

College of Agriculture and Life Sciences

CALS Strategic Plan 2010-2020: A Future-Focused Roadmap

Draft October 19, 2009

Overview

This strategic plan is different from our previous plan (prepared in 2005 and updated in 2008). It is shorter in pages but longer in time frame (10 years), contains less detail but more guiding principles, and is based on our belief that the external world is changing significantly and we also must change.

We assume the next decade or so will be a transition period or a period of continuing change; we need to be prepared for both. This means there will be more significant changes and more uncertainties and perturbations than we are accustomed to facing. We need to account for this new world in our plans and we need to realize choices will be more difficult to make and to implement.

We need to look at the new world as a system – many major changes are taking place at the same time and they interact with one another. This makes it more difficult to understand a particular problem and to develop appropriate solutions or find resources. It also means there will be more and new ways of doing things and some long-held ways of going about our daily business will have to change.

In a nutshell, we are taking the long view in planning for change. We need to learn how to manage change ourselves and to help our students and our many clients deal with the changes they will face. At the same time, we will need to be more innovative and more flexible in addressing both the practical problems of society and the basic sciences that are hallmarks of a university. We will retain our three primary functions of learning, discovery, and engagement (newer terms for teaching, research, and extension). But we will approach them differently. This strategic plan is our roadmap to navigate these uncertain times.

Introduction

This three-page plan identifies a probable new world we will be living in for the next decade or so and the challenges facing us. A further description of the changing world is in Attachment 1, Descriptions of College Focus Areas are in Attachment 2, Frequently Asked Questions are in Attachment 3, Implementation Guidelines are in Attachment 4, Principles of Good Practice and Peer Institutions are in Attachment 5, Assessment and Resource Allocation Criteria are in Attachment 6, and References are in Attachment 7. This plan does not contain specific objectives or future targets to achieve. It is a strategic plan -- brief and to the point to help guide us through the next decade. Additional planning documents are at the Dean's website - <http://cals.arizona.edu/dean/planning>

Our Probable World in 2020

It is not possible to predict or even make a good guess at how our world of 2020 will emerge. We cannot simply extrapolate past experience, nor can we operate with old assumptions, and we may use scenarios to better understand alternative futures. We are using the Foresight to Insight to Action approach developed by the Institute for the Future to describe how we should think about the future.

- Our FORESIGHT studies suggest we are entering a world that is Volatile, Uncertain, Complex and Ambiguous – **a VUCA world**
- Our resulting INSIGHTS suggest a need for clear strategic directions as well as focused goals, but to also be Flexible, Agile, Innovative, and Responsive – **a FAIR approach.**
- Our ACTIONS therefore need to be different than those of the past and our strategic directions need to be within the context of a series of transitions within a changing world.

The New Normal

The new normal is not a return to the old normal. It will be more complex and change will become an integral component. But the change has to be *smart change* that is *future-focused*.

Our Challenges – Restated as Our Strategic Directions Under Each College Function*

1. Learning
 - a. Create a mixture of alternative learning environments and approaches.
 - b. Make use of a range of people and places in the learning process.
 - c. Assess and reward learning in ways that are appropriate to best approaches.
2. Discovery
 - a. Create necessary fundamental knowledge.
 - b. Seek problem focused solutions.
 - c. Provide student research opportunities.
3. Engagement
 - a. Provide science based solutions to practical problems.
 - b. Develop an active knowledge transfer program.
 - c. Use leadership and partnerships to respond to changing times.
4. Leadership
 - a. Lead and communicate effectively and efficiently in an era of change.
 - b. Improve and modify learning, discovery, engagement processes.
 - c. Aggressively guide the college into the 21st century new realities.

Strategic Philosophy and Approach

Vision:

To prepare students and Arizonans with knowledge and tools to anticipate and adapt to the challenges of a changing future.

Mission:

To create, integrate, extend, and apply knowledge.

Core Values

Our values guide choices and decisions at all levels.

- *Respect* - We value each other's unique differences and roles so everyone succeeds.
- *Integrity* - We deal with others honestly and fairly to build trust in our relationships.
- *Collaboration* - We work as a team beyond our own college boundaries to attain our goals.
- *Excellence* – We strive to continually learn and improve all college units and functions.

Our Audiences

Our audiences include our students and Arizona's people, communities, industries, businesses, and organizations. In addition, we have national and international obligation for knowledge sharing and research involvement.

Our Overarching Theme and Signature Focus for the College

One theme emerged after reviewing the challenges facing the world and the southwestern United States and matching those challenges to our college breadth, expertise, experience, and history of interdisciplinary approaches -- for both basic research and practical problem solving.

That theme is ***Sustainable Systems in Arid and Semi-Arid Regions***. This becomes the Signature Focus for the college. It is what will define the future of the college.

However, it is important to understand that the term “sustainable” is very broad and is not just about the environment (e.g. climate change, energy, water, and plants, and animals). It is also about social and economic issues. It includes economics, global trade, food production, development, jobs, institutions, health, security, transportation, families, communities, communication, consumer perspectives, political interactions, and infrastructure. Of course not 100% of our activities will involve sustainability or be restricted to arid regions. We still must invest in basic research in all areas. But the concepts, including taking a systems perspective, where a variety of things are connected to other things, will be widely applicable to many college programs.

College Focus Areas

These topics identify CALS activities without regard to specific administrative unit, and each administrative unit participates in more than one focus area. The relative effort in each area varies over time depending on available needs and resources. In addition to these focal areas, most administrative units are involved in activities related to leadership, technology, innovation; food production, security, safety; and social, physical, bioscience related topics. Areas are listed in order of relative CALS resource allocations. Detailed descriptions are in Attachment 2.

1. Environment, Water, Land, Energy, and Natural Resources
2. Plant, Insect, and Microbe Systems
3. Animal Systems
4. Children, Youth, Families, and Community
5. Human Nutrition, Health and Food Safety
6. Consumers, Marketplace, Trade, and Economics

Special Approaches to Help Our Students and Others

1. Adapt to global climate change and to different water, energy, and food conditions
2. Adapt to appropriate technologies, with particular reference to the roles played by molecular biology and information technology
3. Emphasize interdisciplinary actions within the college and in working with others – as partners, collaborators, alliances, or teams, and without regard to institution or location.
4. Emphasize broadly defined sustainability concepts - of the environment and resources, organizations and institutions, communities, and infrastructure.
5. Recognize our students and audiences are becoming more diverse in many ways – ethnically, technologically, and in their work and home environments.

Implementing the Strategic Plan

Since this plan is a different approach, there will be questions for all involved in just how to implement it. Attachment 3 is a FAQ list to address some of those questions, and Attachment 4 lists Implementation Guidelines. Included in those guidelines is the need for unit operational or tactical plan that addresses priority setting, resource allocation, and communication.

Attachments

More detailed information about the changing world, the six focus areas, implementation, assessment principles and guidelines, and comparison institutions and references are in attachments 1-7.

Attachment 1

Description of a Changing World: The New Normal

Planning Framework

Major periods of change have occurred in the past and we have eventually adapted to the new conditions. We are in the beginning stages of another major change, but this one is expected to be different: 1) there are many significant things happening at the same time – technology, demographics, economics, resources, and general infrastructure; 2) the scale is larger and the pieces are more interactive and this combined with so many significant things makes for more uncertain times; and 3) the degree and complexity of change requires extra effort on the part of many institutions (e.g., business, government, and education).

Key Driving Forces of Change

Science and Technology -- • *Bioscience* • *Information*.

Bioscience is continuing to make changes and the implications of those changes on society and agriculture are continuing to unfold. Information Technology brings “smart” everything and changes the way people work, learn, and interact socially. The web has moved from Web 1.0 (library, content) to Web 2.0 (collaboration, social networking), and becoming “smarter” as it continues to evolve rapidly. These two changes ripple through many of our focus areas. Implications: These areas will continue to be important to everyone.

Population and Demographics -- • *Aging and Diverse Population* • *Digital Natives as Students*

The first baby boomers turn 65 in 2011, several states are heading toward no “majority” cultural populations (increased diversity), and costs for medical care and retirements are unsustainable under current assumptions. The *Digital Natives*, students (born after about 1980) that grew up with modern information technology, learn and function differently than many faculty. There is no one answer but change is clearly happening. Implications: Fundamental shifts in age and diversity will impact our programs and our funding.

Economic and Financial -- • *Globalization* • *Recovery and Effects of 2007 Recession*.

The economy is global, US debt is increasing, and financial and other institutions are undergoing change. The 2007 recession-related activities will have a longer recovery period than historic recessions and its aftermath could last a number of years. The changes made as a result will impact our programs as well as our clients and ripple through all our focus areas. In the US the middle class is decreasing as a percentage of the population but on a worldwide basis it is increasing. More effort is being applied to more representative measurements of progress than simplistic indicators such as GDP and the impacts of aging and entitlement programs will increase. Implications to CALS: It is difficult to estimate future economic conditions and our funding levels.

Resources and Environment -- • *Energy/Water/Food* • *Global Climate Change*

New sources of energy and more efficient use of water and energy. Food, both internationally and in the US, will become more vulnerable to climate change, urbanization, and alternative land uses. The rate of gains in food production efficiency have decreased. Global climate change will have an impact on all aspects of the southwest and all our focus areas. Implications: This is an area of increased emphasis and need.

Physical and Social Infrastructure -- • *Modernization* • *Sustainability*

Urbanization is growing, and the central Arizona region is defined as the Arizona Sun Corridor Megapolitan Area; it is one of 20 such designations in the US. The infrastructure is both aging and changing, and includes buildings, transportation of goods and people, the production and transportation of energy and water, life-support systems, communications systems, and the governance mechanisms that allow society to function. To address this requires more than just resources or reorganization. Implications: This is a neglected area that will demand much more attention.

The Bottom Line

We are entering a new era: many things are changing to a significant degree, all at the same time. When the economy recovers in several years we will still be facing additional challenges from these other factors. The key word is “smart change” and on a continuing basis. The term sustainability will apply to many topics and not just the historic environmental area. There will be a New Normal when things settle down but we don’t know when that will be. While we need to anticipate the New Normal as much as possible, and prepare early, we need also to recognize transitions to new eras do not always go smoothly.

Attachment 2

Description of Six Focus Areas

These topics identify CALS activities without regard to specific administrative unit, and each administrative unit participates in more than one focus area. The relative effort in each area will vary over time depending on available needs and resources. In addition to these focal areas, most administrative units are involved in activities related to leadership, technology, innovation; food (production, security, and safety); and social, physical, or bioscience related activities. Focus Areas are listed in order of relative CALS resource allocation.

Environment, Water, Land, Energy, and Natural Resources

Is concerned with the issues related to protection, enhancement and sustainable use of our basic environmental resources. These are soil, air, and water and the conservation, management and use of natural resources (wildlife, fisheries, rangelands, forests, watersheds, flora and fauna ecosystems). Sustainable use of resources and the environment requires attention to public policy and an understanding of human factors as well as resource assessment, monitoring and management.

Plant, Insect, and Microbe Systems

Addresses the production and biology of plants used for food, fiber, livestock feed, industrial products, and for environmental and aesthetic purposes. Optimal and sustained productivity is based on understanding plants from the molecular to ecosystem levels, and implementing best management practices, including integrated pest management for insects, weeds, and pathogens.

Animal Systems

Encompasses contemporary methods of biology to improve productivity and increase the quality, composition, safety, and desirability of animal products; promotes the use of integrated and long term sustainable production systems that are compatible with arid environments; enhances genetic diversity and biological performance; and improves the health and well-being of food and companion animals.

Children, Youth, Families, and Community

Focuses on economic, social, psychological, and biological factors affecting individuals, families, and groups over their lifespan. Topics include effective parenting, violence prevention, resource management, responsible decision-making, economic well-being of families and consumers in the marketplace, leadership skill building, and reduced exposure of children to toxins via integrated pest management in schools.

Human Nutrition, Health, and Food Safety

These programs focus on the relationships of the life sciences to human health promotion, disease prevention and food safety. Programs use interdisciplinary approaches to discovering, translating, and applying how nutrition and physical activity can prevent disease and promote good health and well-being. The safety and quality of food for human consumption includes transportation, processing and consumer handling. Overall approaches range from basic cellular and molecular research to clinical human research studies and educational programs.

Consumers, Marketplace, Trade, and Economics

Deals with supply-chain management and retailing processes from perspective of both the consumer and the business organization, global and national trade activities, and economic analyses of food and fiber as well as natural resources (including water, land, and the environment). It also contains the economic analysis and resource allocation processes of businesses, governments, and consumers and the strategic analysis of the environments in which market participants operate.

Attachment 3 Frequently Asked Questions

1. In a nutshell, what is the thrust of the 2010 plan?

It is about two things: CHANGE and how we can live with it, and the NEW NORMAL. The new normal suggests that when we get through the current financial crisis and back to normal, it will not be the same normal we knew before. The new plan offers guidance and ideas without specificity. It continues the idea of living in a VUCA world (volatile, uncertain, complex, and ambiguous) and using a FAIR approach to deal with it (flexible, agile, innovative, and responsive). Except, there is now a much more serious need to understand and internalize these terms.

2. There are some new terms in this plan – how are they defined?

- a. Discovery, learning, and engagement were first suggested as new terms by—in the 2000 Kellogg Commission report. These terms replace teaching, research, and extension. Several universities have made this change and we found them more descriptive of our functions.
- b. Smart Change is change that is well reasoned in advance, is planned for, and is expected to make lasting improvements.
- c. New Normal indicates we are in a long term transition and that when the current economic crisis is over, we will not be returning to an earlier time. Rather, our “normal” times will be different and currently unpredictable. This means we need to change but also be flexible and use foresight to avoid surprises.

3. How are other universities and colleges changing their planning approach?

Some universities are changing and some are not. More universities over time are reading the environmental scan materials and changing their plans accordingly. More studies about the changing environment for higher education are becoming available, including those by the National Academy of Sciences and former university presidents. It is pretty clear change is coming but universities have a lot of inertia that has to be overcome. It is difficult for a college within a university to change alone. In our college we have the bulk of the “land-grant” programs and our plan fits our needs and is not in conflict with the university plan.

4. What about existing barriers to some of the changes we feel are necessary?

This is a problem. There are many barriers to change that have accumulated over time. These barriers are in many areas (how we evaluate and reward people, how we design courses and curricula, how we report and assess progress, how we teach and manage were developed before the electronic age, and how individual units are administratively structured vs how subject matter has become very interdisciplinary. These barriers exist within our college units, the college itself, the university, the Board of Regents, the State of Arizona, and the Federal Government. However, we need to be prepared for coming changes and anticipate rather than react. This will be an important area to address on a continuing basis.

5. Why are there no specific objectives and targets to achieve in the 2010 plan?

Some strategic plans contain goals and metrics. We did not include these for two reasons: 1) the effort involved in making and monitoring such estimates detracts from the strategic nature of the plan, and 2) the times are too uncertain to identify specific numerical targets.

6. How does the 2010 plan differ from the 2005 plan?

Some sections have been updated and are similar to the last plan but some areas are quite different. There is a new vision, a refinement of the six focus areas, creation of a new “signature focus” and a change in the overall approach (less specific goals and more guiding principles). The plan was made smaller by eliminating details such as assumptions and challenges. These relevant details are available in a “background document.”

Attachment 4 Implementation Guidelines

College Level

Basic Approach

The overall planning and management process should be viewed as constantly evolving, with the objective of continuous improvement and using the CALS vision, mission, and values as a guide. This overall framework is structured on the VUCA world we are living in (volatile, uncertain, complex, and ambiguous) and the FAIR manner in how we deal with that world (flexible, agile, innovative, and responsive). To be FAIR, we have to address near-term needs but also invest in the future.

Setting Priorities

Priorities change over time as some activities are completed or new ones begin. Priorities also change as external needs change, new academic areas develop, or the availability of funding (earmarked or broad) is gained or lost. Priorities will be evaluated annually but for a time frame of 3-5 years, and priorities will be consistent with the strategic plan and results of program and unit assessments. The resulting priorities will be used along with the resource allocation criteria to set unit and program budgets. See Attachment 6 for assessment and resource allocation criteria.

Performance Indicators

Progress toward college goals will be measured by selected performance indicators consistent with University of Arizona requirements and may change as conditions change. Note in particular that Performance Indicators for the past may not be applicable for the “new normal” of a changed world. Examples of performance indicators are at the Dean’s website <http://cals.arizona.edu/dean/planning>

Operational Plan

Using the strategic plan as a guide, the college will prepare annually a 3-year operational plan. Revisions to this plan would be finalized following the spring budget hearings and would be updated whenever conditions warrant. Prior to the spring budget hearings the college will provide some guidance relative to priorities and budget conditions to the units on a timely basis.

Barriers and Incentives

At an appropriate frequency the college will review barriers and incentives and make adjustments where needed.

Unit Level

Unit Strategic Plans

Appropriate units will prepare a brief strategic plan, using the college plan for guidance. This plan should be of a “roadmap” format (general directions and principles but not detail) and reference as much of the college strategic plan as practical. Guidance will be posted on the Dean’s website.

Unit Operational Plan (or Tactical Plan)

Using the college and unit strategic plans as a guide, appropriate college units should prepare annually a 3-year operational plan. This plan would be presented at the spring budget hearings as a draft and finalized following the annual budget allocation. The plan should not exceed 5 pages and include the following sections: 1) Overview, 2) Personnel and Staffing, 2) Grants and External Funding, 3) Academic Program changes (or additions/deletions), 4) Teaching and Curriculum, 5) Extension/Outreach Programs, and 6) Summary.

Attachment 5 Principles of Good Practice and Peer Institutions

These principles of good practice are worthy examples but there are others available as well. These principles are about 10-20 years old but they are still applicable. This topic should be monitored and new principles considered as they become appropriate.

Providing General Guidance While Still Allowing for Flexibility

We need to have principles for making choices but allow for the anticipated flexibility and uncertainty that we expect. We still need to make budgets, evaluate programs and people, and measure and report our activities. But we also need to reward people for doing innovative things, even if they fail. We need to collaborate more and remove barriers to efficient and effective management, and we need to recognize the way we teach and engage student and others has been transformed by the world wide web. How do we do this without a map? We follow best practices develop by others and the Seven Guiding Principles for Leadership we developed for this plan (attachment 6).

The Kellogg Commission's Statement of Principles to Guide Academic Reform (2000)

Developed by the Kellogg Commission on the Future of State and Land—Grant Universities as a guide for institutions as they enter the 21st century).

1. A Learning Community
2. Access and Opportunity
3. An Education of Value
4. Containing Costs
5. Accountability
6. Meeting New Needs
7. Flexibility and Responsiveness

Principles of Good Practice for Learning

There are many examples of good or best practices that can serve as guidelines for our own activities. Some lists stand the test of time and others change as conditions change. Some were established by organizations that no longer exist, some by educational organizations and others by non-education organizations. CALS will use such principles as are appropriate to college activities. Examples for undergraduate learning and its assessment include:

- Implementing the Seven Principles for Good Practice in Undergraduate Education: Technology as Lever (original 1987 principles plus comments for technology). 1996. AAHE Bulletin. <http://polaris.umuc.edu/~cschwebe/gsm800/7principles.htm>
- Nine Principles of Good Practice for Assessing Student Learning. American Association for Higher Education. 1992 (organization no longer exists). <http://condor.depaul.edu/~acafflpc/aahe.htm>

Nine Land Grant Comparative Institutions for Comparison (Peers)

Peer institutions are used to benchmark a variety of activities against a representative group of universities. In this case it is only the unit equivalent of the College of Agriculture and Life Science that is being compared. This list was developed by selecting all but two University of Arizona peers that are land grant but adding two others that are similar to CALS in their environment and size.

- Michigan State University*
 - Ohio State University*
 - Oregon State University
 - Texas A&M University*
 - University of California, Davis
 - University of Florida*
 - University of Illinois*
 - University of Wisconsin*
 - Washington State University
- * indicates also a UA Peer

Attachment 6 Assessment and Resource Allocation Criteria

The CALS Seven Principles for Leadership

1. Budget consistent with core values, vision, mission, strategic directions and societal needs.
2. Focus on Efficiency and Effectiveness in everything – learning, discovery, engagement, and leadership.
3. Match rewards to intended behavior patterns, including allowing for failure testing new ideas.
4. Create a culture of communication and assessment in a consistent, timely and appropriate manner.
5. Recognize we have many employees, multiple audiences, and partnerships that require careful communication, cooperation, and explanations to function well. This is a case where one size does not fit all and appropriate methods will vary among different groups.
6. Develop a collaborative attitude and participatory decision processes in leading and managing the college.
7. Maintain or attain productivity measures comparable to or better than peers.

Assessment Criteria

Formal assessments will be conducted in concert with the University of Arizona academic program reviews, USDA National Institute of Food and Agriculture (NIFA) reviews, and the annual CALS departmental planning and resource reviews.

Periodic assessments will also evaluate each unit and program in relation to a set of comparative institutions, and consider relative changes in the demand for its services in learning, discovery, and engagement. In addition to these assessment methods, the college will obtain input on programs from advisory boards associated with county extension offices, agricultural centers and various academic departments. Periodic statewide surveys and stakeholder feedback sessions will be conducted to determine current needs, how well goals were accomplished, and program impact. These assessments will be used as part of the resource allocation process. Recognize management methods used in past years may or may not be appropriate for periods of significant change.

Criteria for Resource Allocation to Administrative Units (Priority Setting)

1. Relevance to CALS strategic plan, particularly mission and focus areas.
2. Overall potential or actual significance and impacts to Arizona and the world.
3. Relevance to state needs, a unique geographical emphasis, or a unique program.
4. Potential for developing new or basic knowledge.
5. Results and potential for increasing efficiency or effectiveness of units or programs.
6. Role in academic synergies and impact on other units if changes are made to unit or program.
7. Existing strengths, weaknesses, capacity, and critical mass of unit or program and college.
8. Availability of space and other non-financial resources.
9. Ability of unit to develop funding or leverage state funds for attracting other types of funds.

Attachment 7 References

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- University of California. 2006. UC 2025: The Power and Promise of Ten. 75 p. <http://www.universityofcalifornia.edu/future/lrgt1106.pdf>
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