The 2018-19 fiscal year was filled with great success and accomplishments, thanks to our many talented university IT professionals and collaborative partners across campus.

Information technology and the people behind it are integral to the University of Arizona’s teaching, research, service, and administrative activities. I am proud of all that UITS and the campus IT community have achieved this year.

Technology is foundational across all pillars of the university’s Strategic Plan, providing us an opportunity to support the plan’s objectives on many levels. IT has engaged in key Strategic Plan initiatives including Trellis Constituent Relationship Management (CRM), Data Warehouse, Contract Management, and Travel Authorization.

We have seen progress on several campus-wide IT initiatives including: strengthening our information security posture; leveraging our cloud service offerings to realize greater efficiencies and cost savings; improving the student digital experience; and re-architecting IT service delivery. In addition, we welcomed University Analytics & Institutional Research (UAIR) to the CIO division and aligned their service offerings to campus needs.

This annual report highlights some of the exciting work that UITS undertook this past year, and how information technology provides foundational and innovative support to our faculty, staff, students and our community.

As the Chief Information Officer and primary advocate for the value of information technology on campus, I believe our IT community is better when we work together to implement technology services and systems for campus, when we collaborate to solve technology challenges and provide unified solutions.

UITS remains committed to working with our IT community and campus partners to advance the university’s mission and goals outlined in its strategic plan. I look forward to serving our campus community to not only solve their technology needs in new and exciting ways, but also continue to advance Arizona as a world-class academic institution.

Barry Brummund
Chief Information Officer
TECHNOLOGY FOR WORLD-CLASS RESEARCH

Research Technologies provides key research technology infrastructure and services to support Arizona’s world class researchers.

“Using the university’s HPC, we look at the whole genome plus untargeted data. High-dimensional, high-scale data network modeling helps us understand and target the drivers for the onset and progression of the Alzheimer’s disease.”

– Rui Chang, Ph.D., Associate Professor in Neurology and Associate Director for Computational Systems in Biology in the Arizona Center for Innovation in Brain Science
Rui Chang, Ph.D., Associate Professor in Neurology and Associate Director for Computational Systems in Biology in the Arizona Center for Innovation in Brain Science (CIBS), is working on the cure for neurodegenerative diseases. Alzheimer’s, ALS and Parkinson’s are in the forefront as he uses a cutting-edge big data modeling science approach for precision target discovery and drug development. Dr. Chang is considered the international field expert in using high dimensional, high scale data to model the progression of Alzheimer’s disease.

Dr. Chang explains that with the power of the high performance computing center at UITS, “you can integrate a lot of variables at different scales together into a network model, and look system-wise at what the driver is through the pathology and onset of the disease.”

Insights derived from this large data disease progression modeling reveals key drivers for therapeutic targets in cell-type specific ways across the spectrum of age-associated neurodegenerative diseases.

With the help of two radio telescopes coordinated by University of Arizona, astronomers took the first direct image of a black hole. Before the Event Horizon Telescope made history with projecting the first image of a black hole, Arizona Department of Astronomy research team harnessed the power of the El Gato system in the Computer Center’s Research Data Center to generate high-fidelity models from data that looked remarkably like the eventual image.

El Gato was launched in 2013 with a National Science Foundation grant received by the Department of Astronomy. When the grant expired last year, Research Technologies staff decided to maximize computing availability for the campus. UITS staff reconfigured processing nodes and updated El Gato’s operating system to the latest version, so that it can run modern code, and installed three-fifths of a mile of new cabling.

El Gato is one of three supercomputers the university has available for faculty, staff, and students to use at no cost.

SERVICES
- SUPERCOMPUTING (HPC)
- REGULATED RESEARCH ENVIRONMENT (CUI)
- RESEARCH SUPPORT SERVICES
- UA VITAE

HIGH PERFORMANCE COMPUTING HELPS PREDICT NATURE OF ALZHEIMER’S DISEASE

BLACK HOLE MODELING IN RESEARCH DATA CENTER

EL GATO EXPANSION

RESEARCH DATA CENTER USAGE
- PRINCIPAL INVESTIGATORS (PI's) USING HPC SYSTEMS: 572
- ACTIVE AWARDS USING HPC SYSTEMS: 815
- TOTAL SPONSORED RESEARCH EXPENDITURES BY INVESTIGATORS USING HPC SERVICES: $196.7M

SUPERCOMPUTING CAPACITY
- TOTAL OCELOTE AND EL GATO CAPACITY: 13,688 CORES
- FACULTY COMPUTE ALLOCATION: 43K HRS./MO.
SUPPORTING STUDENT SUCCESS THROUGH TECHNOLOGY

Student and Academic Technologies partners with faculty, staff, and students to enable innovative instruction and student success.

“The journey mapping session helped us realize how often the university is bombarding students with information. Now we’re more strategic with the UA Clicks presentation, including the most important action items for students before classes start.”

– Elliott Cheu, Ph.D., Interim Dean, College of Science; and Professor of Physics
JOURNEY MAPPING A DAY IN THE LIFE OF FIRST-YEAR STUDENTS

What does a day in the life of a first-year student look like? And, how is technology supporting them? These were the important questions a group of technologists, staff, and faculty asked former freshmen as part of a three-day Student Journey Mapping workshop led by UITS.

The interactive journey mapping process created shared understanding around what students were feeling, as well as their experiences and challenges navigating the university. It became clear there were opportunities to improve the technology and services for students enabling their success during their first year.

Information collected during the process has shaped Trellis CRM’s strategy for supporting students including enhancing their digital experience and ease in connecting to university services and communities. This data is also being used by UITS and other university partners to identify trends, patterns, and opportunities where there is potential to create high value, positive impact for students.

“There were a lot of things I didn’t know as a freshman,” said Amy Barrientos, a pre-business sophomore, “but making my voice heard and speaking for students who are in similar situations as me is going to help them in the future.”

TRELLIS: TRANSFORMING PERSONALIZED, DIGITAL EXPERIENCES

The University of Arizona has launched a Constituent Relationship Management (CRM) initiative, a key component in the University’s Strategic Plan. The CRM strategy, supported by software technology, will improve how the university manages its relationships, and the data and information associated with them.

UITS is leading the university-wide CRM program, named Trellis, which officially launched in January 2019. Trellis has set a pace for implementation at speed and scale, debuting two initial software solutions focused on student success, Trellis Advise and Trellis Progress, in fall 2019.

Powered by Salesforce, Trellis is enabling communication, shared processes and information across the University. With a holistic view of relationships, colleges and departments can optimize how they interact with students, faculty, alumni, and industry partners to provide a more modern, personalized digital experience.

Governance over Trellis is a collaborative effort between several cross-campus groups and leaders who help determine the program’s strategic direction.

LEVERAGING VIDEO FOR ONLINE TEACHING AND LEARNING

The University of Arizona has made great strides using online synchronous meeting tools in support of teaching, learning, and business needs.

In FY19, Zoom, a cloud platform for video and audio conferencing, was made available university-wide. Zoom works on wired, Wi-Fi, and 4G connections and delivers conference room quality audio and video.

Zoom’s quality, ease of use, and collaboration across the campus IT community greatly increased user adoption. More than 252,000 hours were spent in more than 66,000 Zoom meetings hosted by more than 13,000 faculty, staff, and students.

Video helps to fulfill accreditation requirements by verifying that Arizona Online students are taking exams. More than 50,000 exams were recorded in FY19.

369K HOURS PANOPTO INSTRUCTOR LECTURE CAPTURE AND VIDEO STREAM DELIVERED TO STUDENTS IN FY19.

60+ CLASSROOMS EQUIPPED WITH PANOPTO’S REMOTE AND AUTO SETTINGS TO RECORD A SEMESTER’S WORTH OF LECTURES.

45 ZOOM ROOMS CREATED AS CONFERENCE ROOMS OR CLASSROOMS

FY19 METRICS

D2L LEARNING MANAGEMENT SYSTEM
6,097 of the 6,461 courses offered in the university’s Schedule of Classes had a D2L Course Site 94%

CLASSROOMS
Collaborative Learning 32
Centrally Supported 232

OSCR COMPUTER LABS
Computer Lab Users 9.3K

UACCESS STUDENT (Version 9.0)
Financial Aid Disbursed $654.5M

(18-19 Academic Year)
Distinct Enrollment Requests 821.6K
Modifications Completed 639

SERVICES
• UACCESS STUDENT
• CLASSROOM & LAB TECHNOLOGIES
• INSTRUCTIONAL TECHNOLOGIES
• ARIZONA MOBILE APP
• TRELLIS CRM
LEVERAGING TECHNOLOGY & ADMINISTRATIVE EFFICIENCIES

Administrative Technologies creates and implements innovative technology solutions used to operate and manage the business of the University of Arizona.

“Thanks to the FSO, HR, and UITS teams for streamlining functions in UAccess Employee with the recent upgrade. I just approved time on my phone, iPad, and computer – all three worked seamlessly.”

Lisa Rulhey, Senior Vice President for Business Affairs & Chief Financial Officer
INTUITIVE, MOBILE, BUSINESS SYSTEM REALIZED

Continuing to make the university’s business and administrative systems more efficient and easy to use is a top strategic priority. UAccess Employee, which processes $1.02B in annual payroll, was recently upgraded to give faculty and staff a more modern, intuitive user experience, making it mobile-friendly on smartphones and tablets. There are also more options for personalizing your experience when viewing, entering, and approving time. A new directory feature displays supervisory relationships in an organizational chart format, making it easier to find and connect with colleagues across the university. The UAccess Employee team worked in partnership with Financial Services Office and Human Resources to make the upgrade a success.

$1.02B IN ANNUAL PAYROLL

TRAVEL AUTHORIZATION GOES PAPERLESS

As part of the university’s Strategic Plan - Pillar 5, UITS collaborated with the Financial Services Travel Office to improve the travel authorization process. Gone are the days of paper forms for travel requests and many hours of administrative processing thanks to Adobe Sign, the new electronic routing tool for approving travel on university business.

19,955 AVERAGE NUMBER OF PAYCHECKS PROCESSED WITHIN UACCESS EMPLOYEE EVERY PAY PERIOD

25,942 TRAVEL REIMBURSEMENTS PROCESSED IN FY19

LOOKING FORWARD: KUALI FINANCIALS MODERNIZATION

The Division of Business Affairs and UITS have launched a multi-phase initiative to modernize the university’s financial system. This initiative will further align campus business and financial operations with its strategic direction and benefit all faculty and staff engaged in budgeting and financial management. The project will include a readiness assessment, redesign of the university’s financial chart of accounts and streamlining business procedures and processes. Implementing these modernization enhancements will occur over a four-year timeline from planning to implementation.

FY19 METRICS

UACCESS RESEARCH (Kuali 5.2.1)
Active Awards 2.2K

UACCESS FINANCIALS (Kuali Version 7)
P Card Transactions 230.6K
Accounts 21.5K
Average Daily Unique Visitors (business days only) 1.2K

UACCESS EMPLOYEE (Version 9.2)
Total Payroll Amount Processed $1.02B
Average Daily Unique Visitors (business days only) 3.8K

SERVICES
- UACCESS FINANCIALS
- UACCESS EMPLOYEE + UACCESS LEARNING
- UACCESS RESEARCH
CAMPUS PARTNERSHIPS FOR TECHNOLOGY SOLUTIONS

Campus IT Partnerships connects the university’s IT community members, resources, and clients across the institution.

"With my many years of experience launching complex sites, this was the most well-run launch I have been involved in."

– Paulo Goes, Ph.D., Dean, Eller College of Management; Halle Chair in Leadership; Professor of Management Information Systems; and Co-Director, INSITE: Center for Business Intelligence and Analytics
The 24/7 IT Support Center continues to provide anytime, anywhere technical support to the university’s diverse student and employee populations. With the roll-out of new services, such as NetID+ two-factor authentication for faculty, staff and students, the demand for IT support continued to increase in FY2019 to 111,055 requests. Still, customer wait times averaged less than 60 seconds.

24/7 IT Support Team is a leader in providing exceptional customer service support. On metrics measuring courtesy, knowledge, timeliness, and overall quality, the 24/7 Team outperformed both industry and higher education.

FEEDBACK SCORE AVERAGES

- 24/7 IT Support Center: 4.86 / 5.00
- Industry average: 4.78 / 5.00
- Higher education average: 4.80 / 5.00

FY19 SUPPORT REQUESTS

- Phone Calls: 76.0K
- Chat Support: 19.8K
- Walk-in Support: 9.2K
- Email or UAService Requests: 5.8K

Extensive collaboration between Campus Web Services and the UArizona Digital community of campus web developers has led to a suite of branded, mobile responsive, accessible and easy-to-use web solutions. This year, the Campus Web Services team furthered rapid university adoption of website best practices.

Campus Web Services demonstrated collaboration in action with the redesign of the Eller College of Management website. This redesign involved the consolidation of the main Eller site with 36 schools, departments, centers and lab sites, which included over 6,800 pages, 1,500 redirects, 90 domains and 40+ website contributors. This project involved contributions across many teams and thrilled Eller staff who were able to leverage university Digital resources.

Delivering flexible, scalable low-cost shared web resources that are optimized for user experience, information security and regulatory compliance allow campus units to focus on their content differentiation strategy.

Recognition:
- UArizona Digital Team nominated for University Award for Excellence, based on their cross-campus collaboration on the Quickstart platform.
- Arizona.edu ranked #4 among the best university websites. (Source: Convince and Convert, 2019)

CAMPUS WEBSITE SUPPORT

- Websites Supported: 474
- Websites Launched in 2019: 69
- Service Requests: 1.2K
- Campus websites that have adopted Quickstart: 200+

UASERVICE EXPANDS FOOTPRINT

11 campus units are using UAService, a request and tracking solution providing real-time and historical data. This tool manages information security incidents, technical self-help articles, and directed workflows and approvals. It also handles financial aid requests and tracks equipment in centrally scheduled classrooms. In FY20, UAService will begin to process service alerts for technical system outages and maintenance, and asset management. UAService is governed by a group of campus partners and operated by UITS.

6TH ANNUAL IT SUMMIT

- 600 IT and related professionals from across campus
- 47 breakout sessions
- 12 poster presentations
- 14 interactive workshops
- Hackfest
- AR/VR Showcase

SERVICES

- CAMPUS OUTREACH
- CAMPUS WEB SERVICES
- 24/7 IT SUPPORT CENTER
- DESKTOP SUPPORT (FEE-BASED)
- SOFTWARE
  - EMAIL
  - WINDOWS/OFFICE
  - ADOBE
  - BOX
  - RED HAT LINUX
  - ACTIVE DIRECTORY
  - ZOOM

CAMPUS WEB SERVICES MODELS CAMPUS COLLABORATION

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MAKING HIGHER EDUCATION ACCESSIBLE THROUGH TECHNOLOGY

The College of Education wanted to provide a richer learning experience and increase the level of engagement for in-person and remote students.

To create a true student-centered learning environment, Michael Griffith, director of instructional and learning technology with the College of Education, recently introduced a telepresence robot that integrates into Zoom software.

The Kubi is a robotic neck attached to a tripod that holds an iPad with a directional microphone and speaker through which a student can be video-conferenced into a classroom. The remote students can control the iPad's direction to focus on whatever they want and interact with the class.

Griffith is pleased with the high engagement level of remote students using Kubi robots. He explains, "The important thing is it's all student centered. If they want to look at the projected material on the slides, or want to turn to their classmate they can."

NEW REMOTE ACCESS 3D PRINTING EMPOWERS STUDENT LEARNING

The College of Architecture, Planning and Landscape Architecture (CAPLA) recently stepped into a new era of using technology to bring remote capability to 3D printing. Students can use the equipment any time, from almost anywhere, whether they're at home or on campus, as long as they can access the internet.

3D printing can be time intensive, taking five hours or more per project. CAPLA laboratory manager Paulus Musters found that students would often send their project to print and walk away. If problems occurred with their design and printing was not stopped, the printer could get congested with excess material and be unavailable for days.

To resolve this, Musters collaborated with an innovative national Maker team to develop a cloud application that accesses the 3D printer. Now students can watch their printing via their mobile device. If an error occurs, they can use the app to immediately halt the printer and resubmit their project once they have resolved the design issue.

Before this new technology was implemented, students would have to physically come to the lab to start their 3D printing project. With the new remote access feature, students have what they need "on demand."

Mr. Musters sees a lot of success with the addition of the software and remote capabilities for students.

"What I wanted to do is give them control and the knowledge to control the 3D printers. Before now, we had to hire a hands-on person to interface with the printers. But now, the students themselves will operate the machine. They have become active participants as they learn about it and do it. They’re in charge of it all!"

— Paulus Musters, CAPLA Lab Manager
CREATING A CULTURE OF SECURITY AWARENESS

The Information Security Office provides policies, tools and processes to protect the information resources of the University of Arizona, using a shared responsibility model.

“Because ISO engaged so many stakeholders early on and was very inclusive in the security policy process, the final approval went really smoothly.”

— Celina Ramirez, Vice President for University Initiatives
COLLABORATION ON SECURITY POLICIES

The Information Security Office (ISO) created 17 new policies through a highly collaborative process that included students, faculty, executive leadership, and IT staff from many colleges and departments. The ISO Policy Working Group membership included 39 staff spanning 18 departments and colleges.

UArizona’s Chief Information Security Officer and Chief Compliance Officer joined together to champion the approval process, ensuring a smooth journey.

“The ISO team is smart and committed to the work that they do. They were very organized and that made the approval process easier. People had such trust and confidence, because they saw that there had been this really comprehensive process on the front end,” said Celina Ramirez, University of Arizona Chief Compliance Officer.

INCIDENT RESPONSE: A SHARED RESPONSIBILITY MODEL

One of the key aspects of the Information Security Office is to establish and support a shared responsibility model to improve the University’s security posture. ISO helps departments prepare, improve, and if necessary, respond to security events.

The Security Operations Center (SOC) has multiple specialized tools that block the majority of attacks. If the team determines that an attack is not being blocked, they work in collaboration with departmental security managers to analyze the impact and scope of the attack, as well as to develop recommendations or countermeasures. Because cyber-attacks happen relentlessly, the SOC remains available as a resource to campus 24/7/365.

CRYPTOCURRENCY MINING BLOCKS

Crypto-mining is a way in which cryptocurrency is earned by solving complicated mathematical problems in competition with other miners. This decentralized global currency can be used as payment across the web, including unmonitored areas (dark web). Complex crypto-mining software is often transferred through malware, infecting host systems, with the intention of more widespread mining and in turn, greater coin earning for hackers.

FIREWALL (BORDER) BLOCKS

Firewall Blocks
21M/daily

SECURITY MONITORING

Data Monitored
36.3 terabytes

EMAIL SECURITY APPLIANCE

Phishing and Spam Emails Blocked
4.5M/daily

EMPLOYEE SECURITY AWARENESS TRAINING UPDATED

Required Employee Security Awareness Training was updated with a new online format this year. The new training was created by the ISO team in collaboration with a group of 12 staff from across campus. The easy step by step format gave employees environmental awareness to many of the current data security threats facing Internet users.

10,237
FULL-TIME EMPLOYEES COMPLETED THE TRAINING AS OF JUNE 2019

UNIVERSAL NETID+
TWO-FACTOR AUTHENTICATION

The University of Arizona was the first Research 1 university to require universal two-factor authentication (NetID+) for faculty and staff in FY18 and for students more recently in FY19. Until this requirement, over 40% of students had no two-factor protection on their campus account. Now compromised accounts are down 90%.

| 95% |
| ENROLLED IN TWO-FACTOR AUTHENTICATION |

Students
52,288

Staff
11,254

Faculty
3,199

SERVICES

- COMPLIANCE SERVICES
- SECURITY ARCHITECTURE
- INCIDENT RESPONSE /SECURITY OPERATIONS
- TRAINING
- SECURITY MONITORING
BUILDING INFRASTRUCTURE FOR TOMORROW’S TECHNOLOGY

Information technology and integration complexities of solutions that we are called on to deploy today are growing exponentially, and require a new model for delivering services.

BUILDING CUSTOMER-CENTRICITY INTO OUR SERVICE PLATFORM

For decades, the organizational structure of technology has been that of silos, driven by elements based on tasks. UITS recently shifted to a Plan, Build, Run organizational structure that focuses on a successful service development and delivery lifecycle rather than one individual element or component.

This type of arrangement creates a cross-functional, 360 perspective of the service being developed. The organizational change is more than moving managers around though. It's injecting a more service-oriented culture and integrating outcomes that we deliver upon. It's also about creating the opportunity to break down the pillars of separation in traditional Information technology organizations.

“This new structure empowers our teams to work more effectively between the technology elements of network and data center operations, application development, project management, support and field services,” explains Derek Masseth, Chief Technology Officer.

TECHNOLOGY BEHIND BUILDING REDESIGN & CONSTRUCTION

The UITS Estimating and Engineering team had close to $4 million in construction management during FY19. Large infrastructure projects included network design and installation in the Health Sciences Innovation Building, Cole and Jeanne Davis Indoor Sports Arena, Oro Valley Veterinary Medicine Facility, and Hiltbrand Softball Stadium & Aquatics Center among others.

NETWORK CORE & INTERNET2 ISP

- Campus Data Network
- Voice Services
- Network Management
- Network & Data Center Operations
CLOUD OPTIMIZATION INCREASES EFFICIENCY

In FY18, UITS completed the successful migration of all its enterprise applications to the cloud, yielding approximately $3 million in annual refresh cost savings. In FY19 UITS continued to mature its cloud services by launching a public cloud optimization initiative to increase efficiency and further reduce its cloud spend. Cost and usage data were used to understand past usage patterns of compute resources and predict future capacity needs.

Fully leveraging the elasticity of cloud services included terminating idle resources and scheduling the shutdown of development and test resources during non-business hours. Resources that were heavily utilized or always “on” provided savings opportunities via reserved instances. Understanding multi-dimensional cost and usage data, service level agreements, and capacity requirements were key to ensuring a high level of service while operating fiscally responsible.

CLOUD-OPS SPEED OF DELIVERY

UITs established an operations-as-a-service program, CloudOps, to transition IT operations to a more service-delivery focused platform in FY19. The CloudOps team includes members of various UITS units dedicated to providing expertise, experience, and best practices to the university’s IT services. They engage with colleges and departments to take advantage of the self-service format for operations services such as serverless website, data management, Windows and Linux server deployment and more.

CLOUD SECURITY

Key to the CloudOps offering, is consistency in security features, monitoring, managed backups, 24/7 alerting and support. Security and compliance becomes a shared responsibility that relieves the constituent of an operational burden. Cloud providers like AWS take responsibility for protecting the infrastructure. The university takes responsibility for building and securely using cloud services.

CLOUD ELASTICITY = COST SAVINGS

The cloud enables high levels of elasticity which allows our applications to scale up and down to match demand. We reserve 24 compute cores over the course of a year at an average of 30% discount and can lease servers on an hourly basis during levels of high demand such as the start of the school year and priority registration. By scaling the UAccess Student system up and down during high times of demand and making reservations for our baseline usage, we effectively saved an additional $60,000 (see chart). Aggregate savings for all of our systems using smart reservations totaled $300,000 in FY19.

LEGEND

- Traditional On-premise Data Center Capacity
- Reserve Baseline Leased Annually
- Cost Avoidance by Leveraging Cloud Elasticity
- Utilization Hours

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<td>April 22, 2019</td>
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UACCESS STUDENT UTILIZATION CHART

- Spring 2019 Priority Registration: Oct 31 - Nov 16
- Fall 2020 Priority Registration: Mar 31 - Apr 17

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<tr>
<th>NUMBER OF COMPUTE CORES</th>
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<td>Reserve Baseline Leased</td>
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<table>
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<tr>
<th>TOTAL USER ACCOUNTS</th>
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CAMPUS EXPENDITURE FY19

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<th>TOTAL USER ACCOUNTS</th>
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<tr>
<td>$275,000</td>
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ANNUAL COST SAVINGS ON COMPUTE, DATABASE, AND DATA WAREHOUSE RESOURCES IN FY19, WHICH CAN BE REINVESTED IN THE UNIVERSITY
EMPOWERING DECISION MAKING THROUGH DATA ANALYTICS

University Analytics & Institutional Research provides data that empowers campus decision makers, informs policy and practice, and tells the University of Arizona story.

“I’ve always been impressed with UAIR’s ability to work through the nuanced business processes inherent to our complex and ever-changing institution.”

– Jim Florian, Associate Vice President, Institutional Analysis, Office of the Provost
UNIVERSITY DATA AT YOUR FINGERTIPS

Gaining access to university data got easier this year when UAIR completed a major upgrade to its website, featuring a modern design, layout, and user-friendly Fact Book.

The new Fact Book contains a series of interactive dashboards, powered by Tableau software. Some of the data available includes snapshots of student, staff, faculty, research and finance data.

Interactive Fact Book was rolled out in FY19 and UAIR staff are actively working on adding data points.

DATA WAREHOUSE ENHANCEMENT UNDERWAY

UAIR is actively supporting the university’s Strategic Plan by taking many steps to enhance the current data warehouse and ensure that the right data is available to all campus partners at the right time. These steps include bringing in new data from various surveys and systems and making standardized institutional data more easily accessible. New, intuitive reporting tools are being implemented to deliver accurate and timely high-level data to university decision makers. Work began on this initiative in FY19 and will be completed by FY20.

STUDENT CENSUS REPORTING MADE EASY

Each year, 21 days from the start of the Fall semester, UAIR compiles the university’s student census report based on the number of enrolled students. This data includes demographic detail about the student body, as well as student outcomes such as retention and graduation rates. Campus stakeholders use this census data to track annual enrollment trends, conduct financial analysis, and make future academic and administrative planning decisions. This data is also used for benchmarking, peer analysis and university rankings.

In FY19, UAIR developed new automated reporting capabilities to provide census data the day after the census date along with a printed census report to Enrollment Management. This development is the result of two months of work ahead of the census date to ensure data accuracy in partnership with Enrollment Management. The current census reporting process is now a push button task, representing a significant achievement.

“UAIR has truly made a difference for Enrollment Management! For many years, I envied the dashboards I saw my colleagues at different institutions use for their data needs in enrollment. Today, I am the one envied for the resources I have at my fingertips thanks to UAIR’s dedicated focus on reliable and accessible data.”

– Dr. Kasey Urquidez, Vice President, Enrollment Management and Dean, Undergraduate Admissions

45,217

AS OF THE FALL 2018 CENSUS DATE, 45,217 TOTAL STUDENTS WERE ENROLLED AT UNIVERSITY OF ARIZONA, INCLUDING 35,233 UNDERGRADUATES AND 9,984 GRADUATE STUDENTS.

DID YOU KNOW?

80% OF QUERIES IN UACCESS ANALYTICS WERE COMPLETED IN UNDER 2 SECONDS

30,264 ANALYTICS QUERIES RUN EACH DAY

UACCESS ANALYTICS

Active Users 5.0K
Active Subject Areas 196
Reports Run 8.3M
Nightly ETL Jobs 11.0K
Active Dashboard Pages 5.0K

EXTERNAL REPORTING

Total Surveys 108

UAIR JOINS CIO DIVISION FOR BETTER ALIGNMENT WITH CAMPUS NEEDS

In January 2019, UAIR began operating under the direction of the CIO. The synergy created from this alignment has been a good fit for the university. As part of this transition, UAIR reorganized to better serve its campus customers in the areas of student and administrative data services as well as dedicated roles for customer support and communications.

SERVICES

- EMPLOYEE
- STUDENT
- FINANCIALS
- BUDGET
- RESEARCH
- SPACE
- WEBSITE/INTERACTIVE FACT BOOK
- EXTERNAL REPORTING
- MANAGERIAL REPORTING
(STRATEGIC INITIATIVE 5.2A3 DATA WAREHOUSE)
The University of Arizona, a land-grant university with two independently accredited medical schools, is one of the nation’s top public universities in the U.S. News & World Report (USNWR) national university rankings. The university is also ranked in the top 25 in research expenditures among all public institutions, according to the National Science Foundation in FY17. UArizona is a member of the Association of American Universities (AAU) representing 63 leading public and private research universities in the U.S.

Information technology at the University of Arizona operates very effectively even though it has 32% fewer IT staff than our public AAU peers. Arizona has very strong partnerships between central and campus IT communities providing highly efficient support and services to faculty, staff, and students.

### Higher Education IT Funding Comparison

<table>
<thead>
<tr>
<th>University of Arizona</th>
<th>AAU Peers</th>
<th>Public AAU</th>
<th>Public and Grant Institutions</th>
<th>Public and Grant Institutions</th>
<th>USNWR Public Top 50 (Public Land Grant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Institutions</td>
<td>1</td>
<td>15</td>
<td>33</td>
<td>67</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Institution FTE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student FTE*</td>
<td>39.3 K</td>
<td>43.4 K</td>
<td>36.5 K</td>
<td>22.1 K</td>
<td>22.1 K</td>
</tr>
<tr>
<td>Faculty FTE*</td>
<td>3.5 K</td>
<td>3.8 K</td>
<td>3.2 K</td>
<td>1.8 K</td>
<td>2.2 K</td>
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<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Institution Expenditures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Expenditures*</td>
<td>$622.2 M</td>
<td>$855.9 M</td>
<td>$683.7 M</td>
<td>$294.6 M</td>
<td>$348.0 M</td>
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<tr>
<td>Total Expenditures + (net of hospital)</td>
<td>$2.0 B</td>
<td>$3.0 B</td>
<td>$2.3 B</td>
<td>$1.1 B</td>
<td>$1.3 B</td>
</tr>
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</table>

### IT FTE Analysis

<table>
<thead>
<tr>
<th>IT FTE</th>
<th>Central IT FTE</th>
<th>239.6</th>
<th>375.2</th>
<th>345.4</th>
<th>213.2</th>
<th>241.3</th>
<th>310.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campus IT FTE</td>
<td>464.0</td>
<td>745.5</td>
<td>642.6</td>
<td>266.6</td>
<td>379.6</td>
<td>517.7</td>
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<tr>
<td>Total IT FTE</td>
<td>703.6</td>
<td>1,078.5</td>
<td>967.3</td>
<td>466.8</td>
<td>615.5</td>
<td>821.0</td>
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</tr>
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</table>

### IT Expenditures

<table>
<thead>
<tr>
<th>IT Expenditures</th>
<th>$62.9 M</th>
<th>$77.0 M</th>
<th>$69.9 M</th>
<th>$41.7 M</th>
<th>$46.1 M</th>
<th>$60.3 M</th>
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</thead>
<tbody>
<tr>
<td>Central IT Expenditures</td>
<td>$66.7 M</td>
<td>$139.2 M</td>
<td>$96.9 M</td>
<td>$46.1 M</td>
<td>$72.5 M</td>
<td>$87.6 M</td>
</tr>
<tr>
<td>Campus IT Expenditures</td>
<td>$129.6 M</td>
<td>$202.6 M</td>
<td>$158.1 M</td>
<td>$84.2 M</td>
<td>$123.6 M</td>
<td>$146.5 M</td>
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</table>

### IT FTE Ratios

<table>
<thead>
<tr>
<th>IT FTE Ratios</th>
<th>Ratio: Central IT FTE per 1,000 Student FTE</th>
<th>6.1</th>
<th>9.2</th>
<th>9.7</th>
<th>7.8</th>
<th>13.6</th>
<th>9.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio: Campus IT FTE per 1,000 Student FTE</td>
<td>11.8</td>
<td>17.2</td>
<td>12.3</td>
<td>8.9</td>
<td>11.8</td>
<td>14.7</td>
<td></td>
</tr>
<tr>
<td>Ratio: Total IT FTE per 1,000 Student FTE</td>
<td>17.9</td>
<td>25.0</td>
<td>26.4</td>
<td>16.5</td>
<td>22.8</td>
<td>23.8</td>
<td></td>
</tr>
</tbody>
</table>

**Sources:**

1. Integrated Postsecondary Education Data System (IPEDS) - Fall 2018, Fall Enrollment Component
2. IPEDS - Spring 2018, Human Resources Component
3. NSF Higher Education Research and Development Survey FY17
4. IPEDS Spring 2018, Finance Component
5. Educause Core Data Service Survey FY18

The University of Arizona’s IT community is comprised of 760.6 professionals across central and distributed job functions that support college, institutional, auxiliary, and enterprise-wide services.

This past year, UITS partnered with the central Human Resources University Career Architecture Project (UCAP) team to lead over 20 calibration sessions with IT leaders and managers to review position mapping at the organizational and functional level and identify mapping trends and outliers. 19 IT job families were identified through this campus-wide process.

The table below shows an aggregation of several IT job families of similar functions combined for the purpose of comparison.

**IT FTE Percentage Totals by RCU Group**

<table>
<thead>
<tr>
<th>RCU Group</th>
<th>IT Support</th>
<th>IT Infrastructure</th>
<th>IT Network</th>
<th>IT Security</th>
<th>IT Project Mgmt</th>
<th>IT App Dev</th>
<th>IT Web Dev</th>
<th>IT Instructional Tech</th>
<th>IT Analysis</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Support</td>
<td>$4.9</td>
<td>95.8</td>
<td>47.5</td>
<td>11.0</td>
<td>209.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College &amp; Related</td>
<td>38.0</td>
<td>43.6</td>
<td>24.6</td>
<td>12.0</td>
<td>118.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional Support</td>
<td>34.0</td>
<td>2.4</td>
<td>1.0</td>
<td>0.0</td>
<td>37.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>15.0</td>
<td></td>
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</tr>
<tr>
<td>Totals</td>
<td>$11,807</td>
<td>$1,722,986</td>
<td>$299,064</td>
<td>$46,873</td>
<td>$2,080,730</td>
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<td></td>
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</tr>
</tbody>
</table>

**IT FTE by Job Family**

<table>
<thead>
<tr>
<th>Job Family</th>
<th>Support</th>
<th>Infrastructure</th>
<th>Network</th>
<th>Security</th>
<th>Project Mgmt</th>
<th>App Dev</th>
<th>Web Dev</th>
<th>Instructional Tech</th>
<th>Analysis</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Support</td>
<td>$4.9</td>
<td>95.8</td>
<td>47.5</td>
<td>11.0</td>
<td>209.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Infrastructure</td>
<td>38.0</td>
<td>43.6</td>
<td>24.6</td>
<td>12.0</td>
<td>118.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Network</td>
<td>34.0</td>
<td>2.4</td>
<td>1.0</td>
<td>0.0</td>
<td>37.4</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Security</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>15.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Project Mgmt</td>
<td>20.0</td>
<td>2.0</td>
<td>2.0</td>
<td>1.0</td>
<td>25.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT App Dev</td>
<td>67.9</td>
<td>33.6</td>
<td>71.0</td>
<td>3.0</td>
<td>175.5</td>
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<td></td>
</tr>
<tr>
<td>IT Web Dev</td>
<td>4.0</td>
<td>24.4</td>
<td>25.7</td>
<td>4.0</td>
<td>58.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Instructional Tech</td>
<td>12.0</td>
<td>23.8</td>
<td>12.0</td>
<td>0.0</td>
<td>47.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Analysis</td>
<td>27.5</td>
<td>17.1</td>
<td>26.9</td>
<td>3.8</td>
<td>74.4</td>
<td></td>
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</tr>
</tbody>
</table>

**Grand Total**

| Grand Total | 272.3 | 242.8 | 210.8 | 34.8 | 760.6 |

**Sources:**

1. FY19 Object Code 5260
2. University Career Architecture Project (UCAP) aggregation of IT job families - September 2019
3. Responsibility Centered Management (RCM) Institutional Categories

NOTE: Institutional Support Group includes facilities, research, strategic investments and student services groups.

NOTE: UITS has additional employees in other non IT UCAP job families not represented above.
University Information Technology Services operates and manages central IT services for University of Arizona faculty, staff and students. Within the division, there are 272.3 total IT FTEs represented in UCAP IT job families.

<table>
<thead>
<tr>
<th>UCAP IT Job Families*</th>
<th>IT Support</th>
<th>IT Infrastructure</th>
<th>IT Network</th>
<th>IT Security</th>
<th>IT Project Mgmt</th>
<th>IT AppDev</th>
<th>IT WebDev</th>
<th>IT Instructional Tech</th>
<th>IT Analysis</th>
<th>FTE TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure &amp; Foundational Technologies</td>
<td>11</td>
<td>30</td>
<td>34</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>83</td>
</tr>
<tr>
<td>Student &amp; Academic Technologies</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>34.9</td>
<td>12</td>
<td></td>
<td>58.9</td>
</tr>
<tr>
<td>Campus IT Partnerships</td>
<td>33.9</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>52.9</td>
</tr>
<tr>
<td>UAIR</td>
<td>2</td>
<td>2</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>27.5</td>
</tr>
<tr>
<td>Admin Technologies</td>
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<td></td>
<td>30</td>
</tr>
<tr>
<td>Information Security Office</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Research Technologies</td>
<td>1</td>
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<td></td>
<td>1</td>
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<td>1</td>
<td>4</td>
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<tr>
<td>Job Function TOTALS</td>
<td>54.9</td>
<td>38</td>
<td>34</td>
<td>14</td>
<td>20</td>
<td>67.9</td>
<td>4</td>
<td>12</td>
<td>27.5</td>
<td>272.3</td>
</tr>
</tbody>
</table>

Source:
  * University Career Architecture Project (UCAP) aggregated IT Job Families - September 2019
  
  NOTE: UITS has additional employees in other non IT UCAP job families not represented above.

**UPDATE CHART OF ACCOUNTS**

In FY19, UITS implemented an updated Chart of Accounts to align its department accounts with customers and services. It also began utilizing an updated set of sub accounts to track the costs associated with providing those services to campus customers.

**ENTERPRISE SOFTWARE COSTS**

On behalf of the university, UITS licenses software in bulk to get unit-level discounts. As the university grows, the license cost to provide software also increases. On average, between 2013 – 2018 enterprise-wide software costs increased by nearly 80%.

<table>
<thead>
<tr>
<th>2013 ENTERPRISE SOFTWARE COSTS</th>
<th>$5M</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018 ENTERPRISE SOFTWARE COSTS</td>
<td>$9M</td>
</tr>
</tbody>
</table>

**STUDENT INFORMATION TECHNOLOGY FEE**

University students have high expectations for learning and living in today’s digital environment. They pay a mandatory annual fee which is used to enhance the university’s student learning environment and increases Arizona’s capacities to meet digital environment expectations.

The Information Technology/Library (ITL) Fee was approved by the Arizona Board of Regents in March 2006. The IT portion of the fee supports modern technology requirements such as wireless access in high-traffic public locations, all campus outdoor areas, enhanced digital classrooms and more.

**$149 PAID PER STUDENT PER SEMESTER**

**NETWORK**

$47.71

**ACADEMIC TECH**

$46.62

**IT SUPPORT**

$28.02

**STUDENT TECH**

$24.19

**SOFTWARE**

$2.46

**COMMUNICATION USER FTE NETWORK**

The Communication User FTE Network Funding Model is the mechanism by which UITS recovers a portion of the costs of providing data and voice connectivity to University of Arizona campus customers. This model is based on Full Time Equivalent (FTE) employees. For FY19, the FTE Rate was $776 per FTE.

**$776 PER FTE ANNUALLY**

**END OF LIFE NETWORK EQUIPMENT**

The university has accumulated deferred network infrastructure maintenance due to the lack of increase in the FTE fee since 2008. The replacement cost of the network equipment currently deployed on campus is $29 Million, $8.8 million of which is end of life and needs to be refreshed.

**$8.8M**

**DEFERRED MAINTENANCE COSTS**

The university has accumulated deferred network infrastructure maintenance due to the lack of increase in the FTE fee since 2008. The replacement cost of the network equipment currently deployed on campus is $29 Million, $8.8 million of which is end of life and needs to be refreshed.
University Information Technology Services (UITS) manages an annual budget of approximately $68.0 million to provide a portfolio of IT services to the university community that support the teaching, learning and research mission. The graphic below illustrates UITS expenditures by fund source for FY19. UITS is committed to transparency and accountability, and works to ensure that limited resources are allocated to the highest strategic priorities of the university.

### UITS FY19 EXPENDITURES BY SOURCE

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocated Appropriation</td>
<td>$32,302,071</td>
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<tr>
<td>Allocated Designated</td>
<td>$202,880</td>
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<tr>
<td>Service Center</td>
<td>$20,269,062</td>
</tr>
<tr>
<td>Department Sales &amp; Service</td>
<td>$68,241</td>
</tr>
<tr>
<td>Student Fee</td>
<td>$9,741,280</td>
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<tr>
<td>Allocated TRIF</td>
<td>$940,825</td>
</tr>
<tr>
<td>Sponsored Projects</td>
<td>$5,888</td>
</tr>
<tr>
<td>Restricted Gifts</td>
<td>$64,707</td>
</tr>
<tr>
<td>Allocated Strategic Plan</td>
<td>$3,757,059</td>
</tr>
<tr>
<td>Salaries and Wages</td>
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</tr>
<tr>
<td>EBE</td>
<td>$6,667,266</td>
</tr>
<tr>
<td>Travel</td>
<td>$276,931</td>
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<tr>
<td>Operating</td>
<td>$29,708,662</td>
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<tr>
<td>Capital</td>
<td>$1,765,028</td>
</tr>
<tr>
<td>Transfers Out</td>
<td>$7,549,750</td>
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<tr>
<td>Strategic Plan</td>
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<tr>
<td>endemic</td>
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</tr>
<tr>
<td>endemic</td>
<td></td>
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<td></td>
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<tr>
<td>endemic</td>
<td></td>
</tr>
<tr>
<td>endemic</td>
<td></td>
</tr>
</tbody>
</table>

EXECUTIVE LEADERSHIP TEAM

- **BARRY BRUMMUND**
  - Chief Information Officer
- **LAURA BRACAMONTE**
  - Executive Assistant to the CIO
- **THOMAS BOURGEOIS**
  - Executive Director, Campus IT Partnerships
- **RAYNEET CHADHA**
  - Interim Executive Director, University Analytics & Institutional Research
- **DEREK MASSETH**
  - Chief Technology Officer
- **TIMOTHY SCHWAB**
  - Executive Director, Administrative Technologies
- **SUSAN LEGG**
  - Director, IT Service Management
- **JEREMY FRUMKIN**
  - Executive Director, Research Technologies
- **DEREK MASSETH**
  - Chief Technology Officer
- **MARISELA CELAYA**
  - Assistant Director, Human Resources & Organizational Development; Vice Chair, Senior Leadership Team
- **SUSAN LEGG**
  - Director, IT Service Management
- **KELLY SOUTH**
  - Senior Director, Communications & Marketing
- **DARCY VAN PATTERN**
  - Executive Director, Student & Academic Technologies