

Blueprint for Service Excellence

2012-2013

Office of the Vice President for Research

I. Executive Summary:

In the last five years, the Office of Research has seen much success. Research funding has increased by 27.8% from \$173.3 million to \$226.9 million in sponsored awards, and we have maintained our prestigious Carnegie I ranking. Based on 2010 data recently published by NSF, USC is the only SC institution to improve its position in the research rankings, moving up from #99 to #89 (while MUSC dropped from #87 to #91 and Clemson #100 to #108). USC has been awarded several large national grants (\$5-10 million), including a new COBRE. Several of our faculty have received national awards and recognition such as AAAS Fellows, the Governor's Awards for Excellence in Science, Guggenheim Fellows, and the Ralph E. Powe Award (ORAU), to name a few. In the last year, our office initiated a new internal funding mechanism called ASPIRE to promote interdisciplinary research. We received approximately 200 applications and made awards of almost \$2.5 million. Our Magellan program passed a new milestone: more than \$2 million in total grants awarded, which is helping train undergraduate students in research. We started a new incentive plan to recruit funded investigators by proposing to return all IDCs that a new hire would bring to USC following the transfer of grants. There is growing need to enhance research and scholarly activities at all levels. To this end, we are visiting all departments and regional campuses, giving talks at various colleges, and have initiated several new programs such as an undergraduate research journal, a seminar series by Carolina Distinguished Professors and SmartState™ Chairs, NSF funded REUs, and recommending junior faculty to serve on national grant review panels, to name a few. Construction of IdeaLabs has recently been completed. IdeaLabs contains ten state-of-the-art wet- and three dry-labs. Located on the first floor of Horizon I, the primary focus of the facility is to attract high-growth, technology-based companies to USC and the region, and to help create and grow companies spawned by USC researchers.

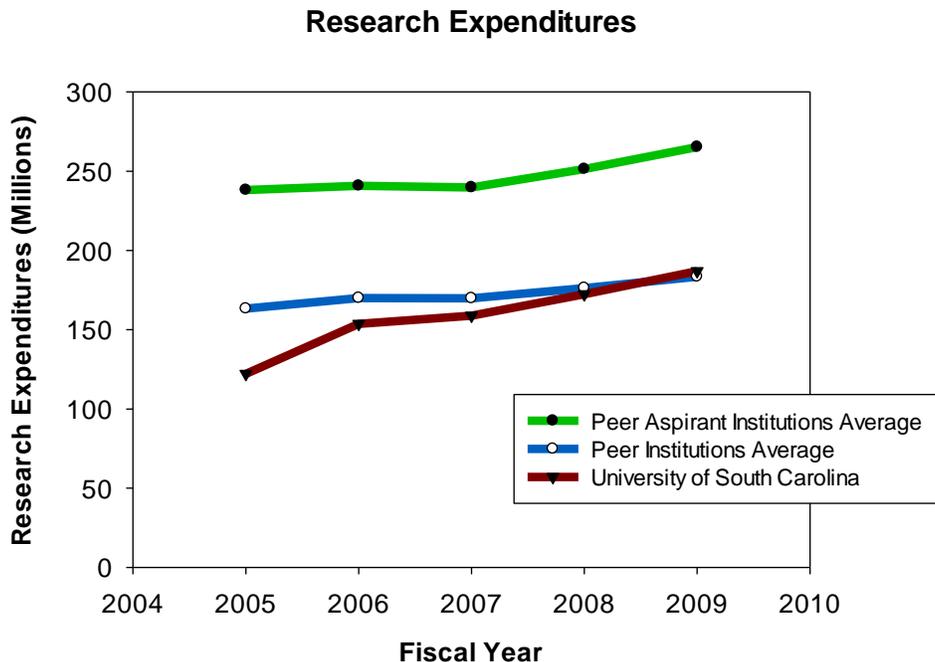
The office of Research has achieved the above-mentioned success despite limited resources and several key disadvantages. There is currently no strategic plan for research and no roadmap has been developed to increase extramural funding. To this end, an internal research advisory board (IRAB), composed of senior faculty from all the schools and colleges has been created and a research retreat held, with the goal of developing a plan that will include a specific roadmap and milestones to increase funding. USC currently has no major nationally competitive Program Projects and Centers of Excellence funded by either NIH or NSF. USC also lacks major graduate training grants. We have thus initiated ASPIRE-II to promote interdisciplinary center development and training grants. USC also has no significant funded global research. We will promote global research by developing interdisciplinary teams and applying for grants supported by USAID and other agencies. Such activities across USC need to be highly coordinated and involve extensive international travel and to this end, we plan to recruit an Assistant or Associate Vice President for Global Research.

To further enhance the research enterprise at USC, we must overcome several challenges. Deferred maintenance, infrastructure development, and unreasonable time lines for *facility projects* need to be addressed. Institutional Strategies and Policies for "the Cloud" are needed immediately to make us more competitive. A working group is being assembled to provide such solutions. We will implement short-term support for Federal Data Management Plans. Long-term policies need to be implemented in conjunction with senior USC management. Additional support for graduate research, particularly in the arts and humanities, regional faculty buy-out time, minority outreach, undergraduate research, and junior faculty mentoring are some of the critical areas that need additional resources to significantly grow the research enterprise at USC.

II. Dashboard:

To reach our goal of increasing our research funding to \$300M annually in five years, our office will provide ASPIRE-II and ASPIRE-III funds for pilot projects and to improve infrastructure involving interdisciplinary teams of three or more investigators. The goal is to seek funding for Program Projects and Centers of Excellence. We will identify niche opportunity areas and problems unique to our state and use interdisciplinary research to compete nationally for funding. In addition, the office will provide administrative support for preparation of large interdisciplinary grant proposals such as center grants and training grants so that faculty do not feel the burden of having to put together large proposals. Through research mentoring of junior faculty, we will increase the success rate of funding by junior faculty. We will encourage and support faculty to pursue global research through funding agencies such as USAID, World Bank, the Gates Foundation, and the like. Our Office has created a new Faculty Recruitment Incentive Program in which all IDCs from grants transferred by new hires will be returned back to the department to help recruit well-funded investigators.

We have developed a list of peer and peer-aspirant institutions. These were carefully chosen, first by looking at a number of factors that made them substantially similar to USC (public rather than private, and if they have medical, veterinary, or agricultural schools). Following this down selection, six peer institutions were selected that had similar research expenditures as USC. Five peer-aspirant institutions were chosen based on having research expenditures around \$250M. The figure below illustrates comparison between USC and other peer and peer-aspirant universities in research expenditures.



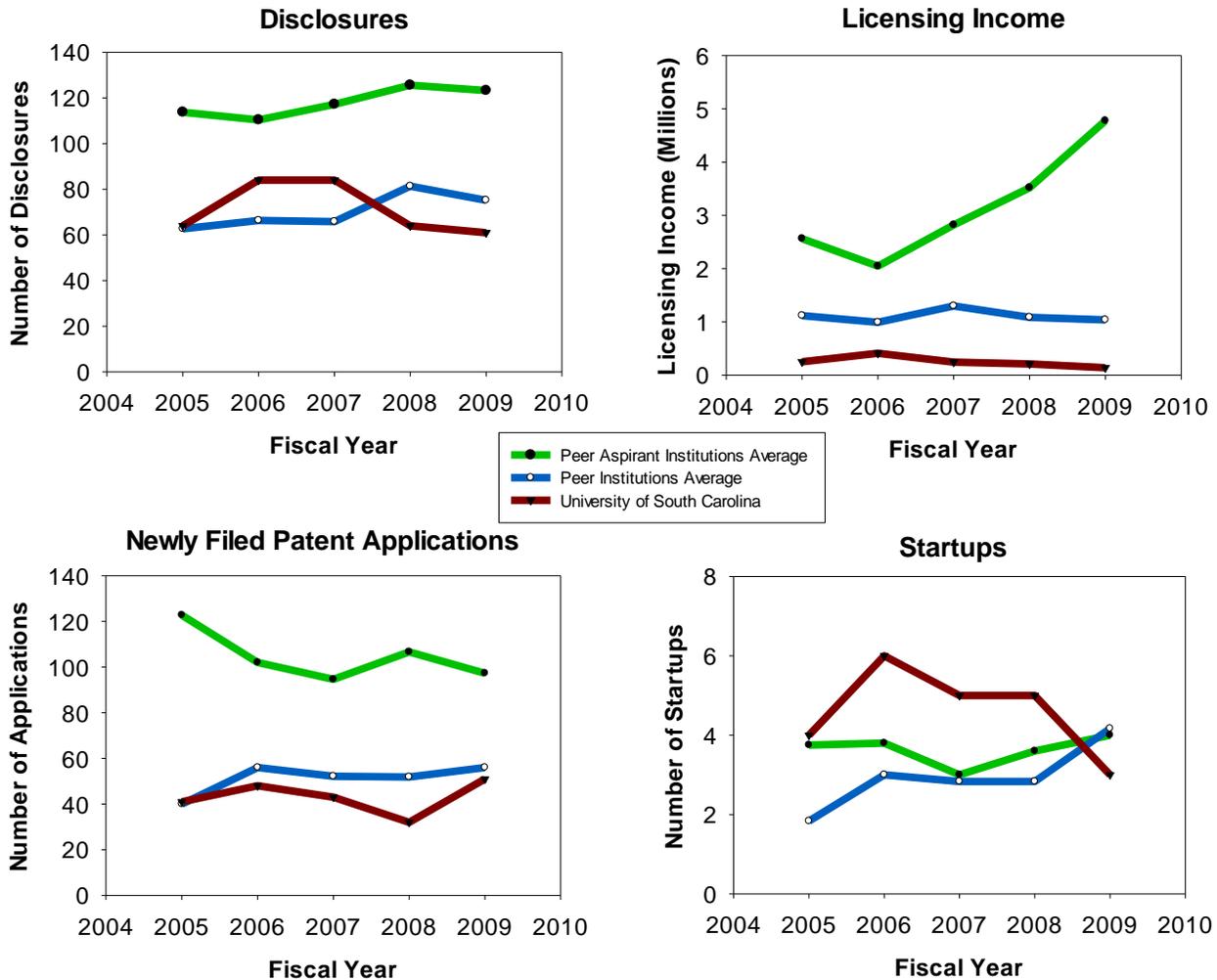
Peer Institutions:

- Florida State
- Oklahoma (all campuses)
- Oregon State
- Louisville
- New Mexico
- Virginia Commonwealth

Peer Aspirant Institutions:

- Connecticut
- Missouri (all campuses)
- South Florida
- Tennessee
- Virginia

The Association of University Technology Managers (AUTM) requires its members to keep track of many metrics, the most important of which include number of disclosures, number of newly filed patent applications, number of licenses, licensing income, number of U.S. patents issued, number of options, number of new start-up companies, and office FTEs. Plots of several of these are shown in this report. Potential areas of growth include number of licenses and licensing income, as USC has not met the productivity in these areas of its peer institutions. To address this gap, the Technology Commercialization Office has recently hired a Marketing Manager to perform early market valuations of faculty disclosures, evaluate the market for patented inventions, and to identify potential licensing partners. Additionally, a Technology Management and Contract Associate has been hired to work with both USC's Office of Industrial Contacts and Technology Commercialization Office to match current industrial sponsors with other licensing or sponsored research opportunities.



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Goals:

1. Promote interdisciplinary research and identify niche opportunity areas for growth.
 - Progress: In order to accomplish this goal, the Office of Research has assembled an Internal Research Advisory Board (IRAB) and held its first Research Retreat at which faculty and administrators worked toward developing strategies to accomplish these and other goals. The Office has also established the ASPIRE-II and III internal funding programs, is working to enhance collaborations with other institutions such as MUSC (through CTSA) and SRNL, and has established a research and grant development office to assist faculty with large-scale proposals. The VPR is giving talks on his vision to enhance research at USC to all colleges across USC and other regional campuses. He is also visiting all departments to get to understand the strengths, opportunities and unique needs to enhance research.
 - Plans for Upcoming Year: The data gathered from the retreat will be analyzed and a final strategic plan document prepared. We will complete the visits to all departments by the end of Fall semester.
2. Develop and promote undergraduate and graduate research programs.
 - Progress: We are currently developing an online undergraduate research journal and an undergraduate research seminar series. The Magellan Scholars program continues to grow, reaching the \$2M milestone this year and also reaching 100% system campus participation. The Office of Research has initiated collaborations with Morris and Benedict Colleges to train minority students in research. We are promoting submission of NIH and NSF training grants for graduate students.
 - Plans for Upcoming Year: In the upcoming year, the Office of Research hopes to complete the launching of the journal and seminar series. It hopes to initiate a program similar to the Magellan for graduate students. We plan to facilitate submission of graduate training grants. The Office also hopes to encourage faculty to compete for NSF REU grants by offering administrative support for such grants through our office.
3. Promote diversity in research and develop an effective mentoring plan for junior and research faculty and students.
 - Progress: The Office of Research has already initiated collaboration for student research with Morris College and Benedict College, and has also recently taken ownership of the administration of the SC Alliance for Minority Participation program in collaboration with SC State. A research mentoring institute is being developed to help pair minority students with research mentors, and to also pair graduate students, junior faculty and post-docs with senior faculty mentors that can assist with grant reviews and the like. Several junior faculty have been included on NIH review panels as ad-hoc members in order to gain valuable experience on the grant review process.

- Plans for Upcoming Year: Develop a department- and university-wide mentoring plan. Facilitate grant development by junior faculty. Establish an office for post-doctoral fellows.
4. Promote faculty entrepreneurship.
- Progress: The Technology Commercialization Office is currently being expanded, having undergone a dramatic reduction in staff over the last several years. A new marketing manager is working with our senior licensing associate to reach out to faculty by giving presentations to departments on campus in cooperation with SC Launch that will encourage faculty to disclose their inventions and work toward SBIR/STTR awards that will enable them to commercialize their innovations.
 - Plans for Upcoming Year: Complete visiting several departments and colleges
5. Promote global research initiatives that blend with our current strengths.
- Progress: The Office of Research, in collaboration with the Office of the Provost, has developed a database of international research activity of faculty across the system. We are in the process of adding a list of international MOUs to this website. The university is also submitting major competitive proposals such as to USAID for large-scale global research.
 - Plans for Upcoming Year: The Office of Research hopes to hire an Assistant/Associate Vice President for Global Research who will focus on seeking and applying for grants, establishing research collaborations, etc., with international universities that will enable the university to grow its influence in the global arena.

Resource Information

I. Financial Resources

The Office of Research recently submitted several budget requests intended to advance the goals and initiatives outlined in this document. To accomplish our goals of increasing interdisciplinary research and identifying niche opportunities for growth, the office requested additional funds for the ASPIRE funding program so that we might award additional large interdisciplinary grants next year. In order to significantly increase research awards at USC it is necessary to provide support to faculty applying for large scale center grants or training grants. Such grants require a high level of coordination and administrative tasks to put forward a strong application. To that end, the Office of Research has established a Research & Grant Development office for this precise function, and has requested the hire of one additional person. We also identified two areas of potential growth, materials science and stroke, which we feel should be supported through the establishment of centers or institutes.

To enhance undergraduate and graduate research programs, the Office has requested support for the development of online undergraduate journal, seminar series by Distinguished Professors, and for personnel that would allow our office to provide administrative support to faculty who are awarded NSF REU grants. The Office would also like to begin a competitive funding program, similar to Magellan Scholars, for graduate students, and has requested financial support for such a program. This would provide graduate students the opportunity to apply for competitive funding for research supplies, travel to archives, and the like.

Increasing diversity and supporting underrepresented minorities in research is among the Office's priorities. Having established connections with Morris College and Benedict College, the office hopes to increase participation in these programs by offering incentives (such as summer salary support) to faculty mentors. The office has thus requested financial support to expand these programs at the university. Support for undergraduate research personnel will also enhance minority programs by allowing for the expansion and enhancement of the South Carolina Alliance for Minority Participation (SCAMP) program. To enhance mentoring at USC, the Office has requested funds to support the founding of an Office for Post-doctoral Fellows, as no such office presently exists to provide guidance, leadership and support to post-docs at the university. Most funding agencies are expecting universities to have such offices and many universities currently have established these.

Advancing USC's global presence is another important initiative of the Office of Research. To that end, our budget initiatives included a request for funds to support the hiring of an associate or assistant vice president who would be responsible for seeking grants from the WHO, the Gates Foundation and similar organizations that would allow USC to advance its agenda in the area of global research. We have also requested funds to support travel abroad to establish important connections and to host delegates from international institutions.

Additional budget requests were submitted that speak to more specific goals than those outlined in this blueprint. In the area of infrastructure, it has become apparent that there is a need for critical updates in the animal research facilities which is critical for AAALAC accreditation as well as in research computing (as mentioned in the executive summary). These updates are absolutely critical for faculty in various disciplines to continue their research. The Office has also requested funding that would allow us to provide buy-out time

for regional campus faculty with heavy teaching loads so that they can dedicate more time for research.

In order to enhance faculty entrepreneurship at USC, the Office of Research has already begun expanding the Technology Commercialization Office to include a Marketing Manager and a Technology and Contract Associate, and will soon hire a Senior Licensing Associate. The office has also requested funds for the development and dissemination of marketing materials, the development of web-related materials and the creation of visual conference materials to market USC's research, promote our faculty, and promote and market university technologies. Additionally, the Director of the Technology Commercialization Office has initiated discussions with the InnoVista Partnerships and the Faber Center for Entrepreneurship Directors to identify means of funding joint space in Horizon II for ICED-T (the InnoVista Center for Entrepreneurial Development of Technology), which will house the Technology Commercialization staff, staff of Innovista Partnerships, Entrepreneurs-in-Residence, conference rooms, etc., in order to promote and consolidate efforts at USC for these activities.

Detailed information on each of our individual budget requests can be found in the attached budget initiatives spreadsheet.

II. Space Needs

At present our administrative team is housed in the Osborne building in suite 202, and is currently sharing the space with the Legislative Affairs staff. This arrangement has always been considered temporary, and we have accommodated the legislative affairs staff by shifting our own staff and by purchasing additional furniture in an effort to fully utilize the space that has been available to us. Since the beginning of Dr. Nagarkatti's tenure as Vice President, the office has begun several new programs and initiatives, necessitating an expansion in staff. The office will likely expand further as we continue to initiate new programs aimed at increasing research activity at USC while supporting the presidential initiatives and Focus Carolina. Thus, it is imperative that full available space in our suite be available to accommodate this growth.

The Technology Commercialization Office has expanded its staff by two people, with plans to hire a third. Additionally, SAM has hired a new IRB director and is planning on hiring a new grants administrator. As office space is limited on the 5th floor of Byrnes, we need to construct new offices out of larger spaces, and request the funds to accomplish this, and purchase additional furniture if required.