BAY AREA SCIENCE AND INNOVATION CONSORTIUM

BAY AREA SCIENCE AND INNOVATION CONSORTIUM
is a program of the Bay Area Economic Forum, co-sponsored by the Bay Area Council and the Association of Bay Area Governments.

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August 25, 2005

Mr. John H. Marburger III
Science Advisor to the President & Director
Office of Science and Technology Policy
Executive Office of the President
725 17th Street, Room 5228
Washington, DC 20502

Dear Mr. Marburger:

The Bay Area Science and Innovation Consortium (BASIC) is a collaboration of the Bay Area's major research universities, national laboratories, independent research institutions, and research and development-driven businesses and organizations.

We are writing to express our alarm and dismay about the current state of federal funding for information technology research, and ask that you support new initiatives in the President's FY2007 budget that will reverse these trends. Our concerns are not limited to funding for IT research; we share the views of other organizations such as the Council on Competitiveness that have called for broader increases in federal investment in research, particularly in the physical sciences and engineering.

Importance of federally-funded research to America's technological leadership

Federally-funded research, particularly at our nation's leading universities, has played a pivotal role in establishing America's leadership position in the global IT industry. As numerous studies by the National Academy of Sciences have documented (*Innovation in Information Technology*, NAS, 2003) government-sponsored IT research has provided the foundations of innovations such as the Internet, inexpensive mass storage, relational databases, electronic design automation, speech recognition, and Internet search engines. Universities train the next generation of scientists, engineers, and entrepreneurs, and faculty and students are often directly involved in creating highly successful start-ups that generate economic growth, high-wage jobs, and increases in U.S. productivity.

Current U.S. policy is headed in the wrong direction

At a time when the U.S. faces enormous challenges to its scientific and technological leadership, U.S. policy is headed in the wrong direction.

For example, the Defense Advanced Research Projects Agency is reducing university participation by: (1) classifying research, even in broad, enabling areas such as embedded software for wireless networks; (2) focusing more on shorter-term deliverables, and dramatically reducing its traditional levels of investment in high-risk, high-return research; and (3) evaluating success of projects on one-year time-scales. Between 1999 and 2004, DARPA's research funding at the top-ranked computer science departments (Berkeley, Carnegie Mellon University, MIT, and Stanford) declined by 38-54 percent. These trends are not limited to IT research, but are evident in a broad range of fields.

The National Science Foundation has not been able to fill the vacuum created by DARPA's retrenchment. In the last five years, the percentage of submitted proposals that are funded by the NSF's Computer and Information Science and Engineering (CISE) division has declined from 32 percent to 16 percent, the lowest of the nine NSF Directorates. In critical areas such as cybersecurity, NSF is only able to fund 8 percent of proposals. With this level of proposal pressure, peer review becomes more conservative. As a result, researchers are deterred from submitting high-risk, high-return proposals. These are precisely the kinds of projects that we need to be supporting to keep the United States at the cutting-edge of technological innovation.

Recommendations

Below are two concrete recommendations to deal with the declining support for high-risk, high-return research, particularly at our nation's universities. In addition to these more targeted policies, BASIC also supports broader initiatives, such as a doubling of the National Science Foundation budget.

1. *DARPA should be given a clear mandate to dramatically increase its support of high-risk, unclassified, university-based research.*

DARPA was created in the wake of Sputnik to prevent further technological surprise. DARPA's support for IT research, beginning in the 1960s, created the technologies that today underpin America's military supremacy such as "network-centric warfare." America's military will not enjoy these advances in the future without an investment in ambitious, visionary research initiatives. The Administration's next DARPA Director should be someone who is committed to restoring DARPA's proud role as the preeminent sponsor of high-risk, high-return research.

2. *The National Science Foundation should be given additional funding in the Administration's FY2007 budget for a "Pioneer Award" for IT research.*

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Recently, the NIH created the NIH Director's Pioneer Award, which provides significant grants to "individual scientists of exceptional creativity who propose pioneering approaches to major contemporary challenges in biomedical research." NIH provides $500,000 in funding per year in "direct costs" for five years, with a preference for scientists who are at the early or middle stages of their career. We believe that NSF should be given additional resources to support at least 25-50 awards for pioneering IT research in the first year of the program, with an eventual "steady state" of 100-150 awards. Nanoscale science and engineering would also benefit from this Pioneer Award approach.

Thank you for considering these proposals. Please feel free to contact us at the BASIC office if we can provide you with any additional information concerning IT research funding.

Sincerely,

Robert J. T. Morris
Chairman