

Dear Colleagues,

This report highlights the accomplishments of Information Services (IS) during the 2015-16 academic year. During that time, we improved our operational cohesiveness and efficiency by introducing new services and restructuring leadership positions that bolstered our operations, engagement, and communications efforts. Many of our accomplishments were done in partnership with others, and the strengthening of working relationships both internal and external to OSU has been an essential element of our success. Whether in teaching and learning, research, outreach, or finance and administration, technology underlies nearly every aspect of the university's work. IS's efforts in AY 2016 demonstrate our commitment to making information technology work for the benefit of the students and employees of OSU.

For our students and faculty, we launched the Learn@Oregonstate digital learning environment, offering a portfolio of tools and services, including Canvas, Kaltura, clickers, and plagiarism detection. The Learning Innovation Center (LInC) opened its doors in fall 2015 and introduced new cutting edge learning spaces. Wireless coverage was expanded and improved. We also worked as partners to advance the technology ecosystem that supports student success.

“Many of our accomplishments were done in partnership with others, and the strengthening of working relationships both internal and external to OSU has been an essential element of our success.”

For our research community, we continued to make notable investments to address our needs for network capacity and data storage. These efforts were accomplished through engagements and partnerships both internal and external to the university.

In support of our administrative operations, we continued to make significant progress toward information reliability and improved data sharing. Through the continuous engagements of the Business Intelligence Center, CORE reports expanded to better serve the varied needs of the university. IS has increased the university's technology resiliency in several ways, including the reengineering of our data network, improvements in the design of our technology infrastructure, and fortifying our information security efforts.

I am pleased to present Information Services' annual report for the 2016 academic year. As you browse this document, you will see the variety of ways in which IS serves the OSU community to advance the university's mission. I am especially proud of our staff: the commitment, care, and dedication they show every day is what helps make our success possible. I encourage you to share your questions and comments with me as we continue to serve the community of OSU.

Sincerely,

Lois Brooks
Vice Provost, Information Services

Creating a transformative educational experience

IS has prioritized our efforts into advancing student success and making thoughtful investments in the use of technology in order to transform the educational experience for all learners.

Launched Learn@OregonState

AY 2016 marked our first year of the Learn@OregonState digital learning environment. Learn@OregonState is an integrated ecosystem of tools and processes to enable next-generation learning modalities to power student success. This service has been engineered for scale, resilience, and flexibility, and most importantly, to meet the needs of both OSU's traditional (degree seeking) and non-traditional (professional, extension-based, open) learner populations. We have a robust set of governance functions and workflows designed to thoughtfully attend to the stewardship and growth of the portfolio.

There are 3000+ courses published with Learn@OregonState each term. In AY 2016, more than 760,000 videos were viewed in Kaltura, our educational media streaming platform.

Learning Innovation Center (LInC) year one

The LInC opened its doors in fall 2015 and became a new hub for instruction and learning, offering cutting-edge instructional spaces designed to take advantage of

Learn@OregonState is a portfolio of tools and services including:

- Canvas learning management system
- Kaltura (media repository/streaming)
- Turning (classroom response systems/clickers)
- Turnitin (plagiarism prevention)
- LibGuides – course-specific library references
- Publishers:
 - Cengage
 - McGraw-Hill
 - Pearson MyLabs/Mastering
 - Wiley Plus

Scheduled enhancements for fall 2016:

- MacMillan adaptive learning tools (Launchpad and Learning Curve)
- An open-source discussion forum visualization tool (Threadz)
- Accessibility tools that let users highlight text and convert text to speech (ReadSpeaker TextAid)
- Interactive video quizzing from Kaltura, with integration to the Canvas gradebook

the latest research and trends in pedagogy, and informal learning spaces to foster collaboration. A variety of innovative classroom designs allow for engaging, interactive and personalized learning experiences. In each of these spaces, technology plays an essential role, and the adjacency of our Academic Technology support team has greatly increased IS's collaborations with instructors to experiment with these learning spaces.

During LInC's first year, its innovative learning spaces generated national and international interest. LInC has been featured in the Chronicle of Higher Education, and in engineering, architectural, and instructional technology publications. OSU staff have participated in national conferences, including the Society of College and University Planning and Next Generation Learning Spaces. IS staff hosted

Creating a transformative educational experience (continued)

tours of LInC with educators from Canada, Scotland, Chile, and Nigeria, and over 20 US colleges and universities. OSU hosted the winter Unizin consortium meetings in the new building, bringing 12 research institutions to Corvallis to learn about our approach to learning space innovation and faculty engagement. IS staff are collaborating with Washington State University on research and assessment as both universities undertake careful analysis of the impact of collaborative learning environments.

Working with wireless

Over the past year, we've upgraded our wireless network across the university, improving coverage by installing more than 1,000 access points in academic spaces (LInC, Tykeson Hall, Strand Hall, Cascade Hall, Cordley, Gilfillan and CEOAS), student spaces (Snell Hall, SEC Plaza, and Dixon Recreation Center), and athletics facilities (Valley Football Center, Goss Stadium, Reser Stadium). These improvements make it possible to support a greater number of students and faculty using mobile devices and consuming ever-increasing amounts of data. In July 2016, the Educause Center for Analysis

and Research (ECAR) released its Student Technology Survey 2016 survey results. OSU received an "outstanding" rating and was ranked 2nd out of 183 universities for the quality of student housing wireless internet access. Demand for bandwidth is ever-increasing at OSU; we are already making the next round of upgrades and expansions to build upon our recent progress and evolve and grow our network.

Supporting student success through analytics

This past year, IS led an effort to inventory data-driven strategies and tools to help ensure that student experiences are successful. This ongoing investigation is part of our effort to engage in a comprehensive evaluation of OSU resources and services to better understand their impacts

and areas for investment. Behind the scenes, OSU enabled interoperability for the Student Success Collaborative to advance student outcomes. We developed integrations between Banner and Canvas, including course registrations and course information, and collaborated on integrations with our ID card system to help us draw connections on student experiences and better inform predictive analytics for student success.

OSU is a member of a national collaboration of state research universities that formed the Unizin consortium to advance the technology ecosystem that supports learning. Through this work we are deploying new pedagogical and analytics capabilities to our learners, and engaging in the national community of best practices in learning technology.

"Over the last year, my relationship with Information Services has improved markedly. Engagements with IS staff have been more coordinated, thoughtful, strategic, and customer service focused. Their evolved approach has made it easier to plan and deploy technology in service to the OSU community."

-Marion Rossi, Associate Dean, College of Liberal Arts

Creating a transformative educational experience (continued)

Learning Innovation Grants

Last year, IS awarded over \$140,000 in Individual Learning Innovation Grants to support 16 proposals for faculty to enhance pedagogy and student experience. In addition, \$300,000 was distributed through Scaled Learning Innovation Grants. These grants were awarded to faculty collaborating across units in order to introduce and scale educational technology projects, improve the student experience, and ensure cross-unit exchange of pedagogical innovations. Two examples of AY 2016 awards include:

- The Undergraduate Studies Writing Center received a grant to deploy a new real-time online writing lab. This initiative has already increased the efficiency and utilization of the writing center as well as expanded the ways in which students can receive the coaching they need to be successful.
- The CEOAS Geospatial Analysis and Visualization for Education (GAZE) project was awarded a grant to build a new data visualization studio in the Strand Agriculture building. The GAZE facility will allow students to explore and develop their interests during their first and second years; GAZE will also be OSU's hub of informal education and outreach through Extension-supported public engagement in Corvallis on topics such as land use planning, natural hazards, marine resources, and transportation.

Innovative approaches to learning

In partnership with the Divisions of Undergraduate Studies and Ecampus, we assisted in a successful proposal to accelerate the adoption of adaptive courseware, and will continue supporting that effort through the 3 year life of the grant. The grant allows OSU to advance our efforts to adjust learning experiences based on an individual student's progress.

IS collaborated with university partners to deliver the Adaptive and Personalized Learning (APL) Showcase in May. This event drew over 150 faculty to learn

from APL providers and broaden awareness about opportunities to incorporate APL in pedagogy to enhance student success.

Consolidation of call centers to form a service desk

In order to simplify access to technology support, IS consolidated the Community Network (CN) and OSU Computer Helpdesk (OCH) call centers into a single consolidated service desk, making it easier and better for students and faculty to get help. This move is part of a larger ongoing effort to further unify IS and improve our services to students and faculty.

Experiential learning

Information Services employs students throughout our organization and in a number of job functions - integrated learning and work that offers real world experience. Recently, the Gallup-Purdue index demonstrated a link between student employment and later success in life: one of the "critical success factors" shown to have a significant effect on workplace engagement and overall well-being was employment or an internship relevant to the student's field of study.

Leadership in research, scholarship and creativity

Researchers at OSU will benefit from contemporary technologies such as cloud-scale computation and advanced networking. Last year, IS facilitated knowledge sharing, and where appropriate, collective action to leverage emerging technology.

Creating a research computing community

We partnered to host a series of university-wide Research Computing Seminars, jointly sponsored by the Center for Genome Research and Biocomputing (CGRB), the Office of Research, College of Science, and the College of Engineering. The seminars have brought researchers and graduate students together to discuss topics such as OSU's advanced research network and graphics-based computing.

Research network: jointly addressing university infrastructure needs

The Research Network, funded by an NSF grant, became fully operational in 2016. Researchers have access to an on-campus 40 Gbps network to accelerate their ability to transfer data among key data centers. Currently, the network is used by IS, CGRB, the Colleges of Engineering and Science, and several research centers including the Sinnhuber Aquatic Research Lab. The project brought participating units together to jointly select and implement the equipment for the network, creating a coalition to support research computing infrastructure.

Access to computing capacity: NSF resources and the public cloud

University researchers require ever greater amounts of computing capacity to support expanding volumes of data and a growing number of research projects. To help them take better advantage of the network of NSF-funded research computing systems, called XSEDE, IS appointed an XSEDE university champion. The champion's role is to provide information about XSEDE resources, as well as to help researchers win grants of time on XSEDE computers. OSU researchers' use of XSEDE, including use by researchers at OSU-Cascades and by PhD students, has increased.

IS is also helping researchers expand their use of cloud computing resources through Amazon Web Services (AWS). IS worked with Purchasing and Contract Services to put in place a purchasing vehicle to let researchers purchase AWS services, freeing them from needing to purchase and manage their own hardware and making it possible for them to rapidly expand their computing capacity when needed. The AWS agreement will be in place shortly, selected faculty are serving

as AWS test users, and a major rollout of this new service will occur in AY 2017.

Collecting and aggregating faculty activities and accomplishments

IS partnered with the College of Agricultural Sciences and Extension and Outreach to launch a multi-tenant instance of Digital Measures, a cloud-based platform that allows faculty and administrators to record, track, display, and report on accomplishments in instruction, research and outreach functions. This is of particular benefit to Extension, as they are in some respects a 'virtual' organization with many of OSU's faculty contributing to their efforts.

- Administrators can see and report on faculty activities across colleges and program areas.
- Significant (>90%) reduction in level of effort needed for regulatory/compliance reporting.
- Allows reporting in multiple contexts (one professor's work might apply to MSI, Liberal Arts, Extension...)

Strengthen impact and reach throughout Oregon and beyond

In addition to providing services and infrastructure to the OSU community, IS strives to partner in and contribute to the statewide community and beyond. Through corporate partnerships, advisory engagements, professional organizations, and shared interest with other institutions, we are working to advance the outreach and extension programs at OSU.

Partnering, sharing, leading and learning

As an organization, Information Services invests in our relationships both on-campus and off as a way to exchange ideas, make decisions, and participate in the larger conversation that surrounds our work. Through these engagements, we are developing and evolving a deep understanding of the technology arena in which we operate, as well as influencing the development of products, processes, and services that make technology work at OSU.

Edu partnerships:

- Northwest Academic Computing Consortium (NWACC) security practice
- NWACC Instruction Technology practice
- NWACC leadership development
- Educause Leading Academic Transformation
- Educause Hawkins Leadership Institute

Advisory/Governance engagements

- Instructure/Canvas
- Acquia
- Ellucian
- Salesforce
- Unizin
- Kaltura

Corporate Partnerships

- Intel
- EMC

Branch campus partnerships

In the lead up to launching the new campus in Bend, IS has been a key partner with OSU-Cascades in technology planning and implementation. We are engaged in long range development plans for OSU-Cascades and are working on a multi-year technology plan to align the technology needs of the campus with its trajectory for growth.

With the planning of MSI underway, establishing a strong partnership with the Hatfield Marine Science Center (HMSC) is critical in our plans for the future development and expansion in Newport. Technology is essential to the success of the Marine Studies Initiative (MSI), and this past year we worked to strengthen working relations and communications with our HMSC colleagues.

Using engagement to strengthen our relationships

IS led and promoted several strategic engagements and events in order to strengthen community and to help instill a shared vision for technology at OSU. In addition to standing groups, such as the Information Technology Coordinating Committee (ITCC) and the Administrative Computing User

Strengthen impact and reach throughout Oregon and beyond (continued)

Group (ACUG), we formed new committees and hosted a number of new events in AY 2016 to broaden discussion, deepen understanding, and strengthen partnerships. Some examples are highlighted here.

Governance:

- Data Governance Council
- IT Security Governance Council
- Web Advisory Group
- Mobile Advisory Group
- Learn@OregonState Steering Committee
- Canvas Advisory Committee

Events:

- Technology Unconference
- OSU Hackathon 1.0
- Salesforce Day
- Adaptive and Personalized Learning Showcase
- Research Computing Seminars
- CoprHD (Copperhead) Developer summit

Other areas of distinction

Data interoperability

With an eye to cloud-based computing, over the past 3 years, IS has built services and business functions around identity, access, and data integration to enable innovation in the colleges and divisions and power student, research, and outreach outcomes. Our investments in these areas are now paying dividends: we connected 22 services in AY 2016 compared to 11 in AY 2015. These integrations expand our service portfolio, reduce carrying costs, and mitigate risk. Some examples of the technology behind this initiative:

- Shibboleth, Grouper, and InCommon are best-in-class technologies for colleges and universities to use to provision and maintain access to systems. These tools offer

benefits in two dimensions: power and flexibility along with operational efficiency.

- Social Authentication: IS has enabled a method for non-affiliated users to access and participate in OSU programs. The tool allows users to use their Google or Facebook ID as credentials for certain OSU systems, reducing barriers for statewide programs.
- API gateway: we have deployed a new service to improve the real-time

flow and availability of data between systems, improving accuracy and reducing fragmentation.

One notable example of our new integration and access expertise can be found in the AT&T RAVE emergency alert system: this critical service will allow us to communicate with all or part of the university community in case of emergency. From start to finish, the RAVE implementation took fewer than 6 weeks to complete.

“Information Services has become an organization that listens. The level of cooperation we’ve developed between IS and HMSC is what is needed for the Marine Studies Initiative at HMSC to succeed. I look forward to partnering with IS as we expand the university’s reach at the coast.”

–Bob Cowen, Director, Hatfield Marine Science Center

Other areas of distinction (continued)

These powerful access control tools and the development of a comprehensive university data warehouse have enabled IS to quickly create, configure, and maintain interoperability with university infrastructure, college and division based systems, and cloud services.

Modernizing the data network

As the information revolution continues, we worked diligently in AY 2016 to plan for and build network capacity, resiliency, and security in support of institutional goals. Over the past year, we've doubled the throughput of our connection to the dedicated Internet2 research network, expanding network capacity in support of research. Information Services also began a complete reengineering of our data networking infrastructure from Bend to Newport, improving the scalability, security, and reliability of our data network.

Improving our data security

Security of the technology infrastructure and data of the university is essential, and OSU faces ever-increasing threats

of intrusion, disaster and data loss. To better understand our risk profile, IS undertook a comprehensive assessment of the infrastructure, systems and processes we operate, measuring our practices against the industry standard SANS 20 Critical Controls. From this assessment, we developed a list of priority security investments. These include reducing the amount of confidential data in our systems, elevating scanning and monitoring activities, improving architecture of the network and systems, simplifying logins through account unification, and deploying multi-factor authentication. We have also moved our primary web infrastructure to the cloud to assure our ability to communicate in the event of a natural disaster.

Rethinking OSU's online services

In AY 2014, IS began a process to review and improve our web publishing services. We held conversations with customers, formed a cross-campus web task force, engaged vendors, and brought in a consultant. In AY 2016, we began taking what we learned and putting it into play:

our web publishing services are now more flexible, powerful, and customer-focused. Our priorities are driven by conversations with our stakeholders and advisors. We have created an advisory board, built one of the strongest Drupal user groups on the west coast, and have created a vibrant, open community around web communications at OSU. Some of our accomplishments:

- Partnered with University Relations and Marketing on a new OSU homepage.
- Created tools to allow our users to easily create compelling, OSU branded web content in the style of the new homepage.
- Updated OSU web search to provide more accurate, useful results.
- Moved 55 college and department websites to best-in-class cloud hosting. Benefits include disaster recovery/resiliency, security, efficiency, and scalability.