

The Federal Research and Development Portfolio

# Vital Assets

Federal Investment  
in Research and  
Development at the  
Nation's Universities  
and Colleges

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## SUMMARY

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### BACKGROUND AND PURPOSE

Universities and colleges conduct a substantial portion of America's scientific research. Much of this research is funded by federal research and development (R&D) dollars. Federal R&D funds help universities advance general knowledge, support a range of federal missions, train future scientists and engineers, and enhance economic growth in the communities where they operate. Despite the importance of these activities, decisionmakers face difficulty assessing and monitoring the size of this federal R&D investment and its changing profile over time. This difficulty is rooted in a lack of access to accurate, timely, consistent, and comprehensive information about federal funds going to university and college R&D. As a result, funding allocations and policy decisions are often made without adequate information.

This report is intended to provide an empirical basis for assessing the federal investment in university-based R&D. To do this, RAND compiled a comprehensive list of all the federal R&D funds going to every university and college in the 50 states, the District of Columbia, and Puerto Rico (hereafter referred to collectively as "the states"). The analysis used RAND's RaDiUS (Research and Development in the United States) database of federal R&D funding and activities. This report presents the results of the analysis. Specifically, it provides information on

- State-by-state trends in federal funding of R&D at U.S. universities and colleges from FY 1996 through FY 2002,
- Which federal agencies provided what amounts and types of R&D funds to universities and colleges in FY 2002, and
- What levels of R&D funding individual universities and colleges received in FY 2002.

This report is intended as a reference document for national, regional, state, and university decisionmakers and planners interested in assessing the relative competitiveness of particular university systems and individual campuses in obtaining federal R&D funds. It is also intended to stimulate and enable further analysis and assessment of trends, priorities, and resource allocations involving federally funded R&D.

## METHODOLOGY AND APPROACH

The data presented in this report come from the RaDiUS database. RaDiUS systematically tracks all federal R&D funds by tracing them from their most aggregate level in the federal government, at which the R&D activities are planned in general, to their most detailed level, at which the R&D is actually conducted. The most-aggregated data presented are for FY 1996 through FY 2002. The most-detailed data are from FY 2002, since this is the most recent fiscal year for which such data are available. For that year, we also identified all individual R&D awards that went to the 126 accredited medical schools located within the nation's universities and colleges. For additional details on the methodology of this analysis, see Appendix B.

## CONCLUSIONS AND IMPLICATIONS

The data show that between FY 1996 and FY 2002, total federal R&D funds going to universities and colleges grew from \$12.8 billion to \$21.4 billion, for an overall increase of 45.7 percent in constant 1996 dollars. The level of increase in federal R&D funds going to universities and colleges between FY 1996 and FY 2002 was more than double the overall increase in total federal R&D funds during the same period in constant 1996 dollars (i.e., 45.7 percent versus 20.9 percent).

Much of this growth was attributable to sizable increases in R&D funding at the Department of Health and Human Services (HHS), most especially the National Institutes of Health. The main recipients of HHS's funds were nonfederal entities, primarily universities and colleges. By far the most striking finding of this analysis was the discovery that, in FY 2002, 45 percent of all federal R&D funds provided to universities and colleges by HHS and all other federal agencies went directly to medical schools. Because some states do not have medical schools and others have many, this pattern skews the distribution of federal R&D funds among the various states considerably.

### Implications for Federal R&D Priorities

The profile of federally funded R&D at universities and colleges that emerges from this analysis raises issues of proportionality. Specifically, in the current funding profile, approximately two-thirds of the federal funds going to universities and colleges for the conduct of R&D is focused on only one field of science—life science—and federal R&D funding is concentrated at only a few research universities. These findings raise questions about whether other critical national needs that have substantial R&D components (such as environment, energy, homeland security, and education) are receiving the investment they require and whether the concentration of dollars at a few institutions is shortchanging science students at institutions that receive little or no federal R&D funding.

## Implications for Decisionmaking

This analysis provides information that should help clarify several issues for university and college decisionmakers as well as federal agencies.

First, universities and colleges have lacked long-term, consistent data with which to gauge their success at acquiring R&D funding. In the absence of such data, credible comparisons among institutions cannot be made. This analysis enables all universities and colleges with R&D activity to know where they stand relative to other institutions in their ability to obtain federal R&D funds.

Second, the vehicle used to convey federal R&D funds to universities and colleges (i.e., grant versus contract) is important because it establishes the legal “ground rules” for conducting federally funded R&D. This analysis disproves the persistent stereotype that *all* federal R&D funds are conveyed to universities and colleges via peer-reviewed project grants. As a result, all universities and colleges now have accurate information on the funding mechanisms the federal government has actually used to transmit R&D funds to them, so they can better assess intellectual property issues arising from such R&D.

Third, using the data in this report, federal R&D agencies can now specifically target the universities and colleges in the nation that truly need federal assistance to build their R&D capacity.