



Information Technology Strategic Plan
2013 – 2017

INTRODUCTION

The UTO Mission

Arizona State University's University Technology Office (UTO) provides the highest quality technology based services and systems, in a cost-effective manner, to support the University's mission and goals as they apply to student learning, academic research and engagement in public service.

Vision Statement

Evidence suggests that we now have the capacity, experience and technological maturity to finally utilize technology as a force multiplier and as a differentiator. Accordingly, we have adopted the following statement:

Realize the potential...

of information technology to enable and empower students, faculty and staff

of information technology to transform and benefit ASU processes

of information technology to serve and support the ASU community

of our people to become leaders in their profession.

The previous (2012-2016) ASU IT Strategic Plan identified twenty-five (25) goals across seven (7) main areas – Student Success, IT Infrastructure, Administrative Effectiveness, IT Security, Academic Technology, Research Computing, and Strategic Alliances – and aligns those goals with related ASU Strategic Priorities. This annual update indicates adjustments in and revisions to those goals as some are completed; others demand course corrections and development as new goals emerge. The strategy defined in this plan reflects the progress made towards objectives defined in the 2012-2016 IT Strategic Plan, which itself was an update of the 2011-2015 Plan and contains the assessment of the new Chief Information Officer (CIO), Gordon Wishon, who assumed responsibility for the plan in August of 2010.

Ultimately, it is the assessment of the CIO that the fundamental strategies defined in the previous strategic plan – in particular, increasing the pace of innovation and doing more with less by focusing on core vs. context – remain valid. But meeting the challenges of the future will require increased agility and effectiveness of decision making, innovative strategies for delivery of services and support and an intense focus on rebuilding a robust, reliable and secure infrastructure.

While the financial stress of the previous years has lessened somewhat, with state funding returning to more stable levels, there remains a need to maintain a relentless focus on reducing cost and improving the effectiveness of centralized IT services. Demand continues to increase at a pace far exceeding the UTO's ability to accommodate, and a redoubling of efforts to add capacity while limiting cost increases is necessary. Chronic underinvestment in infrastructure brought about by the financial pressures of the preceding years has exposed weaknesses in the infrastructure causing an unacceptable level of outages affecting the teaching and research missions. That said, the university continues to benefit from tremendous success at leveraging technology to improve student outcomes, efforts that have garnered much attention across higher education and elsewhere. In addition, the lessons learned from the successful upgrade of the university's core ERP platform has positioned the institution well for the upcoming challenge of replacing the central financial application in the coming year. Growth of the research program also continues to drive demand for additional high performance computing capacity. ASU's strength in data intensive analytics and business intelligence are stimulating much interest by potential partners, and great potential exists to position ASU as a world leader in emerging data related disciplines, further leveraging investments being made in high performance computing and advanced networking, especially for healthcare and related research disciplines.

Trends identified previously as impacting the university environments – cloud computing, mobility, and personalized applications – continue to heavily influence the nature of the services presented by the UTO. Additionally, the current and emerging issues around Big Data, analytics, the implementation of Information Technology Infrastructure Library (ITIL) service management practices, and most importantly, an expanded view by university leadership of the potential for further improving student success by leveraging technology to improve the service experience and, ultimately, delivering an increasingly comprehensive picture of the student experience - will have tremendous positive impact on educational and research outcomes.

The security of ASU's information assets has always been an institutional concern, but the intensity of this concern has risen as the Arizona Board of Regents (ABOR) begins to examine the strategy each institution is taking to prevent the loss of sensitive information. The appointment of a dedicated Information Security Officer and the engagement of a professional security firm to conduct a comprehensive risk assessment has allowed UTO to establish an information security program that is informed by objective data and has led to the formation of a set of priorities for improvements that will over time substantially enhance the risk profile of the University. However, this is no guarantee of security, and a continued focus on (and funding of) information security will be required.

Effective support for research computing is an essential element of ASU's strategy to grow the research enterprise. The appointment of a director of ASU's Advanced Computing Center and the stabilization of the center's operating budget (now \$1.3M annually) has allowed a modest amount of positive momentum to be established. The coming year presents substantial opportunities to establish a research computing capability that helps to accelerate the success of research programs that can leverage this support. A key element of the center's vision is the notion of differentiation – the ASU Advanced Computing Center will be unlike other university high performance computing centers in the range and diversity of the programs and research interests it supports.

In addition to supporting the core computing needs of the research community, UTO is partnering with the Office of Knowledge Enterprise Development (OKED) to help select, implement and support systems and services needed to administer and grow the research enterprise. The legacy platform in use, MIT COEUS, is very limited in the degree to which it can support the modern research enterprise. Similarly, the core ERP transaction environments – Oracle/PeopleSoft for HR/Payroll and Student – will continue to be upgraded and maintained according to Oracle’s recommendations and consistent with best practices of other higher education customers. Planned upgrades will continue through 2013-2014 to keep the systems current. UTO will continue to seek ways to reduce the cost of maintenance and support through outsourcing and consolidation. Beginning in 2013, UTO, in partnership with the financial community, will begin the acquisition of a new Finance system as the legacy Advantage system becomes increasingly unsupportable.

New approaches to service delivery will be needed if UTO is to stay relevant to the ASU community – especially important is reducing the time-to-delivery of solutions, whether the need is for a new mobile application, a website, or an entirely new service. Self-service options, pre-negotiated contracts for development services with built-in coding and security standards, cloud-based on-demand development/production environments, models and customized services that are sufficiently elastic to permit rapid growth/rapid elimination of IT support for departments are all approaches that UTO will explore in the coming months and years. Additionally, for those units with the financial capacity but not the expertise or desire to maintain their own dedicated IT service group, UTO will develop mechanisms (financial and managerial) that allow departments to effectively ‘outsource’ their local IT support needs back to UTO.

Finally, much discussion and debate is occurring in the community on the topics of MOOCs (massively open online courses) and e-textbooks and their impact on the cost and effectiveness of a university education. While ASU’s strategy around each of these issues is still evolving, those strategies have clear implications for the technology support and service environment. In order to most effectively use the resources UTO is given, agile and transparent decision-making is essential. Over the coming months, additional planning and portfolio management, including service management capabilities and processes will be deployed, accompanied by an improved governance structure that facilitates rapid and transparent resource allocation decisions in anticipation of the emerging trends and to support the new range of provisioning strategies and demand across the campuses.

ASU Strategic Information Technology Goals	Improve the quality of the undergraduate & graduate educational experience	Provide access to education for a growing student population	Recruit & retain faculty & staff in highly competitive national & local markets during a period of diminishing resources	Enhance & improve social embeddedness	Serve as a comprehensive provider of graduate & undergraduate education in a large metropolitan area while maintaining a nationally competitive research capacity & contributing to economic diversity in the Valley	Ensure the necessary facilities & capacity to accommodate growth
Area # 1: Student Success						
Continue to improve eAdvisor to further enhance retention rates	X				X	
Area # 1: Student Success						
Implement and expand the mobile.asu.edu experience for key applications	X	X			X	
Area # 1: Student Success						
Improve access to Software applications by coordinating licensing & deploying new technologies to extend application services across the Internet	X	X				
Area # 1: Student Success						
Advance re-design & use of the Web as a tool for learning, messaging & knowledge capture & dissemination	X	X	X			
Area # 2: IT Infrastructure						
Expand & enhance the High Performance Computing network across the entire enterprise to ensure access to HPC facilities from every ASU location			X		X	
Area # 2: IT Infrastructure						
Consolidate computer & storage systems in a few physical locations dispersed within the Phoenix Metro area to ensure secure & continuous operation of the University's information systems		X				X
Area # 2: IT Infrastructure						
Continue to consolidate data & storage to improve reliability, security & cost		X				X

ASU Strategic Information Technology Goals	Improve the quality of the undergraduate & graduate educational experience	Provide access to education for a growing student population	Recruit & retain faculty & staff in highly competitive national & local markets during a period of diminishing resources	Enhance & improve social embeddedness	Serve as a comprehensive provider of graduate & undergraduate education in a large metropolitan area while maintaining a nationally competitive research capacity & contributing to economic diversity in the Valley	Ensure the necessary facilities & capacity to accommodate growth
Area # 3: Administrative Effectiveness Ensure ongoing viability of financial transaction processing & improve the quality of financial intelligence		X				X
Area # 3: Administrative Effectiveness Increase the efficiency of the proposal development, preaward, and postaward management sponsored research activity			X		X	
Area # 3: Administrative Effectiveness Maintain the currency of the enterprise resource planning system			X			X
Area # 3: Administrative Effectiveness Reduce the cost of new technology deployment & provide tools to increase process performance & collaboration	X	X	X		X	
Area # 3: Administrative Effectiveness Continue to improve customer service to increase the productivity of faculty, students & staff	X		X		X	
Area # 3: Administrative Effectiveness Support data driven decision making throughout the institution by making institutional data & analysis more available & actionable through a consistent interface		X		X		X
Area # 3: Administrative Effectiveness Build and Retain a Talented IT workforce		X				
Area # 3: Administrative Effectiveness Improve the IT Service Model	X	X	X		X	

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Area # 4: IT Security Maintain a strong risk management program through a continuous cycle of assessing & mitigating potential risks						X
Area # 4: IT Security Ensure alignment of information security programs to ASU initiatives & the University's mission & appropriate laws, regulations & compliance						X
Area # 4: IT Security Systematically monitor & log University systems & networks						X
Area # 5: Academic Technology Advance the implementation of the ASU 1:1 Mobile Initiative	X	X				X
Area # 5: Academic Technology Ubiquitous classroom mediation	X	X				X
Area # 6: Research Computing To expand the central provisioning of "cycles, bytes, bandwidth & expertise" in support of sponsored research through the ASU community			X		X	
Area # 7: Strategic Technology Alliances To identify opportunities to replace the direct provisioning of information services with externally provided services operating at larger scales	X	X		X		X

ASU Performance Metrics and Target Goals by Strategic Area

ASU is tracking the following metrics to assess its progress in pursuing the strategic goals outlined in this plan. Each of these indicators is listed in the table below together with an assessment of ASU's current performance and its five-year target for that metric.

ABOR IT Strategic Area	Goal	IT Metric	Current Progress (2013)	Target Metric (2017)
AREA # 1: Student Success	Goal #1: Continue to improve eAdvisor to further enhance retention and graduation rates	% Freshmen who return to the University in their sophomore year (retention rate)	83%	90%
	Goal #2: Implement and expand the mobile.asu.edu experience for key applications	% Undergraduate students who actively use eAdvisor tools to track their degree progress	79.8%	95%
	Goal #3: Improve access to software applications by coordinating licensing and deploying new technologies to extend application services across the Internet	% Undergraduate students enrolled in courses appropriate to their degree program on the first day of classes	88.7%	95%
	Goal #4: Advance re-design and use of the Web as a tool for learning, messaging and knowledge capture and dissemination	% Students that use MyASU on a daily basis	99%	99%
		% Undergraduate students using DARS to identify unmet requirements	65%	80%

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ABOR IT Strategic Area	Goal	IT Metric	Current Progress (2013)	Target Metric (2017)
AREA # 2: IT Infrastructure	Goal #1: Expand and enhance the High Performance Computing network across the entire enterprise to ensure access to HPC facilities from every ASU location	% Time that ASU's computer systems are operational (My ASU, Blackboard, PeopleSoft, Advantage, email) <i>*Past six months</i>	99.94%	99.9%
		% Time that ASU's computer network is operational <i>*Past six months</i>	99.28%	99.9%
	Goal #2: Consolidate computer and storage systems in a few physical locations dispersed within the Phoenix Metro area to ensure secure and continuous operation of the University's information systems	% University server capacity that has been virtualized to improve reliability, continuity and efficiency	66%	95%
		% Distributed server capacity consolidated onto University servers	31%	60%
	Goal #3: Continue to consolidate data and storage to improve reliability, security and cost	# TB of computer storage provided by centralized University storage infrastructure	8280TB	10,000TB
		% University using converged voice/data network	48%	35%
		% Campus with centrally provided wireless connectivity	98.8%	97%
		% Wired connections with 1GB capacity	92.3%	88%
		% Wireless connections with 300Mb capacity	57.4%	40%

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ABOR IT Strategic Area	Goal	IT Metric	Current Progress (2013)	Target Metric (2017)
AREA #3: Administrative Effectiveness	Goal #1: Ensure ongoing viability of financial transaction processing and improve the quality of financial intelligence	# Tier 1 support calls answered by the University Help Desk	354,662	500,000
	Goal #2: Increase the efficiency of the proposal development, pre-award, and post-award management sponsored research activity	# Tier 1 support calls that are successfully resolved within the published service levels	94%	98%
	Goal #3: Maintain the currency of the enterprise resource planning system	Average customer satisfaction rating on the quality of work performed, ease of use, staff service, communication and timeliness (on a 4.0 scale where 1 is very dissatisfied and 4 is very satisfied)	3.78 / 4.0	4.0 / 4.0
	Goal #4: Reduce the cost of new technology deployment and provide tools to increase process performance and collaboration	Time to deployment (timeline), and total costs for projects related to new technology deployment	N/A	TBD
	Goal # 5: Develop and implement an IT planning and governance process to facilitate execution of projects, project tracking and reporting, and overall performance measurement for the UTO organization	Number of projects in Planview that completed on-time and on-budget.	N/A	TBD
	Goal #6: Continue to improve customer service to increase the productivity of faculty, students and staff	% time tracked on maintenance and daily operational support (MOB) and project work.	N/A	TBD

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ABOR IT Strategic Area	Goal	IT Metric	Current Progress (2013)	Target Metric (2017)
AREA #3: Administrative Effectiveness	Goal #7: Support data driven decision making throughout the institution by making institutional data and analysis more available and actionable through a consistent interface	# of training course offered for Faculty / Students / Staff	N/A	TBD
	Goal #8: Build and retain a talented IT Force	Track training and professional development of staff.	N/A	TBD
	Goal #9: Improve the IT service model	Number of new hires, promotions, merit increases.	N/A	TBD

ASU Performance Metrics and Target Goals by Strategic Area

ASU is tracking the following metrics to assess its progress in pursuing the strategic goals outlined in this plan. Each of these indicators is listed in the table below together with an assessment of ASU's current performance and its five-year target for that metric.

ABOR IT Strategic Area	Goal	IT Metric	Current Progress (2013)	Target Metric (2017)
AREA #4: IT Security	Goal #1: Maintain a strong risk management program through a continuous cycle of assessing and mitigating potential risks	% Department or unit participation in the annual Risk Assessment Corrective Action plan.	86%	100%
	Goal #2: Enhance ASU's comprehensive security awareness and training program			
	Goal #3: Ensure alignment of information security programs to ASU initiatives and the University's mission and appropriate laws, regulations and compliance	% Faculty and staff trained annually.	32.4%	50%
		% Projects implemented with security reviews.	24%	100%
	Goal #4: Systematically monitor and log University systems and networks	% Security testing coverage for critical applications	40%	100%

ASU Performance Metrics and Target Goals by Strategic Area

ASU is tracking the following metrics to assess its progress in pursuing the strategic goals outlined in this plan. Each of these indicators is listed in the table below together with an assessment of ASU's current performance and its five-year target for that metric.

ABOR IT Strategic Area	Goal	IT Metric	Current Progress (2013)	Target Metric (2017)
AREA # 5: Academic Technology	Goal #1: Advance the implementation of the ASU 1:1 Mobile Initiative	# Daily users of My Apps/My Files	4,994	50,000
		% Classrooms equipped with computer projection and audio equipment	100%	100%
		% Wireless connections with 300Mb capacity	9%	40%
	Goal #2: Ubiquitous classroom mediation	7600 courses taught Blackboard. ASU Online Courses Using Pearson Learning Studio	51%	95%

ABOR IT Strategic Area	Goal	IT Metric	Current Progress (2013)	Target Metric (2017)
AREA # 6: Research Computing	To extend the central provisioning of “cycles, bytes, bandwidth and expertise” in support of sponsored research through the ASU community	# Researchers using ASU’s High Performance Computing system	222	300
		# TB of centralized storage space used by ASU researchers	234TB	500TB
		# Research projects hosted on ASU’s High Performance Computing system	500	750

ASU Performance Metrics and Target Goals by Strategic Area

ASU is tracking the following metrics to assess its progress in pursuing the strategic goals outlined in this plan. Each of these indicators is listed in the table below together with an assessment of ASU's current performance and its five-year target for that metric.

ABOR IT Strategic Area	Goal	IT Metric	Current Progress (2013)	Target Metric (2017)
AREA #7: Strategic Technology Alliances	Identify opportunities to replace the direct provisioning of information services with externally provided services operating at larger scales	Number of strategic partnerships established with development companies and external service providers.	N/A	N/A

This list represents the updated goals for the 2013 ASU IT Strategic Plan.

AREA #1: STUDENT SUCCESS

- Goal #1: Continue to improve eAdvisor to further enhance retention and graduation rates
- Goal #2: Implement enrollment forecasting for critical tracking courses
- Goal #3: Improve access to software applications by coordinating licensing and deploying new technologies to extend application services across the Internet.
- Goal #4: Advance re-design and use of the Web as a tool for learning, messaging and knowledge capture and dissemination

AREA #2: IT INFRASTRUCTURE

- Goal #1: Expand and enhance the High Performance Computing network across the entire enterprise to ensure access to HPC facilities from every ASU location
- Goal #2: Consolidate computer & storage systems in a few physical locations dispersed within the Phoenix Metro area to ensure secure and continuous operation of the University's information systems
- Goal #3: Continue to consolidate data and storage to improve reliability, security, and cost

AREA #3: ADMINISTRATIVE EFFECTIVENESS

- Goal #1: Ensure ongoing viability of financial transaction processing and improve the quality of financial intelligence
- Goal #2: Increase the efficiency of the proposal development, pre-award, and post-award management sponsored research activity
- Goal #3: Maintain the currency of the enterprise resource planning system
- Goal #4: Reduce the cost of new technology deployment and provide tools to increase process performance and collaboration
- Goal # 5: Develop and implement an IT planning and governance process to facilitate execution of projects, project tracking and reporting, and overall performance measurement for the UTO organization.
- Goal #6: Continue to improve customer service to increase the productivity of faculty, students, and staff
- Goal #7: Support data driven decision-making throughout the institution by making institutional data and analysis more available and actionable through a consistent interface
- Goal #8: Build and Retain a Talented IT workforce
- Goal #9: Improve the IT Service Model (Reinventing IT Services)

AREA #4: IT SECURITY

- Goal #1: Maintain a strong risk management program through a continuous cycle of assessing and mitigating potential risks
- Goal #2: Enhance ASU's comprehensive security awareness and training program
- Goal # 3: Ensure alignment of information security programs to ASU initiatives and the University's mission, and appropriate laws, regulations and compliance
- Goal #4: Systematically monitor and log University systems and networks.

AREA #5: ACADEMIC TECHNOLOGY

- Goal #1: Advance the implementation of the ASU 1:1 Mobile Initiative
- Goal #2: Ubiquitous classroom mediation

AREA #6: RESEARCH COMPUTING

- Goal: Expand the central provisioning of "cycles, bytes, bandwidth and expertise," in support of sponsored research throughout the ASU community

AREA #7: STRATEGIC TECHNOLOGY ALLIANCES

- Goal: Identify opportunities to replace the direct provisioning of information services with externally provided services operating at larger scales.

IT STRATEGIC PLANNING CLIMATE

The information technology environment is an increasingly important element of university life. Universities around the United States and around the world are struggling to meet the growing technology expectations of their faculty and students. Existing models for delivering IT services that once propelled universities to the leading edge are now falling further and further behind the services available in the global marketplace.

Escalating Expectations

Not so long ago, a seat in the common computing lab and an email address were all most students expected from their university's technology system. Over the past decade however, the technology environment has become an increasingly important element of students' university experience. Many prospective students' first impressions of the University now come from interacting with its website to learn more about the campus, investigate majors and courses of study, and manage the stages of the application process. Today's incoming students, familiar with computers and the Internet since birth, have grown up to expect a wide range of services and information to be available electronically any time of the day or night. Most students now bring several technology devices to campus and expect them to integrate easily into the University's cyber infrastructure and for them to be useful in their studies.

The faculty, too, have increasingly high expectations for their information services. More and more instructors now use a variety of digital materials to supplement yesterday's textbooks and in-class lectures. Where once a whiteboard or overhead projector was sufficient to conduct class, many instructors now expect their classrooms to be equipped with computer projection equipment to allow them to present all kinds of media as part of day-to-day instruction. Faculties' research requirements are also increasingly digital. Researchers in many disciplines—not just science and engineering—now require increasing amounts of compute power, bandwidth, storage, and technological expertise to compete effectively for external funding.

Increasing Pace of Innovation

While the importance of technology to the university continues to grow, universities have lost the technology leadership they once enjoyed. The vertically integrated approach that led to the first widespread use of email, administrative automation, and computer networks has been eclipsed by the rapid industrialization of information technology in the commercial and consumer sectors.

The result is that vertically integrated university IT organizations are now struggling just to continue to maintain basic services, leaving little resource, time, or energy for the deep application of rapidly emerging technologies to the core activities of the university.

The unprecedented acceleration in technological advancement that marks the dawn of the 21st century offers both opportunities and challenges. The stream of new technologies will continuously enable new and better ways of communicating, creating, and synthesizing knowledge. But at the same time, the mounting pace of technological advancement will apply increasingly competitive pressure, as institutions are differentially able to adapt to the escalating pace of change.

The most successful institutions will be those that are able to reap continual advantage from the power of rapidly changing technologies while effectively managing the disruption these changes inevitably bring. To advance in the face of these impending pressures, ASU must develop new strategies for rapidly and continually integrating technology into every facet of its operational structure.

Achieving More with Less

Information technology organizations in institutions, both private and public, are struggling to shift their energy and expenditures from Context to Core. Context activities are those that an institution requires but which do not distinguish it from its competitors. Core activities are those which, when improved, provide an institution with differential advantage. For a university, Core activities are those that improve teaching and learning, enhance the growth and quality of research, and attract talented students and faculty.

A typical IT enterprise spends 80% of its resources to run the operation (context) and only 20% to improve it (core). However, some leading edge IT enterprises have been able to shift these percentages dramatically, pushing more resources into advancement by using IT simplification to continually reduce the costs of operation.

STRATEGIC AREAS, GOALS AND ACTION PLANS

AREA #1: STUDENT SUCCESS

Arizona State University is committed to student success, and led by its Provost Dr. Elizabeth Phillips has embarked on a broad initiative to enhance graduation and retention rates by helping students choose majors earlier and provide them with the resources they need to successfully complete those majors.

A key component of this initiative is the continual improvement of eAdvisor, ASU's innovative Web-based information system. eAdvisor makes it easier for entering students to choose a major based on their interests and career goals and helps them monitor their progress against their major's "critical track"—the specific set of curricular requirements for that major, arranged in sequence, that allows a student to know exactly what to take when. As their career progresses semester by semester, the system's enhanced academic planner allows students to compare their current transcript with the "critical tracks" for other majors, to help students understand more clearly what the impact of changing majors would be. Finally, by aggregating student progress in the critical tracks, the system can do more effective enrollment planning to ensure that the required courses students need to progress will be available in the semester that they need them.

In concert with the development of eAdvisor, My ASU – ASU's online services environment – has been completely redesigned. Over the next five years this platform will be continuously improved with the goal of making it ever easier for students and faculty to understand and interact with the institution and mobilize all of the institution's available resources to achieve their goals.

Goal #1: Continue to improve eAdvisor to further enhance retention and graduation rates

Action Plan: ASU continues to make progress on a multi-year development project to integrate all of its student information systems into a single Web based experience that helps students organize their academic life. eAdvisor integrates a wide variety of ASU systems, including:

- the Degree Audit Requirement System
- ASU Degree Search
- the ASU Online Catalog
- the On-track/Off-track Reporting System
- the Academic Alert System
- the Current and Prospective Student Web Experiences

The eAdvisor System provides tools for students to monitor their current progress, to understand the impact of major changes, and gives them guidance on how to efficiently complete their degrees. It also provides tools for academic advisors and professors that give a better understanding of a student's strengths and weaknesses and provides early warning of impending academic difficulty.

Accomplished in FY 2013	<p>In FY 2012, ASU completed and continue to improve and expand the capability of eAdvisor with plans that include enhancing BAMB and integrating course syllabi into ASU's Schedule of Classes / Course Catalog.</p> <p>In addition the expansion of eAdvisor for the transfer students in agreements such as MAPP/TAG will be put into play. The Classes/Catalog will now allow for faculty to display their course syllabi.</p>
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Plan for FY 2014	<p>Develop more around “service blue-printing” and developing an online service catalog that will be student, faculty and staff facing. This service catalog will educate on UTO offerings.</p> <p>Additionally, integrative search capabilities will be reengineered and redeployed to better suit searchable nomenclature and keywords relevant to students, faculty and staff. This improves serachability, search engine optimization, and overall productivity.</p>
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Goal #2: Implement and expand the mobile.asu.edu experience for key applications

Accomplished in FY 2013	ASU partnered with Straxis Technology to create an ASU iPhone mobile application to deploy within Apple’s App Store. UTO will also work to improve GIO location features with Google’s new API, improve class registration tools, and add a mobile version of class search and the course catalog. In addition, ASU would like to partner with those departments and colleges across the University that are already producing mobile versions of Web sites and applications in order to add these to the mobile list, including the ASU Online mobile site with links to course information.
Plan for FY 2014	ASU has increased its mobile presence and with DevilsCount. This mobile application has the potential of being a critical pivot for student engagement if proper staging and planning is accomplished – followed by a robust marketing plan.

Goal #3: Improve access to software applications by coordinating licensing and deploying new technologies to extend application services across the Internet.

Action Plan: As ASU faculty and students begin to rely increasingly on their own personal devices rather than University common computers; a new way of deploying application capability is needed. This new way replaces software installation on individual devices with software service deliver over the Web. Over the next five years, ASU will develop and extend this capability to its community and leverage the increased centralization of application server resources to optimize its software licensing expenditures while simultaneously making those software services available to the broadest possible segment of the community.

Accomplished in FY 2013	In FY 2011 ASU customized My ASU for incoming students with a new page specifically for our Arizona community college transfer students and implemented a social networking application for all incoming students. To better serve all students, ASU redesigned the financial aid box, and integrated MyASU with Blackboard Student Services. ASU also redesigned/personalized the My Employment box for faculty and staff.
Plan for FY 2014	In FY 2012, ASU will complete the My ASU experience for prospective students by implementing a page designed to engage and excite high school seniors about attending ASU. ASU will also improve My ASU for existing students by implementing a new My Health box, which is designed to create interest about the students’ health, as well as present personalized information and educate them on available health services. ASU is also making improvements to students’ calendars and scheduling options.

Goal #4: Advance re-design and use of the Web as a tool for learning, messaging and knowledge capture and dissemination

Action Plan: ASU's web projection, largely through My ASU, is the virtual projection of ASU, the online embodiment of "One University in Many Places." My ASU now provides personalized access to most of the academic and administrative processes of the University. ASU's online environment has moved beyond its "online brochure" roots to become the central point of deployment for new technology into the university community. In a process of gradual evolution over the course of the next several years, ASU's online environment will become ever more personalized and process oriented, supporting the self-service, administrative and academic needs of the ASU community.

The successful integration of ASU's new student administration and human resources systems are a foundational component for the new environment. My ASU has become the primary point of contact between ASU and its affiliates, providing a personalized link between the institution and each applicant, student, faculty or staff member. It provides each affiliate type with a highly customized and personalized experience that includes integrated interactive access to the information and services intrinsic to his or her role in the institution.

Through a process of data-driven analysis and continuous improvement, My ASU will continue to evolve to incorporate new services and capabilities, provide more detailed, timely and personalized information, and increase the level of service to every member of the ASU community.

Accomplished in FY 2013	The new MyASU, released in Fall 2008, has grown to be the most popular destination in the ASU website, now drawing more than 200,000 average hits per day. Student reaction to the eAdvisor and the improved My ASU has been overwhelmingly positive. In FY2011, UTO made several enhancements to MyASU, including enhancements for prospective students, a redesigned and more personalized My Employment box for faculty and staff, a redesigned Finances/Financial Aid box, integration with Blackboard Student Services, and Devil2Devil, a social networking tool for students.
Plan for FY 2014	In FY 2013, ASU will continue to improve and expand the capability of My ASU for students, faculty and staff, including a new experience for prospective students, integrations with the student calendar, schedule improvements and a MyHealth box. Additionally, "service blueprinting" initiatives in the Student Services areas will result in improved and streamlined capabilities in serving students.

AREA #2: IT INFRASTRUCTURE

ASU seeks to create a flat, secure landscape that provides a consistently excellent technology experience no matter where in the world the user is. In a way, such an information environment can be the embodiment of the One University in Many Places that lies at the heart of the New American University vision. ASU strives to keep its IT infrastructure at the leading edge and ensure a highly available, low-latency, highly productive experience for all members of the ASU community.

Goal #1: Expand and enhance the High Performance Computing network across the entire enterprise to ensure access to HPC facilities from every ASU location and expand to a statewide initiatives like: “service blue-printing” and the Sun Corridor TerraPop.

Action Plan: ASU believes that access to high performance computing will be an increasingly important utility for researchers in a broad variety of disciplines. ASU’s strategy of converging its high performance computing investments centrally has successfully met most of the needs of ASU’s research community while effectively consolidating the investment in hardware and expertise to produce maximal benefit. In order for this strategy to provide benefit across the University and into the community, it is essential that researchers throughout the community have high speed access to ASU high performance computing resources as well as a high speed gateway to high performance computing capabilities “in the cloud” through Internet2 Innovation Platform, Net+ service initiatives and National Lambda Rail.

In FY2013, ASU's High Performance Computing Initiative (HPCI) within the Fulton Schools of Engineering was reorganized into the ASU Advanced Computing Center (A2C2) within the University Technology Office (UTO). Enabling high speed access to advanced computing resources is a pivotal element of A2C2's strategy to expand the University's research and educational enterprises. To enhance the benefits of this strategy for the ASU community, A2C2 strives to become a regional and national leader in diverse cyber technologies to power transformational research discoveries and practical innovations. A2C2 partners with researchers, policy makers, and technology leaders to engage and solve the challenging problems that affect ASU, Arizona, the Southwest and our nation.

Goal #2: Consolidate computer & storage systems in a few physical locations dispersed within the Phoenix Metro area to ensure secure and continuous operation of the University’s information systems

Action Plan: ASU is currently developing a plan to determine how best to reallocate its various hardware systems to realize improved system uptimes. ASU is also evaluating how best to upgrade these locations to ensure sufficient HVAC, UPS, Cooling, and Access Security. Network connectivity within the consolidated data centers will be behind firewalls, and data and storage will be separated. Connectivity between the consolidated data centers will be achieved via the University backbone infrastructure with a completion target of 2010.

Accomplished in FY 2013	ASU completed an appraisal of its primary data centers and what it would take to upgrade these locations to ensure sufficient HVAC, UPS, Cooling, and Access Security.
Plan for FY 2014	ASU is currently comparing the upgrade plan with a plan to outsource ASU's data centers to a pair of externally hosted facilities in the Phoenix metro area. ASU expects to issue an RFP seeking a hosting partner that can dramatically improve ASU's data center reliability, disaster recovery strategy and business continuity.

Goal #3: Continue to consolidate data and storage to improve reliability, security, and cost

Action Plan: In 2008-2009, as an application of the Concept of One, ASU continued two related projects; the first to consolidate servers within a single secure virtualized environment, the second to consolidate storage. These projects relieve departments and colleges of the administrative burden involved with the management of servers and storage. By creating a single yet redundant environment, computing cycles and storage can be provided much more efficiently with greater security and reliability.

The centrally managed system provides for high availability, disk-to-disk backup, improved performance, and scalability. ASU continues to transition both centrally managed and departmental servers and storage to the consolidated environment. ASU is consolidating servers at a rate of 35 a month and expects to consolidate the remaining 310 standalone units by Summer 2010. ASU's consolidated storage environment is now over 100 TB, providing redundant, secure, fully-recoverable storage for 59 different units within ASU.

Once ASU has effectively consolidated 95% of its storage and server requirements, ASU will move from the Concept of One to the Concept of Zero by seeking a strategic partner to manage its consolidated services as part of a larger scale operation. ASU believes that virtualized server and storage farms operating at scales thousands of times larger than the University can achieve will emerge in the next five years. ASU expects such farms will provide computing and storage at the best cost/benefit ratio. ASU anticipates that the transition to an externally hosted service could begin as soon as FY 2012.

Accomplished in FY 2013	As of February 2011, the total number of raw storage is 1,713TB with 973TB available and 733TB currently in use. As of January 2011, the total number of virtualized servers reached 80% at 775 with a capacity for 900.
Plan for FY 2014	In FY 2012, ASU expects to have completed server virtualization with a ratio between 80-85%. ASU also plans to complete server simplification to reduce OS platform support in the ASU Data Center.

AREA #3: ADMINISTRATIVE EFFECTIVENESS

All of ASU's campuses share administrative systems that support the operations of the University. Two of the four major administrative systems—the Student Information System and the Human Resources Management System—were successfully replaced as a result of the OASIS Project, a two-year, \$20 million technology deployment. This project also included major enhancements to the Data Warehouse, which consolidates information from many university databases in a form that is accessible for faculty and staff to use with a variety of reporting and analysis tools.

The two remaining legacy systems are:

- ASU's Financial Information System (Advantage), which facilitates management of University finances and financial records.
- ASU's Research Administration System (COEUS), which facilitates the management of University research proposals, contracts and awards.

There are a variety of other minor administrative systems that support various University business processes (e.g. parking, maintenance, Sun Card, etc.); all are operated centrally. Over the next five years, ASU will seek to continuously improve integration of these service offerings with MyASU and look for opportunities to utilize software-as-service offerings as replacements for ASU run services in those areas where the scale, quality and cost of those offerings will provide advantage to ASU.

Goal #1: Ensure ongoing viability of financial transaction processing and improve the quality of financial intelligence

Action Plan #1: ASU's existing system, Advantage, is its last remaining mainframe application, and transitioning to a new system will eliminate the need for a mainframe. Replacing Advantage will require an intensive development project to translate ASU's general ledger and other financial records into a new system and will require adaptation of ASU's Data Warehouse.

Accomplished in FY 2013	ASU successfully outsourced the operation of the mainframe hosting ASU's Advantage system to the Arizona Department of Administration Data Center. This hosting agreement improved the quality of ASU's Advantage hosting while simultaneously reducing its cost.
Plan for FY2014	While ASU originally expected to begin work to replace its financial system possibly as early as FY 2010, the fiscal climate has delayed that projection. ASU now expects to begin a financial replacement project no earlier than FY2014.

Goal #2: Increase the efficiency of the proposal development, pre-award, and post-award management sponsored research activity

Action Plan: The Moran Report identified opportunities for improvement in the Universities' sponsored research management processes and systems. Management of sponsored research is mainly a manual process at all three campuses today, and undocumented workflows account for unidentified cost and resource problems.

Accomplished in FY 2013	ASU's research administration process has been automated in some aspects but many aspects are manual and not integrated. ASU has selected a research administration system from a commercial vendor and has begun the implementation process. It is anticipated that the first modules of the system will be implemented by the end of FY13 or early in FY14.
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Plan for FY 2014	The remaining modules of the research administration system will be implemented in FY14. In addition, the first phase of an OKED data warehouse to support analysis of the research and sponsored projects pipeline will be complete. It is anticipated that the OKED data warehouse will be continually modified in phases beyond FY14 to integrate with other data integration projects on campus.
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Goal #3: Maintain the currency of the enterprise resource planning system

Action Plan: In order to maintain the currency of its new human resources and student information systems as well as begin to take advantage of the flexibility of emerging Web based services architecture, ASU anticipates upgrading its PeopleSoft system from version 8.9 to version 9.1. ASU expects the 9.1 upgrade to be available in FY 2012 and believes it can complete that upgrade within a single fiscal year.

Accomplished in FY 2013	In FY 2011, ASU developed a plan to upgrade ASU's PeopleSoft environment from 8.9 to 9.1. In September 2012, ASU met its target to upgrade to version 9.0 for both the Campus Solutions (CS) and Human Capital Management (HCM). Campus Solutions is now at a version that uses Oracle's continuous delivery model, which removes the need for future version upgrades. Human Capital Management (HCM) is supported on version 9.0 until June 2015.
Plan for FY2014	A second planning cycle for the next upgrade of Human Capital Management (HCM) is underway. The Human Capital Management (HCM) will be supported in the continuous delivery model with the release of version 9.2. Release of version 9.2 is targeted for general release in spring 2013. At that time a schedule for its implementation in FY2014 will be developed once the product is released.

Goal #4: Reduce the cost of new technology deployment and provide tools to increase process performance and collaboration

Action Plan: ASU will continue to explore methods and tools to streamline processes, expedite delivery of services, and improve performance and collaboration efforts with students, faculty, and staff.

Accomplished in FY 2013	In FY13 ASU delivered a virtual desktop initiative (VDI) to streamline deployment of computing images and reduce time and cost to deploy software to the desktop. An IT Service Management initiative was launched to improve change management, configuration management, incident and problem management, and risk management processes.
Plan for FY2014	In FY 2014, ASU will deploy tools and processes to improve change management, configuration management, incident and problem management, and risk management processes. Several project initiatives are in planning phases to streamline internal business processes and maximize IT return on investment.

Goal # 5: Develop and implement an IT planning and governance process to facilitate execution of projects, project tracking and reporting, and overall performance measurement for the UTO organization.

Action Plan: UTO established a Planning and Program Management Office (PPMO) to drive the project governance, prioritization, and execution process to ensure efficient use and allocation of IT resources, timely delivery of services and technologies, and projects that are aligned with institutional goals. the PPMO team provides a variety of shared services to the ASU community to improve project management, quality and risk management, and delivery of services. Goals of the PPMO include:

- Aligning project priorities and activity to the university mission and goals
- Adhering to consistent project management methods, tools, and best practices
- Improving collaboration and knowledge among IT and business units
- Improving resource utilization, tracking, and capacity management
- Providing timely visibility to project, program, and portfolio-level status, issues, risks, and costs
- Ensuring quality management and risk management processes are integrated into projects
- Ensuring that a clearly defined and seamless transition exists between project completion and systems and operational support processes

Accomplished in FY 2013	In FY2011 a new position was filled to lead the Planning and Program Management implementation. Project management staffs in multiple areas of UTO were consolidated into one team to provide central project and program management support for projects both internal and external to UTO. Project Management training was provided for Project Management Certification. An enterprise class planning and portfolio management tool was deployed and projects were transitioned to the tool. Processes for project planning, prioritizing, and project management and tracking were implemented. Additional team members were added.
Plan for FY2014	The PPMO will expand planning and project management activities to include management reports and dashboards, resource management, time tracking, and project prioritization, and build out additional functionality in the tool suite. Plan and implement quality assurance and IT Service Management tools and methods. Integrate the project management framework with development, incident management, reporting, quality assurance and service management tools and methods.

Goal #6: Continue to improve customer service to increase the productivity of students, faculty and staff

Action Plan #1: ASU is determined to utilize a combination of technologies to dramatically improve its service offering in a data driven way with the goal of creating a positive experience with the services it provides to its community. Leveraging the same PeopleSoft Customer Relations Management tools that underlie Apple Computer's customer service experience, ASU is successfully applying technology to continuously improve the customer's service experience. ASU recently partnered with Blackboard Student Services (BbSS) to create a better Help Desk experience for everyone in the ASU community. ASU expects to continue to expand the range of administrative departments utilizing this data-driven approach to measure and continuously improve their service offerings.

Accomplished in FY 2013	<p>In FY 2012, ASU's Help Desk handled 142,691 individual customer service requests. The Human Resources Help Desk handled 47,853 requests, and the Financial Aid Help Desk handled 79,977 requests. ASU has been able to consistently provide service that meets published expectations for time to resolution more than 95% of the time.</p> <p>The net result of ASU's data-driven customer service approach has been a steady and demonstrable increase in the quality and repeatability of customer's support experience.</p>
Plan for FY2014	In FY2012, UTO will work to decommission CRM and increase self-help solutions such as through an IVR to improve speed to resolution and customer satisfaction. UTO will also strive to improve service to the ASU community by increasing the University's knowledge base articles, improving training for phone agents, developing predictive metrics to reduce service disruptions and increasing adoption rates by the campus and external service providers. Our goals center around timeliness, accuracy and professionalism.

Goal #7: Support data driven decision-making throughout the institution by making institutional data and analysis more available and actionable through a consistent interface

Action Plan: Prior to the adoption of ASU's business intelligence strategy, institutional access to data was primarily report driven with a strong emphasis on the proliferation of expert users of individual administrative transaction systems. The production of these reports, many of them central to core business processes, required the repeated action of data experts to support the weekly creation of these reports. As a result, access to information was expensive, limited, and not uniform.

Beginning in FY 2008, ASU developed a business intelligence strategy based on the use of a comprehensive data warehouse that contains all institutional data accessed through two standardized mechanisms: My Reports and the ASU Dashboards.

My Reports provides expert users with Ad Hoc access to institutional data. It allows users to do just in time analysis of data from every institutional system. It also allows easy analysis across systems and allows users to save and share queries to facilitate information sharing between units.

The ASU Dashboards provide users throughout the University community, from senior administrators to administrative professionals, with simplified access to data and analysis at several levels of organization. The data is collected in specific ways to provide status information on key performance indicators and provide linkage to specific business processes in support of defined objectives.

ASU has deployed dashboard interfaces as a way to make institutional data more available throughout the University. In place of experts who access the individual transaction systems in order to produce reports, ASU's Dashboard environment automatically brings together data from all of these transactional systems in an automated way. The data is presented through the Web in a user friendly way. The net result is that the institution spends more time using the data to make decisions and less time massaging it into useful forms.

Accomplished in FY 2013	In FY2011, ASU released several new dashboards, including: <ul style="list-style-type: none"> • ASU Online Dashboard 1.0 • Undergraduate Admissions Dashboard 3.1 • Enrollment Tracking Dashboard 3.1 • Graduate Degree Progress Dashboard 1.0 • SuperReport Dashboard 3.1 • RCR Training Dashboard 1.0 • Upgraded Dashboard environments from Corda 3 to Corda 4
Plan for FY2014	Over the next five years, ASU will continue to broaden the toolset available to support ASU's business processes and continuously improve the usability of the individual tools.

Goal #8: Build and retain a talented IT workforce.

Action Plan: With the realignment of UTO staff into areas providing critical IT support to strategic initiatives and a shortage of funds to increase staffing capacities, we must look for ways to broaden staff knowledge and skills and leverage the minimal amount of investment we have available for training and development opportunities.

Accomplished in FY 2013	UTO continues to use job families developed for technology related positions, that reflect the current function, duties and responsibilities as well as applicability to departmental operations/needs. The Performance Management Program remains critical to the development of UTO staff through 1:1 coaching and feedback sessions with annual review of employees' performance and established goals. A travel/training budget was developed to provide opportunities to expand employee knowledge, enabling new technology/process discovery and application within UTO's current environment.
Plan for FY2014	A professional development career path system will be developed to support staff promotion and advancement opportunities. Working with university Human Resources and aligned with state salary guidelines, processes and procedures, this system will be developed to help staff grow and advance professionally and achieve higher level positions, both within technical and non-technical tracks. Utilizing the current performance management system, each supervisor/employee will establish a Performance Development Plan as a guide to achieve their desired career path goals, both short and long term.

Goal #9: Improve the IT service model (reinventing IT services based on industry best practices).

Action Plan #1: Promoting scale in existing services

In the coming year UTO will look for opportunities to consolidate more common infrastructure and support capabilities to meet local service expectations and recover true costs. Working with the university community we will define and deliver a bundle of "common good services" to campus units to leverage licensing and volume procurements. Standards and measurements will focus on service quality, efficiency, staff productivity and development, and best practice adoption. A funding model will be developed representing the true cost of IT services to the university.

Action Plan #2: Reduce Applications Complexity

UTO will work to centralize software distribution by developing and maintaining a central portal for all enterprise wide software application licenses that can easily searched, and promote efficient installation and automatic downloads of critical software upgrades. Another initiative to reduce complexity of applications is to establish an architecture review board to review project proposals and look for potential reuse, low cost alternatives, and opportunities for application simplicity.

Action Plan #3: Deploy Staff to Best Use

UTO will explore fractional staff pool methods of sharing IT resources across the institution to develop a framework for leveraging critical IT talent and skills, and will partner with local IT units to develop flexible supervisory spans to co-manage IT personnel, thus maximizing professional development and training funds available. Additionally, an IT career path will be developed to achieve pay and title parity across the university for greater flexibility in redeploying staff to meeting critical needs.

Action Plan #4: Align the Project Portfolio

To improve IT planning and project management processes, UTO will develop a coordinated approach for allocating funding and IT personnel time across all proposed IT projects including a governance structure for prioritizing projects and aligning projects with institutional goals. Standard business case templates and a common repository of best practices will provide central and distributed IT personnel with resources that can be easily utilized and centrally stored and managed. Executive dashboards and reports will convey project status and performance management metrics to the university community and allow expanded access into project deliverables and schedules.

Action Plan #5: Surface Emerging Requirements UTO will develop methods for soliciting and fostering campus community feedback and suggestions for improving technologies and exploring innovative and creative technology solutions.

AREA #4: IT SECURITY

A university is a place where faculty and students come together to learn and share ideas in a free and open environment. This tradition of openness and access can sometimes seem at odds with the need to create an electronic information system that protects privacy and intellectual property and prevents the unauthorized or illicit use of university resources.

However, the need to secure intellectual property and personal data and protect high availability systems from downtime incurred from security breaches is a fiduciary duty of the university and requires that continual attention to information security be a strong part of the university's culture.

In so doing, we must make sure to analyze the value of the ASU resources before setting an appropriate risk-based course for security initiatives.

Goal #1: Maintain a strong risk management program through a continuous cycle of assessing and mitigating potential risks

Action Plan: ASU will move toward a risk-based information security program. Using this approach, an external security firm will work in partnership with the University to identify key risk areas and then define projects designed to mitigate those risks. Taking measures to secure sensitive data and ensure availability of services that support core business functions are both important to ASU. This plan has/was developed in 2011 and then adjusted through the annual risk assessment process.

Accomplished in FY 2013	In FY 2013, ASU engaged in a number of initiatives to improve ASU's overall risk posture, including contracting with an external security firm to develop a risk-based approach to Information Security; implementing contract requirements for third party service providers with access to confidential ASU data or who develop software applications for ASU; and improving ASU's Web application scanning solution, deploying workstation encryption tools, implementing InCommon centralized digital certificates, and evaluating and purchasing an enterprise level solution.
Plan for FY 2014	<p>In FY 2014, ASU will continue the 2012 initiatives and begin implementing solutions in the key areas identified in the information security risk assessment. In addition, ASU plans to move towards both a Risk Assessment process and a service management process that are standards-based. The following security solutions will focus on risk reduction and allow for non-intrusive and more proactive security activities.</p> <ul style="list-style-type: none">• Laptop Encryption rollout• Inventory sensitive data on central file system• Core Enterprise Application Security• Printer Security• Mobile Device Security• Asset Registration and Network Segmentation to ASU's Risk

Goal #2: Enhance ASU's comprehensive security awareness and training program

Action Plan: Information security is a team effort and is the cornerstone of the awareness and training program. Because any person that connects to a network can be a point of attack, it is essential that the members of the University community be aware of privacy and security risks and know what steps to take to protect themselves and each other. ASU will offer an annual information security training course to increase the level of awareness of the ASU community. Awareness is the first step leading toward corrective action. A centerpiece of ASU's approach will be a year-round awareness campaign led by the Information Security Office.

Accomplished in FY 2013	ASU continued to maintain a well-established information security awareness programs including an Information Security training course as well as a training program for developers. A compliance dashboard enabled university executives to monitor training compliance.
Plan for FY 2014	ASU will continue to enhance its information security program with an emphasis on ensuring that content is current and appropriate. This year's training addressed cloud-based storage. ASU will provide additional training for all ASU personnel as well as marketing campaigns directed towards ASU staff. ASU plans to increase its current marketing efforts aimed at ASU students and faculty. A compliance dashboard is planned for the 2013 training.

Goal # 3: Ensure alignment of information security programs to ASU initiatives and the University's mission, and appropriate laws, regulations and compliance

Action Plan: ASU will begin the development of comprehensive information security architecture. This comprehensive design includes enhancements to the network, role-based access control, system and application level processes and procedures necessary to ensure information security, privacy protection, and compliance as well as efficient operation. This initiative will improve the overall network and application and system processes and procedures and will enhance the overall user experience. A benefit of this integrated architectural approach will be a deeper integration of the various services presented to ASU users and a more personalized presentation of those services.

Accomplished in FY 2013	In FY 2013, ASU completed a set of comprehensive security changes in support of the University mission, including a PCI compliance review, deployment of university-wide antivirus/anti-malware, developing incident response standards and governance structure, operationalizing application security scans, and enhancing the central authentication processes. We continued support of a dashboard to monitor administrative system access to enterprise applications such as Oracle/PeopleSoft systems and the Advantage Financial System; promoting the "Concept of One" by consolidating applications behind a central Web authentication service; supporting the implementation of the Courtesy Affiliate Oversight program in cooperation with the Provost's Office; and implementing recommendations from the Web App Audit and the Higher
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	Education Opportunity Act.
Plan for FY 2014	In FY 2014, ASU plans to continue to make substantial improvements to the security infrastructure by continuing to implement border/network infrastructure improvements from a PCI perspective; continuing data oversight and data management initiatives; and implementing incremental improvements to ASU identity management.

Goal #4: Systematically monitor and log University systems and networks.

Action Plan: ASU has plans to incrementally development of a comprehensive monitoring framework. This framework includes forensic investigation to perform root cause analysis, log correlation, penetration and vulnerability assessment to keep the University proactive in its defense of network security issues.

Accomplished in FY 2012	In FY 2012, ASU made significant progress with network border/firewall improvements and network segmentation, to add to the previous year's success in separating wireless guest traffic from authenticated users and implemented traffic shaping and network controls. All of these initiatives improve our defensive layer against spyware, viruses, network and application attacks.
Plan for FY 2013	In FY 2013, ASU will continue to make progress toward a comprehensive monitoring framework to continue to reduce security risks across the University. Specific goals include enhancing our network monitoring capabilities, evaluating options to identify and register all computers and devices on the network; enhancing the process for registering and managing web applications; installing enhanced configurations for the application firewall; and focusing on securing high criticality Web applications including scanning/remediation compliance and applying additional security processes throughout the development life cycle.

AREA #5: ACADEMIC TECHNOLOGY

ASU provides resources, technical assistance, and equipment to help faculty, staff, and students with the job of teaching and learning. These support services include:

- Various elements of the ASU Learning Platform
- Classroom technology systems
- Digital library infrastructure
- Common computing resources
- Distance education support
- Mobile Learning Tools
- Lecture Capture Tools for Faculty

To date, the technology initiatives that have had the most success at universities have been enhancements rather than transformations.[1] For example, email is a faster form of postal mail, a computer projector is an enhanced overhead projector, and MS Word is a replacement for the typewriter. In introducing these innovations, the factors limiting their use were typically the expense, complexity and limited capability of the underlying technology. In this phase of development, universities could be said to be technology poor, and that the degree to which capabilities could be enhanced was limited primarily by the amount of investment in the development and deployment of the underlying technologies. Over the past five years, this has changed fundamentally.

In the present climate, ASU finds itself technology rich but practice poor. With the explosion of capability brought about by the exponential growth of consumer technologies provided at an industrial scale, e.g. Google's Apps for Education, Apple's iTunesU, Twitter, Amazon's Kindle and Facebook, ASU now has access to a broad array of leading edge capabilities whose potential is only beginning to be tapped by the academic enterprise.

In addition to these software-as-service offerings, nearly all ASU students now bring personal computing technology with them to school with capabilities that exceed the combined investment by the University on common computing technology by an order of magnitude or more. This sudden increase in compute availability is also largely untapped.

To harness these underutilized resources, ASU must develop effective ways to achieve transformational technology adoption, supporting faculty in the development and deployment of technology solutions that significantly redesigns elements of the academic enterprise.

To achieve this next level of technology adoption will require a more effective partnership between academic leaders and technologists to identify the opportunities and eliminate the obstacles to applying these incredible new and rapidly evolving capabilities to the core mission of teaching and learning.

Goal #1: Advance the implementation of the ASU 1:1 Mobile Initiative

Action Plan: As more and more of ASU's students bring cell phones, notebook computers and personal digital assistants to school, the computing landscape has begun to change. Increasingly, instead of common computing labs, students expect to be able to use their personal technology as important tools in their education. Over time, we anticipate this will mean a shift in how ASU addresses Academic Technology, specifically the emphasis we place on deploying common computers versus investments made to support 1:1 devices, such as Web based application deployment, higher speed wireless networks, and mobile device application deployment. Over the

next five years, ASU expects see the balance of support shift away from common computing toward this more mobile support.

Accomplished in FY 2013	In FY2012, ASU released Blackboard Learn Mobile, a mobile application that accesses the Blackboard LMS from Apple iOS devices and Android platform. Adoption. Student taking courses in Learning Studio also had a mobile application.
Plan for FY 2014	In FY 2014, ASU will continue to expand the range of capabilities students can access from their personal devices, including an application commissioned by ASU Student government call Sun Devil Counts. (https://sundevilscount.asu.edu/home)

Goal #2: Ubiquitous classroom mediation

Action Plan: In FY 2009, ASU began a \$2.5 million dollar project to extend basic classroom mediation to more than 100 more University classrooms. The long-term goal of this effort is to ensure that all, or nearly all, University classrooms are equipped with at least:

- A multimedia projector and screen
- A stereo speaker system
- A basic instruction station
- A media capture capability including a microphone and camera

Accomplished in FY 2013	Common Computing will continue to provide several services, including 1:1 space in place of antiquated equipment, ASU's Common Image, and an ongoing technology refresh program for ASU classrooms and computing sites to maintain current University standards.
Plan for FY 2014	Common Computing plans include improving classroom support services through the analysis of current support, processes and Parature tickets; enhancing/redesigning ASU's faculty support help desks; improving and providing additional 1:1 and collaboration spaces; leveraging use of mobile technology in the common computing areas, providing projection and printing for mobile devices; deploying Virtual Desktop technologies; replacing older technology with Virtual Desktop and state of the art personal computers; building out video conferencing support for the larger student and faculty audience; deploying and providing support for ASU's campus-wide digital signage initiative; enhancing the student Technology Studios to include student housing support; and continuing to develop the Technology Consultant Student program.

AREA #6: RESEARCH COMPUTING

The role and importance of information technology in support of research is growing rapidly at ASU and throughout the research community at large. From its roots in the service of research in engineering and the sciences, IT's importance has grown in other areas as well, either as a fundamental research tool or as a mechanism to communicate results and foster collaboration between the members of a research community.

Primary support for technology use by researchers at ASU falls to the local technical support units in the colleges and departments. For intensive technology users, this local support is sometimes supplemented by technical support funded directly by the research program itself. University support is typically confined to matching funds in support of the initial equipment procurement grant.

Driven by the needs of its research communities, ASU has invested in high performance computing, networking and high capacity storage to better support technology intensive research. The University Technology Office, the Fulton College of Engineering, the College of Liberal Arts and Sciences, and Office of Knowledge Enterprise Development funded continues to deliver enhanced centralized storage and advanced computational capabilities for researchers in a variety of disciplines.

Goal: To expand the central provisioning of "cycles, bytes, bandwidth and expertise," in support of sponsored research throughout the ASU community.

Action Plan: In support of this model, ASU's expects to continue consolidation of HPC system management where practical and offer system management services where it is not; continue to provide researchers with scalable access to computing cycles and storage bytes (i.e. CASI the Complex Adaptive Systems Initiative); extend the high-speed research network to provide access to high speed bandwidth from anywhere at the University; and expand the staff of professionals who can provide a full range of high performance computing consulting and programming services.

AREA #7: STRATEGIC TECHNOLOGY ALLIANCES

Ally is not just another word for vendor. Strategic Alliance defines a new relationship between ASU and its most important technology suppliers, one that recognizes the needs and objectives of both parties. ASU needs a working relationship with private providers whose Core business is to deliver reliable, high-quality, cost effective technology services that track the state-of-the-art. In order for such a relationship to be attractive to a commercial partner, the business opportunity must be:

- Central to the firm's Core business strategy
- Of sufficient magnitude to be strategically important
- Of sufficient duration to warrant the capital investments needed to initiate, convert, or upgrade the technologies necessary to continue delivering and improving the service

The benefits of Strategic Alliance to ASU are threefold:

- **First**, ASU gains the ability to focus. Strategic Alliance allows ASU to manage its technology Context at a higher level, requiring less direct involvement by ASU personnel and leaving more time, talent and resources for the Core mission.
- **Second**, the longer-term nature of the alliance relationship allows ASU to benefit from technology investments made by private enterprise. Longer term agreements allow private firms to take greater risk on behalf of ASU because the relationship recognizes the need for a longer time horizon to allow firms to recoup value, thus allowing ASU to more effectively monetize its future.
- **Third**, by working closely with a set of trusted allies, ASU is able to benefit from the competitive position of their allies, allowing ASU's technology platform to progress at the rate of technical evolution.

Through new relationships with industry leaders like Google, Apple, Dell, Canon, CedarCrestone, CISCO, Oracle, and Qwest, ASU has accelerated its technological progress and made new, leading edge services available to its community more quickly and less expensively than previously possible.

During the next five years, ASU expects to continue to expand its current partnerships and create new alliances where benefit is apparent for both parties. ASU will seek to align with its strategic partners and develop relationships with core providers of technologies where both parties recognize the same objective and needs. This will allow ASU to manage its technology context at a higher level, requiring less direct involvement by ASU personnel and resulting in a more cost effective result while maintaining a state-of-the-art technology environment.

Goal: Identify opportunities to replace the direct provisioning of information services with externally provided services operating at larger scales.

Action Plan #1: ASU currently obtains a variety of services from technology allies, including converged network services, rich media distribution capability, Web delivered productivity applications, student email and calendaring, and externally hosted administrative applications, among others. Over the next five years, ASU expects to continue to expand its relationships with its current allies and to profit from their superior rates of technological innovation and their massive economies of scale.

Action Plan #2: ASU expects to investigate and develop new partnerships and relationships with other strategic technology providers as it seeks to steer its internal investments away from the direct provisioning of information technology services and toward the deep application of information technology to the core activities of teaching and research.

CONCLUSION

Rapid, unpredictable technological innovation is the hallmark of our age; therefore, we can be sure that any five-year technology projection is subject to change. While the initiatives outlined above represent ASU's best projection of the principal technology directions it will pursue in the coming years, it is almost certain that some as yet unforeseen and disruptive technology will emerge during that period that will cause our plans to change.

The implementation of this strategic plan will be by several means: 1) the University Technology Office will work with the ASU Executive Committee and the ASU Office of Budget and Planning to integrate this plan with the University's strategic plan and University budgets; 2) UTO will work with the Executive Committee, the Office of the Provost, and the members of the Faculty Technology Advisory Committee to promote and review IT projects and priorities; and 3) UTO will continuously monitor and assess ASU's various technology initiatives to ensure ongoing alignment with University objectives.

Maintenance and ongoing support of the IT strategic plan, along with data collection, analysis, and reporting of the planned performance metrics will be performed by the "Planning and Program Management Office" (PPMO) within the University Technology Office. For further information about progress reports, measures, tools, or methods please contact Deborah Whitten (Deborah.whitten@asu.edu or 480-727-0050).