

**Testimony for the Record Submitted to the  
United States Senate Committee on Appropriations  
For Hearing on “Driving Innovation through Federal Investments”  
April 29, 2014**

**University of South Florida**

Chairwoman Mikulski, Vice Chairman Shelby, on behalf of the University of South Florida, thank you for holding today’s hearing on Driving Innovation through Federal Investments. By way of background, the University of South Florida (USF) is a high-impact, global research university dedicated to student success. Established in 1956 as a public university, the USF System is an evolving multi-campus system of higher education with fiscally autonomous, yet complementary, independently accredited institutions located in Tampa (including USF Health), St. Petersburg and Sarasota-Manatee. USF is home to medical clinics and hospitals, a major mental health research institute, and two public broadcasting stations. The USF System has an annual budget of \$1.5 billion, an annual economic impact of \$4.4 billion, and serves nearly 48,000 students. The university is one of the top employers in the Tampa Bay region, with more than 16,000 employees, including more than 1,700 full-time instructional faculty and over 6,900 full-time staff. USF is a Top 50 research university among both public and private institutions nationwide in total research expenditures, according to the National Science Foundation.

The university is dedicated to the discovery of new knowledge, insights, and forms of expression through significant innovative research and other creative activity and to the preservation, organization, analysis and synthesis of existing knowledge. USF is one of only four Florida public universities classified by the Carnegie Foundation for the Advancement of Teaching in the top tier of research activities, a distinction attained by only 2.3 percent of all universities. As a leading publicly supported university, USF accomplishes its research mission by building on existing program strengths, fostering effective, cross-disciplinary approaches, and contributing to the resolution of social, cultural, economic, medical and technological challenges facing the metropolitan population of our community, state, nation and the world.

USF faculty, students and staff are proactive in the search for new knowledge and consistently demonstrate their concern for the world in which we live. With the support of private and public agencies, they contribute to our knowledge about the world and apply their findings and skills to solving many of the problems facing contemporary society. Many contributions evolve from basic research; others, from practical applications of new knowledge. Other projects make specialized training available to public officials, organizations working for social betterment, religious and educational institutions and business and manufacturing organizations. Through sponsored and non-sponsored activities, USF faculty, students and staff make significant contributions to educational programs.

The dedication of USF researchers, students and staff has contributed to the phenomenal growth in research that USF experienced over the past 25 years. In FY1986, the university received only \$22.3 million in external funding for research projects. By the end of FY1995, research awards had reached over \$100 million. In FY2013, USF generated over \$413 million in sponsored research. According to the Chronicle of Higher Education, the 213% increase in federal funds for

academic research and development achieved by USF researchers from 2002-2007 was unmatched, and represented by far the highest percentage increase in the country. No other American university grew its federal research at a faster rate than USF and no other group of faculty had a faster rate of earning new federal sponsorship for the discovery and creation of knowledge.

In addition to USF's designation as one of the nation's top public research universities, it is one of only 40 public research universities nationwide with very high research activity that is designated as community engaged by the Carnegie Foundation for the Advancement of Teaching. USF has numerous research and health-care partnerships through affiliation agreements with hospitals and not-for-profit organizations in the metropolitan Tampa Bay area. As the only National Cancer Institute Comprehensive Cancer Center based in Florida, the H. Lee Moffitt Cancer Center & Research Institute, located at USF Tampa, is part of an elite group of cancer centers nationwide that focus on the quick translation of research advances to improvements in patient care and has developed a strong national reputation for excellence. The James A. Haley Veterans Hospital, located within walking distance of USF Health's Morsani College of Medicine, provides research and training experiences for faculty, staff, and students. USF Health is also closely affiliated with Tampa General Hospital and the Lakeland Regional Medical Center, which provides training for residents and medical students. The USF Health Byrd Alzheimer's Institute, Shriners' Children's Hospital (on the Tampa Campus), and Florida Hospital (also within walking distance), as well as All Children's Hospital, Bayfront Medical Center, and the C.W. Bill Young VA Medical Center (all located in St. Petersburg), provide additional research and training grounds for USF faculty and students.

Affiliate partnerships, such as those established with Mote Marine Laboratory and the Charles Stark Draper Laboratory, have expanded the research and development capacities, student educational opportunities, and economic development impact of USF. Affiliation agreements with organizations provide for collaboration through shared facilities, faculty and equipment, as well as support for graduate students and internship programs. These types of agreements enable the institutions to pool such resources as laboratory space and enable compliance committees to stimulate an exchange of ideas.

Throughout the university's development, the faculty at USF have identified and satisfied needs on a local, national and global scale. A variety of activities in such areas as health care, neuroscience, transportation, biodefense, education, and engineering are conducted by specialized research and development centers and institutes. The university currently has approximately 100 such centers and institutes, many of which function in an interdisciplinary fashion, enabling coordination of projects across colleges. From developing sources of clean energy, to enhancing the quality of life for people with disabilities and leading the way on veterans' research and reintegration, USF's research enterprise is focused on creating local, national and global solutions to society's most difficult problems.

Our nation's innovation engine is often ignited by government investment in basic research. The best and brightest entrepreneurs frequently emerge from our higher-education institutions. Without collaborative federal grants, such innovations as a thin-filmed liquid bandage (KeriCure) or an omni-directional, smartphone-controlled "dancing" wheelchair that returns

hope and mobility to those with severe injuries and debilitating diseases might never have been created. Without continued federal support for basic research, our faculty see their opportunities for discovery diminished. Sequestration provided a preview of what a future with limited federal investment might hold, as our researchers encountered higher barriers to receiving funding, with a subsequent lowering of morale as resources already stretched thin were called upon to submit more and more grant applications for fewer and fewer dollars.

Research, innovation and support are all instrumental to our nation's growth and prosperity. Institutions like USF are the nation's conduit to starting and sustaining this innovation pipeline. Without this scaffolding and the access to technology and to some of the world's greatest minds, our nation's competitive edge would be lost. Although the pipeline from idea to implementation is long, the investment made by the nation ultimately impacts the good for many. USF is proud of the research conducted with federal funds and will continue to seek out opportunities to reinvest by translating basic research for public benefit.

Since 1992, USF has seen continual returns on the investments that have been made by the federal government through more than 200 research contracts and grants. Below are a few examples of the university's federally funded research that has resulted in licensed technologies:

- Early detection of pathogens in blood sponsored by the Department of Defense (College of Public Health, Dr. Matt Ewert)
- Tribalism index supported by the Department of Defense (College of Arts and Sciences, Dr. David Jacobson)
- Android application to control a wheelchair-mounted robotic arm sponsored by the National Science Foundation (College of Engineering, Dr. Redwan Asqasemi)
- Microbial fuel cell supported by the U.S. Army Space Missile Defense Command (College of Marine Science, Dr. Andres M. Cardenas-Valencia)
- Detection method for prostate and bladder cancer sponsored by the Department of Defense (College of Medicine, Dr. Patricia Kruk)

USF CONNECT, the business arm of USF, is at the epicenter of Tampa Bay's innovation ecosystem and facilitates a network of innovation-based companies, research, business development tools and government resources. The university provides the foundation to unite technology and talent with business throughout a 23-county region, providing access to top-tier research, faculty, students, inventors, local organizations, economic development councils, supporting industry and capital funding sources. It focuses on the needs of technology and bio/life sciences entrepreneurs throughout the business life cycle, providing facilities, partners and resources for business development and access to technologies, workforce programs, technology commercialization, critical research equipment and incubator facilities.

The USF Research Park, located at USF Tampa and recognized as the Emerging Research Park of the Year in 2008 by the Association of University Research Parks, is home to USF CONNECT. USF CONNECT serves as host to several innovative centers for entrepreneurship: USF's Tampa Bay Technology Incubator (TBTI) with 48 resident and affiliate companies, the USF Student Innovation Incubator with 15 student-led companies, and the First WaVE Accelerator in downtown Tampa.

TBTI acts as a mechanism to help move research into successful business practices. Among TBTI's startup companies, 60% are USF spinouts and 40% are community-based. Community-based companies come into the incubator with a commitment to work with USF by collaborating on research with faculty, by hiring student interns or working with the university in other ways. TBTI's companies currently have 193 full-time-equivalent employees earning average salaries of approximately \$56,000. Since their inception, the current TBTI companies have received \$107.8 million in funding from "angel" and other investors, venture capitalists and sponsored awards. In just the last 12 months, the current TBTI companies have had \$11.6 million in annual sales revenues.

The Student Innovation Incubator was launched in November 2013, with the goal of nurturing nascent businesses even earlier in the process than companies that have progressed enough to be eligible to enter TBTI. Over 40 student-led companies applied for 15 available spaces. The incubator provides shared workspace and a collaborative business environment for USF students from all graduate and undergraduate disciplines to create and grow new businesses, with access to mentors and business guidance to facilitate entrepreneurship.

Launched in March 2013 as the result of a \$1 million i6 Challenge grant from the Department of Commerce to the university and its partners, the First WaVE Accelerator, with over 16,000 square feet of incubator space in downtown Tampa, has worked with 39 tech startup companies, 27 of which are still in residence. In just over a year, the companies have created and retained more than 168 jobs and raised over \$4.8 million in outside capital.

USF is ranked in the top 15 universities worldwide for issued U.S. patents for the past three years by the Intellectual Property Owners Association. This focus on academic invention led to the founding of the National Academy of Inventors, a non-profit member organization housed at USF and comprised of U.S. and international universities and governmental and non-profit research institutions, with over 3,000 individual inventor members and Fellows spanning more than 200 institutions. It was created in 2010 to recognize and encourage inventors with patents issued from the United States Patent and Trademark Office, enhance the visibility of academic technology and innovation, encourage the disclosure of intellectual property, educate and mentor innovative students, and translate the inventions of its members to benefit society.

Sustained federal investment in research is critical to the future well being of our nation. Not only will it enable the creation of new knowledge and fortify the economic engine of communities surrounding academic institutions, but, more importantly, sustained federal investment in research serves as the support scaffolding for a national infrastructure that will lead to innovative new businesses, products, treatments, and cures that benefit all of our citizens and society as a whole. Thank you for holding this hearing, and for the opportunity to submit testimony.

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