



*Center for Advanced Public Safety*

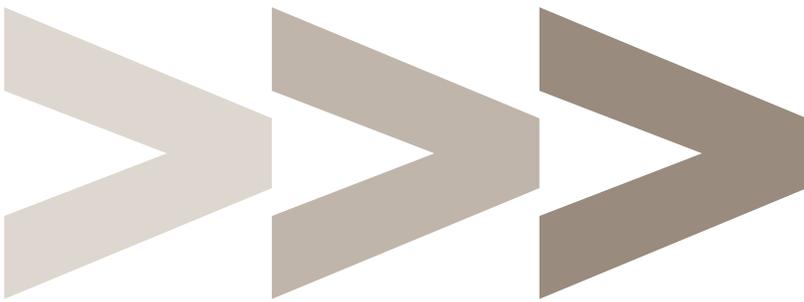
## STRATEGIC PLAN

2013-2015

THE UNIVERSITY OF  
**ALABAMA**  
ENGINEERING



CENTER FOR  
ADVANCED  
PUBLIC SAFETY



## EXECUTIVE SUMMARY

The Center for Advanced Public Safety (CAPS) has the potential to double in research expenditures from a \$7M/year, 70-person organization to a \$15M/year, 125-person organization within 3 years, with substantial increases in faculty and student engagement, Ph.D. student production and refereed publications.

To achieve this goal, we have developed this Strategic Plan to provide a roadmap for this growth. Certainly hard work within CAPS will be required, but additional needs must also be met that require support from various UA constituencies.

To summarize, these needs are four-fold:

1. Adequate space to comfortably support 125 people engaged in IT and research functions (*from 5,000 to 15,000 square feet*);
2. Enhanced incentivization of faculty and student participation in CAPS, as well as additional faculty hires in CAPS-related disciplines;
3. A Human Resources job classification framework and salary structure that allows us to successfully compete for highly qualified Ph.D. and M.S. level research and technical staff at market rates, as well as to compete for experienced B.S.-level personnel capable of supporting critical IT enterprise projects on a state and national scale;
4. A research infrastructure staff to address areas such as business development, proposal writing, data privacy and security, and financial management.

*The Center for Advanced Public Safety will engage in innovative, state-of-the-art software research and development, with the primary goal of making the world a safer and better place. In addition, our advancements in technology will serve as an engine for advancing interdisciplinary research at The University of Alabama.*

## OUR MISSION

## INTRODUCTION

The Center for Advanced Public Safety (CAPS) is a 70-person research center at The University of Alabama with over 30 funded projects and research expenditures in excess of \$7M per year. This Strategic Plan is intended to provide a roadmap to double our research expenditures over the next three years, as well as significantly increase our publication rate and level of student engagement, while maintaining our strong commitment to public service.

## CONTEXT

The University of Alabama is a student-centered research university. As such, students are at the center of its activities. Growth in the student population, in terms of both quantity and quality, has been an emphasis area for the past ten years. During this time, the institution's research footprint has increased substantially as well. The rate of growth in research funding is expected to increase over the next few years. Along with this increase in research funding, expectations regarding publications, funding and student participation are expected to increase. Moreover, with a strong emphasis on students and the undergraduate program, undergraduate student involvement in research is both valued and promoted by the university.

## UNIVERSITY CORE VALUES

The above context provides three implicit university core values common among most comprehensive universities:

1. *Students:* A commitment to student recruitment, retention and graduation that focuses on ensuring quality at all stages of a student's career.
2. *Research:* A commitment that will advance the university's reputation as well as inform and facilitate the education of students. It is recognized that external funding sources are required to help sustain this research mission.
3. *Service:* A commitment to public service is part of the core mission of any comprehensive university. The University of Alabama is particularly active in service-learning activities; integrating students into service activities sponsored and led by the institution.

## CAPS CORE VALUES

CAPS has evolved into an organization with a number of distinctive core values that span The University of Alabama mission:

1. A commitment to societal improvement by using technology that is designed to save lives and improve quality of life for the people of Alabama, the Nation and the World;  
RELEVANT UA CORE VALUES: *Service, Students*
2. A desire to promote creativity by providing a context for asking new research questions, and providing a pathway to obtaining new sources of data spanning a variety of engineering, business and social sciences disciplines;  
RELEVANT UA CORE VALUES: *Research, Students*
3. A commitment to supporting smarter government, making its services more efficient and more cost-effective;  
RELEVANT UA CORE VALUES: *Service*
4. A desire to provide a student-friendly environment where graduate and undergraduate students provide meaningful contributions to real-world projects, working with skilled and talented professional software developers while developing skills that are marketable after graduation;  
RELEVANT UA CORE VALUES: *Students*
5. A desire to provide a progressive work environment that is attractive to talented software developers, including the opportunity to innovate and utilize state-of-the-art tools and technologies;  
RELEVANT UA CORE VALUES: *Students, Research, Service*
6. A continual emphasis on the production of cutting-edge, commercializable technology.  
RELEVANT UA CORE VALUES: *Research*

## ORGANIZATIONAL GOALS

Based on the above mission, context and core values, CAPS has identified the following organizational goals:

**GOAL #1:** CAPS will be actively engaged in applied, interdisciplinary research serving as a research catalyst in a diversity of engineering, social science and business disciplines.

**GOAL #2:** CAPS will develop technologies that provide vital services to society, improving the lives of residents of our state and nation.

**GOAL #3:** CAPS will develop artifacts and technologies that serve as an engine for both foundational research and product commercialization.

**GOAL #4:** CAPS will provide mentorship opportunities to students that are comparable to those from private industry, with the added benefit of engaging these students with the foundational research issues that drive this development.

**GOAL #5:** CAPS will be self-sustaining, building and maintaining a permanent research staff.

## STRATEGIES

We have identified a number of strategies associated with each of the five goals identified above. Below we present those strategies along with rough benchmarks for measuring the success of each strategy, as well as organizational needs that must be met for each strategy to be successful. These strategies, benchmarks and needs will be defined in subsequent planning activity.

GOAL #1		
<i>CAPS will be actively engaged in applied, interdisciplinary research, serving as a research catalyst in a diversity of engineering, social science and business disciplines.</i>		
STRATEGY	BENCHMARK	NEEDS
1.A Increase existing UA faculty involvement with the center and define metrics to classify the level of faculty involvement	4 new UA CAPS core faculty members (i.e., faculty who identify CAPS as central to their research activities)	Adequate space to support growth
1.B Increase graduate student production related to center-supported research	1 Ph.D. and 2 M.S. student graduates per year per CAPS core faculty member	Adequate space to support growth, increased administrative infrastructure
1.C Increase scholarly output related to center-supported research	3 refereed journal papers and 5 conference papers per year per CAPS core faculty member	Adequate space to support growth, increased administrative infrastructure, highly qualified research-oriented technical staff
1.D Hire soft funded “research faculty” positions with CAPS	1 new soft funded CAPS research faculty member each year	Adequate space to support growth
1.E Work with UA administration to obtain support for “faculty cluster” hires in public safety and traffic safety informatics	4 new externally hired faculty members in C&BA, A&S and Engineering over the next three years	Adequate space to support growth, increased administrative infrastructure
1.F Appoint graduate student coordinator for CAPS to provide strategic direction for graduate student research activities	Graduate student coordinator position in place	Overhead or release-time support for a faculty member to do this
1.G Add a basic research component with every proposal	Basic research component with each project	Additional CAPS core faculty, highly qualified research-oriented technical staff.
1.H Provide technical expertise to existing research projects around the university		Highly qualified research-oriented technical staff

## GOAL #2

*CAPS will develop technologies that provide vital services to society, improving the lives of residents of our state and nation.*

STRATEGY	BENCHMARK	NEEDS
2.A Continue to support Alabama state and local government in the provision of cutting edge technology to increase government efficiency	Long-term stable relationships with 10 core Alabama agencies	Stable highly-qualified technical staff
2.B Market core application areas and technologies that have been successful in Alabama to other states	3 new state agency customers each year	Business development staff, stable highly-qualified technical staff, adequate space to support growth
2.C Market research and development experience to the federal government when possible	1 new federal agency per year	Business development staff, stable highly-qualified technical staff, adequate space to support growth
2.D Explore commercialization opportunities when possible, thereby adding routes through which CAPS-developed technologies can reach their intended audiences	2 new private company relationships each year	Business development staff, stable highly-qualified technical staff, adequate space to support growth

## GOAL #3

*CAPS will develop artifacts and technologies that serve as an engine for both foundational research and product commercialization.*

STRATEGY	BENCHMARK	NEEDS
3.A Add a basic research component to every proposal	Basic research component with each project	Additional CAPS core faculty members, highly qualified research-oriented technical staff
3.B Increase existing UA faculty involvement with the center and define metrics to classify the level of faculty involvement	4 new UA CAPS core faculty members (i.e., faculty who identify CAPS as central to their research activities)	Adequate space to support growth
3.C Give priority to proposal opportunities that build on CAPS strategic growth products and areas	At least 80% of all CAPS proposals are based on CAPS strategic growth products and areas ( <i>see 2.B</i> )	
3.D Seek relationships with product companies – particularly those in the public safety area – with the goal of facilitating the development of commercially viable technologies based on CAPS IP-based efforts	2 new private company relationships each year	Business development staff, stable highly-qualified technical staff, adequate space to support growth

## STRATEGIES (CONTINUED)

### GOAL #4

*CAPS will provide mentorship opportunities to students that are comparable to those from private industry, with the added benefit of engaging these students with the foundational research issues that drive this development.*

STRATEGY	BENCHMARK	NEEDS
4.A Aggressively recruit student employees at both the graduate and undergraduate levels, with approximately equal representation from each level	Grow the number of students at the graduate and undergraduate levels by 15% in each category each year	Increased HR and administrative support, adequate space to support growth
4.B Increase existing UA faculty involvement with the center and define metrics to classify the level of faculty involvement	4 new UA CAPS core faculty members (i.e., faculty who identify CAPS as central to their research activities)	Adequate space to support growth
4.C Maintain and enhance the CAPS Mentorship Program	Provide each CAPS student with a staff mentor within the first month of arrival	Increased administrative support, mentorship training for CAPS staff
4.D Recruit students across a wide variety of disciplines and from various UA Honors programs (CBH, Blackburn Institute, etc.), thus increasing quality and diversity of students	At least 20% of CAPS students should be from outside the CS program, and 20% of CAPS students should be from an Honors program	Increased administrative support, adequate space to support growth
4.E Maintain the recruiting pipeline from student employees into CAPS permanent positions, thereby enhancing the value of student internship positions, as well as continuing a flow of recent graduates who can effectively mentor students in their peer group	Hire 2 former CAPS students as professional staff members each year	Increased HR and administrative support
4.F Improve the graduate student culture across the organization by providing more opportunities to identify research problems and issues, as well as facilitate graduate student communication and team building	Implement one program each year that is designed to improve graduate student culture.	Additional CAPS-affiliated faculty

## STRATEGIES (CONTINUED)

GOAL #5			
<i>CAPS will be self-sustaining, building and maintaining a permanent research staff.</i>			
STRATEGY	BENCHMARK	NEEDS	
5.A	Increase annual research expenditures and staff size	Increase annual research expenditures to \$15M and staff size to 125	Increased HR and administrative support, adequate space to support growth, additional CAPS-affiliated faculty
5.B	Give priority to long-term, renewable sources of funding	Percentage of funding that is renewable or extendable is maintained to be at least 50% of CAPS total funding	
5.C	Develop a staffing plan that supports planning for both expansion and contraction in a rational, non-disruptive way		UA administrative support for a rational, collaboratively-developed staffing plan
5.D	Develop a formal financial model based on multi-year projections that supports hiring decisions		UA administrative support for a rational, collaboratively-developed staffing plan
5.E	Aggressively seek proposal opportunities and give priority to writing proposals when possible		Increased proposal development and business development support, additional CAPS-affiliated faculty
5.F	Develop a fair and consistent HR strategy that allows for competitive recruiting of a high quality technical staff	Allow for a hierarchy of HR positions (including management), research faculty, and senior research personnel	UA administrative support for a rational, collaboratively-developed staffing plan
5.G	Develop a long-term plan for space that continues to allow for growth consistent with Strategy 5.A, and resolve all short-term space problems		Adequate space to support growth
5.H	Establish new programs to increase the flexibility and attractiveness of the CAPS work environment	Implement one new successful program every six months	Support from overhead to fund CAPS employee incentive programs

## MOVING FORWARD

The previous section identifies benchmarks and requirements for CAPS to meet those benchmarks. We summarize those benchmarks (*UA Expectations from CAPS by 2015 or Sooner*) and requirements (*CAPS Needs As Soon As Possible*) below.

### UA EXPECTATIONS FROM CAPS BY 2015 OR SOONER

1. Double its research expenditures from \$7M to \$15M, with a substantial increase in basic research funding
2. Increase the size of the CAPS core faculty and substantially enhance the CAPS faculty footprint with soft funded hires
3. Increase CAPS Ph.D. student production proportional to the increase in faculty and basic research dollars
4. Increase CAPS refereed publication output proportional to the increase in faculty and basic research dollars

### CAPS NEEDS AS SOON AS POSSIBLE

NEED	UA ROLE	CAPS ROLE
Adequate space to support growth	Provide adequate space to comfortably support 125 people engaged in IT and research functions (from 5,000 to 15,000 square feet)	<ol style="list-style-type: none"> <li>1. Develop a short-term evolutionary space plan</li> <li>2. Develop a long-term space plan for ideal use of 15,000 square feet</li> </ol>
Stable, highly-qualified technical staff	Support a Human Resources job classification framework and salary structure that allows us to successfully compete for highly qualified Ph.D. and M.S. level research and technical staff at market rates, as well as to compete for experienced B.S.-level personnel capable of supporting critical IT enterprise projects on a state and national scale	<ol style="list-style-type: none"> <li>1. Develop a plan for the HR framework to be presented to UA</li> <li>2. Develop a target organization chart for a staff of 125</li> <li>3. Develop no-cost and low-cost incentives for CAPS employees</li> </ol>
Additional CAPS-affiliated faculty and students	Incentivization of faculty participation in CAPS, as well as additional faculty hires in CAPS-related areas	<ol style="list-style-type: none"> <li>1. Develop a plan for integrating larger numbers of faculty and students into the CAPS organization</li> <li>2. Develop and implement an outreach plan to recruit additional UA faculty and students that can be implemented without UA sanction or involvement</li> </ol>
Increased HR, administrative and business development staff support	Support the hiring of a research infrastructure staff including business development staff, research compliance staff (e.g., ensuring privacy/security of data), proposal writers and additional accounting/business management staff	<ol style="list-style-type: none"> <li>1. Develop a staffing plan that provides sufficient infrastructure for a \$15M, 125-person organization</li> <li>2. Develop a transition plan to allow scaling up to the point where a full staff is needed</li> </ol>