

## SCIENCE AND TECHNOLOGY PROGRAM - USA

After a decade of cuts or only modest increases, total defense R&D increases 3.1% to \$42.5 billion. The "Science and Technology" portion of DOD's budget (encompassing basic and applied research plus exploratory technology development) increases by 11% to \$8.7 billion. Basic research is a high priority in FY 2000 appropriations.

Federal support for basic research is expected to total \$19.1 billion in FY 2000, an increase of \$1.8 billion or 10.6%. The increases, however, go mostly to life sciences and medical research funded by NIH. Current basic research levels by agency are National Institutes of Health (NIH) \$9.6B, National Science Foundation (NSF) \$2.5B, Department of Defense (DOD) \$1.2B, Department of Energy (DOE) \$2.3B, National Aeronautics & Space Administration (NASA) \$2.5B, US Department of Agriculture (USDA) \$0.7B, all other \$0.36B for a total of just over \$19.1B. In FY 2000, NIH provides, for the first time, more than half of total federal support for basic research.

A proposed high priority request of \$366 million for a new six-agency Information Technology for the 21st Century initiative (to support long-term fundamental research in IT) turned into funding of \$235 million, which included \$126 million for the NSF and \$60 million for DOD. For more details see the chart below.

Industry support for R&D continues to grow far faster than federal R&D or the US economy as a whole. US industrial R&D is expected to increase by 9.3% in 1999, following similar increases in the past three years. Fuelled by the booming economy and soaring profits, US industry is on a R&D spending binge, says a report card from the trade group of the biggest R&D spenders. Using NSF data, Industrial Research Institute (IRI) puts total industrial R&D spending at \$185 billion in 1999, compared with \$168.2 billion the year before and just \$117.4 billion in 1994. All but \$20 billion of last year's effort was funded by industry itself; the rest was government work. Industry now funds a full two-thirds of all research performed in the US. But the vast bulk of private sector spending - 71% in 1999 - continues to be performed in the product development stage. Just 7% of aggregate industry effort went for basic research, although it too has thrived, more than doubling since 1995 to \$11.8 billion. The federal government remains the clear leader in funding basic research - spending roughly \$21 billion last year. IRI says US industry's spending represents one-third of the entire world's investment in R&D. The biggest individual spenders are in the smokestack industries - General Motors spent \$7.9 billion and Ford Motor \$6.3 billion last year. Lucent Technologies was next at \$5.1 billion, and IBM put out \$4.5 billion. According to IRI, the top 100 industrial spenders account for two-thirds of all US private sector investment, and the top 10 alone represent 28% of the total.

Despite their comparatively small share of US federal R&D funding, colleges and universities have long played a key role in the nation's R&D effort. Academia serves as a primary site for the performance of basic research and for the training of future scientists and engineers. Sixty percent of the R&D performed by universities is funded by the federal government, with most of the rest coming from the institutions' own funds and more recently industrial grants and contracts.

NIH is responsible for nearly 60% of all federal support of academic R&D and NSF is the next largest federal sponsor with 15% of the federal total. The USDA increased its support for R&D at colleges and universities by \$75 million or 17.9% to \$493 million because of a planned expansion in competitively awarded research grants, most of which are expected to go to