

# **TASK FORCE ON THE FUTURE OF AMERICAN INNOVATION**

## **FOR IMMEDIATE RELEASE**

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## **U.S. MAY BE ABANDONING LEADERSHIP IN SCIENCE, INNOVATION, BUSINESS AND ACADEMIC LEADERS WARN**

### **CALL FOR BOOST IN FEDERAL RESEARCH INVESTMENTS**

The Task Force on the Future of American Innovation, a coalition of high-tech industry, scientific societies, and higher education associations, warned today that the United States is in danger of losing its leadership role in science and innovation, a position it has held with a firm grip since the end of World War II.

Business and academic leaders, speaking at the National Press Club in Washington, D.C. today, identified the weakening federal commitment to invest in science and research as a root cause of the problem – and as a necessary part of the solution.

They pointed to a set of benchmarks in such areas as education, workforce, ideas, and research investment in which other regions and nations, particularly the rapidly developing economies of Asia, are sharply pursuing the U.S., and may soon catch up. They reminded policymakers that leadership in these fields has been critical to the country's economic strength and national security.

“We are and remain the world's leader in innovation,” said John Engler, National Association of Manufacturers president and former governor of Michigan. “But we do not enjoy that status by divine right, and we cannot assume that we are safely ahead of the world. Other countries are climbing the technology ladder just as eagerly as we are. The only way the U.S. can continue to create high-wage, high value-added jobs is to innovate faster than the rest of the world. Federally funded, peer reviewed, and patented scientific advances are essential to innovation. So we shortchange research at our peril.”

Craig Barrett, Chief Executive Officer of Intel Corporation, added, “The competitiveness of the U.S. economy and its technological leadership depend on our companies, universities, and research institutions having access to the world's leading talent. U.S. employers are being forced to look overseas, as they face shortages of qualified technically trained talent in the U.S. As research goes, so goes the future. If this trend continues, new technologies, and the constellation of support industries surrounding them, will increasingly develop overseas, not here.”

Examples of benchmarks identified by the group included the following:

- The proportion of U.S.-citizens in science and engineering (S&E) graduate studies within the U.S. is declining. From 1994 to 2001, graduate S&E enrollment in the U.S. declined by 10 percent for U.S. citizens but increased by 25 percent for foreign born students. In 2001 approximately 57 percent of all S&E postdoctoral positions at U.S. universities were held by foreign born scholars.
- There are rapidly increasing retirements from science and engineering (S&E) jobs, leading to a potential shortage in the S&E labor market. For example, more than half of those with S&E degrees in the workforce are age 40 or older. Unless more domestic college-age students choose to pursue degrees in critical S&E fields, there is likely to be a major shortage in the high-tech talent required by the U.S. defense industry, key federal research and national defense agencies (e.g. the Department of Defense, Department of Energy and NASA), and the national laboratories.
- The U.S. share of S&E papers published worldwide declined from 38 percent in 1988 to 31 percent in 2001. Europe and Asia are responsible for the bulk of growth in scientific papers in recent years. U.S. output was passed by Western Europe in the mid-nineties, and Asia's share of the total is rapidly growing.

Regarding the trends for students, Nils Hasselmo, President of the Association of American Universities, said, "The U.S. may be about to experience a significant decline in the number of scientists and engineers it will have available to maintain, and further strengthen, its innovative capacity – just as international competition is picking up unprecedented strength. It's bad news for American universities and industry. And it's bad news for our nation's future economic and national security. If the federal government does not recommit itself to robust funding of research in these areas, we will lose students, and our nation will surely suffer."

"Knowledge economies rely on the capabilities of highly skilled people to create new knowledge and ideas," added Diana Hicks, Chair of the School of Public Policy at the Georgia Institute of Technology. "European and Asian knowledge creation is dynamic. It's growing fast. When they occupy more room at the top, it leaves less room for us. As the still leading innovative nation in the world, we could ignore this. However, to the extent that we are concerned for our economic future, we must develop our innovative capabilities to their fullest."

"It is easy to ignore long-term needs because of pressures from short-term needs," said Burton Richter, Nobel Prize-winning physicist and Paul Piggott Professor in the Physical Sciences at Stanford University, in a written statement. "We have been able to get away with it for decades because we were so far ahead of the rest of the world. But the rest of the world is catching up. The foundations of new technological products now generally start with laboratory breakthroughs achieved by scientists conducting government funded long-term research at universities and national labs. However, as a fraction of GDP, such funding has been declining for decades – a bipartisan failure of vision. Only strong federal investment can ensure the healthy research enterprise that is essential to our innovation future."

Other benchmarks cited by the group included:

- Within the U.S., federal funding of basic research in engineering and physical sciences has experienced little to no growth over the last thirty years. As a percentage of GDP, funding for physical science research has been in a thirty-year decline. In addition, since the 1980's, there has been a shift in the source of funding for research and development (R&D). U.S. private sector investment in R&D now far exceeds federal investment in R&D, providing over 68 percent of all

domestic R&D. However, private funding tends to focus on short-term results. Of these private funds, 71 percent were for development, not basic research.

- The U.S. share of worldwide high-tech exports has been in a 20-year decline. From 1980 until 2001 the U.S. share fell from 31 percent to 18 percent. At the same time, the global share for China, South Korea, and other emerging Asian countries increased from just 7 percent to 25 percent.
- Asian countries are investing significantly in nanotechnology, and may have already surpassed the U.S. in this promising area of research. For example, *Small Times* reported last year: “Japan’s nanotechnology budget for fiscal 2004 rose 3.1 percent to \$875 million, according to Japan’s Council for Science and Technology Policy. Meanwhile, the two main government ministries responsible for about 90 percent of the country’s nanotechnology research programs are both seeing their budgets increased.”

Council on Competitiveness President Deborah Wince-Smith noted, “As the Council’s 15-month National Innovation Initiative and report, *Innovate America*, have demonstrated along with the research of many others, innovation has been the principal driver of U.S. GDP and productivity growth and a rising standard of living for the past 50 years. America’s economic and political standing are fundamentally bound up in our capacity as a society to innovate, and we now face much more serious competitive challenges from new centers of innovation across an increasingly interconnected planet.

She added, “The benchmarks that we are releasing today demonstrate the tremendous effort and focus that other countries are putting into science, technology and innovation. And they also show that many of the baseline indicators of U.S. innovation are not headed in the right direction. The result is that our global innovation leadership is being challenged. The policies, stimuli and management approaches on which we've relied in the past are no longer sufficient to sustain innovation leadership in the 21st century.”

The document listing the benchmarks - entitled “The Knowledge Economy: Is the United States Losing Its Competitive Edge?” - can be found on the task force’s Web site, [www.futureofinnovation.org](http://www.futureofinnovation.org).

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The Task Force on the Future of American Innovation, a coalition of high-tech companies, business organizations, scientific societies, and higher education associations, was founded in 2004 to advocate greater federal investments for basic research in the physical sciences and engineering. The group focuses specifically on the National Science Foundation, the Department of Energy Office of Science, the Department of Defense research budget, and the National Institute of Standards and Technology labs at the Department of Commerce.

Its members are: Agilent Technologies, AeA, ASTRA, American Chemical Society, American Mathematical Society, American Physical Society, Association of American Universities, Computing Research Association, Computing Technology Industry Association, Computing Systems Policy Project, Council on Competitiveness, Hewlett-Packard, Intel, Lucent, Materials Research Society, Microsoft, National Association of Manufacturers, NASULGC, The Science Coalition, Semiconductor Industry Association, Southeastern Universities Research Association, and Texas Instruments.

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