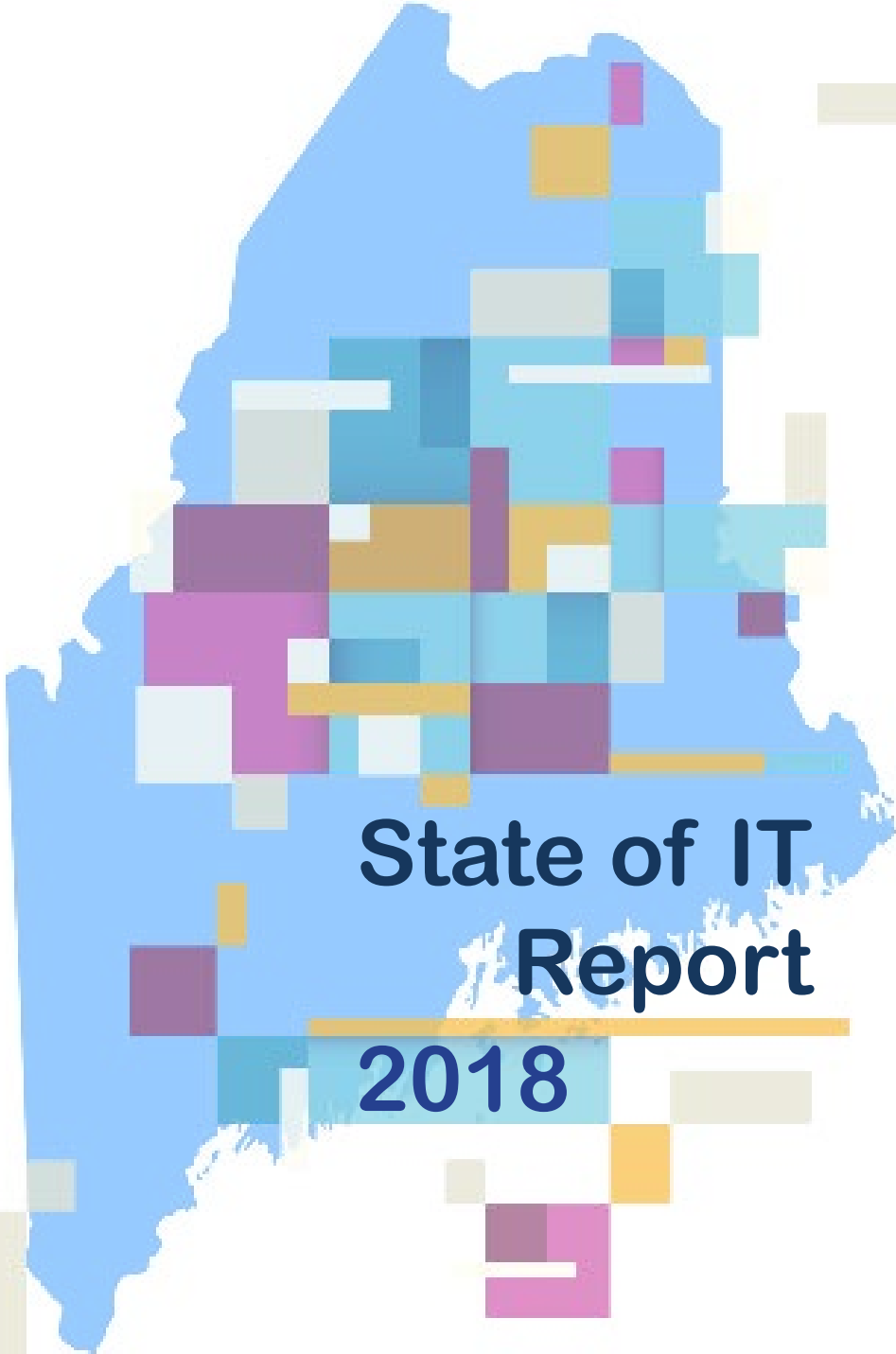# University Services:
Information Technology

State of IT Report

2018

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WELCOME

For the University Services: Information Technology (US:IT) group, our work is not solely focused on technology; rather, it is focused on helping people realize their goals by leveraging the power of technology. 2018 proved to be a very busy year for the entire team and this report highlights the achievements of the US:IT division over the past year, including the many successes realized in empowering members of the University community with tools necessary for facilitating success. This report also provides an overview of the organization, the work we have been engaged in over the past 12 months and our future directions.

A key area of emphasis for 2018 was the development of the US:IT Strategic Plan. This process kicked off with the work of a dedicated Task Force charged with defining the mission, vision and value statements for US:IT. Armed with these statements, we embarked on a journey to crowdsource the 3-year strategic goals and objectives for the unit. We are now working to ensure alignment of these goals with the recently adopted Board of Trustees Declaration of Strategic Priorities.

As noted in the 2017 Annual Report, US:IT continues to find ways to support the One University initiative. Many of the project updates highlighted in this report reveal the power and value of leveraging a shared, unified services approach to achieve greater efficiency, efficacy and impact. This includes initiative such as the launch of the Kaltura video management, Zoom video conferencing, JIRA Service Desk and Blackboard Connect emergency notification platforms.

We look forward to working closely with our colleagues across the system to address the challenges that lie ahead in 2019. Initiatives designed to improve the experience for the majority of users are currently underway and are due to go-live in the Fall. We also look forward to building on the momentum that has been generated with major investments in teaching facilities system-wide (Classrooms For The Future) and upgrades to the wireless infrastructure.

Tremendous opportunities lie ahead through the transformational potential afforded through information technology innovation. US:IT will continue to view it's role as that of a catalyst as we seek to partner with colleagues to select, implement and provide the best possible solutions to position the entire University of Maine System for long-term success.

I am honored to present the 2018 US:IT Annual report. I am particularly proud of the engagement, creativity and effort of the entire US:IT team to support the needs of the University; without their dedication and hard work, we would have achieved a mere fraction of the progress highlighted in this report. As you review this document, you will note the many ways in which US:IT serves the entire University community. I welcome and encourage you to share your questions, comments and concerns with me as we venture forth into the new year.

David M. Demers, Ph.D.
Chief Information Officer
david.demers@maine.edu

WHO WE ARE

The University Services Information Technology (US:IT) group is a centralized support organization for the University of Maine System. We are a dedicated team of professionals responsible for strategic planning, oversight, direction and operation of IT infrastructure, resources and support services. We are proud to deliver critical technology support and services for each of the University of Maine System campuses, centers and operations across the state.

Campus	CITO	IT Operations Mgr
UM Fort Kent	Sara Farnham	Joshua Belanger
UM Presque Isle	Sara Farnham	Marteen Hester
UMaine	Robin Sherman	Thomas Drake
UM Machias	Robin Sherman	Thomas Drake
UM Farmington	Fred Brittain	Nicole Haggan
UM Augusta	Lauren Dubois	Tanner Kelleter
USM	Kim Tran	Chadeverett Brown

Supporting each campus, the Campus Information Technology Officer (CITO) works closely with the dedicated IT Operations Manager to provide strategic and operational alignment of local IT resources.

Working collaboratively, the newly established CITO Council is charged with ensuring campus IT Support Services teams are well-informed and leveraging best-practices to provide exemplary customer service to the entire University community.

The broader US:IT team is organized into several functional units including:

- Custom Enterprise Solutions
- Campus Academic and Business Solutions
- Network & Telecommunications Services
- System Administration
- Database Administration
- Data Center Operations
- Advanced Computing Group
- Project Management
- Web Technologies
- Classroom Technology
- End User Technology
- Information Security
- Support Services
- Data Analytics and Reporting Technology Services

We strive to partner with stakeholders across the University of Maine System to empower users with reliable and innovative solutions to support the University's mission of teaching, learning, research and service.

US:IT Summit 2018

On June 1, 2018 in Brewer, ME, the entire IT staff for UMS gathered for a day of fun, learning, and sharing with an event theme of Putting IT Together. Approximately 180 were in attendance. Michael Cato, CIO for Bowdoin College, was the keynote speaker in the morning. A block of time was devoted to completing work in support of the US:IT Strategic Plan as well as for staff recognition.

IT Teams presented in a poster session to their colleagues a summary of their projects from the past year. This also gave individuals a chance to learn what other Teams are doing.

There were four training sessions covering Jira Service Desk, Active Directory to University Active Directory Transition, Common Cloud Tools at UMS, and a rousing Jeopardy-style game of Who Does That (common and uncommon support issues), presented by IT colleagues. These sessions were extremely well received and highly rated.

OUR MISSION, VISION AND VALUES

Over the past year, an inclusive process was undertaken to establish an identity for the US:IT division to establish a foundation for a new Strategic Plan. Through a series of workshops, forums and working sessions, staff participated in defining who US:IT is and the values we aspire to provide the University. We are proud to share the following US:IT Mission, Vision and Values statements:

US:IT Mission Statement

US:IT designs and supports technology solutions through a team of knowledgeable, dedicated professionals. Working within a structure of shared governance and data-driven decisions, we support the mission of the University of Maine System and its campuses.

US:IT Vision Statement

*US:IT strives to be a **trusted** partner by **empowering** our university communities with **reliable** and **innovative** solutions*

US:IT Service Values

- *We value delivering a comprehensive suite of high quality **SERVICES** designed to meet and exceed customer expectations regardless of skill set or location*
- *We value clear and effective **COMMUNICATION** with our customers to foster an informed community*
- *We value **COLLABORATION** with stakeholders to ensure availability of reliable, high quality solutions designed to meet the diverse needs of our customers*
- *We value **EMPOWERING** individuals with appropriate solutions determined through engagement and developing an understanding of each users' expectations and experience level with technology*
- *We value promoting a **PROFESSIONAL** technology service organization that aspires to provide reliable, valuable solutions that allow customers to achieve success*

The US:IT Strategic Plan

With new Mission, Vision and Values statements providing a solid foundation, US:IT staff were asked to participate in a series of sessions designed to create a new, comprehensive strategic plan. This plan will establish a 3-year roadmap toward enhancing the technology and information services provided to the University community and serve to inform budget and resource planning activities through concrete annual plans of action.

The US:IT Strategic Plan is organized into the (6) broad categories which are aligned with our identified Service Values:

Service	Communication	Colaboration	Innovation
	Professional Development		Data

US:IT Strategic Plan

Within each category, a series of strategic goals have been identified. Annual objectives and activities are currently being finalized for 2019 and will be available on the US:IT website.

1. Service

1.1. US:IT will be a trusted and preferred service provider for the University of Maine System

1.2. US:IT will be a customer-focused IT solution provider that ensures unparalleled customer service with high standards for responsiveness

1.3. US:IT will achieve consistency in the scope and delivery of system-wide services

1.4. US:IT will foster a culture that promotes reliable technology solutions and robust information security

2. Communication

2.1. US:IT will establish an environment that promotes transparency and collaboration through a commitment to effective robust internal and external communication

2.2. US:IT will embrace a customer-centric communication focus

3. Collaboration

3.1. US:IT will promote active collaboration with stakeholders to optimize alignment of IT activities and prioritize services to support System and Campus strategic initiatives

3.2. US:IT will partner with stakeholders to establish a supportable and sustainable technology baseline designed to meet the needs of campus communities

3.3. US:IT will pursue opportunities to actively contribute to the mission of the University

3.4. US:IT will provide solutions designed to empower stakeholders

4. Innovation

4.1. US:IT will be a leader of innovation within the University of Maine System

4.2. US:IT will provide innovative accessible solutions designed to meet the needs of the UMS community

5. Professional Development

5.1. US:IT will attract and retain a highly talented and efficient workforce

5.2. US:IT will be a recognized leader in Higher Education IT support and service

5.3. US:IT will be an organization that develops and empowers employees

5.4. US:IT will establish an information hub for IT training and documentation

6. Data

6.1. US:IT will engage with the University community to establish a culture of data-informed and responsive decision making

Throughout the Strategic Plan development process, effort has been made to ensure widespread, inclusive participation among US:IT staff. Following several planning sessions, staff were asked to provide one word that describes how they felt about the process. The word-cloud presented below is a summary of one such session.

BUDGET

Under the 'One University' model, US:IT is a shared service organization with a budget that is recharge-based with the rational cost for support and services charged back to each UMS campus for both campus-specific and shared IT services. The consolidated US:IT budget is composed of staff compensation and benefits, non-compensation annual expenses and annual revenue offsets. The FY18 budget was comprised of 68% compensation & benefits and 32% non-compensation expenses. This ratio was adjusted slightly for FY19 (67% compensation & benefits; 33% non-compensation expenses) and maintained for FY20.

Consolidated IT Enterprise Software Budget
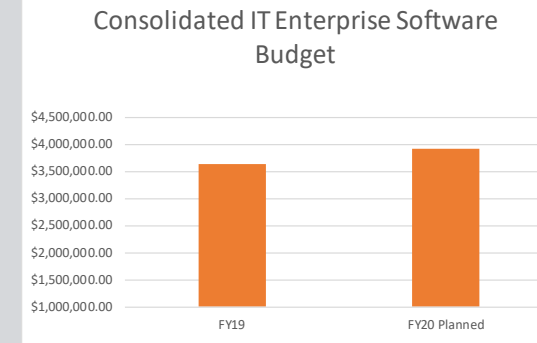
	FY19	FY20 Planned
Non-Comp Expenses	$3,650,531	$3,918,149

US:IT Budget FY18-FY21
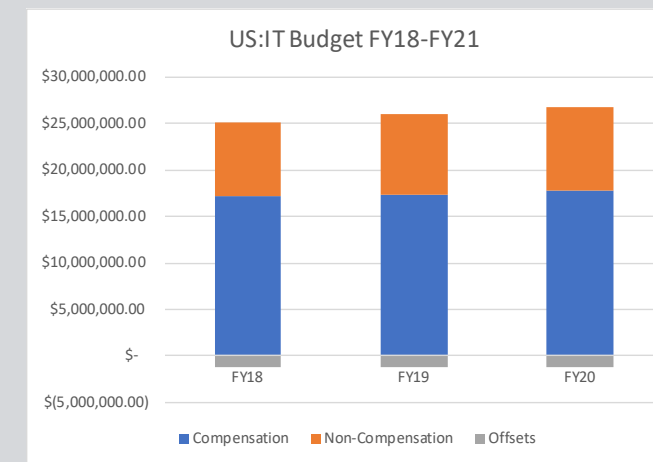
	FY18	FY19	FY20
Offsets	$(1,193,250)	$(1,230,812)	$(1,246,370)
Non-Compensation	$7,929,612	$8,608,592	$8,866,736
Compensation	$17,208,848	$17,414,275	$17,884,227

Non-compensation expenditures consist of enterprise systems, major applications, network infrastructure and data center operation and maintenance. Expenses include both internally hosted systems and those provided through a cloud based or managed services providers. Campus Services represents embedded resources located on each campus to respond to local needs, including classroom and multimedia support. Approximately 22% of the total US:IT budget is for Campus Services support.

To help demonstrate and clarify the nature of non-compensation expenditures and associated annual increases for campuses, US:IT coordinated with the UMS Budget Office to consolidate enterprise software contracts and expenses into a single, unified account for FY19. This account now covers licensing for core enterprise applications including Oracle/Peoplesoft, Blackboard, SciQuest (Marketplace), Kaltura, Box Cloud Storage, Zoom, Microsoft, etc. By establishing this account, US:IT can better track and help campuses plan for contractually negotiated annual software licensing increases. For FY19, the consolidated IT Enterprise Software budget represented 42% ($3.65M) of total non-compensation expenses. With contractual increases for FY20, the Enterprise Software Budget increases to $3.92M representing 44% of total non-compensation expenses.

In an effort to help contain increasing software licensing costs, adjustments to the FY20 budget have been made, reducing expenses in several categories, including travel (reduced by $21,000) and training (reduced by $21,900). In addition, $52,000 in reductions for equipment, supplies and travel were made across campus service accounts to help offset other increases.
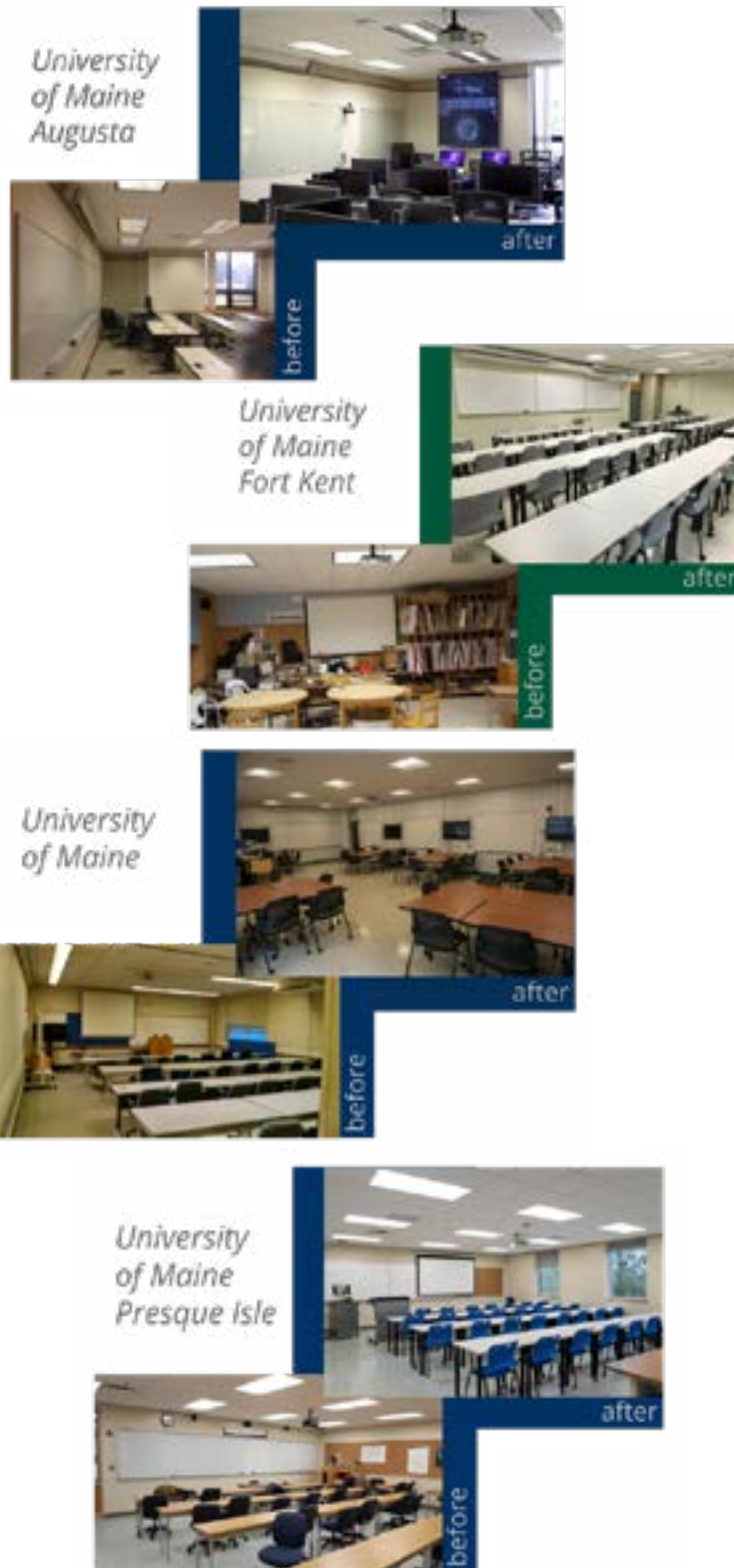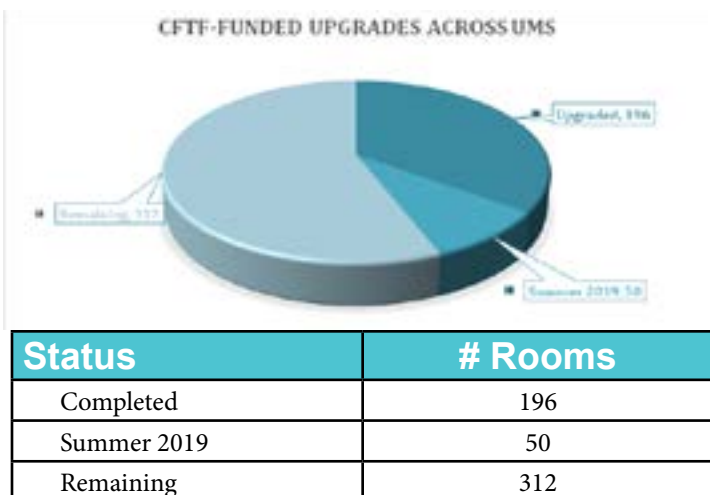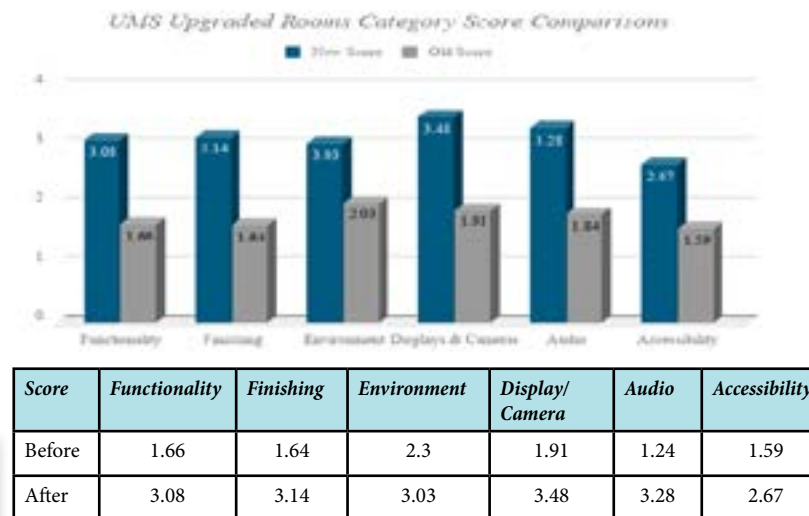
PROJECT UPDATES

CLASSROOMS FOR THE FUTURE

The Classrooms for the Future (CFTF) Project represents a $4.9M investment designed to establish and improve classroom technology baseline standards across the University of Maine System to empower and support teaching and learning. In order to achieve this goal, the CFTF team, comprised of Classroom Technology, Capital Planning, Instructional Design and Project Management staff, worked collaboratively to collect faculty and student feedback to guide the development of classroom technology standards and to establish a comprehensive project implementation plan. The initial phase of the CFTF project, first started in 2016, is scheduled for completion in Summer 2019. To date, the feedback received from faculty and students on the upgrades that have been completed has been highly positive.

Over the past year, the CFTF team has successfully managed the installation of over 90 classroom technology systems across the University of Maine System supported by funding through the CFTF project. In addition, the CFTF team has also managed the installation of another 15 systems through funding made available by individual campuses bringing the total number of rooms renovated to 196 over the duration of the project. This represents 35.1% of the teaching locations throughout the University. A final 50 rooms are scheduled to be renovated during Summer 2019 bringing the total number of rooms to 246, or 44% of available rooms across the University.

CFTF-FUNDED UPGRADES ACROSS UMS

Status	# Rooms
Completed	196
Summer 2019	50
Remaining	312

University of Maine Augusta — before / after
University of Maine Fort Kent — before / after
University of Maine — before / after
University of Maine Presque Isle — before / after

The rooms that have been updated with Classrooms for the Future funding have been rated using a comprehensive rubric to quantify improvements. The assessment is based on 43 discrete characteristics across 6 categories:

- Functionality
- Finishing
- Environment
- Displays & Cameras
- Audio
- Accessibility

UMS Upgraded Rooms Category Score Comparison

Score	Functionality	Finishing	Environment	Display/Camera	Audio	Accessibility
Before	1.66	1.64	2.3	1.91	1.24	1.59
After	3.08	3.14	3.03	3.48	3.28	2.67

> **Student Testimonial**
>
> *"It is easy to hear from the back of the room and the projectors and whiteboards being available to see simultaneously is really helpful."*
>
> **Faculty Testimonial**
>
> *"The active learning classroom is very versatile for group work for my classes. The setup and technology allows for more team work, student interaction and collaboration."*

Based on comparative ratings of each facility prior to and following the upgrades, measurable improvements were achieved across the board for all sites with an overall increase in average room rating across the University system from 2.17 to 3.15 on a 4-point scale. A detailed breakdown of the average improvements within each category are shown above.

WIRELESS INFRASTRUCTURE

The Wireless Infrastructure Project represents a $12.8M investment intended to upgrade wireless service and associated cabling and equipment at all campuses to bring wireless capacity to gigabit speeds to support learning and living spaces. Since June of 2017, the wireless infrastructure project funding has enabled the completion of upgrades in 17 residence halls and 68 instructional buildings with an additional 7 residence halls upgraded with other funding sources. While the goal of this project is to deliver a high-quality wireless network experience, this is an effort which requires upgrades to underlying infrastructure including building cabling, network switching, and in many cases fiber optic connectivity to the building to meet the needs of the project. Collectively, these efforts represent a significant modernization effort for 49% of UMS buildings.

A key performance indicator is that the percentage of wireless access points and network switches that are in use, but beyond the supported lifespan. While new network equipment has been deployed through the project, the number of devices that have surpassed their supported lifespan has increased overall as several equipment models have aged out. As of Fall 2018, only 53% of network switches and 56% of Access Points presently installed are considered "current generation". The sheer amount of outdated network equipment still in use increases the risk of network instability (failing equipment) and security vulnerabilities (security patches are no longer being released).

In addition to the physical network upgrades, the Networkmaine team has deployed a secure, encrypted wireless service known as eduroam. This service provides enhanced security and allows users to automatically connect at any of the 611 institutions across the United States and at institutions in 101 countries worldwide supporting eduroam, eliminating the need to search for Wi-Fi access when a user is at one of these locations. US:IT initiated a soft launch of the eduroam service at the being of the fall semester enabling visiting faculty, staff and students from other institutions to connect to eduroam at UMS locations across the state. While the vast majority of "visitors" came from local institutions

such as SMCC, UNH, and UMass-Lowell we also enabled visitors from institutions located in 22 different countries some as far away as Australia, the UK and Japan. General availability of the eduroam wireless service for UMS faculty, staff, and students is planned for February 4th and will be accompanied by a significant community outreach effort to encourage and support wide-scale adoption.

Over the next year, wireless infrastructure upgrades will continue with the University of Maine and University of Southern Maine campuses being the main focus.

HR UPGRADE/ ENHANCEMENTS

A major systems initiative completed this past year was the HR Upgrade project which advanced the UMS PeopleSoft (MaineStreet) Human Capital Management (HCM) system to the most current version (9.2) while also transitioning the software environment from a legacy Sun-Solaris architecture to a modern Intel-Linux platform. The project's scope included improvements in interfaces and systems that support the Benefits and Payroll Center of Excellence.

In June 2018, all components of the HR 9.2 Upgrade project were successfully completed and the upgraded environment was open to all employees as scheduled. As is the case with all projects of this scope and complexity, a few post go-live issues were encountered but the majority were minor and quickly resolved. The project team's committed efforts and regular communications about the upgrade helped to reduce the number issues and calls for post upgrade support.

Once the MaineStreet HR system was upgraded, HR and IT resources have collaborated to launch key strategic initiatives focused on enhancing employee engagement, including:

- Enhanced Employee On-boarding
- Improved Self-Service Functionality
- Expanded Benefit Options

Development of a comprehensive onboarding program, which leverages the available PeopleSoft Activity Guide functionality, was given highest priority. This initiative is on target for a pilot launch at USM and UMPI in January 2019.

Additionally, delivered functionality to include automatic notifications and guided Self-Service transactions have been tested. Utilization of online forms provides an opportunity to leverage workflow automation and native form functionality within the system. These forms will provide campus HR Liaisons with the tools needed to process non-financial change requests, as well as termination actions, in a secure, reliable manner.

HR Enhancements

Completed:
- Roth IRA Option
- Payroll Workcenter
- Automated Time Reporter Setup
- Benefits auto-enrollment
- eStudent rehire and new hire process expansion
- Automatic notifications for direct deposit

Currently In Progress:

Application	Status
HireTouch Integration	*Testing*
Employee onboarding Activity Guides	*Finalizing content/videos*
Automated Life Event Processing	*Configuration & Testing to commence in January 2019*
Oracle Forms with Workflow (Terminations; Employee Data Changes; Tuition Waivers)	*Finalizing Requirements*
Auto-Notifications (Benefit events; Retirement; New Hire)	*Finalizing Requirements*
Automated I-9 Form Processing	*Finalizing Security Roles for January Launch*

KALTURA

Kaltura is the video-asset management platform employed by the University of Maine System. Acquisition and implementation of Kaltura was born from the necessity to explore options to consolidate and improve the varied video content tools in use across the system. Faculty at the different campuses were using a combination of officially supported tools (Panopto) and free or homegrown solutions (YouTube, Burstpoint). This created difficulties for faculty and students, who needed to know how to operate several technologies, and had varied levels of support for the different solutions. These multiple solutions also had inherent issues, including lack of control over UMS owned content, the costs to maintain and backup on-site solutions, and the presence of advertising (including for competitor higher ed institutions). When adding in the tools used for more than just teaching and learning, the need for a video content platform was clear. With Kaltura, we have been able to roll out a standardized, powerful toolset that the UMS can control, brand, and support as our community needs.

As a platform, Kaltura has numerous tools for use in meeting the on-demand video content needs of the entire UMS organization, backed by an underlying cloud-based architecture that ties everything together. Kaltura is currently used for teaching and learning, for course work, marketing & public relations, departmental content sharing content and collaboration, training and more. Content can be created from a variety of sources, including webcams, mobile devices, classroom cameras, screen captures, slideshows, whiteboard tools, and more. Kaltura adoption and use has continued to grow rapidly since its initial rollout in the Summer of 2017 and we anticipate that this growth will continue as more and more faculty and staff find new and impactful ways to use the best of breed video platform.

Key Features
Learning Management System (LMS) Integration
The first part of the Kaltura platform to be implemented, Kaltura tools is directly accessed from within the Blackboard LMS. Faculty and students access available Kaltura media galleries independently, or as part of a specific course. Instructors use this to record presentations for online or hybrid courses, add supplementary materials for online or in-person classes, communicate with their students, and more. As an integrated tool within the course, students can record content for assignments and share with their instructor and/or fellow students. Kaltura has also added the ability to do video quizzes, allowing for assessments to happen inline with viewing a video assigned to the class.

Video.maine.edu
Launched formally this year, *video.maine.edu* is the branded home for UMS-related video content outside the Blackboard LMS. This site is accessible to anyone within the UMS, with portions of the site available publicly. The site also allows for embedding video on other websites (similar to YouTube) for content sharing and supporting a variety of use cases, including:

1. Faculty with video sharing needs beyond their Blackboard courses
2. Campus marketing offices for hosting and sharing video content with the world.
3. Staff-generated training videos for colleagues in their departments, or throughout the system.

Over the past several months, UMaine Cooperative Extension has moved all of their videos onto video.

17000 media entries were played 307,561 times.

PLAYS	MINUTES VIEWED	AVG VIEW TIME	PLAYER IMPRESSIONS	PLAY TO IMPRESSION RATIO	AVG VIEW DROP-OFF
307,561	70645:39:18	13:46	550,267	55.89%	64.86%

BY THE NUMBERS
VIDEO METRICS THROUGH NOVEMBER 2018

60.73 *Terabytes Storage Used*

Videos Stored: 55,380

maine.edu, and a number of other departments have similar plans in the pipeline.

Kaltura Classroom

A longstanding, critical use for video content within UMS has been in recording live classes for subsequent delayed viewing by students. This can be used for online/hybrid courses, supporting the various Centers across the state, or even for reference purposes for students attending in-person courses. Kaltura provides tools that allow for use of dedicated cameras and other learning tools in many existing and newly refurbished classrooms to record scheduled or ad-hoc video sessions. The Classroom product has been upgraded by Kaltura over the past year and we have worked to get it in place as our primary classroom video capture tool.

Live-Captioning

It is the policy of the University of Maine System that "All University programs and services must be accessible to and usable by qualified individuals with disabilities." Additionally, there are legal requirements around accessibility for students or staff with documented needs, as well as any content presented and available to the public. Kaltura provides automated machine captioning for all content that is created and uploaded, regardless of method of capture. Additionally, professional human captioning can be ordered, as needed, for situations requiring near 100% accuracy. There are also tools within Kaltura allowing content creators to edit their caption files, for improved accuracy.

Zoom/Kaltura Integration

With the implementation of Zoom this past year, as the official web conferencing platform, we have enabled the connection between Zoom and Kaltura for any cloud based recordings completed in Zoom. This allows centralization of recorded video content within the same tool, and to leverage the unlimited storage available through the Kaltura license.

KMS GO

While all Kaltura video content can be viewed via a standard web browser, Kaltura does also provide us with a free mobile application, KMS GO, for use on Android and iOS devices. With the advent of smartphones, virtually everyone has a video camera with them at all times, and this app provides an easy and quick way to leverage the tools and devices our students have.

The Future

As the Kaltura implementation project comes to a close, the team is working on establishing lasting governance for our video content platform. This governance will help guide UMS to ensure proper and robust utilization of the Kaltura service. Immediate needs are to work through establishing robust processes for captioning and content moderation. Kaltura continues to deliver new technologies as well, rolling out frequent updates to their capture software and administrative tools.

ZOOM

During the 2018 academic year, IT and partners within instructional support units, worked through a gathering of needs and a subsequent RFP process to acquire a web conferencing system to replace the aging Adobe Connect product. The platform decided upon was Zoom, already in use by numerous faculty and staff through individual licensing across the state. Over the course of the summer, a team worked to implement the new systemwide license for Zoom culminating in a mid-August launch.

Zoom has provided the ability to teach and meet from anywhere from a wide variety of desktop and mobile devices. Students have begun to host their own Zoom meetings for study sessions, group work, and other ad-hoc purposes. Faculty have adopted new features such as polling and breakout rooms to enhance the interactive nature of their courses online via Zoom. Through the fall we have seen Zoom usage increasing as more applications of the tool are realized.

Month (2018)	# Sessions
August	1,900
September	4,200
October	7,700
November	10,500
December	11,200

In an effort to create a more ubiquitous teaching and meeting environment, a second phase of the Zoom project is now underway with a target of summer of 2019 for completion. This next project will move our Polycom core video conferencing infrastructure to also use the Zoom cloud. This new approach will allow current Polycom video conferencing sessions to be joined seamlessly by participants from anywhere with their own devices. This will allow much greater flexibility for classes taught via video conferencing and students will have the option of not traveling to a campus or center to participate. That same flexibility extends to administrative use and even meetings with participants from outside the UMS.

EMERGENCY NOTIFICATION

For several years, each of the University of Maine campuses has had a separate vendor contract for all-hazards (fire, weather, active shooter…) emergency notifications. This decentralized model was not only costly and inefficient, it was cumbersome for faculty, staff, and students to enroll - especially those affiliated with more than one campus.

Under the decentralized system, people with multi-campus affiliations were required to create a seperate account for each campus, with no connection to their @maine.edu userid. Moreover, campuses incurred a per-user cost for every individual enrolled to receive emergency notifications from that campus even if the person was also enrolled at another campus. Through a competitive RFP process, the Blackboard Connect 5 product was chosen as a robust, cost effective, and user friendly enterprise solution.

Throughout late summer and into the fall, the University of Maine System partnered with all seven campuses to plan and coordinate the deployment of Blackboard Connect 5. Full engagement with the campuses was deemed critical to all aspects of the new system. The design of the enterprise solution, deployed in late November 2018, provides flexibility to adapt to specific needs and circumstances of each campus, while leveraging single-sign-on capabilities of @maine.edu accounts as a single point of entry for faculty, staff, and students to centrally manage their account for one or more campuses.

Team Spotlight: Web Technologies

Web Technologies is a team of 6 staff dedicated to providing direct technical, functional, and design support to more than 100 mission-critical web, portal and campus sites across UMS. A key area of focus has been the migration of various websites from aging and costly legacy platforms into a unified, robust, and common framework hosted in the US:IT datacenter.

In 2018, a multifaceted redesign of UMF's recruitment website, as well as the

newly developed Early College website, leveraged the common framework and 'One University' Wordpress theme to promote greater outreach, enhance branding, and increase adherence to ADA compliance in a mobile device friendly fashion.
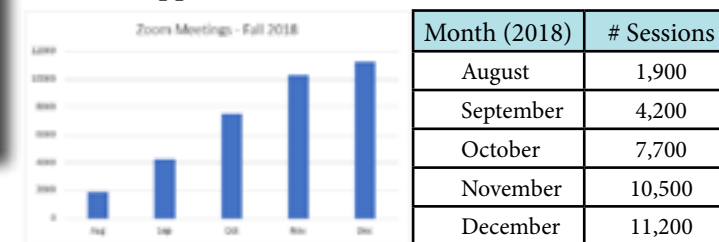

The myCampus portal, which functions as a unified gateway to access enterprise information and applications, continues to achieve steady growth and adoption throughout UMS, seeing its busiest day ever: 41,042 sessions on Tuesday, September 4, 2018.

To ensure all campus users were correctly imported into the new system, each campus sent two test SMS messages in late November - one SMS from the old decentralized system, and another SMS message from the centrally managed system. By doing so, administrators from each campus emergency communications team were able to validate a successful test of the enterprise system in parallel with empowerment of individuals to easily opt-out of communications from specific campuses. Of note, the vast majority of users who opted-out from emergency notifications from a campus, and provided a reason for doing so, indicated they no longer had an active affiliation with that campus.

From the baseline of users in September 2018, the number of registered users has increased by 14.8%. In the first week since the new system was implemented 1,166 users registered using the UMS Blackboard Connect portal. With the successful completion of project implementation, a transition to a governance team with representation from all campuses is forthcoming. The governance team will determine how best to leverage the robust features included within the new service offering.

JIRA SERVICE DESK

US:IT historically operated three different Help Desk ticketing systems to track issues: RT, JIRA, and Heat. In July of 2018, US:IT migrated all ticketing activity into a single instance of Jira Service Desk to track customer incidents and service requests. As a result, we have created a seamless tool for IT staff across US:IT, have leveraged a single workflow process to manage customer incidents, and now provide a better customer experience in a modern tool.

With the implementation of Jira Service Desk, IT has a much greater ability to analyze requests and incidents and make informed decisions. As an example, while it was known that user account management accounted for a high volume of traffic, IT is now able to quantify it. Since the July launch, 26,195 tickets were logged and 38% of those were account issues. With this information IT has now prioritized efforts to improve user account management such that less difficulties will arise resulting in less disruption to the UMS community. With a higher percentage of account issues identified during the late August and early September timeframe, we know this has been especially disruptive to new and returning students.
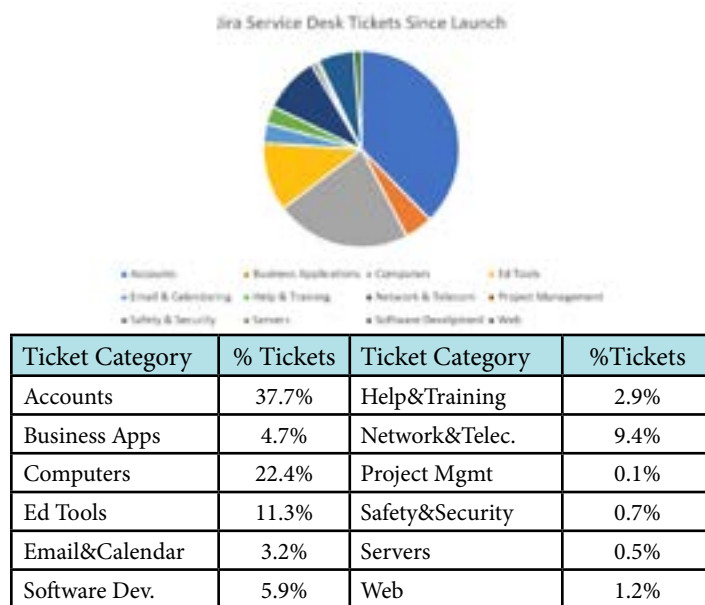
Jira Service Desk Tickets Since Launch

Ticket Category	% Tickets	Ticket Category	%Tickets
Accounts	37.7%	Help&Training	2.9%
Business Apps	4.7%	Network&Telec.	9.4%
Computers	22.4%	Project Mgmt	0.1%
Ed Tools	11.3%	Safety&Security	0.7%
Email&Calendar	3.2%	Servers	0.5%
Software Dev.	5.9%	Web	1.2%

Much work still remains for the coming months. Jira has an embedded customer portal with which forms can be built out for specific requests. Already on deck is demand to start developing forms to simplify numerous processes for the UMS community. From an efficiency and accountability perspective, Jira allows for embedded Service Level Agreements and Operating Level Agreements. Work to leverage the latter has begun which essentially puts a timer on service requests and incidents based on type and triggers an alert if action has not been taken. These alerts not only can identify a single ticket in need of attention but also allows for visibility into overall operations and pinpoint areas within IT that are unable to meet defined standards of response.

Jira Service Desk is a critical step towards moving all of US:IT into an industry standard methodology for managing requests, internal escalations, communications, reporting and triage.

BY THE NUMBERS
SINCE JIRA SERVICE DESK LAUNCH - JULY 2018

26,195 *Tickets logged*

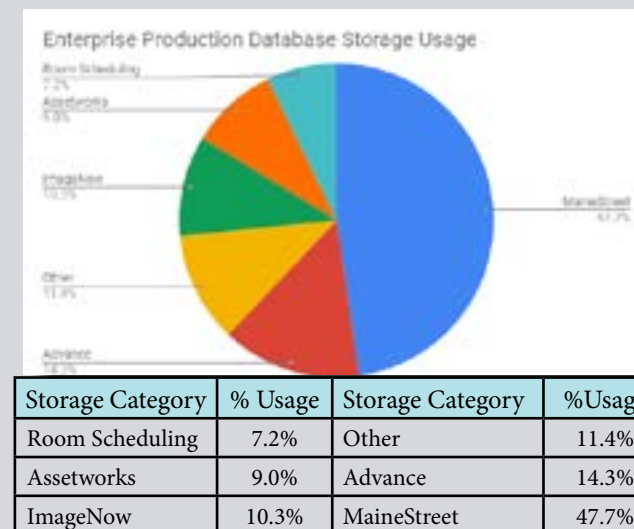*Pct. Account-Related Tickets:* **38%**

Team Spotlight: Database Administration

The Database Administration (DBA) Team is a seven member team that supports the MaineStreet systems, the databases for other enterprise applications, and a number of databases for campus applications. The team has a combined total of 72 years experience supporting databases for UMS.

Given the nature of enterprise databases, the DBA team members are key resources in a number of the items described elsewhere in this report -- the MaineStreet Human Resources upgrade and enhancements, MaineStreet Campus Solutions upgrade, and the Datamart initiative. There have also been a number of smaller maintenance and upgrade projects supported by the team, including: the AssetWorks "AiM" software used by Facilities Management; Advance Fundraising software used by several campus Alumni Associations; Infosilem and Resource 25 room scheduling software used by the campus registrars; and several other

From left to right: Gary Blake, Noel Chelberg, Xiumei Fang, McLean Poulin, Valli Vel, Anna Dukhovich, John St. Peter

Enterprise Production Database Storage Usage

Storage Category	% Usage	Storage Category	%Usage
Room Scheduling	7.2%	Other	11.4%
Assetworks	9.0%	Advance	14.3%
ImageNow	10.3%	MaineStreet	47.7%

databases related to user identity and network infrastructure management.

At present, the team manages around ten terabytes of data for production applications, and several times that for test and development systems.

During peak times, the MaineStreet system handled over 186,000 sessions in a week. Between 10 a.m. and 11 a.m. on first day of classes during the Fall 2018 semester, our Campus Solutions system handled a record high number of sessions -- 8,240.

In 2019, the team looks forward to completing the MaineStreet Campus Solutions improvements, retiring the legacy Solaris hardware, and seeing the first Data Mart deployed.

NETWORK INFRASTRUCTURE

MaineREN

As projected in last year's report, the new optical network equipment was put into full production in the spring of 2018. The new equipment, installed between Orono, ME and Cambridge, MA, provides a 10-fold increase in capacity. The new platform supports up to eighty-eight 100 Gbps wavelengths (up from thirty-two 10 Gbps wavelengths), allowing for expanded capacity on the busiest parts of the network, increased resiliency, and new interconnections with key service providers.

In the past year we have joined the Massachusetts Internet Exchange (Mass-IX) to diversify connectivity and facilitate direct peering with commercial cloud providers. The first such direct connection was established with Microsoft this past fall, with plans to establish peering with Google and Amazon in 2019.

Transport Contract

In 2018, US:IT released an RFP for data transport services on behalf of UMS, K-12 schools and public libraries that participate in the Maine School and Library Network (MSLN) and research and higher-education institutions that connect to MaineREN. The RFP covered a total of 746 locations across the state (MSLN - 716, UMS - 22, MaineREN - 8) and resulted in awards being made to 7 different transport providers. The 7 resulting contracts have a total value of $17M over their 36 month term which represent a $4.7M in savings over the contracts they replace.

US:IT YEAR IN REVIEW

ORGANIZATIONAL CHANGES

Earlier this year, John Grover, Director of Enterprise Computing and Application Services (ECAS) announced his retirement following 29 years of faithful service to the University of Maine and UMS. This event, coinciding with the ongoing development of the US:IT Strategic Plan and the call for greater alignment of internal teams and resources to best position them for success, provided a unique opportunity to review the larger ECAS team and derive an organizational structure designed to address emerging strategic goals. As a result, ECAS has been restructured into the following teams:

- *Enterprise Systems Architecture:* The Enterprise Systems Architecture team is responsible for the design, planning, implementation and maintenance of the UMS enterprise infrastructure to support the mission and goals of the UMS. This team encompasses the services of the Systems Administration, Database Administration and Data Center Operations groups. Steven Premeau was appointed as Director of the Enterprise Systems Architecture team in October 2018.

- *Custom Enterprise Solutions:* The Custom Enterprise Solutions team is responsible for the strategic design, planning, implementation and support

of enterprise software solutions to address the educational, administrative and research goals of the University of Maine System. This team includes the Software Development and Web Technologies groups. Tiffany Maiuri was appointed as Director of the Custom Enterprise Solutions team in July 2018.

- *Campus Academic and Business Solutions:* The CABS team, led by John Brown, focuses on providing business analysis, implementation and operational support for a majority of enterprise systems used across the UMS. The CABS team remained intact through the post-ECAS transition.

In recognition of the vital role each of these teams plays in supporting and delivering technology solutions to stakeholders across the UMS, Steven Premeau, Tiffany Maiuri and John Brown have been appointed to serve on the US:IT Leadership Team.

NEW STAFF

We are pleased to have been joined by the following staff members over the past year:

Name	Role
Paul Eaton	IT Specialist II; Campus Card & Cellular Services
Jeremiah 'Zak' Gould	USM Media Services Manager
Matthew Jacobson	Suport Services Help Desk Coordinator
Yan Liu	Analyst Programmer
Dustin Miller	Systems Administrator
Ryan Paradis	Network Engineer I
Joseph Patenaude	Network Engineer I
Buddwood Shain	Network Engineer I
Lynn Smith	Administrative Specialist – Infrastructure/Networkmaine

ON THE HORIZON

COST ALLOCATION

In support of strategic planning, improved communications and increased efficiency and portability of IT services across the system, US:IT is currently engaged in an IT Service Cost allocation project that will determine the cost of services US:IT provides by allocating US:IT labor and expenditures to services, and services to campuses. The project is on-target for completion by the end of Q1, 2019. The allocation is forward looking and will serve strategic planning and budget processes through increased transparency of IT spend.

The IT Cost Allocation project builds on the IT Service Catalog (*itservices. maine.edu*) and will also provide a tool to project the cost of proposed services, service changes and projects. The project is being led by the IT Service Costing team which includes Michael Cyr, John Forker and David Jones (Finance) with assistance from John Grover. Approximately 30 other US:IT staff are involved in allocating time and costs to their services. In the future, we expect less effort will be required to update the allocation for each new budget cycle.

DATA INITIATIVES

With the goal of providing advanced analytics capabilities to data users within the University of Maine System, three upcoming projects will dovetail to deliver a modernized architecture of analytics-ready data combined with

transparency into that data and its definitions. The three upcoming projects are outlined in more detail below, including 1) the launch of the UMS Data Cookbook to solidify, validate, and publish definitions of our enterprise data elements, 2) the implementation of Microsoft Power BI to create everything from basic aggregate reports to powerful visualizations, and 3) UMS Data Marts to bring together the most commonly needed enterprise data elements into targeted, analytics-ready, formats.

DATA GOVERNANCE/COOKBOOK

The Data Cookbook is an increasingly relied-upon data governance tool among institutions of higher education. Combining technical and business definitions for data elements, the Data Cookbook is essential for both data users and for decision makers who need to interpret data and reports during their decision-making process.

US:IT starts work on Data Cookbook implementation in January 2019, first leveraging standard definitions (e.g., IPEDS), then building the infrastructure to create, modify, and validate UMS-specific definitions. The process for writing and approving definitions will be a collaborative one, with the Cookbook tool streamlining data governance work and tracking approvals, edits, and published definitions. The Data Cookbook tool will serve as a common repository for all information about UMS data, informing data and research projects across several enterprise data domains.

POWER BI

In 2018, data stakeholders across the UMS evaluated several business intelligence tools. As a result, Microsoft Power BI was chosen for enterprise business intelligence and interactive reporting/dashboarding. A small number of US:IT employees have begun training on the desktop tool and will coordinate training for UMS users beginning in January 2019. Furthermore, US:IT will build out the infrastructure needed to deploy Power BI as an enterprise application, featuring collaborative workspaces with centralized governance, security, and publishing of reports and data visualizations throughout the new year.

The long-term goal for Power BI is to serve as a user-friendly reporting tool and as the front end analysis engine for UMS Data Marts. Data discrepancies will be reduced, while the volume of data and the number of users who can access it will be better managed.

DATAMART INITIATIVE

Beginning in 2019, US:IT will design, build, and deliver a series of data marts for UMS data users. The data marts will be designed through a collaborative process with stakeholders such that each mart is optimized for a discrete analytics use-case, benefiting various functional areas and meeting myriad needs for analysis and information.

The decision to build out a series of data marts rather than replace the former UMS Data Warehouse drew heavily upon lessons learned from that Data Warehouse project. In 2017, US:IT engaged with a data warehousing consultant to conduct a thorough assessment of the UMS Data Warehouse and to guide US:IT towards a design for a robust analytics environment for the University of Maine System. Ultimately, a cross-departmental US:IT team selected to build out the data marts using Microsoft SQL Server, an approach that affords an opportunity for US:IT staff members to acquire new expertise while learning an architecture that offers more features, lower costs, quicker set-up and easier maintenance, and

increased integration capabilities with Microsoft products over the existing database architecture.

During the Fall 2018 semester, US:IT began work on a pilot data mart for student application data, with the goal of supporting recruitment efforts at all UMS campuses. In addition to this data mart's value in strategic analysis of applicant information, building the first pilot data mart is an opportunity for expansion of US:IT staff skill sets in both new database infrastructure and the development of analytics-ready data sets.

Upon completion of this first data mart, US:IT will also pilot access to the data mart through Power BI for end users who regularly leverage student applicant data. Following this first pilot project, all contributing US:IT teams will be asked for feedback on the pilot in order to inform design and creation of subsequent data marts.

MAINESTREET IMPROVEMENTS

The MaineStreet Improvements initiative is comprised of two projects; a technical upgrade of the PeopleSoft Campus Solutions (CS) student information system from version 9.0 to 9.2, the underlying PeopleTools architecture will be upgraded from version 8.55 to 8.56, and a project to enhance the PeopleSoft user experience (UX Enhancements).

Campus Solutions (CS) 9.2 Upgrade: This project will upgrade the UMS PeopleSoft (MaineStreet) Campus Solutions system from version 9.0 to version 9.2 and the Campus Solutions PeopleTools from version 8.55 to version 8.56. The upgrade will maintain Oracle compliance and continued support of the system. Wherever possible, the project will make improvements in business practice throughout the upgrade that will not significantly or materially change the timeline or the scope of the upgrade project. In addition to the CS application and PeopleTools upgrades, the project's scope includes transitioning the CS PeopleSoft environments from the legacy Solaris architecture to Linux architecture. The project kicked-off in late

October 2018 and will be completed during the first week of June 2019.

UX Enhancements: This project will acquire and deploy a 3rd party PeopleSoft UX enhancement tool to streamline and improve usability, navigability, and utility of the MaineStreet environment for students and faculty alike. Additionally, enhanced Single Sign-On capabilities will be deployed to support a secure, fully integrated user environment. An RFP process to select a vendor kicked-off mid-fall 2018 and we anticipate a contract award will be made in early January 2019.

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