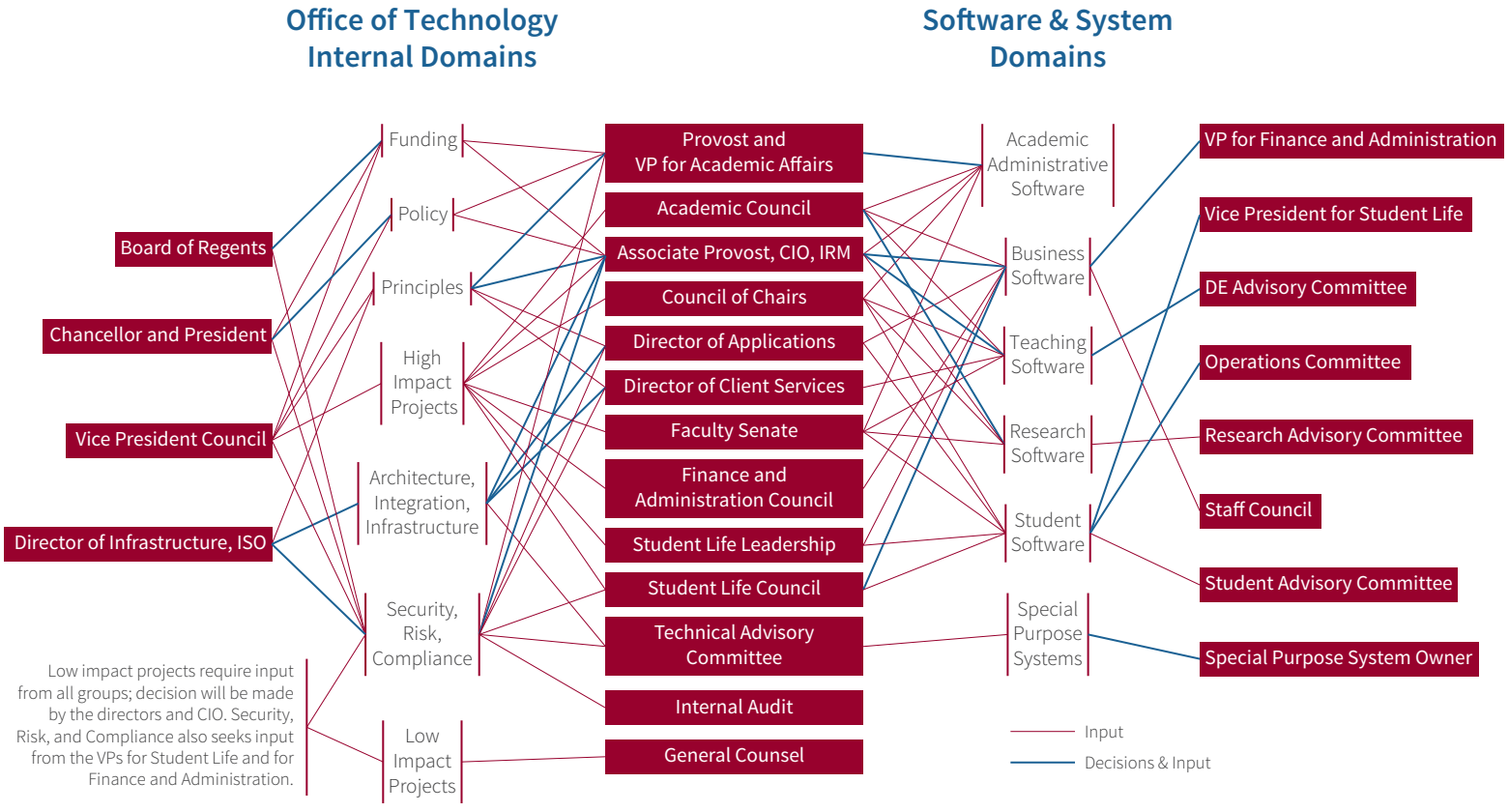
Two years ago the Office of Technology reorganized and, as part of that process, committed to instating a model of shared governance with partners across the institution. The trade-off for shared governance is a slower process for decisions, but the benefits far outweighs this cost. More input from constituents increases awareness about what is needed so that priorities can be established and better aligned with strategic plans. As the governance model takes effect, the Office of Technology continues to carefully watch the funding model and the distribution of funds to make sure money is being allocated in ways that ensure TWU remains a leader in using technology for student success.

6 percent of operating expenditures were spent on management, which is two percentage points less than the EDUCAUSE benchmark of 8% for institutions of TWU's size (full- and part-time students and staff FTEs) and Carnegie class

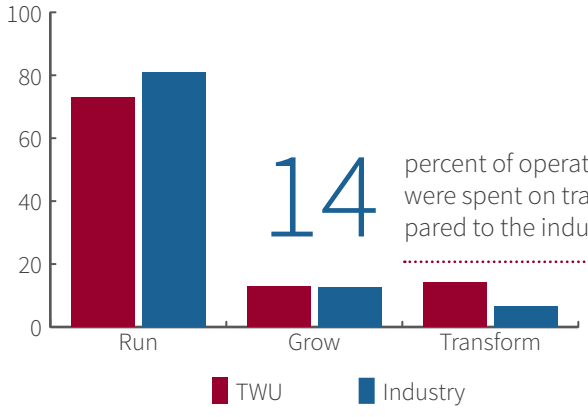


Operating expenses represent the resources needed to maintain a base level of operation for TWU; they do not include compensation or capital expenditures. For example, TWU appears to place more value on support services, educational technology, and security than others in similar institutions. At the same time educational technology expenditures—in this case mainly the learning management system—may not be the best value for the cost as indicated by industry.

TWU's Governance Model for Technology

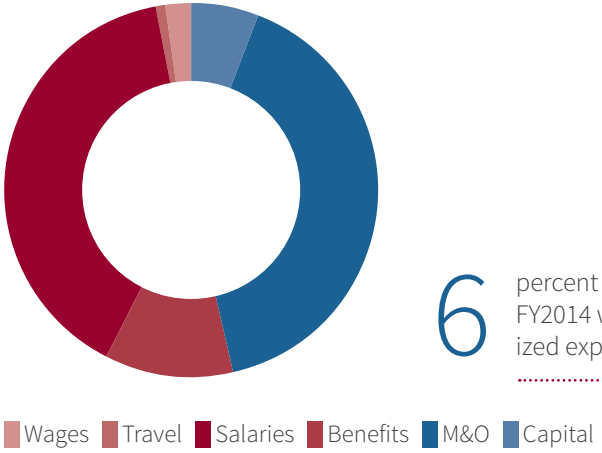


After months of work, a committee of administrators, staff, and faculty from across the institution devised a governance model that was presented and approved by the Vice President Council and the Chancellor/President, becoming Policy 9.20 in May 2014. The Office of Technology is currently implementing a project management tool that will work to support the new governance model. Once proposed projects are entered into the management tool, then input and decisions are sought from the various domains in accordance with the model. The model is ushering in an era of greater democracy for technology resources to better support TWU and its mission.



14 percent of operating and capital expenditures were spent on transformative change compared to the industry's 6.5%

Inspired by Gartner, Core Data Services at EDUCAUSE now classifies expenditures by a run-grow-transform breakdown. From such a breakdown, institutional leaders can better see the institutional vision and the role of technology in achieving that vision. Run (or ongoing operations) spending is a necessity, while grow spending (spending to accommodate incremental growth and improvements) and transform spending (spending to plan and implement transformative change) serve to improve an institution in ways that may result in competitive differentiation. An analysis of total, operating, and capital expenditures allocated to three categories demonstrates how TWU is a frontrunner on the changing landscape of higher education while others are more focused on status quo.



6 percent of spending in FY2014 was on capitalized expenses

The Office of Technology has a strategy of virtualization, contract negotiation, and cloud utilization. Such strategies are reflected in the minimal amount of spending on capital purchases.

Supporting communication: Value of infrastructure

Infrastructure is the backbone on which everything else in a system depends. Technology infrastructure at TWU supports every facet of the university's functioning. If one desktop computer malfunctions, the impact can severely limit one person's function for a time; but, if network equipment malfunctions, the impact can be widespread and significant, depending on the duration of the outage. The value infrastructure adds to everything from research to teaching and learning to the business functions of TWU together with the technical expertise required to maintain and grow the infrastructure means the Office of Technology puts a large focus on infrastructure. The Office of Technology continues to add redundancies and eliminate single points of failure so that, even when one part of the network goes down, colleagues at the institution are not aware of the problem because data continues to flow. The idea that infrastructure stays behind the scenes is a guiding principle—once infrastructure becomes aparent, a crucial part of the infrastructure has failed. A goal of infrastructure is to go unnoticed.

Supporting Customer Routing

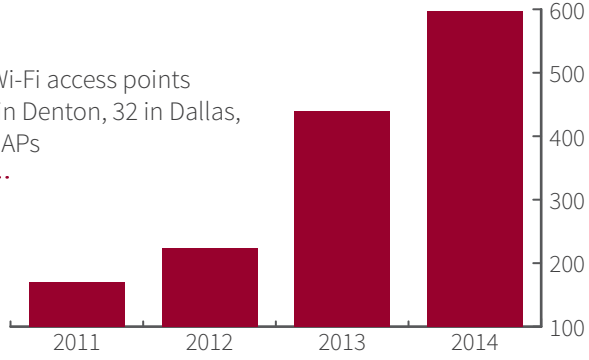
From printing presses to blogs, a principal purpose of technology is to support better communications. Telephone communications and the routing of calls used to occupy significant personnel resources in a technology department, but automation of call routing and online publication of directory information has dramatically reduced the necessity for call operators. The operator's purpose is to direct callers who do not know whom to call. The Office of Technology takes pride in its operators and their friendly, knowledgeable support to route callers to the person or department they need.

Supporting Wi-Fi

Wi-Fi users want more than a connection to the internet; they want it to be fast, reliable, and available everywhere. In newer buildings such as the Ann Stuart Science Complex or the Dallas campus, the challenge is less formidable as the electrical and network infrastructure to support wireless access points (APs) is already in place and easy to connect. Across the Denton campus, the infrastructure is not readily available in outdoor areas or older buildings, and so reaching 100% campus coverage is more of a challenge. Also, colleagues cluster at different locations at different times putting a strain on various access points at various times. The Office of Technology monitors hot spots of Wi-Fi activity, looking for patterns so that, as it uses resources to add new APs and maintain the growing Wi-Fi infrastructure, it does so in a manner that supports the needs of the institution.

251 percent increase in the number of Wi-Fi access points compared to FY2011; currently 542 in Denton, 32 in Dallas, and 23 in Houston for a total of 597 APs

Each month new Wi-Fi enabled mobile devices are released and heavily marketed to consumers. The culture of mobile users among the TWU community has been growing exponentially, and the Office of Technology is meeting the demand for Wi-Fi access by adding and maintaining an arsenal of wireless access points.

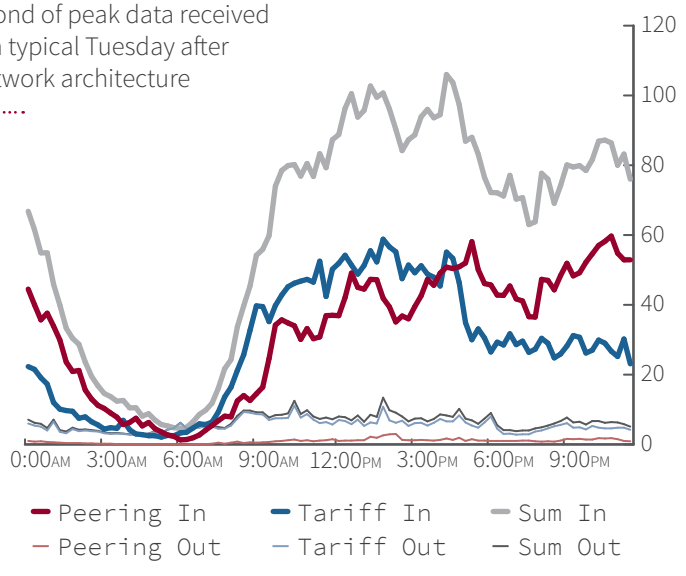


Supporting Telephony

The Office of Technology administers the telephone system, maintaining thousands of phone lines, phone sets, voice and data cabling to all offices, long-distance calls, and the plethora of infrastructure required to maintain a voice communication system. While TWU has unified communications and voice over IP (VoIP) systems, the university continues to maintain its PBX system because it delivers reliable services at extremely low cost. TWU has delayed an aggressive adoption of some newer telecommunication technologies in order to allow the products to mature. Many universities that were early adopters of VoIP systems are rethinking their communications platforms, and some are choosing to go with completely software based systems (i.e., softphones on your computer).

106 Megabytes per second of peak data received in sum at TWU on a typical Tuesday after redesigning the network architecture

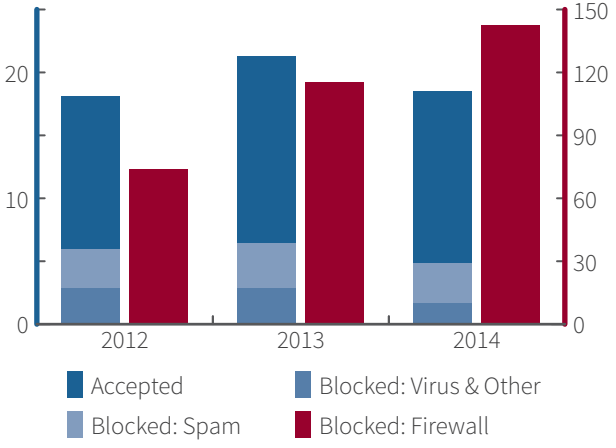
Each day TWU receives about 5.2 Terabytes of data, and that number is growing. During FY2014, the Office of Technology worked with ARIN, LEARN, and Hurricane Electric to become multihomed, which now allows TWU to balance Internet traffic between multiple service providers without being dependent upon any particular provider. TWU network professionals engineered a new network architecture that allows TWU access to intrastate peering arrangements that are faster and more economical than were previously available. The graphic shows last year's efforts are remarkably successful as TWU has been able to off-load nearly 50% of network traffic through the peering-based Internet.



Supporting Security

To drive is to face the reality of automobile accidents. Drivers can better protect themselves with airbags, reinforced chassis, traction control, and other safety features; but there are always risks when getting behind the wheel. The same is true when sensitive data is accessible via a network. The Office of Technology continues to put more resources toward security than the median of other institutions in the same Carnegie class as TWU. This year TWU technology added redundant systems for detecting malware and virus threats behind the firewall. The new systems have proven themselves by finding issues that previous systems have missed; and in this case, if one is good, two are better. The security team also continues to ensure technology compliance with regulatory agencies and to lead disaster recovery training.

143 million e-mail messages were blocked by the firewall last year, including messages blocked using IP addresses and the dynamic reputation service, part of the e-mail gateway; 13.6 million messages were accepted and delivered



Last year the e-mail gateway processed more than 161 million messages, 75% more than the 92 million in FY2012. Only 8.5% of those were actually delivered: 3.2 million were blocked as spam, 1.6 with a virus or unresolved address, and 143 million were blocked because of the firewall and dynamic reputation service. The e-mail gateway uses machine learning technology that filters on millions of possible spam attributes to save the TWU community precious time. Many colleagues already dislike the number of e-mail messages they process each day, and many do not realize that 91.5% of messages they would otherwise receive are filtered out by the e-mail gateway.

Supporting the mission: Technology's added value

The Office of Technology continues to give shape to the principles of servant leadership. Rather than push new initiatives at TWU, TWU technology serves to support the leadership of others. We strive for excellence in service not because of industry standards, but because we embrace service as a core value. Rather than run people's lives, technology should improve the quality and efficiency of the lives they lead. Service is the value that TWU technology adds to TWU.

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TWU technology

TWU technology

Innovation
Collaboration
Core Values
Empathy
Service