CALS COMMUNICATIONS AND CYBER TECHNOLOGIES
2021 STRATEGIC PLAN

PURPOSE:
To help CALS become the most cyber-savvy Land Grant University in the nation

2021 VISION:
- To become a hybridized team of data specialists, designers, developers, systems integration experts, classroom technologists, and cyber consultants /educators who are abreast of new and emerging technologies.
- To have wide-scale adoption from CALS' faculty and staff of the cyber technologies that we promote, educate, and develop internally or partner externally.
- To be considered as the model example of a College Communications and IT Unit that other Universities look at when organizing IT resources within their own College.

MISSION:
To support faculty and staff in their use of cyber technology as they pursue research, instruction, and outreach objectives, and in their effort to meet the UA "Never Settle" goals
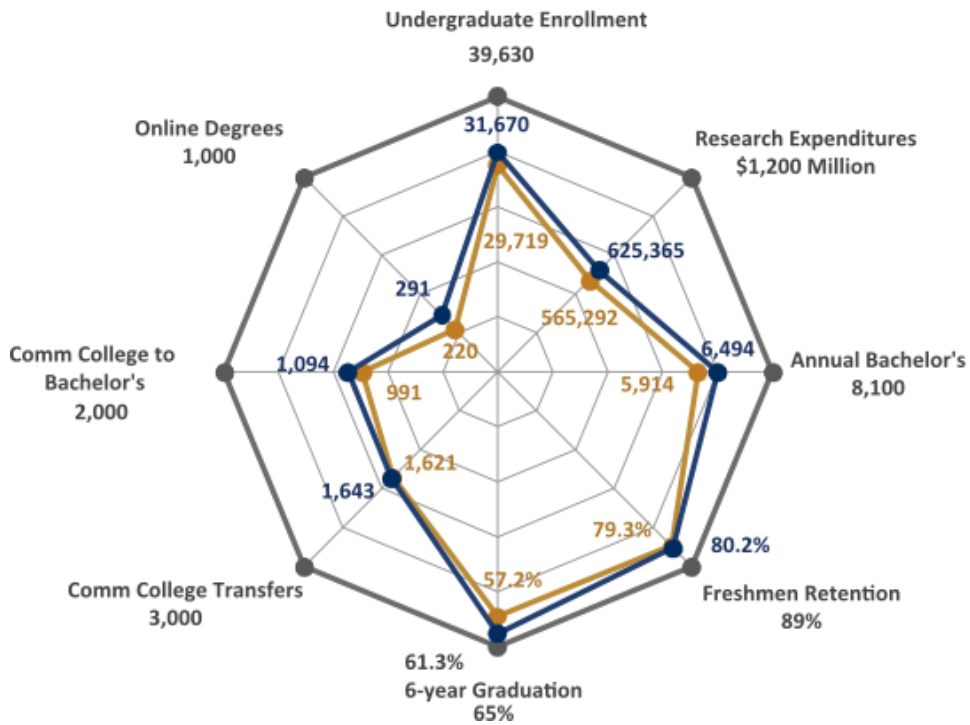
SHARED VALUES
- Adaptability: Our team is composed of self-starters who adapt to change in technology and industry, keeping CALS on the cutting edge.

- Innovative: We dedicate time to incubate new ideas and encourage each other to cultivate outside-of-the-box strategies.

- Quality: The products and services we offer are given our best effort. We're detailed-oriented and take pride in our work.

- Humility: Not all of our designs and innovations work as planned. We can admit defeat, learn from mistakes, and embrace constructive criticism.

- Integrity: We believe in delivering CALS with the best service possible, even if that means outsourcing a project or service that is recognizably better. We always have CALS' best interest in mind.

- Inclusivity: We're an open and engaging team that seeks opportunities to partner with the college and campus community to develop new initiatives.

- Trustworthy: We believe in a responsible and honest work environment, both among our team members and the faculty, staff, and students we serve.

- Engaging: We pride ourselves on our human aspect of Cyber technology. We are educators, partners, and consultants, not just "bit-heads". We meet in person when possible and always welcome walk-ins.

- Entrepreneurial: We must be business-savvy with both state and soft-money resources and continually look for new funding opportunities.

IT Background:

The IT industry is currently going through another periodic paradigm shift. Major new developments and technologies include cloud, Big Data, ubiquitous broadband and mobile. We can take advantage of all these to boost productivity during times characterized by flat budgets and limited investment. The IT technologies alluded to in this document are those that the campus IT community agrees are the most relevant to the University mission.

ABOR Expectations:

Below are the 2020 expectations ABOR has for the UA. FY 2020 figures (outer ring) are Enterprise targets. Actual figures (inner ring) reflect the most current data available for each metric. The data rings are color—coded as follows: **2012—13 Actuals** and **2008—2009 Actuals.**

These goals are exceedingly challenging, especially with flat budgets for UA and for the funding agencies who could boost our revenues. Our investments will have to be well-chosen **but** they can be leveraged with IT. In other words, it is the presumption of this document that IT can relieve the pressure of these times and is in fact critical to surviving them.

Never Settle, College Mission, and IT Tied Together
President Hart has abstracted the ABOR goals with 4 expressions – **Engaging, Innovating, Partnering and Synergy.** These expressions roughly align with the major areas of CALS, Instruction, Research, Outreach and Administration. This strategic plan aligns IT initiatives with those areas and draws on the new technologies to map out directions and outcomes.

ABOR GOALS	(see previous figure)			
UA Goals	Engaging	Innovating	Partnering	Synergy
CALS Strategic Goals	Instruction	Research	Extension/Outreach/Land Grant Mission	Administration
CALS IT Goals	Cyber-intelligence (Goal #1)	Cyber-innovation (Goal #2)	Cyber-communications (Goal #3)	Cyber-efficiency (Goal #4)
Technologies	Academic Technologies, Cloud, BYOD/MDM, Social Media, Video, Broadband, Web Mobile	Big Data, Site Licensing, Cloud, Research Ecosystem, Identity Ecosystem, Data Research Ecosystem/Portal	Ubiquitous Broadband, BYOD/MDM, Enterprise GIS, Web Mobile Identity Ecosystem	Ecommerce, Dashboard Use, Resource Management, Enterprise GIS, Identity Ecosystem
Applications and provisioning	LMS, ePortfolio, smart classrooms, mobile education, student personal cloud, AWS, Google share, academic analytics, ADE partnering, academic BYOD, ubiquitous community broadband, cloud – based learning, real time learning in the field	BioComputing, Retail, Internet2, Geomatics, virtualization, take advantage of shared campus IT, grants, research analytics, eduperson, 3D bioprinters	Grants (NTIA) partner with ATIC, state and community IT, client BYOD, distance learning, drone technology, video Big Data and analytics, fiber overlay to offsite locations, voice-in-the-cloud	Boost support with tighter integration of CALS IT, common help desk, administrative analytics, staff and faculty professional cloud, object code update, alumni/development IT, voice in the cloud, virtual desktops
Outcomes	Core competencies, critical thinking skills, learning discovery, tracking, retention and graduation (advising), jobs (career mapping) alumni and development, life-long learning	Research discovery, increase research $, do more with flat budgets, research-based jobs, technology transfer, facilitated data management planning/sharing. Data discover	Knowledge transfer, citizen science , diagnostics (e.g. Mobile plant and animal diagnostics), internships, impact evaluation, knowledge management (e.g. from newsletters to Global Rangelands Knowledge System)	IT optimization, better faculty/staff support and online resources, extramural $ through alumni and development,

STRATEGIC GOAL ONE:
EMBRACE ACADEMIC TECHNOLOGIES THAT INFLUENCE ENROLLMENT AND IMPROVE THE LEARNING EXPERIENCE OF CALS' INCOMING, CURRENT, AND GRAUDATING STUDENTS (CYBER-INTELLIGENCE)

A. Current situation and gap between current situation and desired situation
CCT provides support for lecture-capture and distance learning tools (e.g. video conferencing). While these tools allow for CALS to reach a wider audience, they fall short of improving the educational experience and do little to elevate the students' cyber intelligence. The desired situation involves the use of current and future technologies that utilize mobility and real-time collaboration, strengthens critical thinking skills, and allows students to better promote themselves when entering the workforce.

B. Strategies to achieve goal
- Help shape CALS core competencies, as determined by Career and Academic Services (CAS) that reward students for enrolling in extra classes/short-courses that elevate cyber intelligence
- Build or purchase collaboration tools that help students discover and work with each other, in real-time, from anywhere
- Create a digital platform that assists students in marketing themselves to future employers
- Improve systems that track students' academic progress, from recruitment through employment, which can identify patterns that increase retention and maps careers to students' strengths and academic success

C. Actions & Time Period
- Implement an ePortfolio system that tracks students' accomplishments online   (FY16)
- Incorporate CCT staff into College and University-wide committees that influence the use of educational technology   (FY15)
- Attend Educause and similarly focused conferences   (FY15-18)
- Build out a "smart classroom" in CALS' buildings on a staggered scale, so that CALS is continually purchasing new equipment and technology   (FY15-18)
- Become experts in academic technology offered by Google, IBM, Adobe, Blackboard, etc.
                                                                                        (FY15-18)

D. Inputs needed to achieve the goal
- Increased collaboration with Career and Academic Services
- 1.0 FTE, that could be shared among CCT and CAS, that assists D. Bogner in developing and/or recommending purchase of academic technologies

E. Objective metrics that will be used to track progress towards attaining goal
- Increase in enrollment and retention
- Increase in students graduating with elected core competencies
- Increase in job-placement among CALS' graduates

STRATEGIC GOAL TWO:
BECOME EXPERTS IN CYBER TECHNOLOGY THAT BENEFITS CALS' RESEARCH AND GROWS INNOVATION (CYBER-INNOVATION)

A. Current situation and gap between current situation and desired situation
Currently, there are just a handful of CALS faculty that utilize cyber technology in their research. Additionally, CCT is behind the curve on research technologies such as Big Data, high performance computing, and cloud solutions. Gap analysis is difficult to outline because CALS lacks the analytic tools needed to determine which areas of research are being done at a College-wide level. The desired situation involves the development of online tools that track research initiatives, builds linkages across departmental boundaries, stores and retrieves research data in a central repository, and builds a knowledge base of data management plans, tutorials, and guides. This would lead to a wider adoption of cyber technology in all of CALS disciplines in which CCT becomes a center for assistance, consulting, and training in research-directed technology.

B. Strategies to achieve goal
- Focus CCT's effort on developing <u>internal</u> tools and resources that parallel CCT's capacity for developing fee-based websites and mobile apps
- Shift effort away from providing IT services that can be better served at UITS or in the cloud.
- Become data specialists and systems integrators that have a broad understanding of varying cloud and big data offerings, and use that knowledge to offer consulting services to CALS' researchers

C. Actions & Time Period
- Migrate email services to UITS   (FY15)
- Build out redundant infrastructure in UITS' data centers that run on virtualized technology which provides scalability, improved uptime and automated systems administration processes   (FY15)
- Build a new research portal website for CALS   (FY15-16)
- Build a queryable Big Data repository to house CALS research   (FY16)
- Invest time and energy into understanding cloud offerings from Amazon and IBM (FY15-16)
- Replace aging cyber infrastructure with Amazon Web Services   (FY17)
- Engage and follow upon recommendations from the Cyber Infrastructure Advisory Group   (FY15-18)
- Partner with other UA entities that provide on-premise cyber infrastructure solutions   (FY15-18)

D. Inputs needed to achieve the goal
- An additional 1.0 FTE web developer to focus on the development of internal online resources aimed at CALS' researchers
- A new 0.5 - 1.0 FTE data specialist that would assist faculty in leveraging cyber technology in their research
- A flexible accounting model that allows for funding CCT staff and purchasing cloud resources with grant-generated revenue

E. Objective metrics that will be used to track progress towards attaining goal
- Increase in grant awards within CALS
- Increase in time saved by migrating services to UITS
- Reduction in downtime of critical IT services

STRATEGIC GOAL THREE:
DEVELOP PLATFORMS TO BRIDGE KNOWLEDGE FROM CAMPUS TO ACROSS ARIZONA (CYBER-COMMUNICATIONS)

A. Current situation and gap between current situation and desired situation
Currently, our constituents across Arizona are directly served by the Outreach effort of CALS Cooperative Extension. This effort is distributed via workshops, newsletters, in person visits, and more recently, video documentaries, webinars, social media and video conferences. Unfortunately, there is still a digital divide between campus and rural Arizona, both in physical infrastructure (e.g. networking, computing capacity, etc.) and in technical skills. The desired situation involves a stronger digital presence in the Counties that consists of ubiquitous high-speed broadband networks, which allow for retrieval of growing video content, remotely sensed imagery, real-time tele-diagnostics of plant and animal health, and fast access to online knowledge systems. Additionally, a stronger digital presence will make our county agents, specialists, and staff more efficient by leveraging IT resources for day-to-day operations such as improved digital file storage, VOIP, mobile device management, etc.

B. Strategies to achieve goal
- Migrate digital information found in electronic newsletters and listservs to online knowledge systems that can share and harvest information with each other
- Increase capacity to create professional, informative and interactive videos that showcase the research within CALS
- Build strategic partnerships with federal and state broadband agencies, such as NTIA and ATIC, as well as commercial broadband providers (e.g. Verizon, CenturyLink, etc) to improve the offsite network
- Provide a better mechanism to measure the impact of outreach via digital mechanisms to determine the effectiveness of online distributed content

C. Actions & Time Period
- Pursue the development of citizen science web and mobile applications and knowledge systems that disseminate on-campus research   (FY15-18)
- Meet regularly with local telcos across the State to understand current and future broadband offerings   (FY15-18)
- Provide our Experiment Stations with digital tools that utilize new technology (e.g. drones, in-the-field remote classroom video equipment, etc.)   (FY15-18)
- Strengthen CCT involvement in the grant writing process (two a year) to take advantage of government offerings in rural network upgrades   (FY15-18)
- Lobby UITS to spend strategic funds for network upgrades at our County offices   (FY15-18)
- Build skillsets that leverage website analytic tools such as Google Analytics and social media outlets to measure effectiveness of online distributed content   (FY15-18)

D. Inputs needed to achieve the goal
- Continued financial support from State and Federal agencies
- Hire students versed in social media and Google Analytics to assist in tracking impact

E. Objective metrics that will be used to track progress towards attaining goal
- Elevated awareness of CALS Cooperative Extension and the Arizona Experiment Station
- Increased awareness of CCT among Extension staff and faculty
- Increase in outreach/impact metrics

STRATEGIC GOAL FOUR:
EXPAND THE USE OF CYBER TECHNOLOGY WITHIN CALS' BUSINESS SERVICE UNITS AND IT SUPPORT DESKS TO IMPROVE EFFICENCY AND REDUCE COSTS (CYBER-EFFICENCY)

A. Current situation and gap between current situation and desired situation
Currently, CALS utilizes a distributed model for providing business services and IT support to each of CALS' academic Units. Specifically, each unit has their own business manager and IT desktop support team. This model is successful, but there are a growing number of cyber infrastructure offerings and online tools that would benefit each of these Units collectively. Unfortunately, we have been slow to develop and/or adopt these solutions. A desired situation would allow us to centrally build resource allocation tools, analytic dashboards, virtual desktops and servers, and IT common help desk tools. These types of tools reduce redundancy across the College, help make informed strategic decisions, save money, and gain efficiency in day-to-day operations. These tools would be collectively managed by CCT, CALS Business Services (CBS), and the CALS NetManagers.

B. Strategies to achieve goal
- Focus CCT's effort on developing internal tools and resources that parallel CCT's capacity for developing fee-based websites and mobile apps
- Through the UA IT Blueprint Group, partner with UITS' in benefiting from centrally licensed software and cyber infrastructure offerings
- Improve the cohesion among the CALS NetManagers and CCT

C. Actions & Time Period
- Assist CBS's Data Solutions in migrating and managing CALS business data from Parallax to Microsoft SQL Server   (FY15)
- Build a codebase foundation for CBS's Data Solutions team to build reports and custom dashboards for deans and department heads   (FY15)
- Develop a knowledge base and IT handbook for CALS NetManagers   (FY15-18)
- Build a space management toolset that leverages services from UAccess Space and the UA Campus Enterprise GIS   (FY16)
- Promote the adoption of CATNET Active Directory Services   (FY15-16)
- Work with the Almuni office to develop a customer relationship manager (CRM) system to help track alumni, assist in fundraising efforts, and develop targeted outreach programs   (FY16-17)

D. Inputs needed to achieve the goal
- 1.0 FTE web developer to focus on the development of internal online resources (and to share with Goal #2)

E. Objective metrics that will be used to track progress towards attaining goal
- Improved efficiency in business operations
- Stronger IT support among all departments
- Increase in cash savings by reducing the number of redundant software and hardware purchases