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Tough Times Ahead in R&D

In December 2002, scientists and engineers were elated thanks to an authorization bill, approved by Congress, that called for the doubling of the National Science Foundation (NSF) budget between the fiscal years (FY) 2002–2007. Although the NSF did enjoy budget increases from FY 2002–2004, it suffered a 1.9% cut in FY 2005. Now, there is concern about the FY 2006 budget.

The outlook for FY 2006 is already relatively grim. The budget request of \$5.6 billion may be \$132 million (2.4%) higher than the FY 2005 appropriation, but still falls short of the actual FY 2004 budget of \$5.7 billion. The proposed FY 2006 budget recognizes bioengineering as a key area of growth by anticipating a 5.1% boost from \$48.2 million to \$50.7 million. Design and manufacturing is also expected to increase 5.6% from \$63.85 to \$67.4 million. What will get reduced, for the second year in a row, is the Education and Human Resources Directorate. It is expected to decrease by 12.4% — with the math and science partnership (MSP) and elementary, secondary and informal education (ESIE) taking the biggest hits at 24% and 23%, respectively.

With little or no growth in federal funding, the U.S. may slowly be loosening its grip on its global leadership in science and innovation. According to the recently released report, “The Knowledge Economy: Is the United States Losing Its Competitive Edge?” by the Task Force on the Future of American Innovation (www.futureofinnovation.org), there are signs of trouble. The report noted that from 1994 to 2001, the graduate science-and-engineering (S&E) enrollment in the U.S. declined by 10% for U.S. citizens, but increased by 25% for foreign-born students. Furthermore, more than half of those with S&E degrees in the workforce are age 40 or older. The report warns that unless more domestic students pursue degrees in critical S&E fields, there is likely to be a major shortage in the high-tech talent. As a result, “U.S. employers are being forced to look overseas,” said Craig Barrett, CEO of Intel Corp., a member of the task force. “If this trend continues, new technologies, and a constellation of support industries surrounding them, will increasingly develop overseas, not here,” he continued.

The report also states that in the 1980s there was a major shift in the source of funding for R&D. Private sector investments now make up 68% of all domestic R&D. This may be problematic, since private funding tends to focus on short-term results. “Federally funded, peer reviewed, and patented scientific advances are essential to innovation. So we shortchange research at our peril” warned John Engler, president of the National Association of Manufacturers.

Technically skilled and inspired people are the lifeblood of innovation. The U.S. should not take its leadership role in science and innovation for granted. Hopefully, Congress will recognize this and make good in FY 2007 on its 2002 NSF “doubling” authorization bill.

Kristine Chin,
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