



CENTRAL WASHINGTON UNIVERSITY

Information Services Technology Master Plan

2019 – 2029

March 12, 2018

Executive Summary

CWU is a regional comprehensive university that provides a world-class information technology environment. Information Services (IS) manages and operates the core infrastructure, network, telephony, and business systems that enable our campus community and support positive engagement across our institution and local community. As a strategic partner to the university we lead the implementation of emerging technologies, continuous improvement of current technologies, and thoughtful stewardship of technology resources. This technological ecosystem define the social, intellectual, and leisure lives of students, and, increasingly, of their parents and teachers.

Through surveys, outreach programs, and governance students, faculty, and staff guide the strategic decisions associated with technology. These feedback mechanisms help CWU IS prioritize new initiatives that empower the CWU community to achieve strategic goals and academic outcomes. In recent years, these initiatives have been conceptualized through a number of strategic initiatives, such as the No Worry Zone and the 20/20 Vision.

These initiatives include support for research, expanded cloud-based collaboration tools, and continuous improvement in our core business systems. Over the past few years, security has been a top priority of Information Services. Implementation of data encryption, robust internal audits, and defending against a constantly evolving threat landscape has significantly increased our maturity in our risk management and security posture. We are investing in technology to increase network bandwidth, partnering with content delivery networks, and divesting our reliance on old communications technologies. Our outward facing customer service focus is on streamlining service delivery through partnerships with external service providers and standardization of service frameworks.

A world-class information technology organization must deliver core services flawlessly as a basis for trust. We must create an organization that is agile, cost-efficient, and innovative to meet the needs of the campus community. We must remain lean in a constantly changing world and do this within the framework of state and higher-education sectors. As an organization, we have many aspirational goals that all revolve around a common and shared understanding: we should provide best-in-class technology services to the campus community and our employees choose to work for us because of our excellence in operations and *esprit-de-corps*.

The interaction between the campus community and our technology services must result in world-class performance that creates a competitive advantage for CWU. Creating such a competitive advantage requires a significant institutional investment in funding and time. Even though information technology is pervasive across our campuses, the execution of such a strategy is difficult. Requirements gathering, prioritization of initiatives, and resourcing institutional priorities requires shared governance and collaboration across multiple functional areas and appointing authorities. The challenges and opportunities ahead require sustained innovation and investments in technology over the next decade.

This technology master plan provides a thorough assessment of the current state of technology at CWU and aligns CWU IT with the university's long-term goals and mission. It breaks down the seven strategic technology imperatives of CWU IS into proposed strategic objectives and initiatives. CWU is a great university and it deserves a world-class IT organization. We have much to do and we look forward to doing it together.

Information Services Mission Statement

The mission of Information Services is to provide the information systems and services necessary for all departments to achieve their objectives and the objectives of the university, and to establish an information environment that embraces sustainability, stewardship, and provides a comprehensive vision for the future.

Current State and Challenges

Over the last five years, Information Services has worked to align technology with the CWU mission and vision through a robust governance model founded on collaboration and embracing new technologies. While this effort has seen many successes, we still have good leaders and employees sometimes struggling to fill the gap between technology implementation and strategic outcomes. Core services have been delivered inconsistently during this time due to lower levels of process maturity and availability of resources. There are still redundant technology systems and services throughout the campus due to a lack of coordination and organizational alignment surrounding technology. Lastly, issues of trust, transparency, and credibility associated with technology sometimes hinder institutional execution of its mission and vision.

Future State and Opportunities

The ideal state is for Information Services to become a strategic enabler of the CWU mission and vision – a competitive advantage compared to peer institutions. To reach this state, Information Services must become a world-class technology organization that is closely aligned with the CWU vision. This desired state must be reached according to an accelerated timeline (within ten years) to capitalize on CWU's unique identity and trajectory within higher education.

SWOT Analysis

S Strengths <ul style="list-style-type: none">• People and expertise• Provider of enterprise solutions• Communications with campus• Strategic planning and long-term goals• Partnerships with academic departments• Agile development• Customer service• Wildcat Way	W Weaknesses <ul style="list-style-type: none">• Governance model• Funding model in support of changing technology landscape and compliance• Infrastructure age and capacity• Informal processes• Clearly defined KPIs• Staffing and specialized skills• Technology lifecycle model that is dependent on capital funding
O Opportunities <ul style="list-style-type: none">• Emerging technologies• Cloud-based solutions• Big data• Mobile platforms• Partnerships with local community• Operations management• Expanded centralized technology services• Commercialization of technology	T Threats <ul style="list-style-type: none">• Conflicting priorities among constituents• Disaster recovery/business continuity• Increase in cyber attacks• Not viewed as a trusted strategic partner• Regulatory and compliance changes• Rapid pace of technology changes• Competitive environment for recruitment and retention

How will we achieve our goals?

1. Information Services will evolve to become a world-class technology organization to enable the CWU community. This will be enabled by 1) transforming Information Services into a service organization; 2) becoming transparent regarding the costs of technology; 3) implementing processes to attract and retain quality team members.
2. Information Services will support and grow the technology governance structure that will offer the university business owners insight into the technology needs of CWU. This governance structure will allow university stakeholders to provide customer input in prioritizing technology demands across the university. The expected outcomes of this are 1) regularly scheduled updates on technology projects, their prioritization and underlying operational needs and the ability to offer input into prioritization; 2) an understanding of the technology governance structure and how to interact with it.
3. Information Services and Institutional Effectiveness will take a central role in evolving CWU to a data-informed institution. Being data-informed will allow all levels of CWU management to utilize data from across integrated systems to enable strategic decision-support.
4. Information Services will support the development of technology innovation programs that will enhance education, research and CWU community experiences.
5. Information Services will provide processes to enable conversations within the CWU community regarding technology needs and challenges. This will be enabled via three ways: 1) the continued use of surveys for campus-wide participation; 2) the creation of experience committees to enable technology discussions; 3) Partnering via regular interactions with the CWU community to understand their strategic needs to determine how technology can be used to reach their goals.
6. Our philosophy is one of service and stewardship. We will align our resources with institutional priorities; we will seek to reduce costs on services to invest in areas that gives CWU a competitive advantage; we will be transparent with our customers and build solutions with their input. To accomplish this, we will establish clear areas of responsibility and lines of authority to ensure accountability. We will develop a process of continuous improvement to meet the changing technology requirements of a thriving campus community.

IS Strategic Themes

1. Establish a secure technology ecosystem

Through the thoughtful application of security controls, we will focus on establishing an environment that secures our most important assets and is trusted by the campus community. Our students, faculty, and staff can only embrace creative expression and the fostering of new and innovative ideas in a trusted and secure environment.

2. Promote a shared technology governance model

CWU embraces diversity of thought and collaboration through a technology governance model that is built on trust, confidence, and accountability for all stakeholders.

3. Develop a world-class Information Technology organization

One of our CWU's goals is to be "distinguished regionally for the rigor of its curriculum and scholarship" and to accomplish this, we must strive for excellence in all areas, especially in information technology; a vital and critical aspect of our institutional long-term goals and aspirations.

4. Generate business value and opportunities

CWU recognizes that information technology must be at the forefront of lowering institutional costs, increasing revenues, optimizing processes, and providing stewardship of institutional resources.

5. Continuous improvement of the student, faculty and staff IT experience

New and emerging technologies, along with thoughtful use of existing technologies, can be combined to set CWU apart from peer institutions in terms of efficiency and collaboration, ultimately ensuring opportunities for staff, student, and faculty achievement.

6. Support and foster data-driven decision making

Data-driven decision making ensures unbiased accuracy, encourages information to be continually added and updated, and leads to long-term results, allowing CWU to be increasingly competitive with peer institutions.

7. Enhance technology in the Ellensburg community and beyond

CWU is a vital member of a vibrant technology ecosystem, with vested interests in the success of the information technology community in Ellensburg and beyond.

Conclusion

A great technology brand is a story that never stops unfolding. It evolves and reacts to a rapidly changing technology ecosystem through sustainable innovation. Information Services must transform to become a competitive advantage for CWU and its students, faculty, researchers, administrators, alumni, and staff. This will be a long journey needing decisive leadership, the active involvement of all constituent groups and stakeholders at CWU, and appropriate investment as we work together to change the campus and our community.

Theme 1: Establish a secure technology infrastructure

Through the thoughtful application of security controls, we will focus on establishing an environment that secures our most important assets and is trusted by the campus community. Our students, faculty, and staff can only embrace creative expression and the fostering of new and innovative ideas in a trusted and secure environment.

Objective 1: Manage risk	
No.	Initiative
1.1	Support the development of an institution-wide risk management plan.
1.2	Develop a comprehensive compliance audit (FERPA, PCI-DSS, HIPAA, GDPR).
1.3	Implement data sharing agreement framework.
1.4	Fully develop information security policies and procedures.
1.5	Support the development of an institution-wide disaster recovery plan.
1.6	Support the development of an institution-wide business continuity plan.
1.7	Create CISO position and drive the establishment of an independent information security function across campus.
1.8	Implement a security program that is based on confidentiality, integrity, and availability.

Objective 2: Protect users	
No.	Initiative
2.1	Implement Multi-Factor Authentication (MFA).
2.2	Expand incident response capability.
2.3	Provide a common set of security services that are available to our users.
2.4	Strengthen user authentication.
2.5	Protect users from malicious software and exploits.

Objective 3: Protect infrastructure	
No.	Initiative
3.1	Continue implementation full-disc encryption on all business systems.
3.2	Protect assets through effective asset discovery capability.
3.3	Drive implementation of patch management framework.
3.4	Support and manage change control process.
3.5	Protect mobile devices.

Theme 2: Promote a shared technology governance model

CWU embraces diversity of thought and collaboration through a technology governance model that is built on trust, confidence, and accountability for all stakeholders.

Objective 1: Communicate with stakeholders	
No.	Initiative
1.1	Develop on-going dialog framework with campus community regarding technology activities.
1.2	Create bi-annual technology needs assessment ¹ .
1.3	Create IT expense to budget annual financial report ¹ .
1.4	Develop and maintain an appropriate technology policy and procedure repository.

Objective 2: Support evaluation and outcomes assessments	
No.	Initiative
2.1	Develop and maintain a baseline assessment of classroom technologies ¹ .
2.2	Establish a standard framework for assessing and reporting technology project outcomes.
2.3	Support the development of a mechanism to assess technology return-on-investment.
2.4	Support the development of a mechanism to assess technology total-cost-of-ownership.

Objective 3: Reinforce the governance structure	
No.	Initiative
3.1	Develop and maintain a semi-annual technology resource and technology performance report ¹ .
3.2	Evaluate and evolve the existing governance structure.
3.3	Create information security governance committee.
3.4	Support enterprise data management governance through existing frameworks.

¹ This initiative aligns directly with an indicator in Core Theme 5 of the CWU strategic plan.

Theme 3: Develop a world-class Information Technology organization

One of CWU’s goals is to be “distinguished regionally for the rigor of its curriculum and scholarship” and to accomplish this, we must strive for excellence in all areas, especially in information technology; a vital and critical aspect of our institutional long-term goals and aspirations.

Objective 1: Build trust	
No.	Initiative
1.1	Improve CWU IT employee engagement with all customers.
1.2	Offer campus community the best options and services transparently and cost-effectively.
1.3	Implement a robust self-help platform for common tasks and services.
1.4	Provide services without rebilling campus community while maintaining sustainable funding.

Objective 2: Receive positive recognition	
No.	Initiative
1.1	Improve CWU IS external and internal reputation through the publishing of white papers and speaking opportunities.
1.2	Increase the influence of CWU through participation on boards and professional organizations.
1.3	Apply for and win regional and national technology awards.

Objective 3: Centralized IT	
No.	Initiative
2.1	Expand the centralized IT function in support of institutional goals and objectives.
2.2	Remove redundancies in technology organizations, services, and infrastructure.
2.3	Partner with the Brooks Library, Multimodal Learning, Institutional Effectiveness, and Public Affairs to achieve strategic goals and create efficiencies.

Objective 4: Reliable services	
No.	Initiative
1.1	Continuously improve established SLAs through transparent and regular engagements.
1.2	Deliver technology services based on ITIL ² in a reliable and effective manner
1.3	Develop and establish robust change control and release management processes.
1.4	Support and grow existing Service Desk to encompass all Operations service needs.
1.5	Attract, develop, and retain professionals who contribute value to the campus community.
1.6	Develop robust technology leadership within CWU IS.
1.7	Establish a comprehensive project management methodology within CWU IS.

² Information Technology Infrastructure Library

Theme 4: Generate business value and opportunities

CWU recognizes that information technology must be at the forefront of lowering institutional costs, increasing revenues, optimizing processes, and providing stewardship of institutional resources.

Objective 1: Reduce cost	
No.	Initiative
1.1	Support agile processes that provides for coordinated technology purchases across campus.
1.2	Remove redundant systems that do not add value.
1.3	Identify all technology services and identify as either centralized, decentralized, or opportunity to transition to the cloud.
1.4	Identify high-cost services and perform a cost-benefit analysis.
1.5	Apply governance outcomes as decision-support tool for new projects and services.

Objective 2: Process innovation	
No.	Initiative
2.1	Support a culture of innovation and establish award mechanism for significant contributions.
2.2	Increase efficiencies and decrease administrative burdens through technology and automation.
2.3	Utilize budget roll-over capability to invest in research and development.

Objective 3: Revenue generation	
No.	Initiative
3.1	Develop mechanism for capturing and communicating the return of donations to donors.
3.2	Partner with campus community to leverage technology to support enrollment, retention, and graduation of students.
3.3	Support the licensing of technology intellectual property derived from academic research.
3.4	Support expansion of High-Performance Computing (HPC) to increase receipt of grant funding.
3.5	Spearhead the licensing of technology intellectual property derived from CWU IS solutions.
3.6	Identify revenue generating opportunities associated with key infrastructure and the Samuelson data center.

Theme 5: Continuous improvement of the student, faculty and staff IT experience

New and emerging technologies, along with thoughtful use of existing technologies, can be combined to set CWU apart from peer institutions in terms of efficiency and collaboration, ultimately ensuring opportunities for staff, student, and faculty achievement.

Objective 1: Empower stakeholders	
No.	Initiative
1.1	Involve campus community in technology discussions to help prioritize technology solutions and funding priorities.
1.2	Promote sharing of technology resources and systems to enable group innovation and a shared sense of technology purpose.
1.3	Provide technology training and guidance to support implementation of new features and system functionality.
1.4	Provide a high-speed wired and wireless network in support of the Ellensburg campus, centers, and residential facilities.
1.5	Implement and maintain a robust enterprise collaboration environment.
1.6	Manage and maintain an infrastructure and device lifecycle process.

Objective 2: Community of technology	
No.	Initiative
2.1	Develop and advocate for a comprehensive and campus-wide technology communication process.
2.2	Support the development of an institutional digital media board architecture that addresses wayfinding, departmental communications, and centralized marketing/branding.
2.3	Create internships, work studies, and mentorship opportunities for students within CWU IS.
2.4	Partner with academic departments to create teaching opportunities for CWU IS staff.
2.5	Develop internal technology pipeline for students to gain employment and internships.
2.6	Support private sector partnerships and academic programs to drive student employment opportunities.
2.7	Implement active learning classrooms and learning spaces.
2.8	Support and advocate for the inclusion of emerging technologies in both classroom and pedagogy.
2.9	Support Auxiliary Operations in the development and implementation of technology services and systems.

Objective 3: Innovative and cost-effective solutions	
No.	Initiative
3.1	Promote paperless process, automation, and mobile device use.
3.2	Build innovation/emerging technology center and programs to focus on the advancement of technology across the CWU campus ¹ .

3.3	Partner with Academic and Student Life to develop a centralized solution for access to common tools, resources, and services.
3.4	Support faculty adoption of electronic instructional materials that integrates with learning management systems, supports accessibility, in support of student outcomes.
3.5	Provide the necessary technology and data architecture to enhance the accreditation process.
3.6	Support the continuous evolution of our web-based architecture.
3.7	Advocate for and develop an institutional document imaging solution.
3.8	Partner with CWU to develop and continuously improve mobile-friendly applications, student evaluation processes, customer relations, and four-year degree planning.
3.9	Effectively and efficiently transition the legacy data center to the Samuelson data center.
3.10	Implement a cost-effective and modern Voice-over-IP (VOIP) telephony solution ¹ .
3.11	Drive the thoughtful and appropriate transition of on-premises systems to cloud-based environments.

Objective 4: Build trust and confidence in services

No.	Initiative
3.1	Continuously improve a robust and consistent information technology architecture.
3.2	Advocate and implement system integrations to create a more cohesive information environment.
3.3	Effectively communicate technology tools, platforms, and software solutions available to faculty, staff, and students.
3.4	Maintain and evolve business processes improvement mechanism to support functional areas.
3.5	Maintain and evolve single-sign-on architecture to provide access to all business systems.

Theme 6: Support and foster data-informed decision making

Data-informed decision making ensures impartial accuracy, encourages information to be continually added and updated, and leads to long-term results, allowing CWU to be increasingly competitive with peer institutions.

Objective 1: Data management priorities	
No.	Initiative
1.1	Support and drive the integration of data-focused governance into existing governance bodies.
1.2	Develop and maintain a robust data governance framework for access to data.
1.3	Advocate for data responsibility through awareness programs.
1.4	Support the development of a clear hierarchy of external data reporting governance.

Objective 2: Build data partnerships across campus	
No.	Initiative
2.1	Establish data points of contact in each functional area to support data governance framework.
2.2	Define and evolve the roles of data owner, data stewards, and data custodians.
2.3	Establish training model for educating data owners, data stewards, and data custodians on their responsibilities.
2.4	Partner with Institutional Effectiveness to establish a data-informed campus environment.

Objective 3: Support the data warehouse environment	
No.	Initiative
3.1	Support the continued evolution of the data warehouse environment.
3.2	Support the development of self-service analytics through the development of robust dashboards and innovative software solutions.
3.3	Support the development of a common data dictionary.
3.4	Support the development of a robust reporting process.
3.5	Evolve existing data classification standards in collaboration with stakeholders.
3.6	Develop and support the inclusion of new data types, such as meta data and machine-generated data into the data warehouse environment.
3.7	Develop and support the automated predication of trends and discovery of new patterns.
3.8	Implement new integrations with the data warehouse to support data-informed decisions.

Imperative 7: Enhance technology in the Ellensburg community and beyond

CWU is a vital member of a vibrant technology ecosystem, with vested interests in the success of the information technology community in Ellensburg and beyond.

Objective 1: Enhance community of information technology	
No.	Initiative
1.1	Partner with other higher-education institutions through existing bodies to drive technology as a competitive advantage for Washington state.
1.2	Support the recruitment and retention of key personnel via collaboration with economic development groups.
1.3	Support the creation of a CIO Leadership body within the State of Washington that focuses on innovation and implementation of emergent technologies.
1.4	Explore opportunities with state-wide network providers to expand high-speed internet access to rural areas.
1.5	Identify opportunities to leverage data centers on the State of Washington network to support education, research, and access to learning.

Objective 2: Empower Ellensburg	
No.	Initiative
2.1	Strengthen the Ellensburg technology ecosystem by partnering with key stakeholders to drive affordable technology innovation and business opportunities.
2.2	Host an annual technology-centric event for the local community on the Ellensburg campus.
2.3	Identify technology business partners to develop centralized communications for technology needs in the Kittitas County.
2.4	Support the creation of an Ellensburg Technology Advisory Board.
2.5	Support the creation of a technology-centric business environment that encourages students to remain in the Ellensburg region after graduation.
2.6	Establish technology partnerships with the K-12 school district to drive innovation and student success.

Objective 3: Participate in technology excellence nationally	
No.	Initiative
3.1	Attend and present at the annual EDUCAUSE conference and advocate for CWU as a technology leader.
3.2	Attend and present at the national and regional Alliance conference.
3.3	Represent CWU at regional cyber and technology-centric conferences and seminars.
3.4	Partner with academic departments in preparing students for national cyber competitions.