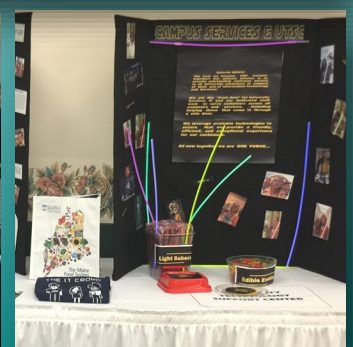
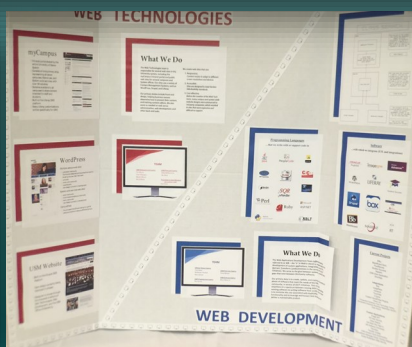
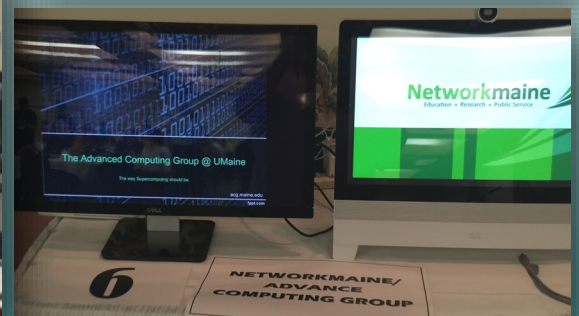
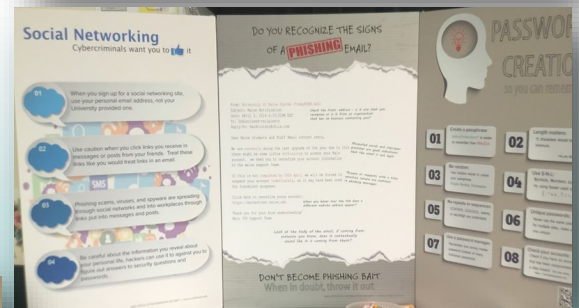
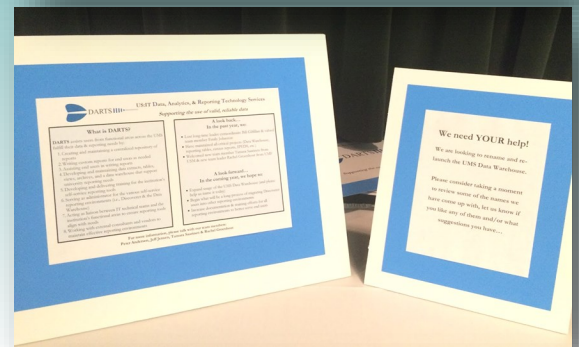


US:IT

University Services:
Information Technology

State of IT 2016



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State of IT Report 2016

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Welcome to US:IT

I am pleased to present to you the FY 2017 State of IT report. The report looks at our current structure, operations, activities since the 2016 report and the accomplishments and challenges we face.

This report was informed by the expertise of dozens of US:IT leaders and staff and the feedback of over 240 faculty, students and administrative staff. The data and information presented here is our attempt at an honest look at the current state of information technology, our successes, our failures, and our opportunities. The recommendations included here are intended to support the future course for US:IT as we aim to better align our services with the developing mission of One University. There are many areas where we can do better. Strategic resources and investment in much needed technology has begun thanks to action by the campuses and Board. Our focus continues to be on the potential impacts to our students and faculty. With this in mind, we ask ourselves the question, “what would the impact be on a day in the life of a student?” This question is key to our mission and to interpreting the findings of our studies and setting US:IT priorities going forward.

We would like to give special thanks to the Board of Trustees’ Faculty representatives for their candor and advocacy for US:IT in and around the classroom. I must highlight the support and effort expended by the Educational Technology Advisory Council who works tirelessly as we expand and modernize academic technologies. They, and indeed all faculty and students, deserve the very best services, support and technology we can offer. Finally, I want to thank the US:IT staff. They give their best each and every day, and I thank them for their accomplishments, commitment and skill.



Dick Thompson, Chief Information Officer

A large, stylized handwritten signature in black ink, consisting of a large 'D' followed by a series of loops and a long horizontal line extending to the right.

➤ Overview: US:IT Today

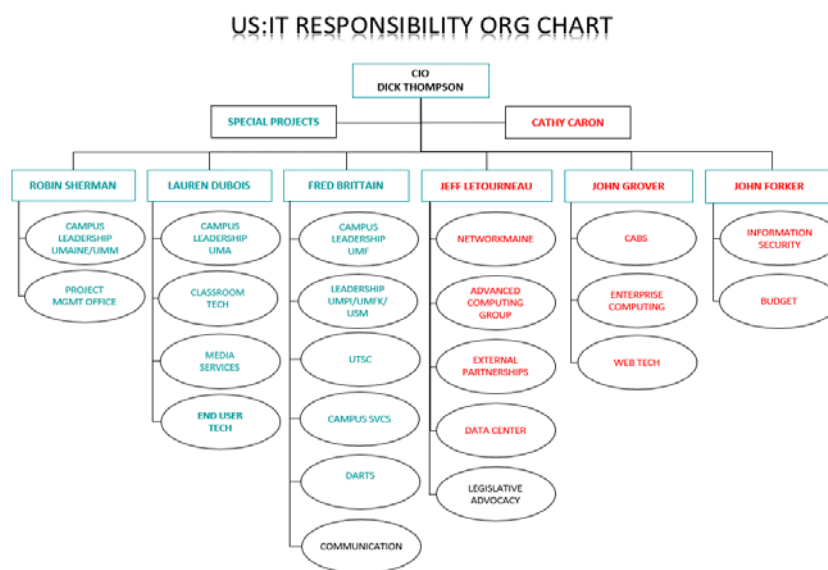
University Services Information Technology (US:IT) continues to evolve as the unified information technology organization serving all of our campuses, centers and locations. US:IT is responsible for network connectivity, two secure data centers, the Blackboard learning management system and all large administrative systems including MaineStreet (student services, human resources, financial and purchasing systems), facilities management, and donor management software. US:IT provides direct desktop support, file and print services, classroom equipment including video, and support for many types of local applications, end user devices and tools. A project management office oversees projects to ensure projects are on time and delivered successfully.

OUR MISSION IS SIMPLE: TO DELIVER SEAMLESS, HIGH-QUALITY AND EFFECTIVE INFORMATION TECHNOLOGY INFRASTRUCTURE AND SERVICES THAT MATTER TO STUDENTS, FACULTY AND ADMINISTRATIVE USERS.

Today, US:IT is a single organization, committed to serving students and faculty and to ensuring the success of each campus. One hundred eighty-one staff work to serve the campuses every day. They are organized using a collaborative team approach to service delivery. Our students are “digital natives” and come to campus expecting blindingly fast connections on multiple devices in order to simultaneously participate in learning, research, communication with faculty, and socialization with peers. Faculty expect technology enabled classrooms where they can reliably connect their devices to deliver their information and knowledge in the manner they choose to students anywhere. Classroom support services are necessary to ensure seamless connections for all users.

➤ Oversight & Direction

US:IT has continued to streamline its leadership team, assigning team members’ responsibility over major components of IT. These assignments coincide with interests, experience and skill level of the individual leaders who implement, operate and maintain the IT systems in use today and being considered in the future.



The foundation of US:IT is its infrastructure and enterprise level systems that strive for seamless service delivery. High performing, well-supported networks, and data processing capacity result in efficient and stable operations. This foundation supports a variety of important services performed by teams of talented IT staff within US:IT for the benefit of all our users.

Staffing & Leadership

In 2016, the leadership team, comprised of the CIO and his direct reports, recommitted to working cohesively to set direction and strategy and to make critical decisions regarding planning, organizational structure, efficiency and service delivery. Several notable initiatives resulted from this leadership team.

In partnership with UMS Office of Human Resources, US:IT began an initiative to improve Customer/Student Experience. This initiative was kicked off at our annual US:IT summit in May and we are proud to be an early adopter within the UMS. We have already begun training individuals and using the principles in our direct actions with US:IT customers. Continuing efforts will engage the remainder of US:IT employees with the goal of developing an IT culture focused on delivering products and services with the customer's needs foremost in our minds. This directly ties to the expectations of faculty, students and administrators.

The leadership team also faced some necessary adjustments in staffing and structure after the departure of one of our Associate CIOs. Besides reassignment of some duties, we realized an opportunity to take steps toward a structure aligned to provide more responsive service to all campuses and better communication within and without US:IT. We will be carrying these efforts forward by periodic review of staffing needs and diverting open positions to areas of need, developing strategies for improved recruitment and retention of staff, and professional development of those individuals showing leadership promise.

Successes:

- Providing direct leadership capacity at the two larger campuses
- Savings accrued from vacant Associate CIO position have been redirected to create a shared CITO/Director of IT Communications position for UMPI and UMFK
- Formalization of succession planning within the existing staffing model accomplishes a direct campus leadership pipeline

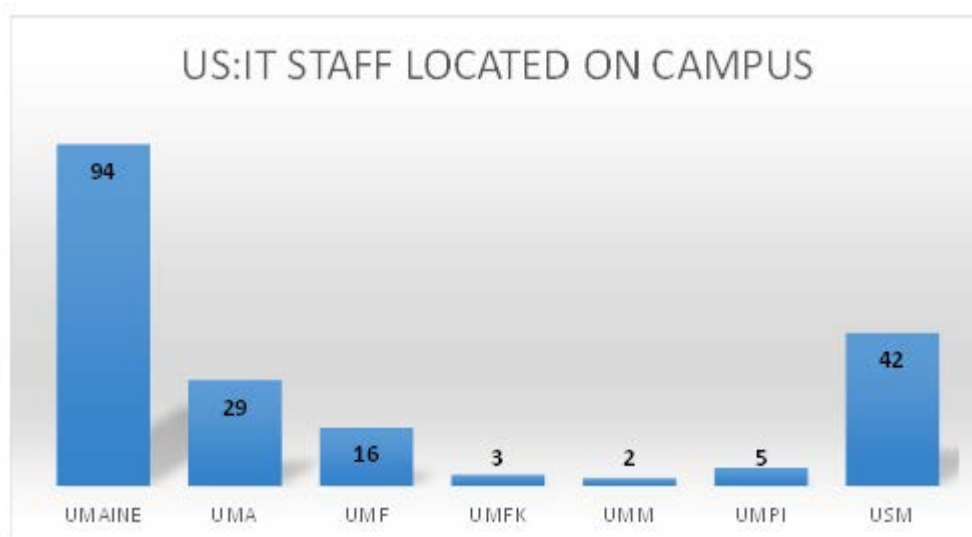
Challenges:

- The current low unemployment rates place us at a disadvantage in our attempts to recruit highly skilled staff

➤ Strategic Planning

As a result of the system-wide implementation, staff buy-in and hard work, and the creation of a unified service structure, US:IT has continued to evolve. We remain committed to improving services, adopting new technologies and serving as a trusted partner strategically positioned to meet the goals of our customers. As a single organization, US:IT has recommitted to serving students, faculty, and staff and to supporting the success of each campus. Adopting new technology and systems helps us support classrooms, provide infrastructure capacity, and engage with the university community at large. Some examples of these strategies include:

- Team-Based Service Delivery - Developing responsiveness, capacity, and skilled staff
- Consolidated Data Center - Creating a safe and secure team under single management
- Cooperative Procurement - Establishing system-wide licensing and standardized end-user devices
- Capital Investment Plan - Planning for appropriate investment in our assets
- Accessibility Committee - Creating positive and meaningful access to IT for everyone
- External Collaborations - Supporting research, economic development, and resource sharing



Enterprise Systems and Applications

As the University moves to an increasingly greater online presence for marketing and delivering education, Enterprise Computing and Application Services (ECAS) can provide support and service for every academic and business area of the University through the software and systems it manages. Software development, web development and hosting, system administration, database administration, and reporting are all focus areas of ECAS. The interconnected nature of each of these focus areas is a testament to the work done to bring together the formerly isolated campus IT units.

Through some of these services, ECAS provides a platform for virtual environments where teaching and learning can take place. We help departments standardize and automate certain business processes for efficiencies and quality improvements in customer service and we can provide off-site access to students for business interactions with UMS. Self-service registration, financial and student employment information, and student ID cards for residence hall access, meal plan payments, and library services are a few of the ways that ECAS empowers students to connect with their University on their own terms and in their own time. ECAS assists the campuses in aggregating information and services in one web-based portal application to enhance service for students, faculty, and staff.

Successes:

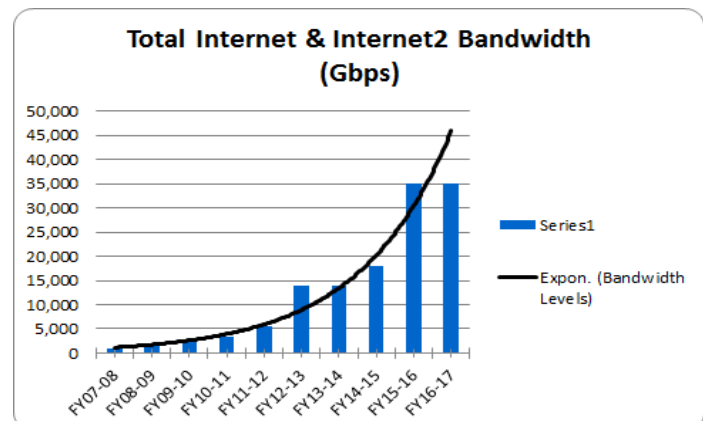
- Newly hired staff from positions approved by BOT
- Migrated Blackboard from on-premises to Blackboard Managed Hosting
- Upgrade of MaineStreet Financials complete
- Software development support for HR efficiency related projects
- Implemented on-line admissions deposit payment
- Implemented service to text students when they have important MaineStreet Message Center messages
- Integrated TargetX admissions recruiting with MaineStreet
- Implemented Course Search for campus web sites
- Consolidation and decommissioning of legacy server environments.
- Upgrade of ImageNow complete
- Upgraded UMaine website to new design and new servers complete
- Acquired Box for enterprise level file storage (General availability expected Jan 2017)
- Acquired Kaltura for enterprise wide video platform for educators and others (General availability in Mar 2017)

Challenges:

- Staffing levels not adequate to keep up with university demand
- Turnover of staff with knowledge and experience in the systems we support
- Management of some legacy systems not yet transferred to other teams

Infrastructure

The IT infrastructure unit of US:IT, known as Networkmaine, is responsible for supporting a vast array of infrastructure services both within UMS and beyond. These infrastructure services include communication focused services such as wired and wireless Local Area Networks (LAN), telephone services, videoconferencing, streaming and recording services, and Wide Area Network (WAN) services interconnecting all UMS campuses and locations to each other and to external networks including the Internet and the nation-wide Research and Education Network/Internet 2 through MaineREN. Along with these communication services, Networkmaine also provides High Performance Computing, private cloud and enterprise virtual computers, network attached storage, backup services, and colocation services leveraging UMS' two data centers located in Portland and Orono.



Networkmaine also implements and supports information security policies and initiatives such as the operation of network firewalls required for PCI (credit card processing) compliance, network access control, and VPN services for remote access to US:IT systems

Successes:

- Established virtual computing and storage platforms in the Portland data center as the beginning foundation of supporting future business continuity capabilities
- Executed a five-year licensing agreement with the State of Maine's Office of Information Technology to share the US:IT Orono data center
- Expanded campus-level firewall services across UMS to provide greater segmentation and protection
- Major Wireless improvement initiative underway

Challenges:

- Currently burdened by the sheer number of servers that need to be decommissioned or transitioned into the US:IT enterprise data centers
- Neglected infrastructure and aging systems and equipment and substandard communications fiber require enormous effort to maintain

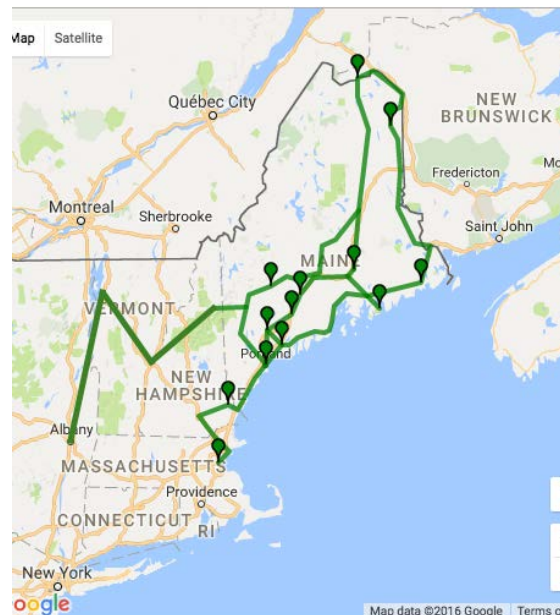
Advanced Computing Group

The Advanced Computing Group, a sub-unit of Networkmaine, provides high performance computing and cloud computing services, data management, outreach, and grant writing assistance to the research community at large and is focused on the computing needs and requirements associated with securing nationally funded research. This effort includes maintaining data integrity during data retention and transfer. In the past year, the ACG staff have led or assisted on 36 grant submissions to the National Science Foundation and other funding agencies.

MaineREN

MaineREN is the network backbone servicing Maine's research and education community. It was created by UMS in partnership with The Jackson Laboratory and the University System of New Hampshire in 2007 to provide advanced, high capacity network transport required to participate in and be considered for high-technology research. The current network equipment that makes up MaineREN has been in place for nearly 10 years now and is no longer able to keep up with the ever-increasing capacity demands placed on it.

UMS and USNH have agreed to continue our decade long collaboration in upgrading the optical networks in both Maine (MaineREN) and New Hampshire (I-Beam) and extending down to



Cambridge, Massachusetts. A joint RFP was released in late 2016 on behalf of both University Systems with the goal of having both states' R&E networks upgraded by summer 2017. It is expected that the new optical network will deliver 200 Gbps wavelengths, a 20-fold increase over the 10 Gbps wavelengths the current equipment can deliver.

Maine School and Library Network (MSLN)

UMS has been operating the Maine School and Library Network since it was created in 1996. In 2009, Networkmaine was created through a cooperative effort between UMS, the Department of Education, the Maine State Library, and the State Office of Information Technology to coordinate the goals of the public research and education entities in Maine. Networkmaine now operates through a coordinating council that is comprised of representatives from each organization along with two K-12 school representatives and two public library representatives. The primary focus of MSLN is the operation of Maine's research and education network and ensuring that Maine's K-12 schools and libraries have adequate access to internet connectivity at little or no direct cost. This primary focus remains despite the expanded role that Networkmaine now plays within UMS.

In 2017, Networkmaine, along with the Office of the Public Advocate, is assisting the MDoE and MSL's proposed legislative action to restore the funding level available through the Maine Technology Education Access Fund (MTEAF). The MTEAF, is the primary, state-level funding source for the MSLN system. With the subscriptions to land-line telephone services decreasing by double digit percentages year after year and with cellular revenues moving from voice services to data services, the MTEAF's annual assessment, set by the PUC, has shrunk dramatically. The goal is to provide direction to the PUC to establish new rules and mechanisms that will lead to the restoration of the annually available funds.

K-12 WiFi

Network Maine supports the wifi networks at the 250 middle and high schools that chose to participate in Apple's technology solution as part of the MLTI. These wifi networks connect over 77,000 unique client devices daily. Networkmaine is currently in discussions with the Maine Department of Education (MDoE) to explore executing a cooperative agreement so that UMS and MDoE can collaborate directly with one another to support the wifi networks in Maine's K-12 schools in FY18 and FY19.

Information Security

At the University of Maine System, the Information Security Office was developed to protect the confidentiality, integrity, and availability of data and to protect the people who use that data. We strive to accomplish this through the core functions of our program: identify,

2016 Network Security Snapshot

INTRUSION ATTEMPTS: 2,565,778

ACTIONABLE ALERTS: 602

THIRD-PARTY ENGAGEMENTS REVIEWED: 82

protect, detect, respond, and recover. In performing these functions, the program aims to synergize people, process, and technology. The Information Security team supports faculty, researchers, staff, students,

community partners, and contractors to protect information belonging to various constituents including current and former students, employees, parents, donors, and other customers. The Information Security Office partners with individuals and organizations inside and outside of the University in order to provide the most robust customer service and data security we can offer. University-owned information such as intellectual property and proprietary research, as well as constituent information that has been entrusted to us are all within the scope of the Information Security team. Under the direction of our Chief Information Security Officer, the security team applies various techniques to address potentially harmful security breaches or errors. Team members collaborate with campus stakeholders and third parties to reduce risk and to achieve regulatory and contractual compliance when transmitting, processing, or storing data.

The Office currently consists of the Chief Information Security Officer, and three analysts. In cooperation with stakeholders, the team develops and updates policies and processes, and provides various levels of training to ensure that those who use University technology and data employ best practices. We evaluate threats from several sources including reports from a 24-7 intrusion detection system. The team responds to incidents appropriately using in-house diagnostics to analyze the extent of any security breach as well as contracted support for external investigations that may exceed our capabilities. This multi-faceted approach allows us to respond quickly in the most efficient and cost-effective way that is appropriate to the scale of the security threat.

Successes:

- Continued use of contracted intrusion detection systems against outside threats to information security
- Contract review process formalized with Strategic Procurement to protect data during vendor relationships and during utilization of cloud services
- Cyber Liability Insurance and response plans in place to address large-scale breaches of security
- Contracted with Box, an encrypted data repository, to decrease exposure to security threats by reducing the need for independent file servers
- Improved teamwork with US:IT functional areas to address security issues
- Strategies in place for key risk entry points to reduce vulnerabilities
 - o Compliance (PCI, HIPAA, etc.)
 - o Vulnerability management
 - o Threat detection

Challenges:

- Resource constraints both in operating budget and staffing
- Cultural resistance to the inconvenience of 2-factor authentication
- Introduction of mandatory compliance trainings to instill a “whole team effort” approach to data protection

Classroom Technology

The Classroom Technology team is the group responsible for designing, installing, and maintaining classroom technology for the seven campuses of the University of Maine System. Our students expect high quality and functioning classroom technology to contribute to their learning experience and our faculty depend on the technology and in-class support personnel to contribute to the success of their classes. These relationships are integral to the success of our campuses throughout UMS.

In the fall of 2015, the Classroom Technology team completed an extensive assessment of all University of Maine System campus classrooms and classroom technology. All centrally scheduled teaching and learning spaces were captured in a report that details the classroom technology in each space. We have returned to the 67 classrooms that have been improved over the summer and fall, reassessing these upgraded learning spaces. We are now seeing an improvement in the environment and access to higher quality images where HDMI (High definition) equipment and cabling has been installed.

During the Fall 2016 semester, we visited all seven campuses and engaged with faculty and administration to develop specific plans for Classrooms For The Future funds. Classrooms for the Future is an area of keen interest to the leadership at each campus and there is significant discussion about how to be innovative and intentional while engaging our users. One way we plan to reach out to our users is through the implementation of a faculty and student survey. Early investments needed to achieve the greatest value to each campus and significant prioritizations are under way.

The Classroom technology Team developed a mechanism to allocate funding to support innovations, improve existing systems, and allow for various learning methodologies to impact design and project prioritization. The campuses will have final approval on which plans to carry forward. Since classroom work can be completed only during the summer break and other long-term breaks in the academic calendar, the team will be working to equitably prioritize which plans will be completed during summer 2017 and summer 2018.

Successes:

- Newly hired staff from State of IT funds
- Completion of 67 system installations and upgrades since January 2016
- Classrooms are designed and built using industry standards
- Appendix outlines the room evaluations completed between August 2015 – August 2016 and details the improvements in room scores. Notably, of the upgraded rooms, there has been a significant jump in the overall scores at reassessment

Challenges:

- Staff retention
- Engagement with faculty and administration on all campuses

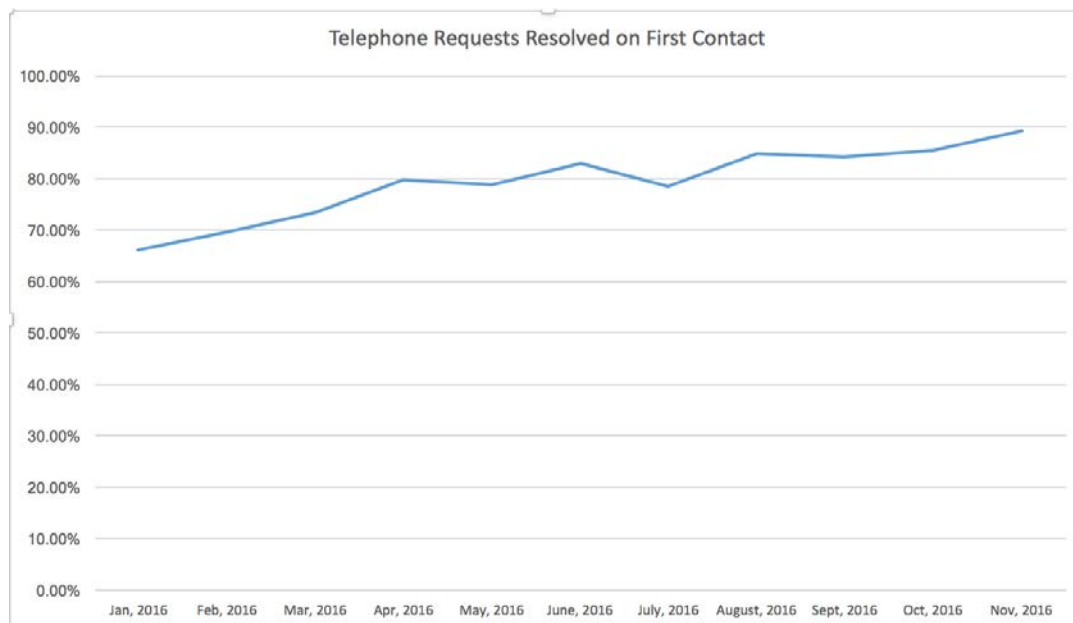


- System-wide support for videoconferencing
- Third-tier (high-level) support for installation work

Support to Our Communities

➤ University Technology & Support Center (UTSC)

Campus Services is the unified service delivery team of technology staff operating the UTSC and responding to emergency support and maintenance requests as needed. The UTSC Help Desk focuses on responding to and coordinating the response to unplanned interruptions of



service as well as scheduling videoconferencing and assisting with Blackboard course requests. The UTSC collaborates with US:IT service delivery teams wherever needed.

Some of the key services that UTSC provides are performed by Campus Services personnel. These staff members are campus-based and respond to technology support issues such as virus cleansing, software and hardware problems, classroom instructional support, and provide many other technology troubleshooting solutions to the faculty, staff, and students on their campus. We envision a seamless service delivery chain from UTSC through Campus Services, Infrastructure, Enterprise, and other US:IT teams like our training team. This unit utilizes live-streamed video, web-based trainings and face-to-face meetings in order to distribute the necessary instructions for the correct usage of available technology.

Successes:

- Changes in call-routing to answer most calls at the originating campus
- US:IT's Service Desk is now open M-Th 7am - 10pm, F 7am - 8pm, Sat 10am - 8pm, and Sun 10am - 10pm. These hours of operation are a combination of Staff and Student employees from across our 7 campuses. We intend to add coverage soon from 5am to

7am Wednesdays and 5am to 10am Sundays to coincide with our call volume during maintenance windows.

- Serving clients where they are. Example is using campus personnel to support local Cooperative extension offices
- Improved training of the approximately 140 student workers to enhance immediate problem resolution capacity

Challenges:

- High turnover rate of staff
- High volume of projects relying on campus based teams to assist with implementations
- Management of some legacy systems not yet transferred to other teams
- Need for advanced training for users

➤ **Project Management & Consulting**

The Project Management Office (PMO) provides guidance to the UMS community throughout an IT project's life cycle; from the initial project request through to project completion. The PMO facilitates the intake and review of new IT initiatives, and strives to ensure that the right projects are delivered at the right time and with the right resources. The PMO applies project management principles and methodologies across all project activities, and works with project teams to deliver projects on time, on budget, and to satisfied customers.

Successes:

- PMO has directly managed or supported the delivery of ninety-one projects since 2012.
 - Twenty-nine projects are currently active, and sixty-two are completed.
- The services the PMO delivers continue to mature, and the value of applying project management methodology throughout the project lifecycle is increasingly supported and adopted by project teams.
- The PMO developed a project initiation process and business case analysis protocol.

Challenges:

- Lack of formally established project portfolio governance model that provides a framework for processing the intake, review, and prioritization of new IT initiatives
- Initiatives are often undertaken without sufficient insight into the resources (human and financial) necessary to ensure successful implementation, to protect and monitor the investments, and to provide ongoing support.
- Limited resources cause significant outsourcing at as much as 50% higher cost, increasing cost to deliver on existing and projected commitments.

➤ **External Collaborations & Advocacy**

The value of the University of Maine System to the public is extraordinary. In addition to the infrastructure services detailed above, US:IT is an active participant in other technologies in the public sector. We act as an advocate for one-to-one computing in our K-12 schools, as an

anchor customer and the original designer of Maine Fiber Company's Three Ring Binder middle mile fiber network, and as a catalyst for collaborative services across the state and Northeast.

Networkmaine serves UMS, K-12 schools, public libraries, other higher education institutions and research laboratories across the state.

National, State & Local Advocacy

Our advocacy efforts extend across the state as part of our responsibility to support the University's mission of advancing education, research, economic development, and public service, and are our way to contribute to the University's mission of public service.

FCC Business Data Services (BDS) Proceedings

In the past year, as a member of The Quilt's National Policy Committee, we met with Stephanie Weiner, Special Advisor to FCC Chairman Tom Wheeler, and Deena Shettler, Associate Chief of the FCC Wireline Competition Bureau, on behalf of regional and state R&E networks across the country. The meeting was to express concern that the Commission not sweep R&E networks into the same category as commercial service providers if it adopts a new regulatory framework for Business Data Services (BDS). We stressed that the Commission has long recognized R&E networks as providers of private, non-common carrier services and the Commission should preserve this status quo of exempting R&E networks from regulation.

ConnectME/Maine Library Commission/Maine InfoNet Board/InforME

Our CIO Dick Thompson, a public member of ConnectME, was recently appointed by the Governor to serve as Chair. In addition, the CIO represents UMS on the InforME Board and serves libraries as a member of the Maine Library Commission and as a public member of the InfoNet Board.

Information Protection Working Group

In 2015, our CISO was appointed by the Governor to serve on the Information Protection Working Group which was established to examine threats and vulnerabilities to public and private data managers, to develop cost effective defenses and statewide policies, and present recommendations to the Governor and his Cabinet about actions and strategies for improved data and infrastructure management.

Northern New England Neutral Internet Exchange

Networkmaine's Executive Director, Jeff Letourneau, along with two other individuals with long standing in Maine's Internet marketplace, joined together to create Northern New England's first Internet Exchange. NNENIX is the network fabric and physical location where Internet network operators and enterprises can come together to peer, or pass Internet traffic between each other's networks in a more optimized way. NNENIX is not an Internet Service Provider (ISP). It is a connectivity resource for ISPs, content providers, government, education, healthcare, and commercial enterprise networks. NNENIX will help provide the "critical mass" needed to attract major Internet carriers and content distribution networks to connect to the Northern New England market. NNENIX will have the long-term effect of improving overall Internet speeds, reducing Internet bandwidth costs, and increasing the reliability and resiliency of the Internet for our members, and for the general public in all of Northern New England.

Old Town – Orono Fiber Corporation

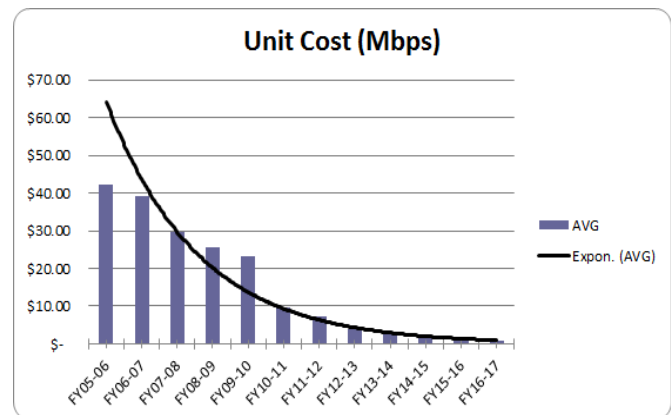
The University of Maine System is a member of the Old Town - Orono Fiber Corporation (OTO Fiber) whose goals include creating a fiber optic network suitable for gigabit internet connectivity, attracting multiple internet service providers (ISPs), and bolstering existing businesses that could utilize this level of connectivity. The members of OTO Fiber are the city of Old Town, the town of Orono, and the University of Maine System.

Annual Budget and Infrastructure Investment Plan

Historically, IT costs have been paid with UMS appropriation and from a myriad of allocations, chargebacks for specific services, fees for services, interdepartmental charges, and direct charges to campus departmental budgets. This complex funding model made coordinated management and improvements difficult. In FY 17, US:IT established a budget to cover baseline IT expenses for all campuses.

➤ **FY18 Development Strategy**

The FY18 Information Technology Budget was created by identifying the associated costs to perform the baseline set of services. The US:IT budget includes the salary and benefits of all IT staff in US:IT including the personnel costs & other IT costs that had historically been part of SWS. The budget takes into consideration increases and decreases in cost based on efficiencies and expansion or elimination of applications or other services.



The following services are representative of the unified services included in the baseline:

- US:IT Personnel
- MaineStreet (Campus Solutions, Financials, HR)
- Blackboard
- Document Management
- Marketplace (Sciquest)
- Advancement
- Resource 25
- Admissions e-App
- Data Warehouse and Business Intelligence tool (Cognos)
- Discoverer
- Desktop/Laptop Support
- Database Platform and administration
- Gmail and Google Apps for Education
- TouchNet eCommerce Platform (except for TouchNet Ready Partners)
- ID Management and Authentication
- Ursus
- Information Security Office
- Personal File Services
- Network Access
- Telephone/Voice access, devices, management system
- Internet Service/Wide-area Network
- Video Conferencing
- MyCampus Campus Portal infrastructure, maintenance and operation

Other campus non-IT departmental budgets may contain budgets for information technology equipment and, as in past years, those budgets have not been included in the FY18 US:IT budget.

➤ **FY18 IT Budget**

In FY18, US:IT has a unified budget of approximately \$24.3 million. The allocation of these costs will be distributed to each campus based on a process designed by the Chief Financial Officer and his staff. The budget is built at a detailed level, rolled up as appropriate and will be reviewed by Chief Business Officers from all campuses and the University Services Advisory Council.

Over half of the US:IT budget is expended on enterprise systems, major applications, network infrastructure and data centers. Expenses include both the internally hosted systems and those provided through a cloud based or managed services provider.

Campus Services and Technology Support are the on the ground staff and local resources to operate each campus, the UTSC (call center), respond to multi- media services requests for service and a host of other IT needs. These functions total approximately 25% of the US:IT budget.

The Chief Information Security Officer and his staff have a meager budget for the work we do. This is possible, in part, by careful design and work done at the team level across US:IT. Despite this effort, we continue to be vigilant to the growing numbers and tenacity of cyber threats.

UNIVERSITY SERVICES IT - FY18 BUDGET

SERVICE AREA	FY18 BUDGET	%
ECAS-Enterprise Comp & App Svc Total	\$ 7,562,881	31.1%
Infrastructure	4,819,619	19.8%
End User Technology	930,741	3.8%
Classroom Technology	799,143	3.3%
CISO	718,559	3.0%
Web Technology	712,878	2.9%
Other Unified Services (Policy, Management Teams, CABS, Leadership)	3,076,808	12.6%
Campus Services	4,620,995	19.0%
Technical Support	1,096,685	4.5%
TOTAL	\$ 24,338,309	100.0%

➤ Investments in Aging Systems

Three major investments were proposed in the State of IT report released in November of 2015. The resulting funding provides nearly 50% of the estimated \$44million needed to modernize our wireless network across all locations, 350 of our classrooms and our primary enterprise level student management, HR/Payroll and Finance systems (otherwise known as MaineStreet). Work has ramped up quickly, especially to engage faculty and staff in design of our classrooms and MaineStreet to achieve the best possible, most functional solutions. Student engagement is slated for late January and February of 2017. Activity is regularly reported to the USAC and the Board's Finance and Facilities Committee.

Expenditures since July total \$1,925,000, 75% on the Wireless upgrade project. Each campus has been allocated an amount of funds for both wireless and classroom upgrades as represented in the following chart. US:IT leadership is working with each campus to prioritize the projects to best meet their needs.

PROPOSED STATE OF IT INVESTMENT ALLOCATIONS Phase I - Wireless & Classrooms

TOTAL PROJECT FUNDING - Phase I	\$18,795,000
*SET ASIDE FUNDING - 20%	(3,759,000)
AVAILABLE TO CAMPUS/ENTITIES	\$15,036,000

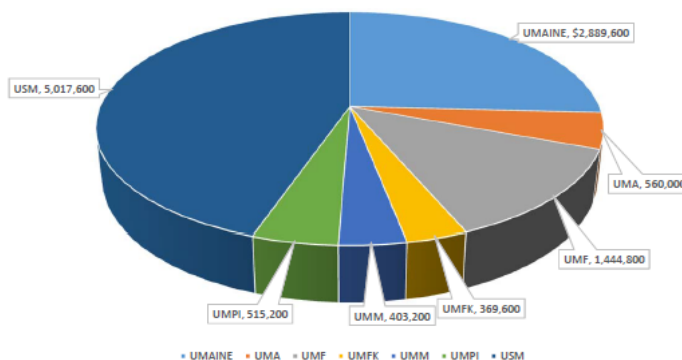
WIRELESS	Total (Phase I & II)	%	\$11,200,000 Total (Phase I)
UMAINE	\$6,247,470	25.8%	\$2,889,600
UMA	1,196,995	5.0%	560,000
UMF	3,120,675	12.9%	1,444,800
UMFK	790,750	3.3%	369,600
UMM	878,710	3.6%	403,200
UMPI	1,099,135	4.6%	515,200
USM	10,840,210	44.8%	5,017,600
Total	\$24,173,945	100.0%	\$11,200,000

CLASSROOMS	5-YR Total Credit Hours	%	\$3,836,000 Total (Phase I)
UMAINE	1,344,234	39.5%	\$1,515,220
UMA	458,867	13.5%	517,860
UMF	292,043	8.6%	329,896
UMFK	130,171	3.8%	145,768
UMM	84,735	2.5%	95,900
UMPI	138,460	4.1%	157,276
USM	954,408	28.0%	1,074,080
Total	3,402,917	100.0%	\$3,836,000

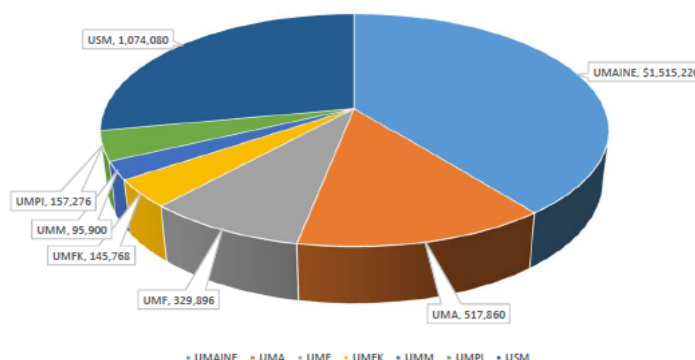
**Set Aside Funding - needs related to APRIP/Program Integration, Project Management, and Contingency for unforeseen latent conditions, unexpected expenses, and other project impacts.*

MW0408 4/22/16

Wireless Allocation by Campus - Budget Allocation



Classrooms Allocation by Campus - Budget Allocation



➤ **Ongoing Funding of IT Capital Plan**

Taking a holistic view of our structures and our needs, US:IT partnered with the University's Facilities Management Team in order to develop a strategic, long-term investment plan that would estimate IT infrastructure needs through FY26 as matched with the Facilities plans and budgets in their long-term capital planning processes. This work represents the first time the University has attempted this kind of planning and marks a major step forward in understanding our future needs.

Specific to the work of US:IT, the team determined that IT infrastructure needs would be identified for the second 5 years of the bond plan as prioritized by the 2015 State of IT Report. US:IT staff continues to work with the Bond team and Budget Officer on long term strategies to fund the IT capital plan.

	Estimated Capital Investment by Year											
	Immediate			Mid Term			Long Term					
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	10-YR TOTAL
Bond Eligible												
Administrative Video Conference Room system refresh (non-classroom)		\$250,000	\$250,000									\$500,000
Grants & Contracts application	\$25,000											\$25,000
Grants & Contracts application		\$800,000	\$925,000									\$1,725,000
Upgrade and Expand Wireless to Current Standards Across All Campuses- PHASE I	\$1,000,000	\$7,500,000	\$5,500,000									\$14,000,000
Upgrade and Expand Wireless to Current Standards Across All Campuses-PHASE II				\$10,793,945								\$10,793,945
Inside / Outside Communications Plant Including Fiber Optic and Up-to-date Building Wiring For All Campuses		\$1,750,000	\$1,750,000	\$1,750,000	\$1,750,000							\$7,000,000
IP Telephone Conversion / LAN upgrade (UMF, UMPI, UMM, USM)		\$366,667	\$666,667	\$666,667	\$300,000							\$2,000,000
Academic Videoconferencing Infrastructure PHASE I	\$2,595,000	\$2,200,000										\$4,795,000
Academic Videoconferencing Infrastructure PHASE II				\$5,625,000	\$6,794,500							\$12,419,500
Core Video Conferencing Infrastructure		\$250,000	\$250,000	\$250,000	\$250,000							\$1,000,000
End user Device Backup (Cloud)			\$250,000	\$250,000								\$500,000
IP Address Management / DNS / DHCP Solutions			\$500,000	\$500,000								\$1,000,000
Asset Inventory Management System							\$250,000					\$250,000
Campus Network Equipment refresh							\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$5,000,000
Optical Network Equipment Refresh								\$4,000,000				\$4,000,000
New, removed or outsourced Data Center										\$8,000,000		\$8,000,000
Maine Research Platform							\$3,000,000					\$3,000,000
Campus based innovative infrastructure for academics and research						\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$6,000,000
Replace Peoplesoft ERP components with cloud or other solutions											\$5,000,000	\$5,000,000
Bond Eligible Total	\$3,620,000	\$13,116,667	\$10,091,667	\$19,835,612	\$9,094,500	\$1,000,000	\$5,250,000	\$6,000,000	\$2,000,000	\$10,000,000	\$7,000,000	\$87,008,445
Other IT Investment Requirements												
Adobe Connect: Proper hardware and storage, backed up, sys admin increase		\$75,000										\$75,000
Human Resources Transformation:	\$1,000,000	\$200,000										\$1,200,000
Accounts Receivable Billing System Replacement		\$750,000										\$750,000
e-portfolio			\$300,000	\$300,000								\$600,000
academic assessment software		\$300,000	\$200,000									\$500,000
Enterprise Server Backup		\$60,000										\$60,000

Information Technology
10 Year Bond Investment Plan
Updated 8/9/16

	Estimated Capital Investment by Year											10-YR TOTAL
	FY16	Immediate		Mid Term		Long Term					FY26	
		FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25		
Load testing software			\$50,000									\$50,000
Application Testing framework		\$80,000										\$80,000
Course Evaluation System		\$150,000										\$150,000
Student Early Warning System		\$125,000										\$125,000
First Class decommission and conversion		\$90,000	\$80,000									\$150,000
Service management/ticketing/etc		\$150,000	\$600,000									\$750,000
Identify Collaborative, Online Solution (such as AdobeConnect)			\$100,000									\$100,000
Battery Replacement		\$75,000										\$75,000
Battery Replacement		\$75,000										\$75,000
MaineStreet Modifications	\$100,000	\$602,500	\$800,000									\$1,502,500
MaineStreet Modifications		\$497,500										\$497,500
Academic/Learning Analytics		\$100,000	\$400,000									\$500,000
Multi-modal communication hub		\$70,000										\$70,000
People Soft Human Resources Upgrade	\$100,000											\$100,000
People Soft Human Resources Upgrade		\$150,000										\$150,000
Document Retention Management and Implementation		\$103,000										\$103,000
Improved Firewalling							x					\$0
Secure File Share System		\$60,000										\$60,000
Active Directory Consolidation		\$300,000										\$300,000
Data Center Security Improvements		\$260,000	\$0				\$260,000					\$520,000
Fiber IRU renewals (Bangor to Portland to Manchester, NH)									\$6,000,000			\$6,000,000
Other IT Investments Total	\$1,200,000	\$4,273,000	\$2,510,000	\$300,000	\$0	\$0	\$260,000	\$0	\$6,000,000	\$0	\$0	\$14,543,000
GRAND TOTAL	\$4,820,000	\$17,389,667	\$12,601,667	\$20,135,612	\$9,094,500	\$1,000,000	\$5,510,000	\$6,000,000	\$8,000,000	\$10,000,000	\$7,000,000	\$101,551,445
	\$3,695,000	\$10,302,500	\$6,300,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$20,297,500
	\$0	\$3,416,667	\$4,591,667	\$19,835,612	\$9,094,500	\$1,000,000	\$5,250,000	\$6,000,000	\$2,000,000	\$10,000,000	\$7,000,000	\$68,188,445
	\$125,000	\$572,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$697,500
	\$1,000,000	\$3,098,000	\$1,710,000	\$300,000	\$0	\$0	\$260,000	\$0	\$6,000,000	\$0	\$0	\$12,368,000
	\$4,820,000	\$17,389,667	\$12,601,667	\$20,135,612	\$9,094,500	\$1,000,000	\$5,510,000	\$6,000,000	\$8,000,000	\$10,000,000	\$7,000,000	\$101,551,445

Conclusions

The successes and challenges identified in this report do not tell the entire story. There are over 150 distinct IT services provided to the University of Maine System and its users. Systems operate every day, 24 hours a day, seven days a week, every day of the year with few exceptions. Many systems are aging rapidly, resulting in more effort to support and operate to the satisfaction of our users. Faculty, students and administrators want systems to work when they need them, always on like electricity. To date, we have not achieved that level of service and in some systems not even close. Faculty report challenges, students report slow or unavailable connectivity and the need for more advanced training is compelling everywhere. In the last 45 days we have had three outages caused by outdated systems and our resource challenges at the engineering level. US:IT's response times are improving, but the best solution is prevention.

The US:IT leadership is working to achieve our goals. The successes and challenges listed in this report impact our level of success and often manifest themselves in customer experience. There is a common theme that we must continue to address:

- Staffing – retention and recruitment: A study is underway through Human Resources to determine how we can improve our position as it relates to competitors in and around our locations. There is much work to be do around job classifications, work environment and salaries.
- Prioritization of new systems: There is a backlog of over 120 projects, interface requests and other development initiatives to be scheduled. The CIO has proposed a prioritization process with the University Services Advisory Council (comprised of Presidents and Chief Business Officers) to manage the growth of IT and the resulting expense.
- Decommissioning of duplicative systems: New systems are acquired and implemented, but frequently older systems are maintained for historical purposes or to satisfy a small set of users. The prioritization process identified above can be used to consider and determine the sunset schedule on these systems.
- Investments to replace obsolete technology: The investments approved in July of 2016 to upgrade wireless technology and to improve our classrooms is a great first step. Funding to complete those projects is a critical component of the investment strategy for IT. There is also a need to budget the normal replacement of important applications as they become less effective or new technologies become available. Cloud, managed services and other delivery strategies are all part of this equation.

A focus on these four major challenges will allow greater efficiency, improvement in the technical environment, avoid service disruptions and most importantly a better experience for all.

Finally, thank you to the entire staff at US:IT. There has been a high volume of change around IT service delivery, our leadership structure and in the systems we must support. They remain dedicated to their work and to the UMS and Universities they serve.



Richard Thompson
CIO



Fred Brittain
Assoc CIO
Campus Leadership
• UMF
• UMPI
• UMFK
• USM
UTSC
Campus Svcs
DARTS
Communication



Lauren Dubois
Exec Dir/CITO
Campus Leadership
• UMA
Classroom Tech
End User Tech
Media Svcs



John Forker
CISO
Information Security
Budget



John Grover
Director of ECAS
Enterprise Computing
Campus Acad & Bus
Solutions (CABS)
Web Tech



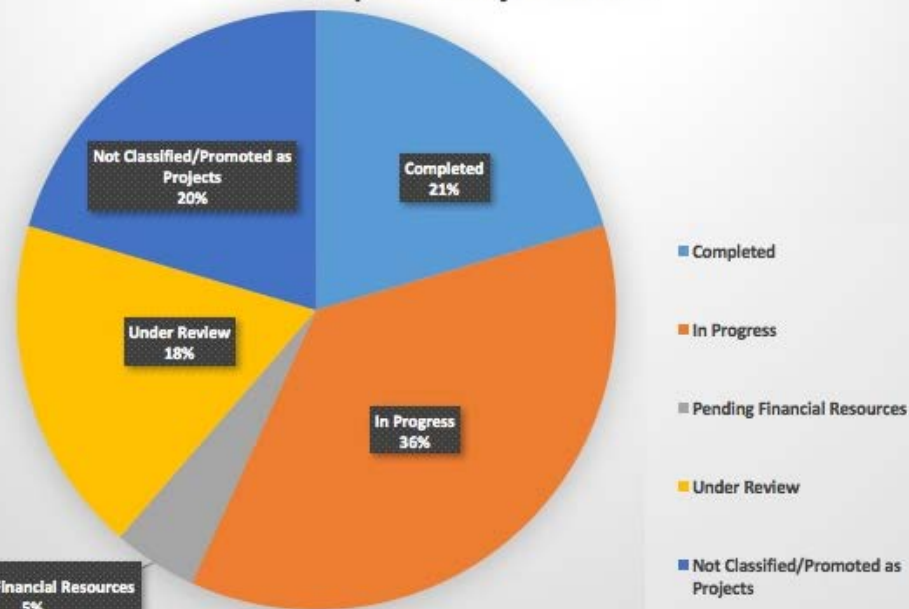
Jeff Letourneau
Exec Dir of Networkmaine
Networkmaine
Advanced Computing Group
External Partnerships
Data Center
Legislative Advocacy



Robin Sherman
Director of PMO/CITO
Campus Leadership
• UM
• UMM
Project Mgmt Office

Project Status

2016 Requested Projects Status



US:IT FY18 BUDGET

Service Area	FY18 Budget	%
ECAS-Enterprise Comp & App Svc	\$ 7,562,881	31.1%
Infrastructure	4,819,619	19.8%
End User Technology	930,741	3.8%
Classroom Technology	799,143	3.3%
CISO	718,559	3.0%
Web Technology	712,878	2.9%
Other Unified Services (Policy, Management Teams, CABS, Leadership)	3,076,808	12.6%
Campus Services	4,620,995	19.0%
Technical Support	1,096,685	4.5%
TOTAL	\$ 24,338,309	100.0%

KEY METRICS

Metric Name	Value
Active measurable enhancement projects	105
MaineStreet Campus Services logins	3,644,595
MaineStreet Financials logins	428,789
MaineStreet HR logins	938,610
Google docs - files uploaded	5,754,860
Drive - total docs held	17,631,101
Emails received (2016) (Gmail only)	145,215,896
Emails sent (2016) (Gmail only)	13,954,582
Bb active courses (fall semester)	8,596
Bb active users (fall)	26,415
Hangouts - conferencing meetings (2016)	54,034
Support tickets created	37,570
Resolved	37,339
New/Open/Stalled	1,379
Network Devices registered through helpdesk.maine.edu	2,736
Pageviews - *.umaine.edu	16,097,560
FirstClass Course Conferences created	784
User Accounts	191,351

Classroom Technology Summary

67

Rooms Upgraded in 2016

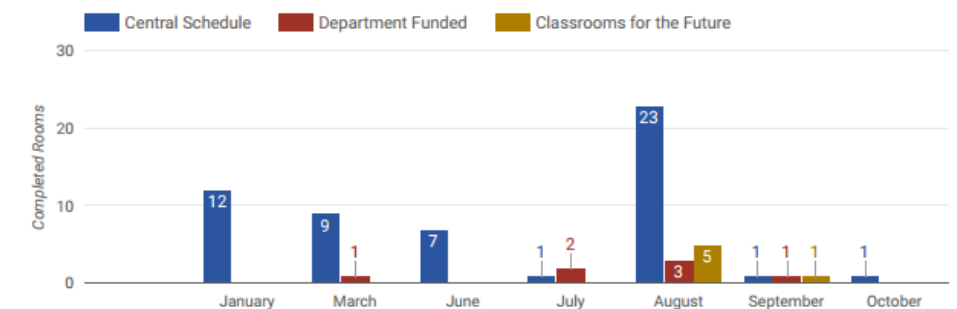
2.16

Old Average Score of 2016 Rooms

3

New Average Score of 2016 Rooms

Rooms Upgraded in 2016



UM
49 rooms or 43.7% of the rooms now have HDMI up from 10% as of January 1, 2016

UMM
4 rooms or 13.3% of the rooms now have HDMI up from 3.3% as of January 1, 2016