

THE POWER OF PLACE **2.0** THE POWER OF INNOVATION



**10 STEPS
FOR CREATING JOBS,
IMPROVING TECHNOLOGY
COMMERCIALIZATION, AND
BUILDING COMMUNITIES
OF INNOVATION**



**ASSOCIATION OF
UNIVERSITY
RESEARCH
PARKS**

Creating Communities of Innovation



ASSOCIATION OF UNIVERSITY RESEARCH PARK SUSTAINING MEMBERS

Arizona State University Research Park, Tempe, Arizona
Booz Allen Hamilton, McLean, Virginia
Central Florida Research Park, Orlando, Florida
Clemson University – International Center for Automotive Research, Greenville, South Carolina
Coldstream Research Campus, University of Kentucky, Lexington, Kentucky
Cummings Research Park, Huntsville, Alabama
DilksConsulting, Inc., Philadelphia, Pennsylvania
Gateway Development Services, Inc., Atlanta, Georgia
Innovista at University of South Carolina, Columbia, South Carolina
InterTech Science Park/Biomedical Research Foundation of NW Louisiana, Shreveport, Louisiana
KAUST Research Park, Jeddah, Saudi Arabia
KlingStubbins, Philadelphia, Pennsylvania
Miami Valley Research Park, Dayton, Ohio
Nucleus: Kentucky's Life Sciences and Innovation Center, Louisville, Kentucky
Piedmont Triad Research Park, Winston-Salem, North Carolina
Purdue Research Park, West Lafayette, Indiana
Research Triangle Foundation of North Carolina, Research Triangle Park, North Carolina
Sandia Science and Technology Park, Albuquerque, New Mexico
Sasaki Associates, Inc., Watertown, Massachusetts
The Science Center, Philadelphia, Pennsylvania
The University Financing Foundation, Inc., Atlanta, Georgia
University of Arizona Science and Tech Park, Tucson, Arizona
The University of Maryland M Square Research Park, College Park, Maryland
University of Maryland BioPark, Baltimore, Maryland
The University of Mississippi Research Park, University, Mississippi
University of Missouri System-Missouri Research Park, Columbia, Missouri
University of Nebraska Technology Park, LLC, Lincoln, Nebraska
University of New Orleans Research and Technology Park, New Orleans, Louisiana
University of North Texas Discovery Park, Denton, Texas
University of Wisconsin-Madison, Madison, Wisconsin
Wexford Science + Technology LLC, Hanover, Maryland
The Whiting-Turner Contracting Company, New Haven, Connecticut

SPECIAL RECOGNITION AND THANKS TO OUR POWER OF PLACE SPONSORING ORGANIZATIONS

Arizona State University Research Park, Incorporated, Tempe, Arizona
BayBio, South San Francisco, California
Bio-Research & Development Growth Park at the Danforth Plant Science Center, Saint Louis, Missouri
Center for Emerging Technologies, Saint Louis, Missouri
The Chesapeake Crescent Initiative: Virginia, Maryland and the District of Columbia
Delaware Technology Park, Incorporated, Newark, Delaware
Maryland Technology Development Corporation, Columbia, Maryland
The Mississippi e-Center at Jackson State University, Jackson, Mississippi
North Dakota State University Research & Technology Park, Fargo, North Dakota
Ohio Agricultural Research & Development Center, The Ohio State University, Wooster, Ohio
Piedmont Triad Research Park, Winston Salem, North Carolina
Purdue Research Park, West Lafayette, Indiana
The Research Park at the University of Illinois at Urbana - Champaign, Champaign Illinois
Research Parks Maryland, State of Maryland
The Research Triangle Park, Research Triangle Park, North Carolina
Sandia Science & Technology Park/Science and Technology Park Development Corporation, Albuquerque, New Mexico
Texas Research & Technology Foundation, San Antonio, Texas
University City Science Center, Philadelphia, Pennsylvania
The University of Arizona Science & Technology Park, Tucson, Arizona
The University Financing Foundation, Atlanta, Georgia
University of New Orleans Research & Technology Park, New Orleans, Louisiana
University Research Park, University of Wisconsin-Madison, Madison, Wisconsin
UT-Baptist Research Park, Memphis Bioworks Foundation, Memphis, Tennessee
West Virginia University, Morgantown, West Virginia

THE POWER OF PLACE 2.0: THE POWER OF INNOVATION

10 STEPS FOR CREATING JOBS, IMPROVING TECHNOLOGY COMMERCIALIZATION, AND BUILDING COMMUNITIES OF INNOVATION

*Brian Darmody, President
Association of University Research Parks
Associate Vice President for Research and
Economic Development, University of Maryland*

The United States is home to the world's first research park, launched in 1951 at Stanford University. In the sixty years since, another 170 university-related research parks have sprung up across the country, promoting innovation, incubating technology, and stimulating economic growth. Today, however, the United States has lost its lead. China, India, and Korea are home to the world's largest research parks, developed by their national governments, attracting global research and development companies from afar to their shores.

In 1981, Congress passed the Bayh-Dole Act, giving universities the lead role in transferring technology into the private sector from federally supported research. Such research contributes anywhere from \$47 billion to \$187 billion annually to our nation's gross domestic product (GDP). Other countries have copied the U.S. university commercialization model, with the result, for example, that universities in the United Kingdom now have a better record than U.S. universities in technology commercialization.

Financial entrepreneurs in the United States created the venture capital investment system, launching new technology companies such as Google, Genentech, and Microsoft. Dan Senor and Saul Singer's best-selling study *Start-Up Nation* tells the story of the country with the world's highest density of new technology companies. That country isn't the United States—it's Israel.

The United States was one of the first countries to offer a corporate research and development tax credit, and its government led the world in its generosity to funding knowledge and innovation. Now the U.S. tax credit ranks seventeenth among leading developed countries.

In nearly every critical area of technology-led economic development, the United States was the originator or the leader. Now we lag far behind the competition. On this matter, Department of Commerce Secretary Gary Locke commented to the President's Council on Science and Technology (PCAST). "America has a broken innovation ecosystem that does not efficiently create the right incentives or allocate enough resources to generate new ideas, develop those ideas with focused research, and turn them into businesses that can create good jobs. . . . America simply does not have an efficient system to take new ideas from government, academic, and private-sector research labs and translate them into commercially viable products and businesses."

Adds Krisztina Holly, executive director of the University of Southern California's Stevens Institute for Innovation, "Currently, the federal government is investing nearly \$50 billion a year on university research—yet barely a dime on university programs to help translate the most promising ideas into new businesses and employment opportunities. That's like turning up the water pressure but never opening up the faucet."

America has a broken innovation ecosystem that does not efficiently create the right incentives or allocate enough resources to generate new ideas, develop those ideas with focused research, and turn them into businesses that can create good jobs. . . . America simply does not have an efficient system to take new ideas from government, academic, and private-sector research labs and translate them into commercially viable products and businesses.

*— Gary Locke, Secretary,
Department of Commerce*





Clearly the United States is still the world's largest economy. The United States has the largest number of innovators and entrepreneurs, and the world's best higher-education and research system. With the "rise of the rest," as it has been called, the United States needs to meet the global technology competition and recapture its former vigor in taking the lead in innovation. Yet, with looming federal deficits, our government does not have unlimited resources to spend.

The federal government, through interagency programs and policies, needs to increase the alignment among our research universities, university research parks, technology incubators, sponsored program offices, corporate relations offices, and technology-transfer officials to meet better our nation's global technology competition.

HOW DO WE MAKE PROGRESS IN THIS CHALLENGING ENVIRONMENT?

In the *Power of Place*, the Association of University Research Parks demonstrates how geography and connected communities play a large role in innovation. In it, we called on Congress to view research universities, research parks, technology incubators, and federal lab campuses as innovation zones.

In the *Power of Innovation*, we offer ten steps—from policy changes to selected investments—that the federal government can take quickly to leverage existing federal assets and, without developing new bureaucracies, to create jobs, technology companies, and Communities of Innovation.

These steps, in brief, are:

1. Support research park infrastructure and the development of Communities of Innovation

The U.S. Senate (S. 583) and House of Representatives (H.R. 4413) are considering legislation that would provide planning grants and loan guarantees to build research parks and technology incubators, aligned with the President's regional cluster strategy. National Institute of Science and Technology (NIST) senior economist Dr. Greg Tassej has identified research parks as a key element in the U.S. manufacturing strategy. The primary sponsor of S. 583, Senator Mark Pryor (D-Ark.), remarks, "Science parks provide a launch pad for economic activity in a community. They have a strong record of fostering talent, high tech innovation and job growth. Providing seed funding to create or expand these parks is a necessary investment for our economy as well as our global competitiveness."

2. Improve university technology transfer by reforming the Office of Management and Budget federal grant and contract funding model to encourage commercialization efforts by principal investigators and support "cash for commercialization"

Federal grant and contract policies provide no funding or administrative flexibility by principal investigators for technology commercialization or initial proof of concept funding to bridge the first "valley of death" in making technologies attractive for follow-on investment. We urge the reform of OMB A-21 restrictions on the use of federal contract and grant funds by

- giving principal investigators more authority to direct charge initial commercialization efforts on research-and-development contracts and grants;
- increasing by 1 percent overhead negotiated rates with federal agencies for cost reimbursement for patent expenses and for seeding commercialization funds at universities for technologies they elect to take title to under the Bayh-Dole Act; and

Currently, the federal government is investing nearly \$50 billion a year on university research—yet barely a dime on university programs to help translate the most promising ideas into new businesses and employment opportunities. That's like turning up the water pressure but never opening up the faucet.

—Krisztina Holly, Executive Director,
Stevens Institute for Innovation,
University of Southern California

- removing costs of university technology-transfer offices from the overall 26 percent federal administrative cap.

3. Support proof-of-concept funding

The National Science Foundation FY 2011 budget, based on concepts developed by Krisztina Holly, has a pilot program to develop proof-of-concept funding to support follow-on efforts to commercialize university-owned technology. We urge that this program be fully supported.

4. Improve technology commercialization from federal laboratories by creating a congressionally chartered technology intermediary organization

To improve the rate of technology commercialization coming out of \$25 billion in internal research and development spent at federal laboratories, we recommend the creation of a congressionally chartered commercialization intermediary organization, based on best practices of technology commercialization intermediary models found at research universities, state agencies, and individual federal laboratories. This can be done through expanding the funding, authority, venture staffing, and venture acceleration capacity of the Federal Lab Consortium established in 15 USC sec. 3710. According to Wendy Schacht of the Congressional Research Service, the FLC is currently funded by set-aside of only 0.008 percent of each agency's R&D budget used for labs. Its mission, funding, and staffing could be expanded to increase the administrative flexibility and tools available to federal laboratory technology-transfer offices to align their decisions more closely with those of the private sector. The taxpayers are already investing heavily in federal research in federal laboratories. We need to make sure that those laboratories have the financial, legal, administrative and staffing tools such as embedded professionals from the venture community, to transfer technology to the private sector and create jobs.

5. Connect federal researchers with private companies

The Obama Administration has called on federal researchers to be more involved with private sector companies (see, for example, the August 4, 2009, OMB/OSTP directive to heads of Executive Agencies). No comprehensive agency-wide program

exists, however, to allow federal research assignments with private-sector companies in a transparent way. We recommend that a Presidential Executive Order on federal lab technology commercialization and private sector partnerships (see, for example, EO 12591) be issued, based on the NASA Innovation Ambassadors Program to allow federal research talent to support private companies.¹ We further recommend that the Department of Energy's Entrepreneur in Residence Program be expanded to all federal agencies.

6. Create more private sector involvement near federal lab and regional research clusters

We recommend the expansion of Enhanced Use Lease (EUL) authority, which allows leasing of federal land and equipment, to all federal agencies, not just Department of Defense agencies (see 10 USC 2667). We recommend as well that an Executive Order be issued to encourage federal leasing of research assets near existing innovation assets, such as universities, research parks, and technology incubators to create innovation clusters.

7. Expand the corporate R&D tax credit

Information Technology and Innovation Foundation (ITIF) President Robert D. Atkinson has demonstrated that expanding the Alternative Simplified Tax Credit (ASC) for research and development from 14 to 20 percent would not only spur job creation at a time when this is desperately needed but would also boost the country's long-term innovation capacity. In particular, his report models how expanding the ASC from 14 to 20 percent would create a number of critical economic benefits, including:

- 162,000 jobs in the near term
- A \$90 billion increase in GDP as the nation struggles through economic recovery
- 3,850 new American patents as nations compete for dominance in tomorrow's technologies
- \$17 billion in new tax revenues as Congress and Administration face daunting budget deficits

“The federal government, through interagency programs and policies, needs to increase the alignment among our research universities, university research parks, technology incubators, sponsored program offices, corporate relations offices, and technology-transfer officials to meet better our nation's global technology competition.”

– Brian Darmody,
AURP President

¹ See www.nasa.gov/office/innovation_incubator.

8. Reform export controls

In his recent State of the Union Address, President Obama called for reform in the federal government's export-control system. Reforming export controls and removing troublesome clauses from research projects not affecting the fundamental security of our country will encourage more partnerships between academia and industry. Uncertainty and the too strict application of the current export-control system have proved barriers in developing research relationships.

9. Keep corporate R&D in the United States by eliminating the link to university intellectual-property licensing in “private use” restrictions in university facilities

Congress should remove federal IRS tests related to intellectual-property licensing by universities to corporate research in facilities funded by tax-exempt bonds (IRS Revenue Procedure 97-14). Negotiations between corporations and universities on intellectual-property licensing should be a business decision, and not one linked to the tax status of the facility; otherwise, corporations will continue to ship R&D to countries whose governments, in many cases, provide financial support for the facilities where the corporate R&D is conducted and do not intervene in the negotiations on intellectual-property licensing.

10. Encourage entrepreneurship as a national goal, and include entrepreneurship in STEM initiatives

Job creation in the United States will largely depend on start-up companies and individual entrepreneurs. We need to embed the concept of entrepreneurship in all of our STEM (Science, Technology, Engineering, and Math) activities and policies. The new paradigm should be ESTEEM (Encouraging Science, Technology, Engineering, Entrepreneurship, and Math).

REFERENCES

- “The Economic Impact of Licensed Commercialized Inventions Originating in University Research.” (1996-2007). Final Report to the Biotechnology Industry Organization. (2009). 17 Feb. 2010.
http://www.bio.org/ip/techtransfer/BIO_final_report_9_3_09_rev_2.pdf.
- Tassej, Gregory. “Rationales and Mechanisms for Revitalizing U.S. Manufacturing R&D Strategies.” Dec. 2009. National Institute of Standards and Technology. 17 Feb. 2010.
http://www.nist.gov/director/planning/manufacturing_strategy_paper.pdf
- Holly, Krisztina, “IMPACT: A Proposal for Realizing the Economic Potential of University Research.” August 2009. Social Science Research Network. 17 Feb. 2010.
<http://ssrn.com/abstract=1480449>
- Secretary of Commerce Gary Locke. “Remarks to the President’s Council of Advisors on Science and Technology.” Washington, D.C. Jan. 7, 2010. <http://www.scribd.com/doc/25305935/Commerce-Secretary-Locke-s-speech-on-technology-transfer>.
- Schacht, Wendy H. “Technology Transfer: Use of Federally Funded Research and Development.” Nov. 2009. Congressional Research Service. 17 Feb. 2010.
fpc.state.gov/documents/organization/133881.pdf.





**ASSOCIATION OF
UNIVERSITY
RESEARCH
PARKS**

Creating Communities of Innovation

Headquarters

6262 N. Swan Rd., Ste. 100

Tucson, AZ 85718

P 520.529.2521 F 520.529.2499

www.aurp.net