



## Measured and Unmeasured R&D

The statistics on U.S. R&D discussed in this section reflect the periodic *National Patterns of R&D Resources* reports from the National Center of Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF), which provide a comprehensive account of total U.S. R&D performance. The *National Patterns* data, in turn, derive from six major NCSES surveys of the organizations that perform or fund the bulk of U.S. R&D:

- Business R&D and Innovation Survey
- Higher Education Research and Development Survey
- Survey of Federal Funds for Research and Development
- Federally Funded Research and Development Center R&D Survey
- Survey of State Government Research and Development
- Survey of Research and Development Funding and Performance by Nonprofit Organizations

The *National Patterns* analysis integrates R&D spending and funding data from these separate surveys into U.S. R&D performance totals, which are then reported on a calendar year basis and for the main performing sectors and funding sources.

Because of practical constraints in the surveys, some elements of R&D performance are omitted from the U.S. totals. In evaluating R&D performance trends over time and in international comparisons, it is important to be aware of these omissions.

The U.S. business R&D estimates are derived from a survey of R&D-performing companies with five or more employees. No estimates of R&D performance currently are available for companies with fewer than five employees. Nonetheless, NCSES survey development efforts have been underway over the last several years such that R&D data on this micro business population are expected to be available in the future.

The statistics for academic R&D track expenditures that are separately accounted for in both sponsored research and institutionally funded research. U.S. universities do not report funds for research that are not separately accounted for, such as estimates of faculty time spent on research beyond formally tracked research projects. This can be a limitation in international R&D comparisons because such estimates are often included in the national statistics of other countries.

Likewise, the activity of individuals performing R&D on their own time and not under the auspices of a corporation, university, or other organization is omitted from official U.S. R&D statistics.

Statistics on R&D performed by state governments are collected in an annual NCSES and U.S. Census Bureau survey. Although these data represent small amounts (typically totaling only several hundred million dollars annually), they are now included in the *National Patterns* totals. Estimates for the R&D performed in the U.S. by nonprofit organizations remain based on parameters in NSF's 1996–97 survey of this sector. A pilot test for a new and expanded nonprofit R&D survey has recently been completed; a full fielding of the new survey is now anticipated in 2018.