OVERALL CALS RESEARCH EXCELLENCE GOAL: DOUBLE RESEARCH BY 2020 ON CURRENT RESOURCE BASE.

STRATEGIC GOAL ONE:
BUILD ON EXISTING RESEARCH STRENGTHS

A. Current situation and gap between current situation and desired situation:
Our decreasing budget and decreasing funding rates require that we focus our investments in areas in which we can be disproportionately competitive and successful. We already have key areas of strength and should more effectively leverage prior and nascent successes to expand research, outreach and education. Specifically we need to (i) evaluate diverse characteristics to define programs as excellent/strong, functional/promising, or unlikely to yield a significant financial or other meaningful return on investment; (ii) develop strategies to move programs from the latter categories to the first, or re-evaluate investment; and (iii) support programs with demonstrable return or promise for growth. We will be best served by vertical integration (research translation), which is needed to foster growth.

B. Strategies to achieve goal:
   i. Develop metrics to recognize research success.
   ii. Incentivize research productivity & extramural grant success by recognizing achievement through promotion, technical support, formalized merit processes and increased salaries.
   iii. Position CALS units to address emergent opportunities efficiently and effectively.
   iv. Prioritize funding that leverages existing and prospective project opportunities (e.g. National Children’s Study; iPlant).
   v. Promote CALS leadership in UA-wide and multi-institutional initiatives.
   vi. Develop approaches to link Research with Instruction, Extension, and Outreach in ways that will excite federal funding agencies and facilitate research productivity.
   vii. Encourage units to fill needed expertise niches within established teams to build foci of excellence.

C. Actions
   • Convene interdisciplinary research centers / institutes under Assoc. Dean for Research.
   • Construct and facilitate teams in the 4-6 areas of greatest potential for large-scale funding. Name a lead individual on each activity; provide resources for meetings; provide proposal support and coordination (pre-award) for submission of large grants.
   • Invest personnel support (i.e., technicians, graduate students) in successful research programs, especially for bridging purposes.
   • Provide buyout of teaching or other responsibilities for promising lead faculty preparing large, collaborative grant proposals.
   • Mentor junior faculty on identifying appropriate funding targets and grant submission; provide support for meetings with program officers/managers from federal funding agencies (e.g., provide $1k / yr for 2 years for junior faculty to go to D.C.; bring along a senior faculty member or administrator). Monitor the Return on Investment (ROI).
• Mentor mid-career faculty and facilitate their transitions to new research areas with greater funding potential. Consider a mid-career start-up package to re-invest in faculty needing some assistance. Monitor the ROI.
• Create an awards strategy for faculty and staff to honor significant accomplishments throughout careers. Identify existing CALS and UA awards and "missing" award opportunities; nominate CALS faculty for UA-wide awards.
• Develop theme-based, college-wide discussions / colloquia.
• When permitted by the funder, consider encouraging faculty to budget a portion of academic year salary release in addition, for example, to summer salary coverage.
• For faculty whose performance merits pay increases, exchange salary increase with reduction in state-committed FTE adjustment. For example, CALS and faculty agree to 5% salary raise in exchange for reduction in state-supported salary to .95 FTE. For faculty who regularly have extramural funding, this exchange would be low-risk – and for all faculty this could incentivize extramural funding productivity.
• Establish bridge funding mechanisms to temporarily maintain successful grant-funded programs that have had adverse grant funding decisions. Allow for the continued collection of data and resubmission of proposals.
• Institute merit based reinvestment packages at 6-year reviews.
• Broaden promotion and tenure guidelines to include intellectual property (IP).

D. Inputs needed to achieve the goal:
• Agreement among CALS units to transfer time from unit-specific to cross-cutting colloquium activities.
• Allocation of CALS internal competitive funding sources for application to teaching buyouts and merit-based support (RAs, technicians, etc.).
• Identification of CALS faculty leadership in priority research themes and high ROI areas.

E. Objective metrics that will be used to track progress towards attaining goal:
• Temporal trend in number and total dollar amount of CALS-led, multi-investigator research grants.
• Trend in number and impact of publications in research theme areas.
• Change in effectiveness of integrated outreach and public education programs on CALS research (i.e., Research translation/Extension), including measured outcomes and impacts.
• Increase in number of programmatic M.S. and Ph.D. degrees conferred, and postdoctoral scholars trained, as all are important component of research excellence and productivity.
• Annual increases in IP activity and patent achievements.
STRATEGIC GOAL TWO:
IDENTIFY AND INVEST IN CALS RESEARCH INFRASTRUCTURE NEEDS

A. Current situation and gap between current situation and desired situation:

1) Grant submission systems (GSS): Some units have highly qualified staff to assist with GSS while other units have little to no qualified staff to assist with grant submissions. In addition the current GSS emphasizes regulation rather than facilitation. The desired situation is that all units have access to highly qualified service orientated GSS office or staff to assist faculty with pre-award processing.

2) Physical infrastructure (PI): Some units, or parts of units, have state of the art facilities while others are in need of refurbishing (buildings, equipment, and systems). The desired situation is that the physical infrastructure of all competitive units be updated to be on par with or exceed that of our peer colleges.

3) Human capital (HC): Many of the best and brightest graduate students go elsewhere due to a number of limitations as UA, such as comparable state of the art physical infrastructure, competitive assistantships, service oriented and facilitative staff. The desired situation is to make CALS THE place to go for top US and foreign graduate students that would otherwise go to institutions like UC Davis, Wisconsin, Cornell, etc.

4) Reporting systems [RS] (i.e. APROL, AES, CHRIS, time reporting, time approval): Many of the CASLs reporting systems listed are inefficient and time consuming to complete. The desired situation is to significantly improve/over-haul the CALS RS with the goal to focus on usefulness and accessibility for planning and analysis and to reduce administrative load on PI’s that interferes with productivity.

5) University level investment (ULI): The rate of return of IDC to CALS, individual units, and faculty is not clearly understood and lacks vision when a significant opportunity or initiative arises (e.g. iPlant). The desired situation is the distribution of IDC be more flexible with the goal to maximize and incentivize return on investment.

6) In all issues identified, streamline/flatten processes to maintain or reduce the number of steps to accomplish research goals

B. Strategies:

Grant submissions systems (GSS)

i. Perform a college wide re-evaluation of CALS’ grant submission systems. Some options to consider would be to: 1) move all pre and post award management of federal grants under one roof, led by the Associate Dean for Research; 2) move all pre-award grant management under one roof (above); and 3) Retain post-award management at the school/departmental level, but support capacity building and expertise for business office staff to collaborate and build a culture of facilitation rather than regulation.
ii. Develop infrastructure for the writing and submission of large-scale, high-impact, team projects.

iii. Ensure that CALS’ grants can be budgeted in such a way that they are the most competitive at review.

iv. Coordinate faculty across and off campus, develop management plans, and making proposals look professional (much beyond the single investigator grants). ASU does this as do other Colleges of Ag, National Labs, and others.

v. Build capacity of CALS researchers to ID funding resources efficiently.

vi. Examine each strategy and tactic associated with this goal and audit processes to insure that the number of steps to complete an activity is either maintained or reduced.

Physical infrastructure (PI):

i. Identify specific equipment/space needs in CALS for today’s and tomorrow’s research, build competitive teams who do and will use these facilities, and seek federal and or private funding to secure the required need (e.g. Major Research Equipment grants, and the like).

ii. Minimize investment on depreciating equipment, aim to have equipment worn out before it becomes obsolete and use contractors when services have become commoditized.

iii. Offload to the private sector services and equipment where private sector efficiencies exceed and costs are reduced compared to our own.

Human capital (HC):

i. Obtain stable funding for graduate students beyond the first year of study (TA/RA positions, fellowships, scholarships). Develop an endowment for graduate student support, specifically to target U.S. students in highly competitive areas.

ii. Identify potential graduate research topics of overarching themes and pursue coordinated funding (IGERT). Consistently put strong proposals into such VPR-screened programs.

iii. Invest funds to recruit students in a manner that will be competitive with peers across the U.S. Some competing programs across the U.S. are able to guarantee 4-5 years of support for each graduate student recruited.

iv. Re-evaluate FY13 graduate student ERE rates and devise creative/alternative ways help fund graduate students.

v. Provide technical support for productive Principle Investigators. Support technical staff with opportunities for training, graduate studies, and/or regular promotion opportunities.

Reporting systems [RS] (i.e. APROL, AES, CRIS, time reporting, time approval):
i. Review needs and functionality of forms and procedures related to: APROL; AES Project Reports; Hatch Project reviews; UA time reporting and approval; UA Financials. Revise/eliminate/combine as appropriate.

University level investment (ULI):

i. Advocate for UA-wide improvements and accountability in SPS and ORCA, and other contracting authorities of the UA.

ii. Develop a research strategic planning advisory committee that will determine how IDC funds should be spent in order to take full advantage of existing talent and current and future opportunities. The committee will also be charged with identifying current and new opportunities in consultation with CALS units.

C. Actions:

Grant submission systems (GSS):

- Establish an effective process for collecting and distributing notices on new Requests for Funding.
- Institutionalize regular research PI orientation/training to cover topics relevant to all PIs (new and established), including topics such as grants.gov, grant alert databases, best practices in federal grant submission. Record sessions and post to website.
- Computerize all routine grant forms to save investigator time for major agencies (such as COI forms, routing form, CV generation etc.).
- Employ a programmer to build automated grant form completion.
- Track research submissions as well as funded proposals and measure submission and success rates.
- Develop e-signature systems acceptable to all levels of the University.
- Reform procedures so as to minimize the number of steps between the PI and the grants submission process. [if departments/schools and CALS are not reading proposals, then eliminate pre-award signature steps in favor of e-procedures that inform units & CALS as a proposal moves through the system.]
- Reduce unit barriers to collaborations by creating responsibility for a proposal in one unit (and not require additional approval steps in every collaborating unit).
- Survey CALS and other Colleges at UA to determine optimal procedures for reform of CALS GSS.

Physical infrastructure (PI):

- Develop a physical infrastructure plan for CALS.
- Develop methods and mechanisms for time sharing and access to equipment and facilities currently in the college.
- Adopt a culture in CALS “if an instrument is not being used 24/7 we don’t need a new machine”.
- Develop methods and mechanisms for time sharing and access for contracted services outside of CALS.

Human capital (HC):
- Write cross cutting/translational graduate student training grants.
- Work with the development office to find support for cross cutting/translational graduate student training grants.
- Enable graduate students after their comprehensive examinations (a point where they are no longer taking classes and so do not need full tuition, BUT grants are still charged full ERE) to be charged less than full ERE. (The UC system does this. The fee before passing the exam is termed an “education fee” and is no longer paid once the oral exam is passed).
- Develop a CALS fellowship program that will guarantee 3 years support for a Ph.D. and 2 years of support for M.S. students.
- Start to rebuild technical support capacity by supporting current technical staff in productive laboratories and identifying PIs who would benefit from stable technical support.

Reporting systems [RS] (i.e. APROL, AES, CHRIS, time reporting, time approval):
- Revise/eliminate/combine as appropriate.
- Establish team-based Hatch Projects that cut across the entire college and convert the majority of single PI Hatch projects to multiple and/or team-based Hatch projects.

University level investment (ULI):
- Advocate for UA-wide improvements and accountability in SPS and ORCA, and other contracting authorities.

D. Inputs needed to achieve the goal:

Grant submission systems (GSS):
- A report on how top peer institutions perform pre and post-award grant submissions and administration in order to provide advice on how to improve CALS’ GSS.
- Written and verbal input from unit heads on pre and post-award processing on what works and what doesn’t in order to provide advice on how to improve CALS’ GSS and to develop an action plan to remove any and all GSS bottle necks.
- Input from faculty, peer institute surveys, and federal agencies for need to establish a BIG Idea/ Grand Research Challenges grant office to promote strategic planning.
and entrepreneurship across the college, and to identify large sources of funds that
CALS and its partners can compete for and/or tap into.

Physical infrastructure (PI):
- An annual report from unit heads identifying current and future space/equipment
  needs that is ranked based on competitiveness of the group and for the potential
  success.
- A biannual report that identifies federal and private funding sources that can be
  applied for to fund CALS physical infrastructure needs.

Human capital (HC):
- A report, in collaboration with the business school, that predicts the Arizona, US and
  International job outlook for the next 5, 10, 15, 20 years and beyond, and outlines
  research foci and degree programs based, in part on, these studies.
- An annual report from units heads outlining plans to submit graduate student
  training grants (Federal or private).
- In CALS funding priorities, balance investments in technical support and graduate
  student support for current faculty with new hires.

Reporting systems [RS] (i.e. APROL, AES, CHRIS, time reporting, time approval):
- A report from all units describing the good, bad and ugly about RS, and creative
  solutions aimed at streamlining RS.

University level investment (ULI):
- Formation a research strategic planning advisory committee that is charged with
determining how IDC funds should be spent in order to take full advantage of
existing talent and current and future opportunities. The committee will also be
charged with identifying current and new opportunities in consultation with CALS
units.

E. Objective metrics that will be used to track progress towards attaining goal

Grant submission systems (GSS):
- More proposal submissions (50% more within 4 years)
- Greater number of awards (25% more within 3 years, 50% more within 8 years)
- Greater number of large awards (15-25 million range), 1-2 every 2-3 years
- Input from GSS customer satisfaction surveys aimed at continuous improvement
  and optimization of the CALS’ GSS.
Physical infrastructure (PI):
- Complete CALS maker over within 10 years
- Successful MRI/NIH research equipment grants – 1 every year

Human capital (HC):
- One federal and or private graduate student training grant every 2 years
- Doubled number of PhD in 5 years
- Quadrupled number of Masters and Professional Master degrees in 5 years

Reporting systems [RS] (i.e. APROL, AES, CHRIS, time reporting, time approval):
- A clean and efficient RS in 1 year or less

University level investment (ULI):
- Committee formed to determine how IDC funds are spent. We should have a goal that for every IDC dollar invested CALS will receive 10 dollars in return.
STRATEGIC GOAL THREE:
DEFINE AND MEASURE PRODUCTIVITY AND RESOURCE GENERATION FOR RESEARCH

A. Current situation and gap between current situation and desired situation:
Our charge from ABOR is to double extramural funds by 2020. This means doubling extramurally funded scholarship along the continuum from discovery to extension and teaching. We also need to define the indicators of scholarship productivity and resource generation that we plan to grow and quantify it. Relevant metrics, in addition to those set by ABOR, include: number of Masters and PhD degrees; publications and impact factors; extramural funds; IDC; faculty and team awards; % co-investigator / co-PI grant submission awards.

B. Strategies:
   i. Use ABOR and UA metrics to identify what we will measure, and track research productivity using these.
   ii. Ensure that all academic units can define and quantify what it means for them to double research productivity.
   iii. Based on those metrics, calculate and track Return On Investment (ROI) in research at the individual and academic unit level.
   iv. Minimize teaching, especially undergraduate, for research-intensive faculty; reassign research / teaching based on faculty strengths.
   v. Ensure that CALS invests in research areas consistent with those at the level of the university—currently “Big Data”, Information sciences, Environment, Biomedicine
   vi. Because many large grant programs favor inclusion of a range from discovery to application, evaluate and assess the balance of fundamental and applied research across the college.

C. Actions
   • Survey CALS administrators, faculty and staff regarding perceived barriers to increased productivity across the research continuum (discovery to extension and teaching) and extramural funding. Develop actions to address identified barriers.
   • Identify metrics for quantification of productivity:
     ▪ Identify / distinguish unit-level and CALS-wide goals
     ▪ Identify / distinguish unit-level and CALS-wide metrics
     ▪ Implement tracking methods for metrics, evaluate progress on a regular basis and adjust when necessary.
   • Identify strategies to (a) strengthen the connection between Research and Extension programs, and (b) utilize Extension programs to improve Research and for Research to improve Extension programs.
   • Seek stakeholder input to develop specific long-term goals for supporting and shaping the future economic and social conditions of rural and urban Arizona as a means for understanding how and what best to measure.
   • Implement ROI studies to assess selected CALS program impact(s). Engage AREC or other UA faculty.
   • Align Annual Performance Review (and APROL) with identified metrics, and improve database functions and efficiency so that APR data are accessible and useful.
D. Inputs needed to achieve the goal
- Broad input (faculty; HODs, CEDs; DRAC; Dean’s Council) on priority metrics.
- Administrator, Faculty and Staff input on barriers to productivity and actions to overcome barriers.
- Stakeholder input on future issues and priorities to improve the economic and social conditions across the continuum from rural to urban Arizona.
- Faculty and other expertise for analysis of ROI in programs across CALS.
- IT expertise to revise / renew APROL to achieve efficient, accessible, useful tracking data on metrics.
- Flexibility for incentives / rewards for individuals and teams / units that have high ROI

E. Objective metrics that will be used to track progress towards attaining goal
- CALS units (including college level Associate Deans-Research, Extension, Instruction, Administrative Services) will have clearly identified metrics and tracking for research productivity and resource generation in place for AY2013-14.
- Usefulness of the outputs of tracking of unit-level and ABOR-identified metrics.
- Identifiable and measured contributions by CALS to improved economic and social conditions in Arizona.
STRATEGIC GOAL FOUR: EXPAND COMMUNICATION ON RESEARCH ACTIVITIES

A. Current situation and gap between current situation and desired situation:
Areas of communication in need of expansion can be divided into outward and inward communication. We need to promote our research activities outside the university setting to communities, stakeholders, and potential donors. A critical part of outward communication is public outreach programs. Inward communication is designed to highlight research strengths among CALS faculty. This is critical for the development of new collaborative projects and identifying extra-CALS partnerships, and for promoting our current strengths.

B. Strategy:
   i. Improve outward communication.
   ii. Improve inward communication
   iii. Recognize outstanding faculty accomplishments

C. Actions
   Outward communication activities:
   • Develop a comprehensive branding strategy for CALS that operationalizes comprehensive recommendations for promoting Research, Extension, and Instruction.
   • Coordinate events that highlight areas of excellence in CALS. Publicly identify projects that were supported by strategic investments from development sources (successful examples include the CoS evening symposia for general audiences, the Arizona Insect Festival, UC Davis’ Picnic Day, NC State Innovation Fund).
   • Enhance media exposure of CALS research highlights. Dedicate a section of the CALS website to communication on areas of research strengths (for example, how would an outside entity know what research areas CALS is very strong in?). Connect sources of funding with specific projects and write a paragraph on the impact of these studies. A presence on UA News, and local, regional, and national publications could enhance this effort. Supplement the current CALS research highlights on the home page with pieces for outlets in social media (Facebook, Twitter, YouTube).
   • Expand beyond traditional southern Arizona communication outlets. Invest in direct relationships with Phoenix area media to place stories in the press & multi-media there. Consider partnerships with University of Arizona Medical School, Phoenix campus to help deliver CALS communications especially in areas of overlapping interest (food safety, food security, nutrition, SNAP-Ed, healthy living and lifestyle programs).

   Inward communication activities:
   • Encourage the development of new multi-disciplinary teams. Options could include: a) Developing a “Multidisciplinary Monday” program involving a series of meetings and social gatherings around big-picture research, education, and outreach activities centered around specific CALS Big Ideas/Grand Research Challenges and other large, cross-cutting issues of broad interest, b) convene meetings between Institute/Center directors and graduate program chairs within CALS to help connect faculty with similar interests. Explore different formats to see what works best. Include all segments of the
land grant mission, potential industry partners, other UA Colleges, and students.

- Enhance the communication of current research endeavors. Options could include: a) Holding multiple mini-symposia on areas of CALS research strength or areas identified as emerging, b) Units hosting symposia, conferences, or workshops should be encouraged to engage faculty from other Units within CALS. Topic examples could include symbiosis, climate change, food security, or sustainable health. Invite speakers and ensure excellence and relevance so faculty want to come rather than compulsory and resented.
- Develop a “Best Practices” dropbox where Units can post policies and guidelines that could serve as templates for other Units.
- Recognition: CALS communication team should collect the honors and awards list after each Unit’s faculty meeting. Redistribute stories, activities, pictures, blogs, conferences, publications and other outputs as appropriate. Units should be encouraged to nominate their own Faculty and Staff for Society, University, and Foundation awards and honors.
- Culture: Help to create a culture where faculty seek interactions across disciplinary, unit, and other borders. Seek unit heads and CALS leadership that strive to set the example by attending and inviting others to attend events and gatherings where research is discussed, planned, celebrated, and honored.

D. Inputs needed to achieve the goal
- IT and perhaps student worker salaries to increase web promotion of research
- Communication venues currently used by CALS communication team (Are we promoting CALS in all the right markets?)
- Establish faculty (and where appropriate include staff and students) working groups for all these strategies
- Refreshments for events
- Determine faculty interest and feasibility of proposed events to make them ‘can’t miss’ rather than ‘have to go to’ events
- At least one faculty member from each unit charged with identifying honors, research, awards, stories and other achievements of their unit and transmitting them to College wide working groups noted above.

E. Objective metrics that will be used to track progress towards attaining goal
- Attendance at proposed events; publicity and stories about events in media
- Number of stories in the media that exceed southern Arizona exposure (state-wide, regional, or national coverage)
- Feedback from stakeholders, citizens, and potential donors outside the University on their impressions of current CALS research activities
- Hits on web sites, number of follow-on stories on established and online media
- Increase in within-CALS collaborations as monitored by APROL, CALS pre-award staff
STRATEGIC GOAL FIVE:
BUILD TECH TRANSFER, IP DEVELOPMENT, EXTERNAL BUSINESS RELATIONS/DEVELOPMENT

A. Current situation and gap between current situation and desired situation:
We do not have a strong culture of disclosures, tech transfer and business development. Contracting and Intellectual Property development should be transparent to all faculty with easy access to resources, FAQs, and University personnel who can help stimulate resource and IP development that will fuel major advances in research.

B. Strategies to achieve goal:
i. Build industry partnerships early.
ii. Reward disclosures and patents at P/C and T.
iii. Establish clear faculty performance criteria (including entrepreneurship and IP creation).
iv. Broaden promotion and tenure guidelines to include IP.
v. Add entrepreneurship and risk-taking to position descriptions (faculty and staff).
vi. Identify/run workshops that could educate faculty on how to initiate entrepreneurial or IP projects.
 vii. Develop transparency in the array of contracting and external business relations options available to CALS faculty.

C. Actions
• Work closely with Tech Launch Arizona and the Office of Corporate and Business Relations.
• Charge contracting organizations of UA and CALS with development of clear, concise, non-technical descriptions of their role and services for faculty use.
• Develop standard contracting language for addressing CBI when interacting with external businesses that will not need further and/or repeated review including information on the basic protections (in non-legal jargon) that need to be in place for UA to enter into an agreement / contract with an external business unit.
• Develop CALS based IP/contracting workshops at least once per year that teaches faculty the how-to’s for these processes.

D. Inputs needed to achieve the goal
• Cooperation & time of contracting units (e.g., ORCA, OTT, Procurement, etc.) to develop outreach and training materials
• Faculty time and interest to attend workshops
• Amended APROL (or similar) that highlights and accommodates reporting of patent, entrepreneurial, and other IP related achievements/productivity

E. Objective metrics that will be used to track progress towards attaining goal
• Trends in patent/IP development
• Number of faculty reporting patent/IP/other entrepreneurial productivity
• Dollars/IDC reported from contracts to CALS faculty
- Workshop attendance and interest in IP/contracting activities