

Research and Development in Industry: 2005

Detailed Statistical Tables | NSF 10-319 | June 2010

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General Notes

Introduction

This report is the second of two publications containing results from the 2005 Survey of Industrial Research and Development. The first publication, an InfoBrief (NSF 2007c) announcing the availability of survey results, contains analytical information and highlights the increase in expenditures for industrial R&D funded from companies' own resources. This report contains the full set of statistics produced from the survey, including statistics on R&D funding during the calendar year 2005 and on R&D personnel in January 2006. Among the tables are several that include statistics on trends in industrial R&D since 1953, statistics on employment by R&D-performing firms since 1994, and a table classified by state that contains statistics for selected years since 1991. This report also contains (in the technical notes in appendix A) information about the industry coding classification system, company size classifications, survey methodology, comparability of the statistics over time and with other statistical series, survey definitions, history of the survey, and other information designed to convey to the data user what the survey statistics represent and, in some cases more importantly, what they do not represent. Survey questionnaires, instructions, and other documents are reproduced in appendix B.

This report provides national estimates of the expenditures on R&D performed within the United States by industrial firms, whether U.S. or foreign owned. Among the statistics are estimates of total R&D, the portion of the total financed by the federal government, and the portion financed by the companies themselves or by other nonfederal sources, such as state and local governments or other industrial firms under contract or subcontract. Total R&D is also separated into the types of costs, wages and fringe benefits of R&D staff, materials and supplies, depreciation, and other costs. Other statistics include R&D financed by domestic firms but performed outside the 50 U.S. states and District of Columbia, R&D performed by organizations outside the firm, R&D performed in collaboration with other organizations, and the funds spent to perform energy-related R&D. Also, this report provides information on R&D-performing firms, including domestic net sales, number of employees, number of R&D-performing scientists and engineers, geographic location where the R&D was performed, and R&D funds spent per R&D-performing scientist and engineer.

The National Science Foundation Act of 1950, as amended, authorizes and directs the National Science Foundation (NSF) "to provide a central clearinghouse for the collection, interpretation, and analysis of data on scientific and engineering resources and to provide a source of information for policy formulation by other agencies of the federal government." The Survey of Industrial Research and Development is the vehicle with which NSF carries out the industrial portion of this mandate, and NSF's Division of Science Resources Statistics has sponsored and managed a survey of industrial R&D since 1953. The 1953–56 surveys were conducted by the Bureau of Labor Statistics (BLS) in the U.S. Department of Labor

(NSF 1956, 1960). Since 1957, the Bureau of the Census in the U.S. Department of Commerce has conducted the survey. Data obtained in the earlier BLS surveys are not directly comparable with Census figures because of methodological and other differences. Census conducts the survey under Title 13 of the United States Code, which prohibits publication or release of data or statistics that may reveal information about individual companies. In some tables in this report, the symbol D is used to indicate that estimates are withheld to avoid possible disclosure of information about operations of individual companies.

The Survey of Industrial Research and Development is an annual sample survey that intends to include or represent all for-profit R&D-performing companies, either publicly or privately held. Respondents receive detailed definitions to help them determine which expenses to include or exclude from the R&D data that they provide. Nevertheless, the statistics presented in this report are subject to response and concept errors caused by differences in the way respondents interpret the definitions of R&D activities and by variations in company accounting procedures. The survey's primary focus is on U.S. industry as a performer of, rather than as a source of funds for, R&D. Thus, data on federal support of R&D activities performed by industry are collected, and the resulting statistics appear in several tables whereas only limited statistics on industrial funding of R&D undertaken at universities and colleges and other nonprofit organizations are collected.[1]

The result of collecting and publishing performer-reported statistics is that the federally funded R&D performance totals presented in this report differ from the totals reported by the federal agencies that provide the funds and the statistics published in NSF's *Federal Funds for Research and Development* report series (<http://www.nsf.gov/statistics/fedfunds/>). One reason for these differences is that performers of R&D often expend federal funds in a year other than the one in which the federal government provides authorization, obligations, or outlays (see "Comparisons to Other Statistical Series" in appendix A for definitions of these terms). During the past decade, the differences have widened between the federal R&D funding reported by performers and that reported by funding agencies. These differences are documented and analyzed in the latest editions of the National Science Board's *Science & Engineering Indicators* (NSB 2010) (<http://www.nsf.gov/statistics/seind10/>) and NSF's *National Patterns of R&D Resources* (NSF 2008d) (<http://www.nsf.gov/statistics/natlpatterns/>) report series.

The content of the Survey of Industrial Research and Development has been expanded and refined over the years in response to an increasing need by policymakers for more detailed information on the nation's R&D effort. For example, questions on energy R&D were added in the early 1970s, following that decade's oil shortage crisis. And, more recently, questions that probe companies' collaborative R&D activities and funding of international performance of R&D have been added to keep up with the fast-changing environment of the conduct and organization of industrial R&D. On the other hand, collection of certain data items has been eliminated in an attempt to alleviate some of the burden on respondents. For large firms known to perform R&D, a detailed survey questionnaire (Form RD-1) is used to collect data. To limit the reporting burden on small R&D performers and on firms included in the sample for the first time, an abbreviated survey questionnaire (Form RD-1A), which collects only the most crucial data, is used.

Changes have been made to the survey throughout its history and some of the most recent are detailed in appendix A (see "Comparability of Statistics"). Specific changes are detailed in each of the annual reports resulting from the survey (<http://www.nsf.gov/statistics/industry/>).

Industry statistics in this report were developed from data collected from individual companies.[2] Because the survey is company based rather than establishment based, all data collected for the various components of each company (plants, divisions, subdivisions, etc.) were tabulated in the company's major industrial classification, which was based on payroll.

(See "Frame Creation and Industry Classification" in appendix A for more information about industry classification.) The resulting industry estimates were calculated by summing the data for companies classified within each major industry classification. National totals were then estimated by summing the industry estimates. The North American Industry Classification System (NAICS) was used to determine a company's major industrial classification, and the resulting statistics are published by NAICS code. For years prior to 1999, the Standard Industrial Classification (SIC) system was used. The development and ongoing refinement of NAICS has been a joint effort of statistical agencies in Canada, Mexico, and the United States. The system replaced the Standard Industrial Classification (1980) of Canada, the Mexican Classification of Activities and Products (1994), and SIC (1987) of the United States. (For a detailed comparison of NAICS to SIC of the United States, visit <http://www.census.gov/epcd/www/naics.html>.) NAICS was designed to provide a production-oriented system under which economic units with similar production processes are classified in the same industry. NAICS was developed with special attention to classifications for new and emerging industries, service industries, and industries that produce advanced technologies. NAICS not only facilitates comparability of information about the economies of the three North American countries but potentially increases comparability with the two-digit level of the United Nations International Standard Industrial Classification (ISIC) system.

Industry Reclassification

For the 2004 and 2005 surveys, some companies' electronically assigned industry codes were manually examined and changed. The result was that most of the R&D previously attributed to NAICS 42 and 55 industries was redistributed. For detailed information, see NSF 2007d and NSF 2009. Due to the reclassification, tables that traditionally provided data by industry for one or more historical years now only show data for the study year.

Availability of Survey Results

Detailed historical statistics for 1953–98 can be obtained from NSF's Industrial Research and Development Information System (IRIS) at <http://www.nsf.gov/statistics/iris/>, an online interface to the Survey of Industrial Research and Development Historical Database (SIRDHD) (NSF 2001b). The SIRDHD is a collection of more than 2,500 statistical tables containing all of the statistics produced and published from the 1953–98 cycles of the annual Survey of Industrial Research and Development. Statistics for 1991–2005 are available in separate reports at <http://www.nsf.gov/statistics/industry/>.

Company Size

Companies were categorized by total number of domestic employees. The survey excludes companies with fewer than five employees to limit the burden on small business enterprises in compliance with the Office of Management and Budget's (OMB) guidelines for federal government data collection activities. The following are the size classes used in this report:

- 5–24 employees
- 25–49 employees
- 50–99 employees
- 100–249 employees
- 250–499 employees
- 500–999 employees
- 1,000–4,999 employees
- 5,000–9,999 employees
- 10,000–24,999 employees
- 25,000 or more employees

Current and Constant Dollars

Statistics in all tables are reported in current dollars. Constant dollars also are presented in tables 2, 25, 26, and 27. Gross domestic product (GDP) implicit price deflators were used to convert current to constant 2000 dollars.

Disclosure and Suppression of Statistics

Title 13 of the United States Code and a pledge of confidentiality to respondents prohibit publication or release of data or statistics that may reveal information about individual companies. Therefore, the data in some table cells have been suppressed and replaced with "D." This occurs when a small number of companies account for a large percentage of the estimate in a particular data cell. Although publication of certain cells may be withheld, the estimates in the cells are always included in totals. The tables most often affected by cell suppression are those that contain data on federal support for industrial R&D performance.

Geographic Statistics

The statistics in this report cover only those operations located in the 50 U.S. states and the District of Columbia (DC). Statistics on company-sponsored R&D performed outside the 50 U.S. states and DC are included in tables 14 and 15 but excluded from all other tables.

Beginning with 2001, the methodology to produce statistics by state was modified from previous years to address the recurring problem of large year-to-year variation in many state estimates. This variability was caused by many factors, including the potential inefficiency of the sample at state levels, the rarity of R&D expenditures, and the large weights often associated with companies that report R&D in the survey for the first time. Under the new methodology, a portion of the amount of R&D reported by some companies not selected for the sample with certainty is allocated (or raked) among all the states in which there was industrial activity. The new methodology was also applied retroactively to statistics for 1998–2000. In tables 29–31 statistics for 1998–2005 are flagged with an "e" if more than 50% of the estimate was imputed because of raking. Note that there was no change to the methodology for estimating the number of R&D performers in each state. This estimate continued to be calculated by summing the weights of the companies that actually reported R&D activity in a given state. For a more detailed explanation of the new methodology and the definition of a "certainty" company, see the technical notes.

Historical Statistics

The Survey of Industrial Research and Development has been conducted annually since 1953. Statistics for 1953–98 are reported by Standard Industrial Classification (SIC) code, and statistics for 1999–2005 are reported by North American Industrial Classification System (NAICS) codes (see below). All of the statistics produced from the survey for 1953–98 are available in the Industrial Research and Development Information System at <http://www.nsf.gov/statistics/iris/>. An electronic database for post-1998 statistics has not been developed yet; however, annual reports for 1991–2005 are posted at <http://www.nsf.gov/statistics/industry/> (NSF 1994b, 1995b, 1996c, 1997b, 1998b, 1999b, 2000b, 2002c, 2003a, 2005b, 2006c, 2007a, 2009). Short reports that announce the availability of survey results and contain analytical information and highlight the expenditures for industrial R&D funded from companies' own resources and by the federal government also are available at <http://www.nsf.gov/statistics/industry/> (NSF 1995a, 1996a, 1997a, 1998a, 1999a, 2000a, 2001a, 2002a, 2003b, 2004, 2005a, 2006a, 2007c).

Prior to the 1999 report, most historical tables classified by industry contained the current survey's statistics plus statistics for 10 previous years. Because of the conversion to NAICS and a change in the way industry codes are assigned during statistical processing (see below), tables that traditionally provided data by industry for one or more historical years now only show data for the study year.

Industry Classification

During initial statistical processing, one North American Industry Classification System (NAICS) code was electronically assigned to each company. Multi-establishment companies were assigned single codes based on the most dominant aggregated activity for that firm in terms of total payroll. The 2002 version of NAICS was used for the 2005 survey and statistics for the following industries and industry groupings are published in this report:

Manufacturing industries	31–33
Food	311
Beverage and tobacco products	312
Textiles, apparel, and leather	313–316
Wood products	321
Paper, printing and support activities	322, 323
Petroleum and coal products	324
Chemicals	325
Basic chemicals	3251
Resin, synthetic rubber, fibers, and filament	3252
Pharmaceuticals and medicines	3254
Other chemicals	other 325
Plastics and rubber products	326
Nonmetallic mineral products	327
Primary metals	331
Fabricated metal products	332
Machinery	333
Computer and electronic products	334
Computers and peripheral equipment	3341
Communications equipment	3342
Semiconductor and other electronic components	3344
Navigational, measuring, electromedical, and control instruments	3345
Other computer and electronic products	other 334
Electrical equipment, appliances, and components	335
Transportation equipment	336
Motor vehicles, trailers, and parts	3361–3363
Aerospace products and parts	3364
Other transportation equipment	other 336
Furniture and related products	337
Miscellaneous manufacturing	339
Medical equipment and supplies	3391
Other miscellaneous manufacturing	other 339

Nonmanufacturing industries	21–23, 42, 44–81
Mining, extraction, and support activities	21
Utilities	22
Construction	23
Wholesale Trade	42
Retail Trade	44, 45
Transportation and warehousing	48, 49
Information	51
Publishing	511
Newspaper, periodical, book, and database	5111
Software	5112
Telecommunications	517
Wired and wireless (except satellite) telecommunications carriers	5171, 5172
Satellite telecommunications	5174
Other telecommunications	other 517
Internet service providers, web search portals, and data processing services	518
Internet service providers and web search portals	5181
Data processing, hosting, and related services	5182
Other information	other 51
Finance, insurance, and real estate	52, 53
Professional, scientific, and technical services	54
Architectural, engineering, and related services	5413
Computer systems design and related services	5415
Scientific R&D services	5417
Other professional, scientific, and technical services	other 54
Health care services	621–623
Other nonmanufacturing	55, 56, 61, 624, 71, 72, 81

Beginning with the 2004 survey and continuing for 2005, some companies' electronically assigned industry codes were manually examined and changed. Beginning in the late 1990s, increasingly large amounts of R&D were attributed to the wholesale trade industries, resulting from the payroll-based methodology used to assign industry classifications and the change from the Standard Industrial Classification (SIC) system to the North American Industry Classification System (NAICS) in 1999. Such classification artifacts were of particular concern for companies traditionally thought of as pharmaceutical or computer-manufacturing firms. As these firms increasingly marketed their own products and more of their payroll involved employees in selling and distribution activities, the potential for the companies to be classified among the wholesale trade industries increased. To maintain the relevance and usefulness of the industrial R&D statistics, NSF evaluated ways to ameliorate the negative effects of the industry classification methodology and change in classification systems. In

addition to firms originally assigned NAICS codes among the wholesale trade (NAICS 42) industries, firms in the information services (NAICS 51); professional, scientific, and technical services (NAICS 54); and management of companies and enterprises (NAICS 55) industries using the payroll-based methodology were manually reviewed by NSF and Census. These firms were reclassified based on primary R&D activity, which in most cases corresponded to their primary products or service activities. The result was that most of the R&D previously attributed to NAICS 42 and 55 industries was redistributed. Statistics resulting from the old and new industry classification methods were published in tables A-9 and A-10 in *Research and Development in Industry: 2004* (NSF 2009). For detailed information, also see NSF 2007c.

Large Year-to-Year Changes

Large year-to-year changes may occur because of the way industry classifications are assigned during statistical processing. A company's industry classification is a function of its primary activity based on payroll, which is not necessarily the primary source of its R&D activity for those companies not manually reviewed as described in "Industry Classification," above. For the companies not manually reviewed, if the largest portion of a company's payroll shifts to an activity other than an R&D-related activity, the classification of its R&D similarly shifts to the new activity. Further, the design of the statistical sample sometimes contributes to large year-to-year changes in industry estimates. Because relatively few companies perform R&D and there is no national register of industrial R&D performers, a large statistical "net" must be cast to capture new R&D performers. When these companies are sampled for the first time, they are often given weights much higher than they would be given if their size and the amount of R&D they perform were known at the time of sampling. After the size of the company and the amount of R&D performed are discovered via the first survey, the weight assigned for subsequent surveys is adjusted. This capture and weighting adjustment process can produce large year-to-year changes in the statistical series twice, when the company is first captured and data are overstated by the application of a large weight, and then when the weight is reduced. This process affects lower-level statistics (i.e., detailed industry and company size categories) the most because at the aggregate levels (i.e., all industries, manufacturing, nonmanufacturing), large year-to-year increases in some industries or in some company size categories are offset by large decreases in others.

Nonresponse and Imputation

For various reasons, some firms did not choose to return the survey questionnaire (unit nonresponse) or returned it with one or more blank items (item nonresponse). (See "Imputation for Item Nonresponse" in appendix A for more information on the reasons for unit and item nonresponse.) Missing data for major data items were estimated using mathematical algorithms developed from industry comparisons, data from previous cycles of the survey, and other information. Therefore, the statistics in some table cells may be accompanied by the notation "S," which indicates that the imputation rate—the percentage of the statistic not reported by respondents and consequently estimated—exceeds 50% for that item. In such cases, the estimate may be statistically unreliable. (See table A-5 for imputation rates for specific items.)

Percentages

Percentages were calculated on the basis of thousands of dollars and may differ slightly from those calculated using the rounded figures shown.

Point Estimates

The particular sample selected was one of a large number of samples of the same type and size that by chance might have been selected. Statistics resulting from the different samples would differ somewhat from each other. These differences are represented by estimates of sampling error or variance. The smaller the sampling error, the less variable the statistic. The accuracy of the estimate, that is, how close it is to the true value, is also a function of

nonsampling error. One cannot use the statistics as exact point estimates because they are based on statistical samples subject to variability within and between years and because of the capture and weighting issues discussed above under "Large Year-to-Year Changes."

Publication Levels

Because there is no master file of R&D performers, the levels at which the statistics are published are determined using information from various sources. First, the frame used to construct the statistical sample (see "Frame Creation and Industry Classification" in appendix A) is queried to find out which industries perform R&D. Indicators of R&D performance can be obtained from several Census surveys (e.g., the Company Organization Survey (COS), the Annual Capital Expenditures Survey (Aces), and the Economic Census). Once flagged, those companies are included in the Survey of Industrial Research and Development. Tabulations of levels and types of R&D at the finest industry level are prepared and subjected to disclosure routines, and the industries that remain without inordinately high numbers of suppressions become the industries for which statistics are published.

Reporting Unit

The basic reporting unit was the company, firm, or enterprise that included all establishments under common ownership or control. All R&D expenditures and all information about scientists and engineers of each company were classified into a single NAICS code and size category (see "Industry Classification" and "Company Size," above).

Rounding

Because of rounding, detail items may not add to totals. Most money amounts are expressed in millions of dollars and are rounded down if less than \$500,000 or up if \$500,000 or more. Frequency estimates (e.g., number of companies) are accumulated from decimal weights assigned to company records and are rounded down if less than 0.5 and rounded up if 0.5 or greater (see "Weighting, Maximum Weights, and Probabilities of Selection" in appendix A for information on how company records are weighted). Most employment counts (e.g., number of scientists and engineers) are expressed in thousands and are rounded down if less than 500 or up if 500 or greater.

Zeroes

When a numerical value is accumulated from the statistical file to estimate a money amount, number of companies, number of employees, or number of R&D scientists and engineers, and the accumulated sum is zero, the cell is filled with "0" or "0.0." when a value is rounded to zero, the cell is filled with "*." When a percentage is calculated from the statistical file and the percentage equals zero, the cell is filled with 0.0; when it rounds to zero, it is filled with "*."

Notes

[1] The survey collects data on the amount of R&D funded by companies but performed by outside entities, including universities, colleges, and other nonprofit organizations. Resulting statistics are in table 12. More comprehensive data on R&D performed at universities and colleges are collected in NSF's annual Survey of Research and Development Expenditures at Universities and Colleges. More information about this survey is available at <http://www.nsf.gov/statistics/rdexpenditures/>.

[2] In the Survey of Industrial Research and Development and in the publications presenting statistics resulting from the survey, the terms *firm*, *company*, and *enterprise* are used interchangeably. *Industry* refers to the 2-, 3-, or 4-digit North American Industry Classification System (NAICS) codes or group of NAICS codes used to publish statistics resulting from the survey.

References

- National Science Board (NSB). 2010. *Science and Engineering Indicators 2010*. NSB 10-01. Arlington, VA: National Science Foundation. Available at <http://www.nsf.gov/statistics/seind10/>.
- National Science Foundation (NSF). 1956. *Science and Engineering in American Industry: Final Report on a 1953-54 Survey*. NSF 56-16. Washington, DC: U.S. Government Printing Office.
- National Science Foundation (NSF). 1960. *Science and Engineering in American Industry: 1956*. NSF 59-50. Washington, DC: U.S. Government Printing Office.
- National Science Foundation (NSF). 1993. *Research and Development in Industry: 1990*. NSF 94-304. Arlington, VA.
- National Science Foundation (NSF). 1994a. *1992 R&D Spending by U.S. Firms Rises, NSF Survey Improved*. Data Brief NSF 94-317. Arlington, VA.
- National Science Foundation (NSF). 1994b. *Research and Development in Industry: 1991*. Detailed Statistical Tables NSF 94-325. Arlington, VA. Available at <http://www.nsf.gov/statistics/s2491/>.
- National Science Foundation (NSF). 1995a. *1993 Spending Falls for U.S. Industrial R&D, Nonmanufacturing Share Increases*. Data Brief NSF 95-325. Arlington, VA. Available at <http://www.nsf.gov/statistics/databrf/db95325.htm>.
- National Science Foundation (NSF). 1995b. *Research and Development in Industry: 1992*. Detailed Statistical Tables NSF 95-324. Arlington, VA. Available at <http://www.nsf.gov/statistics/s2492/>.
- National Science Foundation (NSF). 1996a. *1994 Company Funding of U.S. Industrial R&D Rises as Federal Support Continues to Decline*. Data Brief NSF 96-310. Arlington, VA. Available at <http://www.nsf.gov/statistics/databrf/sdb96310.htm>.
- National Science Foundation (NSF). 1996b. *National Patterns of R&D Resources: 1996*. Special Report NSF 96-333. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf96333/>.
- National Science Foundation (NSF). 1996c. *Research and Development in Industry: 1993*. Detailed Statistical Tables NSF 96-304. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf96304/htmpdf.htm>.
- National Science Foundation (NSF). 1997a. *1995 U.S. Industrial R&D Rises, NSF Survey Statistics Expanded to Emphasize Role of Nonmanufacturing Industries*. Data Brief NSF 97-332. Arlington, VA. Available at <http://www.nsf.gov/statistics/databrf/db97332.htm>.
- National Science Foundation (NSF). 1997b. *Research and Development in Industry: 1994*. Detailed Statistical Tables NSF 97-331. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf97331/>.
- National Science Foundation (NSF). 1998a. *1996 U.S. Industrial R&D: Firms Continue to Increase Their Investment*. Data Brief NSF 98-317. Arlington, VA. Available at <http://www.nsf.gov/statistics/databrf/db00320.htm>.
- National Science Foundation (NSF). 1998b. *Research and Development in Industry: 1995-96*. Detailed Statistical Tables NSF 99-312. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf99312/>.

- National Science Foundation (NSF). 1999a. *1997 U.S. Industrial R&D Performers*. Topical Report NSF 99-355. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf99355/>.
- National Science Foundation (NSF). 1999b. *Research and Development in Industry: 1997*. Detailed Statistical Tables NSF 99-358. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf99358/>.
- National Science Foundation (NSF). 2000a. *1998 U.S. Industrial R&D Performers Report Increase R&D*. Data Brief NSF 00-320. Arlington, VA. Available at <http://www.nsf.gov/statistics/databrf/db00320.htm>.
- National Science Foundation (NSF). 2000b. *Research and Development in Industry: 1998*. Detailed Statistical Tables NSF 01-305. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf01305/>.
- National Science Foundation (NSF). 2001a. *U.S. Industrial R&D Performers Report Increased R&D in 1999; New Industry Coding and Size Classifications for NSF Survey*. Data Brief NSF 01-326. Arlington, VA. Available at <http://www.nsf.gov/statistics/databrf/nsf01326/db01326.htm>.
- National Science Foundation (NSF). 2001b. *U.S. Industrial R&D: NSF Announces New Information Retrieval System and Historical Database*. Data Brief NSF 01-338. Arlington, VA. Available at <http://www.nsf.gov/statistics/databrf/nsf01338/db01338.htm>.
- National Science Foundation (NSF). 2002a. *U.S. Industrial R&D Expenditures and R&D-to-Sales Ratio Reach Historical Highs in 2000*. InfoBrief NSF 03-306. Arlington, VA. Available at <http://www.nsf.gov/statistics/infobrf/nsf03306/ib03306.htm>.
- National Science Foundation (NSF). 2002c. *Research and Development in Industry: 1999*. Detailed Statistical Tables NSF 02-312. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf02312/>.
- National Science Foundation (NSF). 2003a. *Research and Development in Industry: 2000*. Detailed Statistical Tables NSF 03-318. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf03318/>.
- National Science Foundation (NSF). 2003b. *U.S. Industry Sustains R&D Expenditures Despite Decline in Performers' Sales and Employment During 2001*. InfoBrief. NSF 04-301. Arlington, VA. Available at <http://www.nsf.gov/statistics/infbrief/nsf04301/>.
- National Science Foundation (NSF). 2004. *Largest Single-Year Decline in U.S. Industrial R&D Expenditures Reported for 2002*. InfoBrief NSF 04-320. Arlington, VA. Available at <http://www.nsf.gov/statistics/infbrief/nsf04320/>.
- National Science Foundation (NSF). 2005a. *Increase in U.S. Industrial R&D Expenditures Reported for 2003 Makes Up for Earlier Decline*. InfoBrief NSF 06-305. Arlington, VA. Available at <http://www.nsf.gov/statistics/infbrief/nsf06305/>.
- National Science Foundation (NSF). 2005b. *Research and Development in Industry: 2001*. Detailed Statistical Tables NSF 05-305. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf05305/>.
- National Science Foundation (NSF). 2006a. *U.S. Industrial R&D Performers Report Increased Expenditures for 2004*. InfoBrief NSF 07-304. Arlington, VA. Available at <http://www.nsf.gov/statistics/infbrief/nsf07304/>.

- National Science Foundation (NSF). 2006b. *National Patterns of R&D Resources: 2004 Data Update*. Detailed Statistical Tables NSF 06-327. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf06327/>.
- National Science Foundation (NSF). 2006c. *Research and Development in Industry: 2002*. Detailed Statistical Tables NSF 06-322. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf06322/>.
- National Science Foundation (NSF). 2007a. *Research and Development in Industry: 2003*. Detailed Statistical Tables NSF 07-314. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf07314/>.
- National Science Foundation (NSF). 2007b. *National Patterns of R&D Resources: 2006 Data Update*. Detailed Statistical Tables NSF 07-331. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf07331/>.
- National Science Foundation (NSF). 2007c. *Expenditures for U.S. Industrial R&D Continue to Increase in 2005; R&D Performance Geographically Concentrated*. InfoBrief NSF 07-335. Arlington, VA. Available at <http://www.nsf.gov/statistics/infbrief/nsf07335/>.
- National Science Foundation (NSF). 2007d. *Revised Industry Classification Better Reflects Structure of Business R&D in the United States*. InfoBrief NSF 07-313. Arlington, VA. Available at <http://www.nsf.gov/statistics/infbrief/nsf07313/>.
- National Science Foundation (NSF). 2008a. *U.S. Industrial R&D Expenditures Increase in 2006; Companies' Own and Federal Contributions Rise*. InfoBrief NSF 08-313. Arlington, VA. Available at <http://www.nsf.gov/statistics/infbrief/nsf08313/>.
- National Science Foundation (NSF). 2008b. *Federal Research and Development Funding by Budget Function: Fiscal Years 2007-09*. Detailed Statistical Tables NSF 08-315. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf08315/>.
- National Science Foundation (NSF). 2008c. *National Patterns of R&D Resources: 2007 Data Update*. Detailed Statistical Tables NSF 08-318. Available at Arlington, VA. <http://www.nsf.gov/statistics/nsf08318/>.
- National Science Foundation (NSF). 2009. *Research and Development in Industry: 2004*. Detailed Statistical Tables NSF 09-301. Arlington, VA. Available at <http://www.nsf.gov/statistics/nsf09301/>.
- U.S. Bureau of the Census. 1993. *Effects of the 1987 SIC Revision on Company Classification in the Survey of Industrial Research and Development (R&D)*. Technical Memorandum. 6 December.
- U.S. Bureau of the Census. 1994a. *Comparison of Company Coding Between 1992 and 1993 for the Survey of Industrial Research and Development*. Technical Memorandum. 3 November. Washington, DC.
- U.S. Bureau of the Census. 1994b. *Documentation of Nonsampling Issues in the Survey of Industrial Research and Development*. RR94/03. Washington, DC.
- U.S. Bureau of the Census. 1994c. *An Evaluation of Imputation Methods for the Survey of Industrial Research and Development*. ESMD-9404. Washington, DC.
- U.S. Bureau of the Census. 1994d. *Evaluation of Total Employment Cut-Offs in the Survey of Industrial Research and Development*. Technical Memorandum. 3 November. Washington, DC.

- U.S. Bureau of the Census. 1994e. *Reclassification of Companies in the 1992 Survey of Industrial Research and Development (R&D) for the Generation of the "Analytical" Series*. Technical Memorandum. 25 October. Washington, DC.
- U.S. Bureau of the Census. 1994f. *A Study of Processing Errors in the Survey of Industrial Research and Development*. ESMD-9403. Washington, DC.
- U.S. Bureau of the Census. 1994g. *Wedging Considerations for the 1992 Research and Development (R&D) Survey*. Technical Memorandum. 10 June. Washington, DC.
- U.S. Bureau of the Census. 1995. *Documentation of the Survey Design for the Survey of Industrial Research and Development: A Historical Perspective*. Washington, DC.

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TABLE 1. Funds for industrial R&D, sales, and employment for companies performing industrial R&D in the United States, by industry and company size: 2004 and 2005

Industry and company size	NAICS codes	All R&D		Federal R&D		Company and other R&D	
		2004	2005	2004	2005	2004	2005
		\$millions					
All industries	21–23, 31–33, 42, 44–81	208,301	226,159	20,266	21,909	188,035	204,250
Manufacturing industries	31–33	147,288	158,190	15,401	15,635	131,887	142,555
Food	311	2,254	2,716	5	6	2,249	2,710
Beverage and tobacco products	312	555 i	539 i	0	0	555 i	539 i
Textiles, apparel, and leather	313–16	570	816	3	5	568	811
Wood products	321	D	D	D	D	152	218
Paper, printing, and support activities	322, 323	D	D	D	D	2,308	2,451
Petroleum and coal products	324	1,603	D	9	D	1,595	1,442
Chemicals	325	D	42,995	D	169	39,070	42,826
Basic chemicals	3251	2,393	2,277	80	98	2,312	2,179
Resin, synthetic rubber, fibers, and filament	3252	2,096	2,294	16	15	2,080	2,280
Pharmaceuticals and medicines	3254	31,477	34,839	33	41	31,444	34,798
Other chemicals	other 325	D	3,584	D	15	3,234	3,569
Plastics and rubber products	326	D	1,760	D	12	1,879	1,747
Nonmetallic mineral products	327	787	894	5	6	783	889
Primary metals	331	727	631	21	22 i	705	609
Fabricated metal products	332	1,512	1,375	47	52	1,465	1,323
Machinery	333	6,579	8,531	105	109	6,473	8,422
Computer and electronic products	334	48,296	D	7,605	D	40,691	42,463
Computers and peripheral equipment	3341	5,734	4,955	27	53	5,707	4,902
Communications equipment	3342	D	D	D	D	8,433	9,660
Semiconductor and other electronic components	3344	D	18,724	D	122	17,524	18,602
Navigational, measuring, electromedical, and control instruments	3345	15,214	15,204	7,332	6,879	7,882	8,325
Other computer and electronic products	other 334	1,148	997	3	23	1,144	974
Electrical equipment, appliances, and components	335	2,664	2,424	42	103	2,622	2,322
Transportation equipment	336	D	D	D	D	26,019	28,321
Motor vehicles, trailers, and parts	3361–63	15,677	D	67	D	15,610	16,025
Aerospace products and parts	3364	13,086	15,005	3,862	4,076	9,224	10,928
Other transportation equipment	other 336	D	D	D	D	1,185	1,368
Furniture and related products	337	408	400	2	*	406	400
Miscellaneous manufacturing	339	4,388	5,143	39	82	4,348	5,061
Medical equipment and supplies	3391	3,343	4,374	30	31	3,313	4,343
Other miscellaneous manufacturing	other 339	1,045	769	10	51	1,035	718

TABLE 1. Funds for industrial R&D, sales, and employment for companies performing industrial R&D in the United States, by industry and company size: 2004 and 2005

Industry and company size	NAICS codes	All R&D		Federal R&D		Company and other R&D	
		2004	2005	2004	2005	2004	2005
		\$millions					
Nonmanufacturing industries	21–23, 42, 44–81	61,013	67,969	4,865	6,274	56,148	61,695
Mining, extraction, and support activities	21	D	D	D	D	714	669
Utilities	22	202	210	26	30	176	180
Construction	23	1,481	D	15	D	1,466	1,248
Wholesale trade	42	D	D	D	D	1,540	2,144
Retail trade	44, 45	1,596	D	0	D	1,596	1,285
Transportation and warehousing	48, 49	D	D	D	D	347	312
Information	51	22,593	23,836	307	219	22,285	23,617
Publishing	511	D	17,747	D	60	17,273	17,687
Newspaper, periodical, book, and directory	5111	D	821	D	27	763	794
Software	5112	D	16,926	D	33	16,510	16,893
Telecommunications	517	NA	2,539	NA	0	NA	2,539
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	NA	2,358	NA	0	NA	2,358
Satellite telecommunications	5174	NA	13	NA	0	NA	13
Other telecommunications	other 517	NA	168 i	NA	0	NA	168 i
Internet service providers, Web search portals, and data-processing services	518	NA	3,337	NA	159	NA	3,178
Internet service providers and Web search portals	5181	NA	1,042	NA	0	NA	1,042
Data-processing, hosting, and related services	5182	NA	2,295	NA	159	NA	2,136
Other information	other 51	D	213	D	0	D	213
Finance, insurance, and real estate	52, 53	1,708	3,030	0	0	1,708	3,030
Professional, scientific, and technical services	54	28,709	32,021	4,464	5,839	24,245	26,181
Architectural, engineering, and related services	5413	4,265	4,687	1,970	2,239	2,295	2,448
Computer systems design and related services	5415	11,575	13,592	378	545	11,197	13,046
Scientific R&D services	5417	11,355	12,299	1,972	2,826	9,383	9,473
Other professional, scientific, and technical services	other 54	1,514	1,444	144	229	1,370	1,214
Health care services	621–23	500	989	5	7	495	981
Other nonmanufacturing ^b	55, 56, 61, 624, 71, 72, 81	1,595	2,137	19	90	1,576	2,047

TABLE 1. Funds for industrial R&D, sales, and employment for companies performing industrial R&D in the United States, by industry and company size: 2004 and 2005

		All R&D		Federal R&D		Company and other R&D	
Industry and company size	NAICS codes	2004	2005	2004	2005	2004	2005
\$millions							
Company size (employees)							
All companies	-	208,301	226,159	20,266	21,909	188,035	204,250
5-24	-	6,295	7,373	685	1,076	5,610	6,297
25-49	-	5,906	7,488	612	675	5,293	6,813
50-99	-	6,456	7,144	608	646	5,849	6,498
100-249	-	11,045	10,327	1,058	951	9,987	9,375
250-499	-	8,380	8,149	547	411	7,832	7,738
500-999	-	10,821	13,992	762	895	10,060	13,097
1,000-4,999	-	31,475	34,969	493	1,364	30,982	33,605
5,000-9,999	-	18,191	18,170	2,018	620	16,173	17,550
10,000-24,999	-	31,208	33,564	1,561	1,918	29,647	31,646
25,000 or more	-	78,523	84,983	11,923	13,352	66,600	71,631

TABLE 1. Funds for industrial R&D, sales, and employment for companies performing industrial R&D in the United States, by industry and company size: 2004 and 2005

Industry and company size	NAICS codes	Domestic net sales		R&D scientists and engineers ^a		Domestic employment (March)	
		2004	2005	2005	2006	2004	2005
		\$millions		Thousands			
All industries	21–23, 31–33, 42, 44–81	5,601,729	6,119,133	1,111.3	1,097.7	14,820	16,032
Manufacturing industries	31–33	3,871,294	3,998,256	717.0	695.8	9,399	9,436
Food	311	347,396	374,342	11.7	11.8	876	995
Beverage and tobacco products	312	43,292	38,003	4.7 i	4.7 i	100	57
Textiles, apparel, and leather	313–16	48,859	51,639	5.8	7.8 i	256	204
Wood products	321	35,066	27,002	D	D	151	108
Paper, printing, and support activities	322, 323	155,801	159,608	D	D	475	421
Petroleum and coal products	324	408,956	404,317	D	D	169	164
Chemicals	325	595,292	624,344	118.6	118.0	1,073	1,074
Basic chemicals	3251	109,200	109,899	10.6	9.8	179	167
Resin, synthetic rubber, fibers, and filament	3252	67,610	132,934	9.4	8.4	100	110
Pharmaceuticals and medicines	3254	315,180	273,377	79.9	81.1	469	482
Other chemicals	other 325	103,302	108,134	18.6	18.7	325	314
Plastics and rubber products	326	120,670	90,176	14.1	11.0	429	377
Nonmetallic mineral products	327	43,155	50,344	6.5 i	6.7 i	179	198
Primary metals	331	101,868	110,960	4.9	3.8 i	274	262
Fabricated metal products	332	102,935	174,165	15.7	16.7	482	626
Machinery	333	178,618	230,941	62.6	59.6	665	832
Computer and electronic products	334	506,103	472,330	273.3	262.5	1,373	1,253
Computers and peripheral equipment	3341	122,494	91,010	45.1	33.1	247	158
Communications equipment	3342	88,381	69,115	49.9	50.4	210	155
Semiconductor and other electronic components	3344	162,398	176,054	97.4	92.4	411	444
Navigational, measuring, electromedical, and control instruments	3345	110,416	118,648	74.6 i	81.6 i	450	454
Other computer and electronic products	other 334	22,415	17,503	6.2	5.0	55	43
Electrical equipment, appliances, and components	335	95,715	101,398	19.4	17.9	345	321
Transportation equipment	336	946,474	957,051	134.1	135.0	1,956	1,972
Motor vehicles, trailers, and parts	3361–63	643,079	646,486	D	83.9 i	1,039	1,019
Aerospace products and parts	3364	228,018	227,271	37.9	41.5 i	622	639
Other transportation equipment	other 336	75,377	83,294	D	9.5	295	315
Furniture and related products	337	51,578	48,534	2.9	3.6	241	235
Miscellaneous manufacturing	339	89,515	83,103	21.8	21.7	355	338
Medical equipment and supplies	3391	56,713	56,661	13.9	16.1	211	220
Other miscellaneous manufacturing	other 339	32,802	26,442	7.9	5.6	143	118

TABLE 1. Funds for industrial R&D, sales, and employment for companies performing industrial R&D in the United States, by industry and company size: 2004 and 2005

Industry and company size	NAICS codes	Domestic net sales		R&D scientists and engineers ^a		Domestic employment (March)	
		2004	2005	2005	2006	2004	2005
		\$millions		Thousands			
Nonmanufacturing industries	21–23, 42, 44–81	1,730,435	2,120,877	394.3	401.9	5,421	6,596
Mining, extraction, and support activities	21	29,753	33,665	D	D	97	97
Utilities	22	170,637	223,395	0.8	0.8	255	304
Construction	23	56,118	57,187	D	10.3	160	171
Wholesale trade	42	68,879	107,485	15.5	19.3	155	247
Retail trade	44, 45	191,632	232,150	15.3	D	603	608
Transportation and warehousing	48, 49	74,235	79,436	D	D	597	642
Information	51	445,652	445,489	131.5	134.2	1,233	1,493
Publishing	511	NA	103,609	NA	98.7	NA	381
Newspaper, periodical, book, and directory	5111	NA	26,411	NA	5.7	NA	127
Software	5112	71,004	77,198	93.7	93.0	238	254
Telecommunications	517	NA	258,953	NA	10.2	NA	714
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	NA	224,300	NA	9.4	NA	D
Satellite telecommunications	5174	NA	394	NA	**	NA	1
Other telecommunications	other 517	NA	34,259 i	NA	0.8 i	NA	D
Internet service providers, Web search portals, and data-processing services	518	NA	36,493	NA	23.8	NA	149
Internet service providers and Web search portals	5181	NA	11,574	NA	5.1	NA	20
Data-processing, hosting, and related services	5182	NA	24,919	NA	18.7	NA	129
Other information	other 51	NA	46,434	NA	1.5	NA	249
Finance, insurance, and real estate	52, 53	440,122	580,380	22.3	30.2	857	1,265
Professional, scientific, and technical services	54	185,812	261,500	174.1	170.6	957	1,182
Architectural, engineering, and related services	5413	34,885	50,121	41.4	30.1	157	221
Computer systems design and related services	5415	95,541	136,376	74.5	90.3	485	660
Scientific R&D services	5417	31,729	34,516	44.7	42.7	163	129
Other professional, scientific, and technical services	other 54	23,658	40,487	13.5	7.6	152	172
Health care services	621–23	27,638	25,076	6.0 i	4.7	160	93
Other nonmanufacturing ^b	55, 56, 61, 624, 71, 72, 81	39,957	75,115	10.9	17.4	348	494

TABLE 1. Funds for industrial R&D, sales, and employment for companies performing industrial R&D in the United States, by industry and company size: 2004 and 2005

Industry and company size	NAICS codes	Domestic net sales		R&D scientists and engineers ^a		Domestic employment (March)	
		2004	2005	2005	2006	2004	2005
		\$millions		Thousands			
Company size (employees)							
All companies	-	5,601,729	6,119,133	1,111.3	1,097.7	14,820	16,032
5–24	-	111,868 i	72,744	66.2	66.4	240	245
25–49	-	46,138	77,898	43.4	45.9	236	300
50–99	-	101,559	83,685	44.1	44.7	356	335
100–249	-	180,436	157,088	73.1	58.0	635	655
250–499	-	152,243	157,726	52.3	45.8	545	576
500–999	-	217,014	295,203	59.3	69.3	610	830
1,000–4,999	-	828,300	963,025	173.8	180.1	2,325	2,863
5,000–9,999	-	571,170	703,009	96.6	91.1	1,373	1,554
10,000–24,999	-	993,497	1,030,880	178.9	180.9	2,243	2,260
25,000 or more	-	2,399,505	2,577,876	323.6	315.6	6,258	6,413

* = amount < \$500,000; ** = amount < 50; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; NA = not available; - = not applicable.

^a Data recorded in January represent employment for the previous year.

^b Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D not performed within the company (e.g., R&D performed by other organizations) and R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 2. Industrial R&D performed in the United States, by source of funds: 1953–2005
(Millions of current and constant 2000 dollars)

Year	All sources		Federal		Company and other	
	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$
1953	3,630	19,901	1,430	7,840	2,200	12,061
1954	4,070	22,096	1,750	9,501	2,320	12,595
1955	4,640	24,747	2,180	11,627	2,460	13,120
1956	6,605	34,064	3,328	17,163	3,277	16,900
1957	7,731	38,578	4,335	21,632	3,396	16,946
1958	8,389	40,922	4,759	23,215	3,630	17,707
1959	9,618	46,352	5,635	27,157	3,983	19,195
1960	10,509	49,948	6,081	28,902	4,428	21,046
1961	10,908	51,259	6,240	29,323	4,668	21,936
1962	11,464	53,148	6,434	29,828	5,029	23,315
1963	12,630	57,936	7,270	33,349	5,360	24,587
1964	13,512	61,057	7,720	34,885	5,792	26,173
1965	14,185	62,960	7,740	34,354	6,445	28,606
1966	15,548	67,075	8,332	35,945	7,216	31,130
1967	16,385	68,585	8,365	35,015	8,020	33,571
1968	17,429	69,968	8,560	34,364	8,869	35,604
1969	18,308	70,011	8,451	32,317	9,857	37,694
1970	18,067	65,627	7,779	28,256	10,288	37,370
1971	18,320	63,369	7,666	26,517	10,654	36,852
1972	19,552	64,806	8,017	26,573	11,535	38,233
1973	21,249	66,716	8,145	25,573	13,104	41,143
1974	22,887	65,900	8,220	23,668	14,667	42,232
1975	24,187	63,650	8,605	22,645	15,582	41,005
1976	26,997	67,157	9,561	23,784	17,436	43,373
1977	29,825	69,766	10,485	24,526	19,340	45,240
1978	33,304	72,780	11,189	24,451	22,115	48,328
1979	38,226	77,146	12,518	25,263	25,708	51,883
1980	44,505	82,356	14,029	25,960	30,476	56,395
1981	51,810	87,635	16,382	27,710	35,428	59,926
1982	58,650	93,496	18,545	29,563	40,105	63,933
1983	65,268	100,089	20,680	31,713	44,588	68,376
1984	74,800	110,553	23,396	34,579	51,404	75,974
1985	84,239	120,842	27,196	39,013	57,043	81,829
1986	87,823	123,260	27,891	39,145	59,932	84,115
1987	92,155	125,895	30,752	42,011	61,403	83,884
1988	97,015	128,174	30,343	40,089	66,672	88,086
1989	102,055	129,907	28,554	36,347	73,501	93,560
1990	109,727	134,486	28,125	34,471	81,602	100,015
1991	116,952	138,503	26,372	31,232	90,580	107,271
1992	119,110	137,891	24,722	28,620	94,388	109,271
1993	117,400	132,835	22,809	25,808	94,591	107,028
1994	119,595	132,501	22,463	24,887	97,131	107,612
1995	132,103	143,419	23,451	25,460	108,652	117,959
1996	144,667	154,147	23,653	25,203	121,015	128,945
1997	157,539	165,118	23,928	25,079	133,611	140,039
1998	169,180	175,371	24,164	25,048	145,016	150,322
1999	184,129	188,136	22,535	23,025	161,594	165,111

TABLE 2. Industrial R&D performed in the United States, by source of funds: 1953–2005

(Millions of current and constant 2000 dollars)

Year	All sources		Federal		Company and other	
	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$
2000	201,962	201,962	19,118	19,118	182,844	182,844
2001	202,017	197,284	16,899	16,503	185,118	180,781
2002	193,868	186,078	16,401	15,742	177,467	170,336
2003	200,724 r	188,643 r	17,798 r	16,727 r	182,926 r	171,916 r
2004	208,301	190,356	20,266	18,520	188,035	171,836
2005	226,159	200,609	21,909	19,434	204,250	181,175

r = data significantly revised, replaces previously published data.

NOTES: Beginning with 2001, all and federally funded industrial R&D exclude federally funded research and development centers. Gross domestic product implicit price deflators were used to convert current dollars to constant 2000 dollars. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside sources, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states and DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 3. Funds for and companies performing industrial R&D in the United States, by industry and company size, by total R&D program size: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	R&D program size											
		All companies		Less than \$200,000		\$200,000–\$999,999		\$1 million–\$9.9 million		\$10 million–\$99.9 million		\$100 million or more	
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42, 44–81	43,880	226,159	22,912	1,349	11,623	5,516	7,526	22,832	1,551	43,339	267	153,122
Manufacturing industries	31–33	19,232	158,190	9,988	635	5,314	2,555	2,898	9,392	831	25,540	201	120,067
Food	311	1,096	2,716	746	39	192	103	125	351	27	974	6	1,250
Beverage and tobacco products	312	38	539 i	24	1	4	2	4	9	5	D	1	D
Textiles, apparel, and leather	313–16	948	816	562	35	231	71	146	337	9	D	1	D
Wood products	321	251	D	139	D	97	44	11	29	4	140	0	0
Paper, printing, and support activities	322, 323	464	D	229	D	162	66	56	168	14	405	3	1,808
Petroleum and coal products	324	117	D	74	3	28	D	9	D	2	D	4	1,389
Chemicals	325	1,962	42,995	792	55	630	311	306	961	176	6,785	58	34,883
Basic chemicals	3251	201	2,277	67	2	36	17	52	173	41	1,480	5	604
Resin, synthetic rubber, fibers, and filament	3252	122	2,294	44	4	38	18	24	74	13	377	3	1,822
Pharmaceuticals and medicines	3254	445	34,839	39	2	139	56	130	425	91	3,734	44	30,621
Other chemicals	other 325	1,194	3,584	642	46	416	219	99	289	31	1,193	6	1,836
Plastics and rubber products	326	1,212	1,760	774	D	262	107	145	468	29	576	2	D
Nonmetallic mineral products	327	443	894	314	D	83	49	34	D	12	419	1	D
Primary metals	331	186	631	52	3	75	D	45	154	13	264	1	D
Fabricated metal products	332	2,013	1,375	1,446	D	413	258	130	362	24	559	1	D
Machinery	333	2,923	8,531	1,665	109	767	326	388	1,020	91	2,533	12	4,544
Computer and electronic products	334	3,425	D	1,148	D	1,121	584	829	3,309	258	7,739	68	38,022
Computers and peripheral equipment	3341	340	4,955	122	10	90	38	83	288	33	969	12	3,649
Communications equipment	3342	499	D	181	D	99	54	142	520	66	1,857	11	7,408
Semiconductor and other electronic components	3344	907	18,724	197	13	296	167	303	1,572	88	2,699	23	14,274
Navigational, measuring, electromedical, and control instruments	3345	1,513	15,204	590	41	571	276	271	819	62	1,941	19	12,126
Other computer and electronic products	other 334	167	997	58	2	66	48	31	109	9	273	3	564
Electrical equipment, appliances, and components	335	1,033	2,424	591	38	231	105	162	461	46	1,348	3	473
Transportation equipment	336	1,140	D	454	D	388	169	208	662	59	1,974	31	33,261
Motor vehicles, trailers, and parts	3361–63	616	D	257	D	163	75	135	440	43	1,441	17	14,164
Aerospace products and parts	3364	254	15,005	40	4	152	52	45	141	7	274	10	14,534
Other transportation equipment	other 336	270	D	156	D	73	42	28	81	9	259	4	4,562
Furniture and related products	337	405	400	284	12	79	36	32	80	10	272	0	0
Miscellaneous manufacturing	339	1,576	5,143	694	48	552	276	268	888	52	1,224	9	2,707
Medical equipment and supplies	3391	869	4,374	280	D	353	163	188	659	42	1,042	7	D
Other miscellaneous manufacturing	other 339	707	769	415	D	200	112	81	229	10	182	2	D

TABLE 3. Funds for and companies performing industrial R&D in the United States, by industry and company size, by total R&D program size: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	R&D program size											
		All companies		Less than \$200,000		\$200,000–\$999,999		\$1 million–\$9.9 million		\$10 million–\$99.9 million		\$100 million or more	
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
Nonmanufacturing industries	21–23, 42, 44–81	24,647	67,969	12,924	714	6,309	2,961	4,629	13,440	720	17,799	66	33,055
Mining, extraction, and support activities	21	245	D	212	4	10	5	14	D	7	145	2	D
Utilities	22	83	210	27	2	25	10	26	86	5	111	0	0
Construction	23	1,063	D	754	21	292	D	13	48	4	117 i	1	D
Wholesale trade	42	4,473	D	3,304	D	751	335	382	960	36	713	0	0
Retail trade	44, 45	1,759	D	1,461	D	266	D	24	89	5	239	3	850
Transportation and warehousing	48, 49	36	D	17	*	5	2	10	D	3	86	1	D
Information	51	3,206	23,836	1,215	60	1,153	602	663	2,098	147	4,460	28	16,616
Publishing	511	1,861	17,747	693	40	539	255	504	1,548	106	3,177	19	12,726
Newspaper, periodical, book, and directory	5111	346	821	259	6	65	D	15	68	5	168	2	D
Software	5112	1,514	16,926	433	34	474	D	489	1,480	101	3,010	17	D
Telecommunications	517	108	2,539	1	D	68	D	24	84	10	452	5	1,975
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	44	2,358	0	0	19	14	13	57	7	313	5	1,975
Satellite telecommunications	5174	47	13	0	0	47	13	0	0	0	0	0	0
Other telecommunications	other 517	17	168 i	1	D	2	D	11	28	3	139 i	0	0
Internet service providers, Web search portals, and data-processing services	518	1,194	3,337	517	20	521	310	127	421	24	671	4	1,915
Internet service providers and Web search portals	5181	430	1,042	250	6	170	D	5	26	4	99	2	D
Data-processing, hosting, and related services	5182	763	2,295	268	14	352	D	122	395	20	572	2	D
Other information	other 51	43	213	4	D	24	D	9	44	7	160	0	0
Finance, insurance, and real estate	52, 53	920	3,030	250	13	258	119	382	1,532	27	801	4	566
Professional, scientific, and technical services	54	9,197	32,021	3,494	277	2,476	1,297	2,742	7,839	461	10,375	24	12,233
Architectural, engineering, and related services	5413	683	4,687	287	32	151	53	210	632	29	788	6	3,181
Computer systems design and related services	5415	4,609	13,592	2,035	162	1,249	634	1,217	3,409	98	2,113	10	7,274
Scientific R&D services	5417	2,074	12,299	165	D	555	313	1,029	3,332	317	7,028	7	D
Other professional, scientific, and technical services	other 54	1,831	1,444	1,007	D	521	297	286	465	16	447	1	D
Health care services	621–23	1,091	989	776	12	285	D	24	67	4	145	2	D
Other nonmanufacturing ^a	55–56, 61, 624, 71–72, 81	2,574	2,137	1,416	D	789	321	348	639	21	606	1	D

TABLE 3. Funds for and companies performing industrial R&D in the United States, by industry and company size, by total R&D program size: 2005

(Amount in millions of dollars)

(Amount in millions of dollars)

Industry and company size		NAICS codes	R&D program size											
			All companies		Less than \$200,000		\$200,000–\$999,999		\$1 million–\$9.9 million		\$10 million–\$99.9 million		\$100 million or more	
			Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
Company size (employees)														
All companies	-	43,880	226,159	22,912	1,349	11,623	5,516	7,526	22,832	1,551	43,339	267	153,122	
5–24	-	21,712	7,373	14,930	782	4,695	2,108	2,069	4,265	18	218 i	0	0	
25–49	-	8,602	7,488	4,027	288	3,172	1,424	1,299	4,241	104	1,535	0	0	
50–99	-	4,789	7,144	1,803	127	1,755	923	1,076	3,516	154	2,579	0	0	
100–249	-	4,149	10,327	1,627	D	1,108	582	1,145	3,628	269	5,900	1	D	
250–499	-	1,699	8,149	374	D	497	244	607	1,996	219	5,603	2	D	
500–999	-	1,147	13,992	100	7	178	89	627	2,465	218	7,112	24	4,320	
1,000–4,999	-	1,319	34,969	32	3	204	138	603	2,246	397	13,358	83	19,225	
5,000–9,999	-	218	18,170	18	D	11	D	63	297	86	3,096	40	14,770	
10,000–24,999	-	145	33,564	1	D	3	D	28	D	56	2,585	57	30,851	
25,000 or more	-	101	84,983	1	D	1	D	10	D	29	1,354	60	83,574	

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004.

Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states and DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 4. Funds for industrial R&D performed in the United States, by industry, by company size: 2005

(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
All industries	21–23, 31–33, 42, 44–81	226,159	7,373	7,488	7,144	10,327	8,149	13,992	34,969	18,170	33,564	84,983
Manufacturing industries	31–33	158,190	1,463	2,771	2,107	4,442	D	8,784	25,281	D	D	68,717
Food	311	2,716	106	11	D	83	77	108	318	D	D	D
Beverage and tobacco products	312	539 i	D	*	*	1	1	D	D	D	D	0
Textiles, apparel, and leather	313–16	816	42	D	21	D	D	D	D	D	D	D
Wood products	321	D	0	35	1	D	4	D	55	60	D	0
Paper, printing, and support activities	322, 323	D	3	20	28	54	38	37	177	89	363	D
Petroleum and coal products	324	D	3	4	6	4	9	D	18 i	D	D	D
Chemicals	325	42,995	D	443	D	1,156	1,179	2,975	7,945	4,751	10,315	D
Basic chemicals	3251	2,277	2	13	D	D	D	D	D	D	D	0
Resin, synthetic rubber, fibers, and filament	3252	2,294	4	D	15	D	52	24	D	0	D	D
Pharmaceuticals and medicines	3254	34,839	76	D	D	805	958	D	D	3,659	D	D
Other chemicals	other 325	3,584	D	D	D	105	D	D	D	D	D	D
Plastics and rubber products	326	1,760	D	D	D	D	D	487	D	212	D	D
Nonmetallic mineral products	327	894	26	8	36	D	65	D	D	D	D	0
Primary metals	331	631	D	D	28	D	D	39	D	D	D	D
Fabricated metal products	332	1,375	D	D	D	D	D	70	D	166	D	D
Machinery	333	8,531	121	D	260	D	468	442	1,784	D	D	D
Computer and electronic products	334	D	592	1,641	731	1,451	1,746	2,989	9,672	D	D	D
Computers and peripheral equipment	3341	4,955	D	72	D	D	D	D	D	D	D	D
Communications equipment	3342	D	62	66	D	D	589	D	D	0	D	D
Semiconductor and other electronic components	3344	18,724	D	1,328	D	D	615	1,151	D	2,560	3,341	D
Navigational, measuring, electromedical, and control instruments	3345	15,204	234	163	D	504	D	D	2,032	D	D	D
Other computer and electronic products	other 334	997	D	11	D	D	39	45	D	0	D	0
Electrical equipment, appliances, and components	335	2,424	58	D	D	D	247	D	D	384	425	0
Transportation equipment	336	D	62	78	63	D	D	D	1,855	D	D	D
Motor vehicles, trailers, and parts	3361–63	D	8	D	D	D	D	D	D	D	D	D
Aerospace products and parts	3364	15,005	D	D	D	D	D	D	D	D	D	D
Other transportation equipment	other 336	D	D	D	D	D	25	28	D	D	D	D
Furniture and related products	337	400	7	D	5	D	18	10	49	D	124	D
Miscellaneous manufacturing	339	5,143	231	166	228	306	D	D	D	594	1,764	0
Medical equipment and supplies	3391	4,374	D	D	D	219	D	D	D	D	1,764	0
Other miscellaneous manufacturing	other 339	769	D	D	D	87	46	45	D	D	0	0
Nonmanufacturing industries	21–23, 42, 44–81	67,969	5,909	4,718	5,038	5,885	D	5,209	9,688	D	D	16,266

TABLE 4. Funds for industrial R&D performed in the United States, by industry, by company size: 2005

(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
Mining, extraction, and support activities	21	D	3	17	D	1	16	28	D	D	D	D
Utilities	22	210	D	23	D	0	D	D	42	D	37	D
Construction	23	D	16	D	2	D	D	D	D	D	D	0
Wholesale trade	42	D	378	D	D	D	287	D	D	D	0	0
Retail trade	44, 45	D	103	D	0	12	D	D	D	373 i	D	151
Transportation and warehousing	48, 49	D	1	0	D	D	D	D	D	D	D	D
Information	51	23,836	D	D	D	D	956	1,516	D	D	3,149	D
Publishing	511	17,747	D	293	D	D	D	1,162	D	D	D	D
Newspaper, periodical, book, and directory	51111	821	D	0	D	D	18	D	D	D	D	D
Software	5112	16,926	D	293	D	D	D	D	D	D	D	D
Telecommunications	517	2,539	D	D	38	D	23	D	D	D	D	D
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	2,358	D	D	D	D	D	D	D	D	D	D
Satellite telecommunications	5174	13	D	0	0	0	0	D	0	0	0	0
Other telecommunications	other 517	168 i	0	0	D	D	D	D	0	0	D	D
Internet service providers, Web search portals, and data-processing services	518	3,337	164	D	D	D	137	D	708	D	D	D
Internet service providers and Web search portals	5181	1,042	125	0	15	29	70	0	D	D	0	0
Data-processing, hosting, and related services	5182	2,295	39	D	D	D	67	D	D	D	D	D
Other information	other 51	213	D	D	D	D	D	D	D	0	D	D
Finance, insurance, and real estate	52, 53	3,030	D	118	6	D	30 i	1,262	643	D	D	D
Professional, scientific, and technical services	54	32,021	4,339	D	3,567	4,279	D	1,683	3,997	D	D	D
Architectural, engineering, and related services	5413	4,687	D	D	D	D	203	240	D	D	D	D
Computer systems design and related services	5415	13,592	D	D	912	D	D	D	1,249	D	D	D
Scientific R&D services	5417	12,299	2,047	D	2,352	2,664	1,095	D	D	D	D	0

TABLE 4. Funds for industrial R&D performed in the United States, by industry, by company size: 2005
(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
Other professional, scientific, and technical services	other 54	1,444	D	D	D	291	50	D	D	D	D	D
Health care services	621–23	989	D	D	D	D	D	D	D	D	D	0
Other nonmanufacturing ^a	55–56, 61, 624, 71–72, 81	2,137	D	211	18	D	99	D	198	D	145 i	D

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states and DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 5. Funds for industrial R&D and companies in manufacturing and nonmanufacturing industries performing industrial R&D in the United States and funds for industrial R&D, by company size: 2005

Company size (employees)	Companies performing R&D (number)			Funds for industrial R&D (\$millions)		
	All industries	Manufacturing	Nonmanufacturing	All industries	Manufacturing	Nonmanufacturing
All companies	43,880	19,232	24,647	226,159	158,190	67,969
5–24	21,712	6,946	14,766	7,373	1,463	5,909
25–49	8,602	3,543	5,059	7,488	2,771	4,718
50–99	4,789	2,880	1,908	7,144	2,107	5,038
100–249	4,149	2,690	1,460	10,327	4,442	5,885
250–499	1,699	1,322	377	8,149	D	D
500–999	1,147	642	505	13,992	8,784	5,209
1,000–4,999	1,319	907	412	34,969	25,281	9,688
5,000–9,999	218	147	71	18,170	D	D
10,000–24,999	145	97	48	33,564	D	D
25,000 or more	101	59	42	84,983	68,717	16,266

D = suppressed to avoid disclosure of confidential information.

NOTES: Detail does not add to total due to rounding or suppression. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states and DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 6. Costs for industrial R&D performed in the United States, by industry and company size, by type of cost: 2005
(Percent distribution)

Industry and company size	NAICS codes	All R&D costs		Wages of R&D personnel	Employer's cost of fringe benefits for R&D personnel	Materials and supplies	R&D depreciation	Other costs
		\$millions	Percent					
All industries	21–23, 31–33, 42, 44–81	226,159	100.0	47.3	9.1	12.6 i	4.5	26.4
Manufacturing industries	31–33	158,190	100.0	44.3 i	9.0 i	14.6 i	4.9	27.3 i
Food	311	2,716	100.0	37.2	11.9	11.1	4.4	35.5
Beverage and tobacco products	312	539 i	100.0	42.3 i	21.8 i	10.1 i	4.4 i	21.4 i
Textiles, apparel, and leather	313–16	816	100.0	52.3	11.2	12.1	2.7	21.6
Wood products	321	D	100.0	45.4	9.1	11.7	2.9	30.8
Paper, printing, and support activities	322, 323	D	100.0	44.6 i	13.2 i	19.5 i	7.6 i	15.1 i
Petroleum and coal products	324	D	100.0	40.5 i	11.4 i	10.2 i	8.2 i	29.7
Chemicals	325	42,995	100.0	35.3 i	8.3 i	12.6 i	5.6 i	38.1 i
Basic chemicals	3251	2,277	100.0	40.6	10.3 i	10.9	6.5 i	31.6 i
Resin, synthetic rubber, fibers, and filament	3252	2,294	100.0	42.5	6.9	7.9	9.9	32.7 i
Pharmaceuticals and medicines	3254	34,839	100.0	33.4 i	7.7 i	13.4 i	5.0 i	40.4 i
Other chemicals	other 325	3,584	100.0	46.8 i	14.2	9.1 i	8.4	21.4 i
Plastics and rubber products	326	1,760	100.0	39.7	9.1	29.0	3.8	18.5
Nonmetallic mineral products	327	894	100.0	35.1	13.8	18.5	5.4	27.2
Primary metals	331	631	100.0	55.9 i	6.6	15.7 i	6.0 i	15.8 i
Fabricated metal products	332	1,375	100.0	46.6	12.1	16.4	4.2	20.8
Machinery	333	8,531	100.0	48.1 i	10.7 i	14.2	5.2	21.9
Computer and electronic products	334	D	100.0	49.8	9.0	12.0 i	5.3	23.9 i
Computers and peripheral equipment	3341	4,955	100.0	53.3	9.5	9.4 i	4.8	23.0
Communications equipment	3342	D	100.0	56.6	12.6	6.1 i	6.5	18.2 i
Semiconductor and other electronic components	3344	18,724	100.0	50.1	5.8	11.5	7.1	25.5
Navigational, measuring, electromedical, and control instruments	3345	15,204	100.0	44.0 i	10.2 i	17.5 i	2.5 i	25.9 i
Other computer and electronic products	other 334	997	100.0	47.1 i	10.2 i	11.2 i	5.2 i	26.3 i
Electrical equipment, appliances, and components	335	2,424	100.0	50.3	11.4	11.9	3.5 i	22.9
Transportation equipment	336	D	100.0	47.9 i	8.0 i	19.5	3.5 i	21.1
Motor vehicles, trailers, and parts	3361–63	D	100.0	47.9 i	11.1 i	20.9	4.3 i	15.8 i
Aerospace products and parts	3364	15,005	100.0	48.1	3.8 i	18.1	2.4 i	27.7
Other transportation equipment	other 336	D	100.0	47.3 i	10.8 i	19.1 i	4.7 i	18.1 i
Furniture and related products	337	400	100.0	41.1	9.6 i	10.3	2.6	36.4
Miscellaneous manufacturing	339	5,143	100.0	39.4 i	10.3 i	18.0 i	3.2 i	29.0
Medical equipment and supplies	3391	4,374	100.0	38.3 i	10.1 i	19.2 i	3.3 i	29.1
Other miscellaneous manufacturing	other 339	769	100.0	47.1	11.7	10.0	2.6 i	28.7

TABLE 6. Costs for industrial R&D performed in the United States, by industry and company size, by type of cost: 2005
(Percent distribution)

Industry and company size	NAICS codes	All R&D costs		Wages of R&D personnel	Employer's cost of fringe benefits for R&D personnel	Materials and supplies	R&D depreciation	Other costs
		\$millions	Percent					
Nonmanufacturing industries	21–23, 42, 44–81	67,969	100.0	55.9	9.7	7.0	3.6	23.8
Mining, extraction, and support activities	21	D	100.0	49.4	13.5	14.1	2.5	20.6 i
Utilities	22	210	100.0	35.3	9.5	13.7	0.9	40.6
Construction	23	D	100.0	41.6 i	9.1 i	14.5 i	4.5 i	30.4 i
Wholesale trade	42	D	100.0	50.3	9.4	8.8	4.5	26.9
Retail trade	44, 45	D	100.0	62.2	11.8	10.0	4.5 i	11.5
Transportation and warehousing	48, 49	D	100.0	56.3 i	21.7 i	4.8 i	4.4 i	12.8
Information	51	23,836	100.0	63.8	9.9	3.6	2.9	19.8
Publishing	511	17,747	100.0	63.6	10.3	3.4	2.0	20.7
Newspaper, periodical, book, and directory	5111	821	100.0	64.3	11.1	1.5	7.6	15.4
Software	5112	16,926	100.0	63.6	10.3	3.5	1.8 i	20.9
Telecommunications	517	2,539	100.0	59.5 i	11.9 i	4.8	7.2 i	16.5
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	2,358	100.0	60.2 i	11.9 i	4.4	7.0 i	16.5
Satellite telecommunications	5174	13	100.0	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	168 i	100.0	49.3 i	11.9 i	10.7 i	11.8 i	16.3 i
Internet service providers, Web search portals, and data-processing services	518	3,337	100.0	69.6	5.2	4.0	4.2	16.9
Internet service providers and Web search portals	5181	1,042	100.0	58.3	6.7 i	7.7	11.1	16.3
Data-processing, hosting, and related services	5182	2,295	100.0	75.2	4.5	2.2	0.8	17.2
Other information	other 51	213	100.0	57.4	11.3	3.3	2.0	26.0
Finance, insurance, and real estate	52, 53	3,030	100.0	69.8	10.2	4.1	3.3 i	12.5
Professional, scientific, and technical services	54	32,021	100.0	48.4	9.4	10.1	4.4	27.8
Architectural, engineering, and related services	5413	4,687	100.0	48.5	11.0	16.8	2.0	21.8
Computer systems design and related services	5415	13,592	100.0	57.2	9.2	5.5	5.4	22.8
Scientific R&D services	5417	12,299	100.0	36.3	8.4	12.4	4.7	38.2
Other professional, scientific, and technical services	other 54	1,444	100.0	57.8	13.4	7.1 i	2.8 i	18.9 i
Health care services	621–23	989	100.0	34.8	6.7	1.6	0.7	56.3
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	2,137	100.0	59.4	8.1	4.6	1.5	26.4

TABLE 6. Costs for industrial R&D performed in the United States, by industry and company size, by type of cost: 2005
(Percent distribution)

Industry and company size	NAICS codes	All R&D costs		Wages of R&D personnel	Employer's cost of fringe	Materials and supplies	R&D depreciation	Other costs
		\$millions	Percent		benefits for			
					R&D personnel			
Company size (employees)								
All companies	-	226,159	100.0	47.3	9.1	12.6 i	4.5	26.4
5-24	-	7,373	100.0	34.5	6.5	12.1	4.2 i	42.8
25-49	-	7,488	100.0	38.9	7.4	12.8	4.2	36.7
50-99	-	7,144	100.0	42.5	8.7	11.2	4.4	33.3
100-249	-	10,327	100.0	45.7	8.4	12.3	4.1	29.5
250-499	-	8,149	100.0	46.6	9.2	9.6	4.8	29.8
500-999	-	13,992	100.0	44.0	8.4	13.5	4.3	30.0
1,000-4,999	-	34,969	100.0	47.2	9.6	10.9	4.6	27.7
5,000-9,999	-	18,170	100.0	48.8	8.9	13.9	3.2	25.2
10,000-24,999	-	33,564	100.0	44.0	9.5	11.2	4.6	30.7
25,000 or more	-	84,983	100.0	49.1	9.1	13.8	4.9	23.1

D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). Data for R&D by type of expense are collected only on 2005 Form RD-1, the questionnaire sent to larger R&D-performing companies. Consequently, the universe of companies may not be represented by the statistics in this table. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 7. Funds for and companies performing industrial R&D in the United States, by industry and company size, by R&D area: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	All R&D		Biotechnology		Software development	
		Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42, 44–81	43,880	226,159	2,749	23,044	14,690	42,816
Manufacturing industries	31–33	19,232	158,190	752	16,986	2,980	10,445
Food	311	1,096	2,716	46	85	23	8
Beverage and tobacco products	312	38	539 i	1	D	1	D
Textiles, apparel, and leather	313–16	948	816	3	D	9	D
Wood products	321	251	D	0	0	4	D
Paper, printing, and support activities	322, 323	464	D	3	D	46	D
Petroleum and coal products	324	117	D	1	D	5	D
Chemicals	325	1,962	42,995	330	14,987	58	253 i
Basic chemicals	3251	201	2,277	17	D	12	D
Resin, synthetic rubber, fibers, and filament	3252	122	2,294	3	D	1	D
Pharmaceuticals and medicines	3254	445	34,839	232	14,195	34	D
Other chemicals	other 325	1,194	3,584	78	667	11	D
Plastics and rubber products	326	1,212	1,760	6	D	92	D
Nonmetallic mineral products	327	443	894	3	D	21	D
Primary metals	331	186	631	3	D	10	D
Fabricated metal products	332	2,013	1,375	3	D	46	D
Machinery	333	2,923	8,531	87	28	522	D
Computer and electronic products	334	3,425	D	125	D	1,399	4,250
Computers and peripheral equipment	3341	340	4,955	3	D	168	1,485
Communications equipment	3342	499	D	6	D	226	814
Semiconductor and other electronic components	3344	907	18,724	4	D	205	D
Navigational, measuring, electromedical, and control instruments	3345	1,513	15,204	111	454	772	1,257
Other computer and electronic products	other 334	167	997	1	D	27	D
Electrical equipment, appliances, and components	335	1,033	2,424	4	2	275	88
Transportation equipment	336	1,140	D	3	D	111	D
Motor vehicles, trailers, and parts	3361–63	616	D	1	D	70	224 i
Aerospace products and parts	3364	254	15,005	2	D	23	D
Other transportation equipment	other 336	270	D	0	0	17	D
Furniture and related products	337	405	400	3	D	55	D
Miscellaneous manufacturing	339	1,576	5,143	132	997	302	120
Medical equipment and supplies	3391	869	4,374	130	D	157	D
Other miscellaneous manufacturing	other 339	707	769	2	D	146	D

TABLE 7. Funds for and companies performing industrial R&D in the United States, by industry and company size, by R&D area: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	All R&D		Biotechnology		Software development	
		Companies	Amount	Companies	Amount	Companies	Amount
Nonmanufacturing industries	21–23, 42, 44–81	24,647	67,969	1,997	6,057	11,710	32,372
Mining, extraction, and support activities	21	245	D	3	D	6	183
Utilities	22	83	210	3	D	23	D
Construction	23	1,063	D	0	0	33	D
Wholesale trade	42	4,473	D	223	254	843	583
Retail trade	44, 45	1,759	D	351	D	513	478
Transportation and warehousing	48, 49	36	D	0	0	7	D
Information	51	3,206	23,836	106	D	2,692	17,599
Publishing	511	1,861	17,747	105	5 i	1,575	14,563
Newspaper, periodical, book, and directory	5111	346	821	102	D	231	195
Software	5112	1,514	16,926	3	D	1,344	14,368
Telecommunications	517	108	2,539	0	0	46	D
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	44	2,358	0	0	32	D
Satellite telecommunications	5174	47	13	0	0	1	D
Other telecommunications	other 517	17	168 i	0	0	13	71 i
Internet service providers, Web search portals, and data-processing services	518	1,194	3,337	1	D	1,040	2,328
Internet service providers and Web search portals	5181	430	1,042	0	0	427	D
Data-processing, hosting, and related services	5182	763	2,295	1	D	613	D
Other information	other 51	43	213	0	0	31	D
Finance, insurance, and real estate	52, 53	920	3,030	1	D	398	1,491
Professional, scientific, and technical services	54	9,197	32,021	763	5,584	5,827	10,725
Architectural, engineering, and related services	5413	683	4,687	35	D	228	355
Computer systems design and related services	5415	4,609	13,592	58	35	4,022	8,995
Scientific R&D services	5417	2,074	12,299	668	5,434	281	784
Other professional, scientific, and technical services	other 54	1,831	1,444	1	D	1,297	591
Health care services	621–23	1,091	989	542	161	5	D
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	2,574	2,137	6	25	1,364	1,206

TABLE 7. Funds for and companies performing industrial R&D in the United States, by industry and company size, by R&D area: 2005

(Amount in millions of dollars)

		All R&D		Biotechnology		Software development	
Industry and company size	NAICS codes	Companies	Amount	Companies	Amount	Companies	Amount
Company size (employees)							
All companies	-	43,880	226,159	2,749	23,044	14,690	42,816
5-24	-	21,712	7,373	1,577	740	7,820	2,294
25-49	-	8,602	7,488	477	1,256	3,425	2,188
50-99	-	4,789	7,144	264	1,444	1,266	1,900
100-249	-	4,149	10,327	179	2,123	1,160	2,655
250-499	-	1,699	8,149	92	1,522	329	1,894
500-999	-	1,147	13,992	60	2,539	179	2,264
1,000-4,999	-	1,319	34,969	68	4,670	412	6,891
5,000-9,999	-	218	18,170	9	D	24	2,151
10,000-24,999	-	145	33,564	15	2,960	36	4,810
25,000 or more	-	101	84,983	8	D	39	15,769

TABLE 7. Funds for and companies performing industrial R&D in the United States, by industry and company size, by R&D area: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	Materials synthesis and processing		Other areas		Undistributed R&D	
		Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42, 44–81	7,103	20,667	19,999	68,139	6,521	71,492
Manufacturing industries	31–33	4,556	16,022	12,100	56,256	2,514	58,481
Food	311	94	225	918	1,861	106	538
Beverage and tobacco products	312	14	D	15	84	8	417
Textiles, apparel, and leather	313–16	242	272	613	429	129	74
Wood products	321	42	54	142	39	70	124
Paper, printing, and support activities	322, 323	134	121	353	377	58	1,918
Petroleum and coal products	324	49	D	77	365	3	653
Chemicals	325	802	2,877	865	6,916	197	17,962
Basic chemicals	3251	132	737	62	788	20	650
Resin, synthetic rubber, fibers, and filament	3252	80	D	48	365 i	6	1,605
Pharmaceuticals and medicines	3254	77	D	138	4,687	45	14,971
Other chemicals	other 325	513	D	617	1,076	126	735
Plastics and rubber products	326	491	376	741	1,131	40	239
Nonmetallic mineral products	327	260	255	178	241	85	290
Primary metals	331	74	346 i	96	217	34	62
Fabricated metal products	332	266	169	1,349	913	421	220
Machinery	333	648	D	2,002	4,633	343	2,006
Computer and electronic products	334	682	7,562	1,999	15,880	399	21,260
Computers and peripheral equipment	3341	86	D	169	1,549	42	1,807
Communications equipment	3342	110	235	256	2,416	61	6,387
Semiconductor and other electronic components	3344	303	6,823	494	7,190	96	3,799
Navigational, measuring, electromedical, and control instruments	3345	176	381	967	3,991	166	9,121
Other computer and electronic products	other 334	8	D	113	735	34	146
Electrical equipment, appliances, and components	335	174	227	634	1,787	219	320
Transportation equipment	336	194	D	849	19,996	146	9,938
Motor vehicles, trailers, and parts	3361–63	131	D	425	9,394	80	5,668
Aerospace products and parts	3364	27	D	219	D	23	4,073
Other transportation equipment	other 336	35	68	205	D	43	197
Furniture and related products	337	122	34	254	288	13	65
Miscellaneous manufacturing	339	269	534	1,015	1,099	242	2,393
Medical equipment and supplies	3391	157	309	626	734	83	2,255
Other miscellaneous manufacturing	other 339	112	225	388	365	160	139

TABLE 7. Funds for and companies performing industrial R&D in the United States, by industry and company size, by R&D area: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	Materials synthesis and processing		Other areas		Undistributed R&D	
		Companies	Amount	Companies	Amount	Companies	Amount
Nonmanufacturing industries	21–23, 42, 44–81	2,547	4,645	7,900	11,884	4,006	13,011
Mining, extraction, and support activities	21	110	56	210	404	3	17
Utilities	22	30	D	50	168	5	28
Construction	23	294	66	770	199	4	1,006
Wholesale trade	42	1,070	D	2,743	834	570	335
Retail trade	44, 45	273	208	1,129	338	504	258
Transportation and warehousing	48, 49	2	D	9	D	20	202
Information	51	8	D	93	2,131	351	4,059
Publishing	511	4	2	47	646	155	2,530
Newspaper, periodical, book, and directory	5111	2	D	8	596	9	27
Software	5112	2	D	39	50	146	2,504
Telecommunications	517	3	D	16	931	53	998
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	1	D	13	872	5	D
Satellite telecommunications	5174	0	0	0	0	46	D
Other telecommunications	other 517	2	*	3	59 i	2	38
Internet service providers, Web search portals, and data-processing services	518	1	D	15	D	141	506
Internet service providers and Web search portals	5181	0	0	2	D	1	329
Data-processing, hosting, and related services	5182	1	D	13	D	140	177
Other information	other 51	0	0	15	D	1	25
Finance, insurance, and real estate	52, 53	2	D	264	D	260	147
Professional, scientific, and technical services	54	737	3,968	1,745	5,387	1,411	6,357
Architectural, engineering, and related services	5413	70	D	365	1,598	225	2,338
Computer systems design and related services	5415	88	2,552	500	945	515	1,065
Scientific R&D services	5417	315	792	845	2,525	413	2,764
Other professional, scientific, and technical services	other 54	264	D	35	318	259	190
Health care services	621–23	3	D	535	798	15	10
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	18	37	352	277	865	591

TABLE 7. Funds for and companies performing industrial R&D in the United States, by industry and company size, by R&D area: 2005

(Amount in millions of dollars)

Industry and company size		NAICS codes	Materials synthesis and processing		Other areas		Undistributed R&D	
			Companies	Amount	Companies	Amount	Companies	Amount
Company size (employees)								
All companies	-	7,103	20,667	19,999	68,139	6,521	71,492	
5–24	-	3,224	855	8,898	1,622	4,049	1,862	
25–49	-	1,516	1,791	3,158	1,358	960	896	
50–99	-	722	575	2,720	1,993	662	1,232	
100–249	-	760	789	2,382	3,240	372	1,519	
250–499	-	339	952	1,136	3,184	110	597	
500–999	-	192	853	781	5,779	81	2,558	
1,000–4,999	-	252	3,638	680	12,927	149	6,843	
5,000–9,999	-	42	D	116	7,616	61	7,456	
10,000–24,999	-	35	1,634	81	10,310	41	13,848	
25,000 or more	-	23	D	47	20,111	36	34,683	

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total for money amounts because of rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. Detail does not add to total for number of companies because categories are not mutually exclusive. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 8. Companies using nanotechnology to perform R&D, by industry and company size, by R&D area: 2005

Industry and company size	NAICS codes	Biotechnology	Software development	Materials and synthesis processing	Other areas
All industries	21–23, 31–33, 42, 44–81	55	80	194	214
Manufacturing industries	31–33	24	41	151	170
Food	311	0	0	1	5
Beverage and tobacco products	312	1	0	0	0
Textiles, apparel, and leather	313–16	0	0	3	5
Wood products	321	0	0	1	0
Paper, printing, and support activities	322, 323	0	0	2	1
Petroleum and coal products	324	0	0	3	0
Chemicals	325	11	0	40	22
Basic chemicals	3251	0	0	11	6
Resin, synthetic rubber, fibers, and filament	3252	1	0	9	1
Pharmaceuticals and medicines	3254	7	0	2	5
Other chemicals	other 325	3	0	18	10
Plastics and rubber products	326	0	3	22	14
Nonmetallic mineral products	327	0	0	4	4
Primary metals	331	0	0	7	1
Fabricated metal products	332	1	1	8	8
Machinery	333	1	5	12	22
Computer and electronic products	334	6	28	28	48
Computers and peripheral equipment	3341	0	6	3	9
Communications equipment	3342	0	3	0	5
Semiconductor and other electronic components	3344	1	4	14	11
Navigational, measuring, electromedical, and control instruments	3345	5	14	8	18
Other computer and electronic products	other 334	0	1	3	5
Electrical equipment, appliances, and components	335	0	2	3	11
Transportation equipment	336	1	1	4	12
Motor vehicles, trailers, and parts	3361–63	0	1	2	8
Aerospace products and parts	3364	1	0	1	1
Other transportation equipment	other 336	0	0	1	3
Furniture and related products	337	0	0	0	0
Miscellaneous manufacturing	339	3	1	13	17
Medical equipment and supplies	3391	3	1	8	10
Other miscellaneous manufacturing	other 339	0	0	5	7
Nonmanufacturing industries	21–23, 42, 44–81	31	39	43	44
Mining, extraction, and support activities	21	0	0	0	2
Utilities	22	0	0	0	0
Construction	23	0	0	0	1
Wholesale trade	42	2	6	8	6
Retail trade	44, 45	0	1	1	0
Transportation and warehousing	48, 49	0	0	0	0
Information	51	0	15	1	2
Publishing	511	0	13	1	1
Newspaper, periodical, book, and directory	5111	0	0	0	0
Software	5112	0	13	1	1
Telecommunications	517	0	0	0	0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	0	0	0	0
Satellite telecommunications	5174	0	0	0	0
Other telecommunications	other 517	0	0	0	0
Internet service providers, Web search portals, and data-processing services	518	0	1	0	1
Internet service providers and Web search portals	5181	0	0	0	0
Data-processing, hosting, and related services	5182	0	1	0	1

TABLE 8. Companies using nanotechnology to perform R&D, by industry and company size, by R&D area: 2005

Industry and company size	NAICS codes	Biotechnology	Software development	Materials and synthesis processing	Other areas
Other information	other 51	0	1	0	0
Finance, insurance, and real estate	52, 53	0	0	0	1
Professional, scientific, and technical services	54	26	13	32	29
Architectural, engineering, and related services	5413	2	1	6	2
Computer systems design and related services	5415	0	6	3	2
Scientific R&D services	5417	24	5	22	25
Other professional, scientific, and technical services	other 54	0	1	1	0
Health care services	621–23	2	0	0	0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	1	4	1	3
Company size (employees)					
All companies	-	55	80	194	214
5–24	-	12	7	18	25
25–49	-	4	14	26	22
50–99	-	9	15	23	37
100–249	-	13	17	39	47
250–499	-	3	8	32	27
500–999	-	5	6	19	19
1,000–4,999	-	7	10	23	27
5,000–9,999	-	0	1	5	4
10,000–24,999	-	1	1	3	6
25,000 or more	-	1	1	6	0

- = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 9. Funds for and companies performing energy R&D in the United States, by selected industry, company size and primary energy source, by source of funds: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	All R&D		Federal		Company and other	
		Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42, 44–81	102	2,934	34	173	93	2,761
Manufacturing	31–33	57	2,231	16	107	54	2,125
Petroleum and coal products	324	2	D	1	D	2	D
Chemicals	325	5	58	3	8	4	50
Machinery	333	9	D	2	D	9	237
Computer and electronic products	334	12	591	4	12	11	578
Electrical equipment, appliances, and components	335	9	101	4	D	8	D
Transportation equipment	336	9	D	2	D	9	781
All other manufacturing	-	11	19	0	0	11	19
Nonmanufacturing	21–23, 42, 44–81	45	702	18	66	39	636
Mining, extraction, and support activities	21	7	394	0	0	7	394
All other nonmanufacturing	22, 23, 42, 44–81	38	308	18	66	32	242
Company size (employees)							
All companies	-	102	2,934	34	173	93	2,761
5–24	-	0	0	0	0	0	0
25–49	-	7	30	4	4	5	26
50–99	-	6	D	4	D	4	12
100–249	-	14	90	8	32	11	58
250–499	-	13	112	5	51	13	61
500–999	-	5	D	1	D	5	38
1,000–4,999	-	20	D	2	D	20	327
5,000–9,999	-	14	D	2	D	13	107
10,000–24,999	-	11	D	3	D	11	953
25,000 or more	-	12	1,240	5	60	11	1,180
Primary energy source							
All energy	-	102	2,934	34	173	93	2,761
Fossil fuels	-	43	1,378	8	39	41	1,339
Nuclear	-	10	D	4	D	8	274
Total geothermal, solar, and conservation and utilization	-	15	D	8	D	12	272 i
All other energy	-	56	974	20	99	52	875

D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

NOTES: Detail does not add to total for number of companies for primary energy source because categories are not mutually exclusive. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. All and federally funded industrial R&D exclude federally funded research and development centers. Energy R&D data are collected only on Form RD-1, the questionnaire sent to larger R&D-performing companies. Consequently, the universe of companies that performs energy R&D may not be represented by the statistics in this table. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 10. Company and other nonfederal funds for industrial R&D performed in the United States, by industry, by company size: 2005

(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
All industries	21–23, 31–33, 42, 44–81	204,250	6,297	6,813	6,498	9,375	7,738	13,097	33,605	17,550	31,646	71,631
Manufacturing industries	31–33	142,555	1,314	2,638	2,042	4,331	4,625	8,576	24,649	13,110	24,673	56,597
Food	311	2,710	106	11	35	83	77	108	318	314	731	928
Beverage and tobacco products	312	539 i	D	*	*	1	1	D	D	D	D	0
Textiles, apparel, and leather	313–16	811	42	D	19	198	45	D	D	D	D	D
Wood products	321	218	0	35	1	9	4	D	55	60	D	0
Paper, printing, and support activities	322, 323	2,451	3	20	28	54	38	37	177	89	363	1,643
Petroleum and coal products	324	1,442	3	4	6	4	9	D	18 i	D	D	1,375
Chemicals	325	42,826	148	434	420	1,149	1,171	2,969	7,863	4,728	10,296	13,650
Basic chemicals	3251	2,179	2	13	16	199	59	D	1,224	275	D	0
Resin, synthetic rubber, fibers, and filament	3252	2,280	4	5	15	47	52	24	D	0	D	D
Pharmaceuticals and medicines	3254	34,798	76	342	249	799	956	2,698	D	3,659	D	D
Other chemicals	other 325	3,569	66	74	140	105	103	D	D	793	530	D
Plastics and rubber products	326	1,747	D	D	52	D	126	487	351	212	D	D
Nonmetallic mineral products	327	889	26	8	36	D	65	11	168	D	D	0
Primary metals	331	609	D	4	28	D	33	39	172	71	73	D
Fabricated metal products	332	1,323	40	D	115	115	135	70	458	166	87	D
Machinery	333	8,422	120	195	260	416	460	425	1,773	353	1,808	2,613
Computer and electronic products	334	42,463	491	1,582	697	1,425	1,700	2,836	9,493	4,347	6,705	13,187
Computers and peripheral equipment	3341	4,902	111	68	D	D	115	582	1,982	D	D	D
Communications equipment	3342	9,660	62	66	D	455	568	709	1,602	0	D	D
Semiconductor and other electronic components	3344	18,602	108	1,293	225	288	599	1,147	3,366	2,560	3,341	5,675
Navigational, measuring, electromedical, and control instruments	3345	8,325	187	143	D	486	379	352	1,898	D	2,275	D
Other computer and electronic products	other 334	974	24	11	D	D	39	45	646	0	D	0
Electrical equipment, appliances, and components	335	2,322	31	67	62	170	201	273	709	384	425	0
Transportation equipment	336	28,321	47	68	60	169	295	509	1,549	1,236	1,722	22,667
Motor vehicles, trailers, and parts	3361–63	16,025	7	D	D	D	79	441	1,165	985	D	D
Aerospace products and parts	3364	10,928	32	D	15	D	191	40	161	D	D	10,000
Other transportation equipment	other 336	1,368	8	D	D	D	25	28	223	D	D	D
Furniture and related products	337	400	7	D	5	D	18	10	49	D	124	D
Miscellaneous manufacturing	339	5,061	227	117	220	296	249	329	1,265	594	1,764	0
Medical equipment and supplies	3391	4,343	201	D	157	212	203	284	887	D	1,764	0
Other miscellaneous manufacturing	other 339	718	26 i	D	63	84	46	45	378	D	0	0
Nonmanufacturing industries	21–23, 42, 44–81	61,695	4,983	4,175	4,455	5,044	3,113	4,522	8,956	4,440	6,973	15,034

TABLE 10. Company and other nonfederal funds for industrial R&D performed in the United States, by industry, by company size: 2005

(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
Mining, extraction, and support activities	21	669	3	17	D	1	16	28	D	D	D	D
Utilities	22	180	D	23	2	0	D	8	42	34	37	D
Construction	23	1,248	16	D	2	D	D	40 i	D	D	D	0
Wholesale trade	42	2,144	371	371	444	432	287	164	D	D	0	0
Retail trade	44, 45	1,285	103 i	D	0	12	D	42	D	373 i	D	151
Transportation and warehousing	48, 49	312	1	0	D	D	D	D	D	D	D	D
Information	51	23,617	476	443	910	968	956	1,516	4,492	D	3,149	D
Publishing	511	17,687	297	290	655	D	D	1,162	3,669	D	D	D
Newspaper, periodical, book, and directory	51111	794	6	0	D	D	18	D	D	D	D	D
Software	5112	16,893	291	290	D	D	D	D	D	D	D	D
Telecommunications	517	2,539	D	D	38	D	23	D	D	D	D	D
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	2,358	D	D	D	D	D	D	D	D	D	D
Satellite telecommunications	5174	13	D	0	0	0	0	D	0	0	0	0
Other telecommunications	other 517	168 i	0	0	D	D	D	D	0	0	D	D
Internet service providers, Web search portals, and data-processing services	518	3,178	164	140	D	178	137	D	708	D	D	D
Internet service providers and Web search portals	5181	1,042	125	0	15	29	70	0	D	D	0	0
Data-processing, hosting, and related services	5182	2,136	39	140	D	149	67	D	D	D	D	D
Other information	other 51	213	D	D	D	D	D	D	D	0	D	D
Finance, insurance, and real estate	52, 53	3,030	D	118	6	D	30 i	1,262	643	D	D	D
Professional, scientific, and technical services	54	26,181	3,525	2,821	3,031	3,475	1,687	1,011	3,269	554	1,669	5,139
Architectural, engineering, and related services	5413	2,448	253	49	164	D	79	D	1,328	D	D	D
Computer systems design and related services	5415	13,046	D	D	848	D	587	350	1,249	D	D	D
Scientific R&D services	5417	9,473	1,372	1,588	1,951	2,089	971	D	662	D	D	0

TABLE 10. Company and other nonfederal funds for industrial R&D performed in the United States, by industry, by company size: 2005
(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
Other professional, scientific, and technical services	other 54	1,214	D	D	68	173	50	D	31	D	D	D
Health care services	621–23	981	D	D	39	D	21	D	83	D	D	0
Other nonmanufacturing ^a	55–56, 61, 624, 71–72, 81	2,047	464 i	211	18	86	97	174	198	D	145 i	D

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds are predominantly the company's own but also include funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excludes company-funded R&D not performed within the company (e.g., R&D performed by other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 11. Company and other nonfederal funds for and companies performing R&D in the United States, by industry and company size, by nonfederally funded R&D program size: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	R&D program size											
		All companies		Less than \$200,000		\$200,000–\$999,999		\$1 million–\$9.9 million		\$10 million–\$99.9 million		\$100 million or more	
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42, 44–81	42,954	204,250	23,136	1,374	11,103	5,208	7,001	21,097	1,459	41,050	255	135,520
Manufacturing industries	31–33	19,065	142,555	10,015	642	5,230	2,480	2,807	9,109	819	25,230	193	105,095
Food	311	1,096	2,710	746	39	192	103	125	351	28	1,071	5	1,146
Beverage and tobacco products	312	38	539 i	24	1	4	2	4	9	5	D	1	D
Textiles, apparel, and leather	313–16	948	811	563	33	231	70	145	334	9	D	1	D
Wood products	321	250	218	138	5	97	44	11	29	4	140	0	0
Paper, printing, and support activities	322, 323	464	2,451	229	19	162	66	56	168	14	405	3	1,793
Petroleum and coal products	324	117	1,442	74	3	28	D	9	D	2	D	4	1,375
Chemicals	325	1,949	42,826	787	55	632	313	297	936	175	6,697	58	34,824
Basic chemicals	3251	200	2,179	67	2	37	18	51	171	40	1,404	5	583
Resin, synthetic rubber, fibers, and filament	3252	121	2,280	44	4	37	17	24	74	13	377	3	1,808
Pharmaceuticals and medicines	3254	437	34,798	32	2	146	61	124	409	91	3,724	44	30,602
Other chemicals	other 325	1,191	3,569	644	47	412	217	98	282	31	1,192	6	1,831
Plastics and rubber products	326	1,211	1,747	774	D	262	107	144	456	29	576	2	D
Nonmetallic mineral products	327	443	889	314	D	83	49	34	D	12	418	1	D
Primary metals	331	186	609	52	3	76	D	45	161	12	242	1	D
Fabricated metal products	332	2,010	1,323	1,444	D	412	257	133	374	21	498	1	D
Machinery	333	2,922	8,422	1,665	108	769	326	386	1,002	90	2,499	12	4,487
Computer and electronic products	334	3,365	42,463	1,199	86	1,065	525	782	3,153	255	7,601	64	31,098
Computers and peripheral equipment	3341	339	4,902	123	10	89	37	84	292	31	914	12	3,649
Communications equipment	3342	498	9,660	181	12	104	58	137	488	66	1,834	10	7,270
Semiconductor and other electronic components	3344	894	18,602	219	14	282	149	283	1,511	87	2,666	23	14,261
Navigational, measuring, electromedical, and control instruments	3345	1,468	8,325	597	47	545	253	249	755	62	1,916	16	5,355
Other computer and electronic products	other 334	167	974	79	3	45	28	30	108	9	271	3	564
Electrical equipment, appliances, and components	335	1,014	2,322	596	38	225	105	147	443	43	1,263	3	473
Transportation equipment	336	1,074	28,321	415	26	364	154	206	646	60	2,022	28	25,473
Motor vehicles, trailers, and parts	3361–63	575	16,025	218	9	162	74	136	444	42	1,407	17	14,089
Aerospace products and parts	3364	251	10,928	41	4	150	50	43	122	10	382	7	10,369
Other transportation equipment	other 336	248	1,368	156	13	53	30	27	80	8	232	4	1,015
Furniture and related products	337	405	400	284	12	79	36	32	80	10	272	0	0
Miscellaneous manufacturing	339	1,572	5,061	710	50	551	272	252	833	50	1,198	9	2,707
Medical equipment and supplies	3391	868	4,343	282	D	351	159	188	658	40	1,016	7	D
Other miscellaneous manufacturing	other 339	704	718	428	D	200	113	64	175	10	182	2	D

TABLE 11. Company and other nonfederal funds for and companies performing R&D in the United States, by industry and company size, by nonfederally funded R&D program size: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	R&D program size											
		All companies		Less than \$200,000		\$200,000–\$999,999		\$1 million–\$9.9 million		\$10 million–\$99.9 million		\$100 million or more	
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
Nonmanufacturing industries	21–23, 42, 44–81	23,889	61,695	13,121	733	5,873	2,728	4,194	11,989	640	15,821	62	30,425
Mining, extraction, and support activities	21	245	669	212	4	10	5	14	D	7	145	2	D
Utilities	22	83	180	27	2	25	10	26	80	5	88	0	0
Construction	23	1,062	1,248	753	21	293	D	12	47	4	117 i	1	D
Wholesale trade	42	4,460	2,144	3,299	189	745	328	382	957	33	670	0	0
Retail trade	44, 45	1,759	1,285	1,461	D	266	D	24	89	5	238	3	850
Transportation and warehousing	48, 49	36	312	17	*	5	2	10	D	3	86	1	D
Information	51	3,164	23,617	1,238	59	1,101	582	649	2,003	147	4,457	28	16,516
Publishing	511	1,820	17,687	715	39	488	235	492	1,512	106	3,175	19	12,726
Newspaper, periodical, book, and directory	5111	345	794	317	6	8	5	14	D	5	168	2	D
Software	5112	1,475	16,893	399	32	480	230	478	D	101	3,007	17	D
Telecommunications	517	108	2,539	1	D	68	D	24	84	10	452	5	1,975
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	44	2,358	0	0	19	14	13	57	7	313	5	1,975
Satellite telecommunications	5174	47	13	0	0	47	13	0	0	0	0	0	0
Other telecommunications	other 517	17	168 i	1	D	2	D	11	28	3	139 i	0	0
Internet service providers, Web search portals, and data-processing services	518	1,192	3,178	517	20	521	310	125	362	24	671	4	1,815
Internet service providers and Web search portals	5181	430	1,042	250	6	170	D	5	26	4	99	2	D
Data-processing, hosting, and related services	5182	761	2,136	268	14	352	D	120	336	20	572	2	D
Other information	other 51	43	213	4	D	24	D	9	44	7	160	0	0
Finance, insurance, and real estate	52, 53	920	3,030	250	13	258	119	382	1,532	27	801	4	566
Professional, scientific, and technical services	54	8,758	26,181	3,674	298	2,354	1,195	2,327	6,503	383	8,474	20	9,711
Architectural, engineering, and related services	5413	649	2,448	301	33	136	46	185	474	23	526	4	1,368
Computer systems design and related services	5415	4,419	13,046	2,004	165	1,162	577	1,153	3,213	91	1,985	9	7,106
Scientific R&D services	5417	1,866	9,473	362	D	534	275	706	2,355	258	5,687	6	D
Other professional, scientific, and technical services	other 54	1,823	1,214	1,006	D	521	297	284	461	11	275	1	D
Health care services	621–23	1,089	981	776	12	284	D	23	65	4	142	2	D
Other nonmanufacturing ^a	55–56, 61 624, 71–72, 81	2,314	2,047	1,416	D	532	241	345	632	21	602	1	D

TABLE 11. Company and other nonfederal funds for and companies performing R&D in the United States, by industry and company size, by nonfederally funded R&D program size: 2005
(Amount in millions of dollars)

Industry and company size		R&D program size												
		All companies		Less than \$200,000		\$200,000–\$999,999		\$1 million–\$9.9 million		\$10 million–\$99.9 million		\$100 million or more		
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	
Company size (employees)		NAICS codes												
All companies	-	42,954	204,250	23,136	1,374	11,103	5,208	7,001	21,097	1,459	41,050	255	135,520	
5–24	-	20,966	6,297	15,071	801	4,177	1,828	1,700	3,450	18	218 i	0	0	
25–49	-	8,538	6,813	4,094	294	3,170	1,398	1,178	3,682	96	1,439	0	0	
50–99	-	4,733	6,498	1,817	126	1,738	914	1,058	3,318	121	2,140	0	0	
100–249	-	4,118	9,375	1,629	D	1,122	587	1,128	3,506	238	5,066	1	D	
250–499	-	1,690	7,738	374	D	506	248	597	1,927	211	5,256	2	D	
500–999	-	1,132	13,097	100	7	171	87	633	2,490	208	6,612	21	3,902	
1,000–4,999	-	1,313	33,605	32	3	204	138	607	2,266	390	12,977	80	18,221	
5,000–9,999	-	218	17,550	18	D	11	D	63	287	89	3,212	37	14,043	
10,000–24,999	-	145	31,646	1	D	4	D	27	D	57	2,599	56	28,926	
25,000 or more	-	101	71,631	1	D	1	D	10	D	31	1,530	58	70,046	

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds are predominantly the company's own but also include funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excludes company-funded R&D not performed within the company (e.g., R&D performed by other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 12. Company and other nonfederal funds for and companies funding industrial R&D performed outside of company facilities in the United States by outside organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	Company-funded R&D performed by outside organizations		For-profit companies		Universities and colleges	
		Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42, 44–81	5,266	11,742	710	8,861	211	416
Manufacturing industries	31–33	2,792	8,926	431	7,198	155	371
Food	311	225	154	15	122 i	8	D
Beverage and tobacco products	312	4	D	2	D	2	D
Textiles, apparel, and leather	313–16	27	10	8	D	2	D
Wood products	321	51	10	0	0	0	0
Paper, printing, and support activities	322, 323	27	163 i	6	13	6	D
Petroleum and coal products	324	25	128	4	D	4	D
Chemicals	325	406	4,918	105	4,060	64	206
Basic chemicals	3251	43	58	14	35	13	3
Resin, synthetic rubber, fibers, and filament	3252	46	73 i	12	65 i	7	4
Pharmaceuticals and medicines	3254	139	4,587	63	3,807	35	186
Other chemicals	other 325	178	200	16	152	9	13
Plastics and rubber products	326	78	41	19	D	2	D
Nonmetallic mineral products	327	30	D	3	D	2	D
Primary metals	331	27	55	6	D	5	*
Fabricated metal products	332	139	26	10	9	0	0
Machinery	333	423	327	38	282	10	3
Computer and electronic products	334	584	1,209	107	948	24	46
Computers and peripheral equipment	3341	53	169	18	124	4	2
Communications equipment	3342	86	137	31	D	0	0
Semiconductor and other electronic components	3344	96	235	25	D	6	D
Navigational, measuring, electromedical, and control instruments	3345	300	655	29	525	11	31
Other computer and electronic products	other 334	50	12	4	D	3	D
Electrical equipment, appliances, and components	335	175	37	20	17	2	D
Transportation equipment	336	184	1,629	49	D	10	D
Motor vehicles, trailers, and parts	3361–63	103	1,159	32	1,139	7	6
Aerospace products and parts	3364	43	450	13	D	3	D
Other transportation equipment	other 336	38	20	4	7 i	0	0
Furniture and related products	337	20	D	2	D	0	0
Miscellaneous manufacturing	339	366	203	37	142	14	14
Medical equipment and supplies	3391	262	177	30	D	12	D
Other miscellaneous manufacturing	other 339	104	26	7	D	2	D

TABLE 12. Company and other nonfederal funds for and companies funding industrial R&D performed outside of company facilities in the United States by outside organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	Company-funded R&D performed by outside organizations		For-profit companies		Universities and colleges	
		Companies	Amount	Companies	Amount	Companies	Amount
Nonmanufacturing industries	21–23, 42, 44–81	2,474	2,816	279	1,663	56	45
Mining, extraction, and support activities	21	34	44	5	37	4	D
Utilities	22	27	128	5	D	2	D
Construction	23	3	D	3	D	0	0
Wholesale trade	42	672	182	12	23	4	D
Retail trade	44, 45	21	85 i	9	D	1	D
Transportation and warehousing	48, 49	3	D	1	D	0	0
Information	51	438	558	75	D	5	D
Publishing	511	174	211	57	D	3	*
Newspaper, periodical, book, and directory	5111	7	32	3	27	0	0
Software	5112	167	178	54	D	3	*
Telecommunications	517	55	D	2	D	1	D
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	5	D	2	D	1	D
Satellite telecommunications	5174	47	8	0	0	0	0
Other telecommunications	other 517	2	D	0	0	0	0
Internet service providers, Web search portals, and data-processing services	518	198	194	10	D	1	D
Internet service providers and Web search portals	5181	171	D	2	D	0	0
Data-processing, hosting, and related services	5182	27	D	8	D	1	D
Other information	other 51	12	D	6	D	0	0
Finance, insurance, and real estate	52, 53	121	225	15	197	0	0
Professional, scientific, and technical services	54	1,125	1,437	146	776	39	D
Architectural, engineering, and related services	5413	22	51	11	D	0	0
Computer systems design and related services	5415	454	269	41	D	2	D
Scientific R&D services	5417	386	1,077	86	569	37	30
Other professional, scientific, and technical services	other 54	263	39	8	19	0	0
Health care services	621–23	6	D	2	D	0	0 i
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	24	D	6	D	1	D

TABLE 12. Company and other nonfederal funds for and companies funding industrial R&D performed outside of company facilities in the United States by outside organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	Company-funded R&D performed by outside organizations		For-profit companies		Universities and colleges	
		Companies	Amount	Companies	Amount	Companies	Amount
Company size (employees)							
All companies	-	5,266	11,742	710	8,861	211	416
5-24	-	1,775	372	11	D	3	D
25-49	-	1,288	677	46	D	15	D
50-99	-	649	505	68	199	16	D
100-249	-	526	642	107	248	18	10
250-499	-	319	458	115	357	24	10
500-999	-	199	842	94	740	25	29
1,000-4,999	-	340	1,840	154	1,547	54	57
5,000-9,999	-	71	1,383	38	1,181	17	80
10,000-24,999	-	51	2,047	37	1,775	19	71
25,000 or more	-	48	2,977	40	2,579	20	142

TABLE 12. Company and other nonfederal funds for and companies funding industrial R&D performed outside of company facilities in the United States by outside organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	Nonprofit organizations (other than universities and colleges)		Federal agencies or laboratories		State government agencies or laboratories	
		Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42, 44–81	56	108	19	8	13	3
Manufacturing industries	31–33	33	D	14	D	9	D
Food	311	3	D	0	0	0	0
Beverage and tobacco products	312	1	D	0	0	0	0
Textiles, apparel, and leather	313–16	0	0	0	0	0	0
Wood products	321	0	0	0	0	0	0
Paper, printing, and support activities	322, 323	3	D	1	D	0	0
Petroleum and coal products	324	1	D	1	D	0	0
Chemicals	325	16	45	4	1	7	1
Basic chemicals	3251	3	D	1	D	1	D
Resin, synthetic rubber, fibers, and filament	3252	0	0	0	0	0	0
Pharmaceuticals and medicines	3254	10	38	1	D	4	D
Other chemicals	other 325	3	D	2	D	2	D
Plastics and rubber products	326	1	D	0	0	0	0
Nonmetallic mineral products	327	0	0	0	0	0	0
Primary metals	331	1	D	0	0	0	0
Fabricated metal products	332	0	0	0	0	0	0
Machinery	333	0	0	0	0	0	0
Computer and electronic products	334	5	D	2	D	1	D
Computers and peripheral equipment	3341	0	0	0	0	0	0
Communications equipment	3342	1	D	1	D	0	0
Semiconductor and other electronic components	3344	1	D	0	0	0	0
Navigational, measuring, electromedical, and control instruments	3345	3	D	1	D	1	D
Other computer and electronic products	other 334	0	0	0	0	0	0
Electrical equipment, appliances, and components	335	0	0	1	D	0	0
Transportation equipment	336	1	D	0	0	0	0
Motor vehicles, trailers, and parts	3361–63	0	0	0	0	0	0
Aerospace products and parts	3364	1	D	0	0	0	0
Other transportation equipment	other 336	0	0	0	0	0	0
Furniture and related products	337	0	0	0	0	0	0
Miscellaneous manufacturing	339	1	D	5	D	1	D
Medical equipment and supplies	3391	1	D	5	D	1	D
Other miscellaneous manufacturing	other 339	0	0	0	0	0	0

TABLE 12. Company and other nonfederal funds for and companies funding industrial R&D performed outside of company facilities in the United States by outside organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	Nonprofit organizations (other than universities and colleges)		Federal agencies or laboratories		State government agencies or laboratories	
		Companies	Amount	Companies	Amount	Companies	Amount
Nonmanufacturing industries	21–23, 42, 44–81	23	D	5	D	4	D
Mining, extraction, and support activities	21	1	D	2	D	1	D
Utilities	22	7	47	0	0	2	D
Construction	23	0	0	0	0	0	0
Wholesale trade	42	1	D	0	0	0	0
Retail trade	44, 45	1	D	0	0	0	0
Transportation and warehousing	48, 49	0	0	0	0	0	0
Information	51	1	D	1	D	0	0
Publishing	511	1	D	0	0	0	0
Newspaper, periodical, book, and directory	5111	0	0	0	0	0	0
Software	5112	1	D	0	0	0	0
Telecommunications	517	0	0	0	0	0	0
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	0	0	0	0	0	0
Satellite telecommunications	5174	0	0	0	0	0	0
Other telecommunications	other 517	0	0	0	0	0	0
Internet service providers, Web search portals, and data-processing services	518	0	0	0	0	0	0
Internet service providers and Web search portals	5181	0	0	0	0	0	0
Data-processing, hosting, and related services	5182	0	0	0	0	0	0
Other information	other 51	0	0	1	D	0	0
Finance, insurance, and real estate	52, 53	0	0	0	0	0	0
Professional, scientific, and technical services	54	12	D	2	D	1	D
Architectural, engineering, and related services	5413	1	D	0	0	0	0
Computer systems design and related services	5415	0	0	1	D	0	0
Scientific R&D services	5417	11	D	1	D	1	D
Other professional, scientific, and technical services	other 54	0	0	0	0	0	0
Health care services	621–23	0	0	0	0	0	0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	0	0	0	0	0	0

TABLE 12. Company and other nonfederal funds for and companies funding industrial R&D performed outside of company facilities in the United States by outside organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	Nonprofit organizations (other than universities and colleges)		Federal agencies or laboratories		State government agencies or laboratories	
		Companies	Amount	Companies	Amount	Companies	Amount
Company size (employees)							
All companies	-	56	108	19	8	13	3
5-24	-	0	0	0	0	1	D
25-49	-	6	1	0	0	1	D
50-99	-	1	D	1	D	2	D
100-249	-	5	D	2	D	0	0
250-499	-	8	2	4	D	1	D
500-999	-	7	D	1	D	1	D
1,000-4,999	-	9	10	5	1	4	1
5,000-9,999	-	7	D	1	D	1	D
10,000-24,999	-	7	D	1	D	2	D
25,000 or more	-	6	D	4	D	0	0

TABLE 12. Company and other nonfederal funds for and companies funding industrial R&D performed outside of company facilities in the United States by outside organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	Undistributed R&D	
		Companies	Amount
All industries	21–23, 31–33, 42, 44–81	4,501	2,346
Manufacturing industries	31–33	2,323	1,295
Food	311	208	8
Beverage and tobacco products	312	2	1
Textiles, apparel, and leather	313–16	19	8
Wood products	321	51	10
Paper, printing, and support activities	322, 323	17	148
Petroleum and coal products	324	20	1
Chemicals	325	287	605
Basic chemicals	3251	24	15
Resin, synthetic rubber, fibers, and filament	3252	32	3
Pharmaceuticals and medicines	3254	73	555
Other chemicals	other 325	158	32
Plastics and rubber products	326	58	31
Nonmetallic mineral products	327	26	3
Primary metals	331	18	48
Fabricated metal products	332	129	17
Machinery	333	383	42
Computer and electronic products	334	469	208
Computers and peripheral equipment	3341	35	43
Communications equipment	3342	54	13
Semiconductor and other electronic components	3344	69	54
Navigational, measuring, electromedical, and control instruments	3345	267	94
Other computer and electronic products	other 334	45	4
Electrical equipment, appliances, and components	335	155	19
Transportation equipment	336	135	98
Motor vehicles, trailers, and parts	3361–63	70	14
Aerospace products and parts	3364	30	71
Other transportation equipment	other 336	35	14
Furniture and related products	337	18	4
Miscellaneous manufacturing	339	327	44
Medical equipment and supplies	3391	230	28
Other miscellaneous manufacturing	other 339	97	16

TABLE 12. Company and other nonfederal funds for and companies funding industrial R&D performed outside of company facilities in the United States by outside organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	Undistributed R&D	
		Companies	Amount
Nonmanufacturing industries	21–23, 42, 44–81	2,178	1,052
Mining, extraction, and support activities	21	27	1
Utilities	22	19	70
Construction	23	0	0
Wholesale trade	42	659	157
Retail trade	44, 45	12	2
Transportation and warehousing	48, 49	2	3
Information	51	362	134
Publishing	511	116	51
Newspaper, periodical, book, and directory	5111	4	5
Software	5112	112	45
Telecommunications	517	53	45
Wired and wireless (except satellite)			
telecommunications carriers	5171, 5172	3	D
Satellite telecommunications	5174	47	8
Other telecommunications	other 517	2	D
Internet service providers, Web search portals,			
and data-processing services	518	188	37
Internet service providers and Web search portals	5181	169	21
Data-processing, hosting, and related services	5182	19	16
Other information	other 51	6	2
Finance, insurance, and real estate	52, 53	106	28
Professional, scientific, and technical services	54	969	625
Architectural, engineering, and related services	5413	10	3
Computer systems design and related services	5415	412	125
Scientific R&D services	5417	292	477
Other professional, scientific, and technical services	other 54	255	20
Health care services	621–23	4	15
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	18	16

TABLE 12. Company and other nonfederal funds for and companies funding industrial R&D performed outside of company facilities in the United States by outside organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	Undistributed R&D	
		Companies	Amount
Company size (employees)			
All companies	-	4,501	2,346
5–24	-	1,763	332
25–49	-	1,238	474
50–99	-	579	295
100–249	-	411	383
250–499	-	197	90
500–999	-	99	59
1,000–4,999	-	173	224
5,000–9,999	-	24	103
10,000–24,999	-	10	155
25,000 or more	-	7	231

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed;
- = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total for number of companies because categories are not mutually exclusive. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Detail does not add to total for money amounts because of rounding or suppression. The R&D in this table is the industrial R&D performed outside company facilities funded from all sources except the federal government. The funds are predominantly the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded is company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). Data for total company-funded R&D performed by other organizations are collected from all R&D performing companies; however, data for company-funded R&D performed by other organizations by type of performer are collected only on 2005 Form RD-1, the questionnaire sent to larger R&D-performing companies. Consequently, the universe of companies may not be represented by the statistics in this table. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 13. Company and other nonfederal funds for industrial R&D performed in the United States in collaboration with other organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	All company-funded R&D		All company-funded collaborative R&D		For-profit companies		Universities and colleges	
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42, 44–81	42,954	204,250	251	6,796	221	6,661	53	52
Manufacturing industries	31–33	19,065	142,555	145	4,475	130	4,399	35	49
Food	311	1,096	2,710	6	98	6	D	4	D
Beverage and tobacco products	312	38	539 i	1	D	1	D	1	D
Textiles, apparel, and leather	313–16	948	811	1	D	1	D	0	0
Wood products	321	250	218	0	0	0	0	0	0
Paper, printing, and support activities	322, 323	464	2,451	3	D	2	D	1	D
Petroleum and coal products	324	117	1,442	3	D	3	D	1	D
Chemicals	325	1,949	42,826	41	622	36	601	13	16
Basic chemicals	3251	200	2,179	6	21	5	14	4	D
Resin, synthetic rubber, fibers, and filament	3252	121	2,280	4	31	4	D	1	D
Pharmaceuticals and medicines	3254	437	34,798	25	554	21	542	7	9
Other chemicals	other 325	1,191	3,569	6	16	6	D	1	D
Plastics and rubber products	326	1,211	1,747	5	52	5	52	0	0
Nonmetallic mineral products	327	443	889	0	0	0	0	0	0
Primary metals	331	186	609	3	D	2	D	1	D
Fabricated metal products	332	2,010	1,323	3	D	3	D	0	0
Machinery	333	2,922	8,422	15	59	13	54	3	D
Computer and electronic products	334	3,365	42,463	31	745	28	734	5	2
Computers and peripheral equipment	3341	339	4,902	5	D	5	D	0	0
Communications equipment	3342	498	9,660	4	9	4	9	0	0
Semiconductor and other electronic components	3344	894	18,602	11	189	9	D	3	D
Navigational, measuring, electromedical, and control instruments	3345	1,468	8,325	11	D	10	D	2	D
Other computer and electronic products	other 334	167	974	0	0	0	0	0	0
Electrical equipment, appliances, and components	335	1,014	2,322	3	4	2	D	0	0
Transportation equipment	336	1,074	28,321	19	2,680 i	18	D	1	D
Motor vehicles, trailers, and parts	3361–63	575	16,025	15	D	14	D	1	D
Aerospace products and parts	3364	251	10,928	3	D	3	D	0	0
Other transportation equipment	other 336	248	1,368	1	D	1	D	0	0
Furniture and related products	337	405	400	0	0	0	0	0	0
Miscellaneous manufacturing	339	1,572	5,061	11	D	10	D	5	D
Medical equipment and supplies	3391	868	4,343	9	32	8	27	4	D
Other miscellaneous manufacturing	other 339	704	718	2	D	2	D	1	D

TABLE 13. Company and other nonfederal funds for industrial R&D performed in the United States in collaboration with other organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	All company-funded R&D		All company-funded collaborative R&D		For-profit companies		Universities and colleges	
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
Nonmanufacturing industries	21–23, 42, 44–81	23,889	61,695	106	2,321	91	2,263	18	4
Mining, extraction, and support activities	21	245	669	1	D	1	D	0	0
Utilities	22	83	180	5	35	3	D	2	D
Construction	23	1,062	1,248	2	D	2	D	1	D
Wholesale trade	42	4,460	2,144	5	9	5	9	0	0
Retail trade	44, 45	1,759	1,285	2	D	2	D	1	D
Transportation and warehousing	48, 49	36	312	2	D	1	D	1	D
Information	51	3,164	23,617	11	1,135	11	1,135	0	0
Publishing	511	1,820	17,687	7	D	7	D	0	0
Newspaper, periodical, book, and directory	5111	345	794	1	D	1	D	0	0
Software	5112	1,475	16,893	6	D	6	D	0	0
Telecommunications	517	108	2,539	2	D	2	D	0	0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	44	2,358	2	D	2	D	0	0
Satellite telecommunications	5174	47	13	0	0	0	0	0	0
Other telecommunications	other 517	17	168	0	0	0	0	0	0
Internet service providers, Web search portals, and data-processing services	518	1,192	3,178	1	D	1	D	0	0
Internet service providers and Web search portals	5181	430	1,042	0	0	0	0	0	0
Data-processing, hosting, and related services	5182	761	2,136	1	D	1	D	0	0
Other information	other 51	43	213	1	D	1	D	0	0
Finance, insurance, and real estate	52, 53	920	3,030	3	D	3	D	1	D
Professional, scientific, and technical services	54	8,758	26,181	73	969	61	941	12	3
Architectural, engineering, and related services	5413	649	2,448	3	D	3	D	0	0
Computer systems design and related services	5415	4,419	13,046	6	D	4	D	2	D
Scientific R&D services	5417	1,866	9,473	63	647	53	D	10	D
Other professional, scientific, and technical services	other 54	1,823	1,214	1	D	1	D	0	0
Health care services	621–23	1,089	981	1	D	1	D	0	0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	2,314	2,047	1	D	1	D	0	0

TABLE 13. Company and other nonfederal funds for industrial R&D performed in the United States in collaboration with other organizations, by industry and company size, by type of organization: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	All company-funded R&D		All company-funded collaborative R&D		For-profit companies		Universities and colleges	
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
Company size (employees)									
All companies	-	42,954	204,250	251	6,796	221	6,661	53	52
5-24	-	20,966	6,297	1	D	0	0	1	D
25-49	-	8,538	6,813	23	D	17	42	5	*
50-99	-	4,733	6,498	32	118	26	111	3	D
100-249	-	4,118	9,375	33	227	30	223	5	1
250-499	-	1,690	7,738	41	495	40	476	3	D
500-999	-	1,132	13,097	31	421	28	409	5	5
1,000-4,999	-	1,313	33,605	37	720	32	708	13	D
5,000-9,999	-	218	17,550	15	1,360	14	1,335	3	D
10,000-24,999	-	145	31,646	21	221	18	207	10	4
25,000 or more	-	101	71,631	17	3,187	16	3,149	5	D

TABLE 13. Company and other nonfederal funds for industrial R&D performed in the United States in collaboration with other organizations, by industry and company size, by type of organization: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	Nonprofit organizations (other than universities and colleges)		Federal agencies or laboratories		State government agencies or laboratories	
		Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42, 44–81	16	34	23	40	7	8
Manufacturing industries	31–33	9	D	14	12	5	D
Food	311	1	D	0	0	0	0
Beverage and tobacco products	312	0	0	0	0	0	0
Textiles, apparel, and leather	313–16	0	0	0	0	0	0
Wood products	321	0	0	0	0	0	0
Paper, printing, and support activities	322, 323	0	0	0	0	0	0
Petroleum and coal products	324	2	D	1	D	0	0
Chemicals	325	3	D	5	2	2	D
Basic chemicals	3251	1	D	1	D	1	D
Resin, synthetic rubber, fibers, and filament	3252	0	0	0	0	0	0
Pharmaceuticals and medicines	3254	2	D	3	D	1	D
Other chemicals	other 325	0	0	1	D	0	0
Plastics and rubber products	326	0	0	0	0	0	0
Nonmetallic mineral products	327	0	0	0	0	0	0
Primary metals	331	0	0	0	0	0	0
Fabricated metal products	332	0	0	0	0	0	0
Machinery	333	0	0	4	5	1	D
Computer and electronic products	334	1	D	3	D	1	D
Computers and peripheral equipment	3341	0	0	0	0	0	0
Communications equipment	3342	0	0	0	0	0	0
Semiconductor and other electronic components	3344	0	0	1	D	1	D
Navigational, measuring, electromedical, and control instruments	3345	1	D	2	D	0	0
Other computer and electronic products	other 334	0	0	0	0	0	0
Electrical equipment, appliances, and components	335	1	D	0	0	0	0
Transportation equipment	336	0	0	0	0	0	0
Motor vehicles, trailers, and parts	3361–63	0	0	0	0	0	0
Aerospace products and parts	3364	0	0	0	0	0	0
Other transportation equipment	other 336	0	0	0	0	0	0
Furniture and related products	337	0	0	0	0	0	0
Miscellaneous manufacturing	339	1	D	1	D	1	D
Medical equipment and supplies	3391	1	D	1	D	1	D
Other miscellaneous manufacturing	other 339	0	0	0	0	0	0

TABLE 13. Company and other nonfederal funds for industrial R&D performed in the United States in collaboration with other organizations, by industry and company size, by type of organization: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	Nonprofit organizations (other than universities and colleges)		Federal agencies or laboratories		State government agencies or laboratories	
		Companies	Amount	Companies	Amount	Companies	Amount
Nonmanufacturing industries	21–23, 42, 44–81	7	D	9	28	2	D
Mining, extraction, and support activities	21	0	0	0	0	0	0
Utilities	22	4	D	0	0	1	D
Construction	23	0	0	0	0	0	0
Wholesale trade	42	0	0	0	0	0	0
Retail trade	44, 45	1	D	0	0	0	0
Transportation and warehousing	48, 49	0	0	0	0	0	0
Information	51	0	0	0	0	0	0
Publishing	511	0	0	0	0	0	0
Newspaper, periodical, book, and directory	5111	0	0	0	0	0	0
Software	5112	0	0	0	0	0	0
Telecommunications	517	0	0	0	0	0	0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	0	0	0	0	0	0
Satellite telecommunications	5174	0	0	0	0	0	0
Other telecommunications	other 517	0	0	0	0	0	0
Internet service providers, Web search portals, and data-processing services	518	0	0	0	0	0	0
Internet service providers and Web search portals	5181	0	0	0	0	0	0
Data-processing, hosting, and related services	5182	0	0	0	0	0	0
Other information	other 51	0	0	0	0	0	0
Finance, insurance, and real estate	52, 53	0	0	0	0	0	0
Professional, scientific, and technical services	54	2	D	8	D	1	D
Architectural, engineering, and related services	5413	0	0	0	0	0	0
Computer systems design and related services	5415	0	0	0	0	0	0
Scientific R&D services	5417	2	D	8	D	1	D
Other professional, scientific, and technical services	other 54	0	0	0	0	0	0
Health care services	621–23	0	0	1	D	0	0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	0	0	0	0	0	0

TABLE 13. Company and other nonfederal funds for industrial R&D performed in the United States in collaboration with other organizations, by industry and company size, by type of organization: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	Nonprofit organizations (other than universities and colleges)		Federal agencies or laboratories		State government agencies or laboratories	
		Companies	Amount	Companies	Amount	Companies	Amount
Company size (employees)							
All companies	-	16	34	23	40	7	8
5-24	-	0	0	0	0	0	0
25-49	-	0	0	3	D	1	D
50-99	-	2	D	4	5	0	0
100-249	-	1	D	4	3	3	D
250-499	-	0	0	3	D	0	0
500-999	-	4	D	2	D	0	0
1,000-4,999	-	0	0	3	*	1	D
5,000-9,999	-	2	D	1	D	1	D
10,000-24,999	-	3	D	2	D	0	0
25,000 or more	-	4	21	1	D	1	D

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail for number of companies does not add to total because categories are not mutually exclusive. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. The R&D in this table is the industrial R&D performed within company facilities in collaboration with another organization funded from all sources except the federal government. The funds predominantly are the company's own but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excludes company-funded R&D not performed within the company (e.g., R&D performed by other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). Data for company-funded R&D performed in collaborations with other organizations by type of partner are collected only on 2005 Form RD-1, the questionnaire sent to larger R&D-performing companies. Consequently, the universe of companies may not be represented by the statistics in this table. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 14. Company and other nonfederal funds for and companies funding industrial R&D performed outside of the United States, by industry and company size: 2005

Industry and company size	NAICS codes	Companies	Amount (\$millions)
All industries	21–23, 31–33, 42, 44–81	2,269	31,025
Manufacturing industries	31–33	1,146	25,221
Food	311	35	488
Beverage and tobacco products	312	1	D
Textiles, apparel, and leather	313–16	20	89
Wood products	321	4	D
Paper, printing, and support activities	322, 323	23	84
Petroleum and coal products	324	6	18
Chemicals	325	178	8,133
Basic chemicals	3251	37	287
Resin, synthetic rubber, fibers, and filament	3252	19	385
Pharmaceuticals and medicines	3254	79	6,872
Other chemicals	other 325	43	589
Plastics and rubber products	326	65	306
Nonmetallic mineral products	327	15	64
Primary metals	331	11	8
Fabricated metal products	332	53	174
Machinery	333	137	1,138
Computer and electronic products	334	390	8,767
Computers and peripheral equipment	3341	32	3,695
Communications equipment	3342	89	1,039
Semiconductor and other electronic components	3344	123	2,471
Navigational, measuring, electromedical, and control instruments	3345	134	1,392 i
Other computer and electronic products	other 334	11	170
Electrical equipment, appliances, and components	335	62	369
Transportation equipment	336	72	4,989
Motor vehicles, trailers, and parts	3361–63	62	3,969
Aerospace products and parts	3364	6	1,014
Other transportation equipment	other 336	4	6 i
Furniture and related products	337	8	4
Miscellaneous manufacturing	339	67	582
Medical equipment and supplies	3391	49	497
Other miscellaneous manufacturing	other 339	17	85
Nonmanufacturing industries	21–23, 42, 44–81	1,123	5,804
Mining, extraction, and support activities	21	10	53
Utilities	22	4	10
Construction	23	4	D
Wholesale trade	42	292	476
Retail trade	44, 45	13	110
Transportation and warehousing	48, 49	1	D
Information	51	231	2,853
Publishing	511	185	1,983
Newspaper, periodical, book, and directory	5111	5	29
Software	5112	180	1,954
Telecommunications	517	8	156
Wired and wireless (except satellite)			
telecommunications carriers	5171, 5172	8	156
Satellite telecommunications	5174	0	0
Other telecommunications	other 517	0	0
Internet service providers, Web search portals, and data-processing services	518	35	699
Internet service providers and Web search portals	5181	19	49
Data-processing, hosting, and related services	5182	16	649

TABLE 14. Company and other nonfederal funds for and companies funding industrial R&D performed outside of the United States, by industry and company size: 2005

Industry and company size	NAICS codes	Companies	Amount (\$millions)
Other information	other 51	3	15
Finance, insurance, and real estate	52, 53	12	87
Professional, scientific, and technical services	54	510	1,951
Architectural, engineering, and related services	5413	17	138
Computer systems design and related services	5415	253	1,311
Scientific R&D services	5417	228	485
Other professional, scientific, and technical services	other 54	12	16
Health care services	621–23	4	11
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	42	246
Company size (employees)			
All companies	-	2,269	31,025
5–24	-	463	242
25–49	-	336	222
50–99	-	279	320
100–249	-	317	855
250–499	-	190	541
500–999	-	175	919
1,000–4,999	-	324	5,042
5,000–9,999	-	77	2,342
10,000–24,999	-	65	4,261
25,000 or more	-	44	16,280

D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. The R&D in this table is the industrial R&D performed outside the 50 U.S. states and DC funded from all sources except the federal government. The funds predominantly are the company's own but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excludes company-funded R&D performed within the 50 U.S. states or DC (e.g., R&D performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 15. Company and other nonfederal funds for and companies funding industrial R&D performed outside of the United States by majority-owned foreign affiliates, by location of R&D performance: 2005

(Millions of dollars)

Location of R&D performance	Companies	Amount
All locations	1,457	29,260
Puerto Rico	22	307
Canada	260	2,313
China	146	399
France	196	1,863
Germany	248	3,404
India	145	808
Ireland	77	925
Israel	54	1,078
Italy	95	326
Japan	145	1,140
Singapore	71	983 i
Sweden	70	521
United Kingdom	334	3,102
Other locations outside of the United States and DC	400	10,163
Undistributed ^a	731	1,929

i = more than 50% of the value is imputed.

^a Includes R&D reported on Form RD-1 that was not allocated to specific locations outside of the 50 United States and DC. Also includes total R&D performed in locations outside of the 50 United States and DC reported on Form RD-1A, because Form RD-1A does not collect data by location.

NOTES: Detail does not add to total for number of companies because categories are not mutually exclusive. Detail does not add to total for money amounts due to rounding or suppression. Data are reported in current U.S. dollars. The R&D in this table is the industrial R&D performed outside the 50 U.S. states and DC funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table is company-funded R&D performed within the 50 U.S. states or DC (e.g., R&D performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 16. Federal funds for and companies performing industrial R&D in the United States, by industry and company size, by federally funded R&D program size: 2005
(Amount in millions of dollars)

Industry and company size	NAICS codes	Federally funded R&D program size											
		All companies		Less than \$200,000		\$200,000–\$999,999		\$1 million–\$9.9 million		\$10 million–\$99.9 million		\$100 million or more	
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
All industries	21–23, 31–33, 42, 44–81	2,855	21,909	934	68	1,073	D	713	D	112	D	23	16,531
Manufacturing industries	31–33	735	15,635	305	20	197	D	187	D	28	D	17	D
Food	311	4	6	0	0	2	D	2	D	0	0	0	0
Beverage and tobacco products	312	0	0	0	0	0	0	0	0	0	0	0	0
Textiles, apparel, and leather	313–16	18	5	16	D	1	D	1	D	0	0	0	0
Wood products	321	2	D	2	D	0	0	0	0	0	0	0	0
Paper, printing, and support activities	322, 323	2	D	1	D	0	0	0	0	1	D	0	0
Petroleum and coal products	324	2	D	0	0	0	0	1	D	1	D	0	0
Chemicals	325	72	169	19	1	29	D	22	80	2	D	0	0
Basic chemicals	3251	13	98	1	D	4	2 i	6	D	2	D	0	0
Resin, synthetic rubber, fibers, and filament	3252	7	15	1	D	4	D	2	D	0	0	0	0
Pharmaceuticals and medicines	3254	39	41	13	D	15	D	11	D	0	0	0	0
Other chemicals	other 325	13	15	4	1	6	2	3	12	0	0	0	0
Plastics and rubber products	326	5	12	2	D	0	0	3	D	0	0	0	0
Nonmetallic mineral products	327	4	6	0	0	2	D	2	D	0	0	0	0
Primary metals	331	7	22 i	2	D	2	D	2	D	1	D	0	0
Fabricated metal products	332	17	52	8	*	5	D	3	21	1	D	0	0
Machinery	333	45	109	24	D	8	4	11	46	2	D	0	0
Computer and electronic products	334	276	D	69	D	107	77	83	223	10	D	6	6,606
Computers and peripheral equipment	3341	10	53	1	D	5	3	2	D	2	D	0	0
Communications equipment	3342	16	D	1	D	3	D	8	30	4	160	0	0
Semiconductor and other electronic components	3344	73	122	9	1	33	24	31	98	0	0	0	0
Navigational, measuring, electromedical, and control instruments	3345	153	6,879	58	D	44	D	41	90	4	151	6	6,606
Other computer and electronic products	other 334	23	23	0	0	22	D	1	D	0	0	0	0
Electrical equipment, appliances, and components	335	45	103	19	D	2	D	22	46	2	D	0	0
Transportation equipment	336	102	D	44	2	29	D	10	D	8	D	11	D
Motor vehicles, trailers, and parts	3361–63	54	D	41	1	3	1	5	D	5	80	0	0
Aerospace products and parts	3364	22	4,076	3	*	4	D	4	18 i	2	D	9	4,017
Other transportation equipment	other 336	26	D	0	0	22	D	1	D	1	D	2	D
Furniture and related products	337	6	*	6	*	0	0	0	0	0	0	0	0
Miscellaneous manufacturing	339	128	82	93	6	10	5	25	71	0	0	0	0
Medical equipment and supplies	3391	101	31	87	5	6	3	8	23	0	0	0	0
Other miscellaneous manufacturing	other 339	27	51	6	*	4	2 i	17	48	0	0	0	0

TABLE 16. Federal funds for and companies performing industrial R&D in the United States, by industry and company size, by federally funded R&D program size: 2005

(Amount in millions of dollars)

Industry and company size	NAICS codes	Federally funded R&D program size											
		All companies		Less than \$200,000		\$200,000–\$999,999		\$1 million–\$9.9 million		\$10 million–\$99.9 million		\$100 million or more	
		Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
Nonmanufacturing industries	21–23, 42, 44–81	2,120	6,274	629	47	876	D	526	1,523	84	1,939	6	D
Mining, extraction, and support activities	21	1	D	0	0	0	0	1	D	0	0	0	0
Utilities	22	5	30	0	0	3	D	1	D	1	D	0	0
Construction	23	254	D	252	D	1	D	1	D	0	0	0	0
Wholesale trade	42	70	D	44	D	19	D	4	10	3	D	0	0
Retail trade	44, 45	1	D	1	D	0	0	0	0	0	0	0	0
Transportation and warehousing	48, 49	2	D	1	D	1	D	0	0	0	0	0	0
Information	51	153	219	45	4	72	D	35	86	0	0	1	D
Publishing	511	126	60	45	4	72	D	10	D	0	0	0	0
Newspaper, periodical, book, and directory	5111	58	27	0	0	57	D	1	D	0	0	0	0
Software	5112	68	33	45	4	14	D	9	D	0	0	0	0
Telecommunications	517	0	0	0	0	0	0	0	0	0	0	0	0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	0	0	0	0	0	0	0	0	0	0	0	0
Satellite telecommunications	5174	0	0	0	0	0	0	0	0	0	0	0	0
Other telecommunications	other 517	0	0	0	0	0	0	0	0	0	0	0	0
Internet service providers, Web search portals, and data-processing services	518	26	159	0	0	0	0	25	D	0	0	1	D
Internet service providers and Web search portals	5181	0	0	0	0	0	0	0	0	0	0	0	0
Data-processing, hosting, and related services	5182	26	159	0	0	0	0	25	D	0	0	1	D
Other information	other 51	0	0	0	0	0	0	0	0	0	0	0	0
Finance, insurance, and real estate	52, 53	0	0	0	0	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	1,362	5,839	280	16	519	D	477	1,399	80	1,881	5	D
Architectural, engineering, and related services	5413	78	2,239	4	D	29	15	34	D	8	254	3	1,773
Computer systems design and related services	5415	355	545	193	10	73	52	81	219	8	265	0	0
Scientific R&D services	5417	915	2,826	82	D	416	D	357	966	58	1,151	2	D
Other professional, scientific, and technical services	other 54	13	229	1	D	1	D	5	D	6	211	0	0
Health care services	621–23	11	7	6	*	3	D	2	D	0	0	0	0
Other nonmanufacturing ^a	55–56, 61 624, 71–72, 81	262	90	0	0	258	80	4	10	0	0	0	0

TABLE 16. Federal funds for and companies performing industrial R&D in the United States, by industry and company size, by federally funded R&D program size: 2005
(Amount in millions of dollars)

Industry and company size		Federally funded R&D program size											
		All companies		Less than \$200,000		\$200,000–\$999,999		\$1 million–\$9.9 million		\$10 million–\$99.9 million		\$100 million or more	
		NAICS codes	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies
Company size (employees)													
All companies	-	2,855	21,909	934	68	1,073	D	713	D	112	D	23	16,531
5–24	-	1,648	1,076	500	25	840	412	309	639	0	0	0	0
25–49	-	589	675	325	33	79	D	178	536	6	D	0	0
50–99	-	193	646	42	5	61	33	62	255	29	353	0	0
100–249	-	170	951	40	3	37	17	63	253	29	678	0	0
250–499	-	65	411	11	1	17	10	28	123	9	277	0	0
500–999	-	56	895	6	D	19	8	18	D	11	517	2	D
1,000–4,999	-	56	1,364	4	*	12	6	27	89	10	371	3	897
5,000–9,999	-	16	620	1	D	3	2	7	31	2	D	3	D
10,000–24,999	-	29	1,918	4	*	3	2	14	56	4	98	4	1,761
25,000 or more	-	33	13,352	1	D	2	D	8	34	11	293	11	13,024

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded by the federal government. Excludes R&D not performed within the company (e.g., R&D contracted out to other organizations) and R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 17. Federal funds for industrial R&D performed in the United States, by industry, by company size: 2005

(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
All industries	21–23, 31–33, 42, 44–81	21,909	1,076	675	646	951	411	895	1,364	620	1,918	13,352
Manufacturing industries	31–33	15,635	149	133	64	110	D	208	632	D	D	12,120
Food	311	6	0	0	D	0	0	0	0	D	D	D
Beverage and tobacco products	312	0	0	0	0	0	0	0	0	0	0	0
Textiles, apparel, and leather	313–16	5	0	0	2	D	D	0	0	0	0	0
Wood products	321	D	0	0	0	D	0	0	0	0	D	0
Paper, printing, and support activities	322, 323	D	0	0	0	0	0	0	0	0	0	D
Petroleum and coal products	324	D	0	0	0	0	0	0	0	0	0	D
Chemicals	325	169	D	9	D	7	8	6	83	23	19	D
Basic chemicals	3251	98	0	0	D	D	D	0	D	D	D	0
Resin, synthetic rubber, fibers, and filament	3252	15	0	D	*	D	0	0	0	0	D	D
Pharmaceuticals and medicines	3254	41	*	D	D	6	2 i	D	D	0	D	0
Other chemicals	other 325	15	D	D	D	0	D	D	D	D	D	0
Plastics and rubber products	326	12	0	0	D	D	D	0	D	0	0	0
Nonmetallic mineral products	327	6	0	0	0	0	0	D	D	D	D	0
Primary metals	331	22 i	0	D	0	0	D	0	D	D	D	D
Fabricated metal products	332	52	D	0	D	D	D	0	D	0	D	D
Machinery	333	109	2	D	*	D	8	17	11	D	D	D
Computer and electronic products	334	D	101	59	33	27	46	153	179	D	D	D
Computers and peripheral equipment	3341	53	D	3	D	D	D	D	D	0	0	0
Communications equipment	3342	D	0	0	D	D	22	D	D	0	0	D
Semiconductor and other electronic components	3344	122	D	35	D	D	16	4	D	0	0	D
Navigational, measuring, electromedical, and control instruments	3345	6,879	48	20	13	17	D	D	134	D	D	D
Other computer and electronic products	other 334	23	D	0	0	0	0	0	D	0	0	0
Electrical equipment, appliances, and components	335	103	28	D	D	D	46	D	D	0	0	0
Transportation equipment	336	D	14	10 i	3	D	D	D	306	D	D	D
Motor vehicles, trailers, and parts	3361–63	D	1	D	D	0	D	D	D	D	D	D
Aerospace products and parts	3364	4,076	D	D	D	D	D	D	D	D	D	D
Other transportation equipment	other 336	D	D	0	0	D	0	0	D	0	0	D
Furniture and related products	337	*	0	0	0	*	0	0	0	0	0	0
Miscellaneous manufacturing	339	82	4	49	8	10	D	D	D	0	0	0
Medical equipment and supplies	3391	31	D	3	D	7	D	D	D	0	0	0
Other miscellaneous manufacturing	other 339	51	D	46	D	3	0	0	D	0	0	0

TABLE 17. Federal funds for industrial R&D performed in the United States, by industry, by company size: 2005

(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
Nonmanufacturing industries	21–23, 42, 44–81	6,274	926	543	582	841	D	687	732	D	D	1,232
Mining, extraction, and support activities	21	D	0	0	0	0	0	0	0	0	D	0
Utilities	22	30	0	0	D	0	0	D	0	D	0	D
Construction	23	D	0	D	0	0	0	D	D	0	D	0
Wholesale trade	42	D	7	D	D	D	0	D	0	0	0	0
Retail trade	44, 45	D	0	0	0	0	0	D	0	0	0	0
Transportation and warehousing	48, 49	D	0	0	0	0	0	0	D	0	0	D
Information	51	219	D	D	D	D	0	0	D	0	0	D
Publishing	511	60	D	3	D	D	0	0	D	0	0	0
Newspaper, periodical, book, and directory	51111	27	D	0	0	D	0	0	0	0	0	0
Software	5112	33	D	3	D	D	0	0	D	0	0	0
Telecommunications	517	0	0	0	0	0	0	0	0	0	0	0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	0	0	0	0	0	0	0	0	0	0	0
Satellite telecommunications	5174	0	0	0	0	0	0	0	0	0	0	0
Other telecommunications	other 517	0	0	0	0	0	0	0	0	0	0	0
Internet service providers, Web search portals, and data-processing services	518	159	0	D	0	D	0	0	0	0	0	D
Internet service providers and Web search portals	5181	0	0	0	0	0	0	0	0	0	0	0
Data-processing, hosting, and related services	5182	159	0	D	0	D	0	0	0	0	0	D
Other information	other 51	0	0	0	0	0	0	0	0	0	0	0
Finance, insurance, and real estate	52, 53	0	0	0	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	5,839	814	D	536	804	D	672	728	D	D	D
Architectural, engineering, and related services	5413	2,239	D	D	D	72	124	D	D	D	D	D
Computer systems design and related services	5415	545	129	D	64	39	D	D	0	0	D	D
Scientific R&D services	5417	2,826	675	D	402	575	124	340	D	0	D	0

TABLE 17. Federal funds for industrial R&D performed in the United States, by industry, by company size: 2005
(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
Other professional, scientific, and technical services	other 54	229	D	D	D	118	0	0	D	0	0	D
Health care services	621–23	7	0	0	D	D	D	D	D	0	0	0
Other nonmanufacturing ^a	55–56, 61, 624, 71–72, 81	90	D	0	0	D	2	D	0	0	0	0

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded by the federal government. Excludes R&D not performed within the company (e.g., R&D contracted out to other organizations) and R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 18. Domestic net sales of companies performing industrial R&D in the United States, by industry, by company size: 2005

(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
All industries	21–23, 31–33, 42, 44–81	6,119,133	72,744	77,898	83,685	157,088	157,726	295,203	963,025	703,009	1,030,880	2,577,876
Manufacturing industries	31–33	3,998,256	21,640	34,020	49,963	101,965	118,959	153,672	723,500	454,584	693,808	1,646,144
Food	311	374,342	849	287	2,810	9,566	21,626	10,749	42,710	48,326	64,176	173,245
Beverage and tobacco products	312	38,003	D	108	21	184	D	1,810	10,060	D	D	0
Textiles, apparel, and leather	313–16	51,639	D	554	D	11,149	2,678	D	14,005	4,710	D	D
Wood products	321	27,002	0	1,442	D	935	838	1,882	7,178	9,339	D	0
Paper, printing, and support activities	322, 323	159,608	418 i	2,203	1,490	4,157	3,414	3,682	19,625	14,670	18,030	91,918
Petroleum and coal products	324	404,317	203	270	D	D	870	D	6,667	D	D	D
Chemicals	325	624,344	2,614	6,277	16,312 i	13,070	14,443	25,460	171,856	93,904	167,525	112,884
Basic chemicals	3251	109,899	51	690	1,068	1,748	3,312	4,847	D	37,854	D	0
Resin, synthetic rubber, fibers, and filament	3252	132,934	108	254	504	1,430	2,750	3,465	D	0	D	D
Pharmaceuticals and medicines	3254	273,377	594	3,770 i	9,913 i	3,734	4,325	11,396	D	31,159	D	D
Other chemicals	other 325	108,134	1,860	1,563	4,828	6,159	4,056	5,751	D	24,890	12,617	D
Plastics and rubber products	326	90,176	755	2,469	D	D	D	D	27,181	D	D	D
Nonmetallic mineral products	327	50,344	409	281	759	1,373	946	1,338	13,197	7,633	24,408	0
Primary metals	331	110,960	D	159	D	2,179	3,254	3,946	D	20,679	D	D
Fabricated metal products	332	174,165	1,511	810	4,058	5,224	D	7,814	105,934	21,399	D	D
Machinery	333	230,941	2,808	4,345	5,765	13,371	14,146	17,801	49,506	24,221	49,459	49,518
Computer and electronic products	334	472,330	3,083	10,042 i	6,526	14,785	16,564	31,373	97,758	24,541	76,735	190,922
Computers and peripheral equipment	3341	91,010	423	676	D	D	1,623	9,983	22,954	D	D	D
Communications equipment	3342	69,115	431	565	D	D	5,208	6,178	16,417	0	D	D
Semiconductor and other electronic components	3344	176,054	462	7,232 i	2,395 i	2,346	3,532	9,800	31,919	9,982	27,576	80,810
Navigational, measuring, electromedical, and control instruments	3345	118,648	1,582	1,471	2,052	D	4,294	4,555	19,815	D	33,367	D
Other computer and electronic products	other 334	17,503	185	98	D	D	1,908	857	6,653	0	D	0
Electrical equipment, appliances, and components	335	101,398	764	1,510	1,474	4,154	4,899	9,570	32,485	25,688	20,853	0
Transportation equipment	336	957,051	4,115 i	1,078	2,346	6,832	8,175	17,370	67,641	115,920	115,359	618,215
Motor vehicles, trailers, and parts	3361–63	646,486	170	674	D	4,824	4,448	14,319	50,900	D	D	360,795
Aerospace products and parts	3364	227,271	3,651 i	195	D	560	2,212	486	4,422	5,350	D	203,187
Other transportation equipment	other 336	83,294	294	208	D	1,448	1,515	2,565	12,319	D	D	54,233
Furniture and related products	337	48,534	365	388	238	D	2,395	1,279	D	9,583	14,017	D
Miscellaneous manufacturing	339	83,103	1,801	1,798	3,237	7,104	6,234	6,987	31,917	10,210	13,816	0
Medical equipment and supplies	3391	56,661	1,176	D	1,555	3,653	3,904	4,055	20,011	D	13,816	0
Other miscellaneous manufacturing	other 339	26,442	625	D	1,682	3,450	2,330	2,932	11,906	D	0	0
Nonmanufacturing industries	21–23, 42, 44–81	2,120,877	51,104	43,878	33,721	55,122	38,766	141,531	239,525	248,425	337,072	931,732
Mining, extraction, and support activities	21	33,665	898	147	114	195	671	2,978	7,196	D	D	D

TABLE 18. Domestic net sales of companies performing industrial R&D in the United States, by industry, by company size: 2005

(Millions of dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
Utilities	22	223,395	189	77	207	0	D	2,432	17,426	D	D	D
Construction	23	57,187	329	1,032	67	14,203	488	2,279	8,176	D	D	0
Wholesale trade	42	107,485	13,036	14,446	D	13,902	D	D	27,562	D	0	0
Retail trade	44, 45	232,150	1,953	27	0	D	2,542	1,782	5,604	D	84,311 i	D
Transportation and warehousing	48, 49	79,436	116	0	D	D	D	D	4,451	D	D	64,417
Information	51	445,489	2,844	3,362	4,799	6,518	8,457	10,229	35,079	D	47,567	D
Publishing	511	103,609	D	1,287	3,233	3,875	4,792	D	23,162	9,299	D	D
Newspaper, periodical, book, and directory	51111	26,411	435	0	D	292	274	D	D	D	D	D
Software	5112	77,198	D	1,287	D	3,582	4,518	D	D	D	D	D
Telecommunications	517	258,953	D	805	82	D	1,560	D	2,401	D	D	D
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	224,300	D	805	D	D	D	1,501	2,401	D	D	D
Satellite telecommunications	5174	394	D	0	0	0	0	D	0	0	0	0
Other telecommunications	other 517	34,259 i	0	0	D	D	D	D	0	0	D	D
Internet service providers, Web search portals, and data-processing services	518	36,493	D	1,251	1,420	1,375	1,586	D	8,765	7,121	D	D
Internet service providers and Web search portals	5181	11,574	D	0	182	D	839	0	D	D	0	0
Data-processing, hosting, and related services	5182	24,919	D	1,251	1,238	D	747	D	D	D	D	D
Other information	other 51	46,434	D	19	65	D	520	D	750	0	D	D
Finance, insurance, and real estate	52, 53	580,380	400	9,185	109	280	950 i	90,101	61,395	49,089	32,108	336,764
Professional, scientific, and technical services	54	261,500	27,792	14,456	9,006	12,092	8,205	9,103	58,187	9,561	48,352	64,746
Architectural, engineering, and related services	5413	50,121	1,007	D	1,512	1,507	1,466	1,732	10,630	D	22,934	D
Computer systems design and related services	5415	136,376	12,885	D	4,743	6,039	3,644	3,563	35,340	5,111	15,889	D
Scientific R&D services	5417	34,516	9,835	D	2,418	3,797	2,589	3,393	2,570	D	D	0
Other professional, scientific, and technical services	other 54	40,487	4,065 i	D	334	750	506	415	9,647	D	D	D
Health care services	621–23	25,076	94	137	D	765	1,270	2,420	3,020	D	D	0
Other nonmanufacturing ^a	55–56, 61, 624, 71–72, 81	75,115	3,451	1,011	205	6,316	5,546	10,413	11,430	9,231	10,764	16,749

D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 19. Concentration of all, federal, and company and other industrial R&D funds and net sales of companies performing industrial R&D in the United States, ranked by R&D program size: 1994–2005
(Percent distribution)

Companies ranked by R&D program size	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
All R&D funds												
All companies	100	100	100	100	100	100	100	100	100	100	100	100
First 4 (1–4)	15	16	15	14	12	11	10	10	10	11	10	9
Next 4 (5–8)	8	8	8	8	8	8	7	7	7	7 r	8	8
Next 12 (9–20)	14	13	13	13	13	13	13	13	13	13 r	13	13
Next 20 (21–40)	13	12	12	11	11	11	11	11	12	11 r	10	10
Next 60 (41–100)	15	14	14	14	13	13	14	14	15	14 r	13	14
Next 100 (101–200)	9	8	9	9	9	9	9	10	10	9 r	10	10
Next 100 (201–300)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	5
Next 100 (301–400)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	3
Next 100 (401–500)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	3
All others ^a	26	29	29	31	34	35	36	35	33	35	25	25
Federal R&D funds												
All companies	100	100	100	100	100	100	100	100	100	100	100	100
First 4 (1–4)	26	35	37	40	46	47	43	41	42	47 r	50	49
Next 4 (5–8)	19	19	20	23	17	14	16 i	17	15	12 r	11	11
Next 12 (9–20)	32	27	23	18	14	15	15	17	19	13 r	13	14
Next 20 (21–40)	13	8	7	7	7	8	7	6	9	6 r	7	6
Next 60 (41–100)	7	5	5	5	7	7	6	8	9	7 r	7	6
Next 100 (101–200)	2	3	4	3	5	4	5	5	5	7 r	5	5
Next 100 (201–300)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	3
Next 100 (301–400)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	3
Next 100 (401–500)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	1
All others ^a	1	3	4	4	4	5	8	6	1	8	0	2
Company and other R&D funds												
All companies	100	100	100	100	100	100	100	100	100	100	100	100
First 4 (1–4)	16	16	15	13	12	11	10	11	10	11	11	10
Next 4 (5–8)	7	7	7	7	7	8	7	8	7	7	8	8
Next 12 (9–20)	12	11	11	11	12	12	13	12	13	12	12	12
Next 20 (21–40)	11	11	10	11	10	10	11	10	11	11	10	10
Next 60 (41–100)	14	14	14	13	13	13	13	14	15	14 r	13	13
Next 100 (101–200)	9	9	10	10	10	9	9	10	11	10	10	10
Next 100 (201–300)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	5
Next 100 (301–400)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	3
Next 100 (401–500)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	3
All others ^a	31	32	33	35	36	37	37	35	33	35	24	26

TABLE 19. Concentration of all, federal, and company and other industrial R&D funds and net sales of companies performing industrial R&D in the United States, ranked by R&D program size: 1994–2005
(Percent distribution)

Companies ranked by R&D program size	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Domestic net sales											
All companies	100	100	100	100	100	100	100	100	100	100	100	100
First 4 (1–4)	8	8	6	6	5	6 i	3 r	3 r	3 r	3 r	3	2
Next 4 (5–8)	2	2	3	2	3	2 r	D	4 r	4 r	2 r	2	3
Next 12 (9–20)	5	6	6	5	5	7	8 r	8 r	8 r	8 r	9	8
Next 20 (21–40)	5	4	4	5	5	4 r	D	5 r	4 r	3 r	3	3
Next 60 (41–100)	10	9	8	7	8	9 r	11 r	9 r	10 r	9 r	10	9
Next 100 (101–200)	8	8	11	8	8	8 r	9 r	11 r	10 r	10 r	11	12
Next 100 (201–300)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	6
Next 100 (301–400)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	6
Next 100 (401–500)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	3
All others ^a	62	63	62	67	66	64	69	60	61	65	49	48

D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; NA = not available; r = data significantly revised, replaces previously published data.

^aIncludes companies in 201–500 size categories prior to 2004.

NOTES: Companies are ranked by size of their total R&D program in the first and fourth banks of estimates. In the second bank of estimates they are ranked by the size of their federal R&D programs and in the third bank by the size of their nonfederally funded R&D programs. Companies were ranked individually for each year; therefore, particular companies comprising the size groups may have changed from year to year. Beginning with 2001, statistics for total and federally funded industrial R&D exclude federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D not performed within the company (e.g., R&D not performed by other organizations) and R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). Prior to 2004, this table focused on the top 400 R&D performers. Data for the 201–300 and 301–400 categories were aggregated and data for the 401–500 category were included in the all others category. Beginning in 2004, the focus of the table was changed to the top 500 R&D performers. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 20. Funds for industrial R&D as a percent of net sales of companies performing industrial R&D in the United States, by industry and company size: 2005

Industry and company size	NAICS codes	% of net sales
All industries	21–23, 31–33, 42, 44–81	3.7
Manufacturing industries	31–33	4.0
Food	311	0.7
Beverage and tobacco products	312	1.4 i
Textiles, apparel, and leather	313–16	1.6
Wood products	321	D
Paper, printing, and support activities	322, 323	D
Petroleum and coal products	324	D
Chemicals	325	6.9
Basic chemicals	3251	2.1
Resin, synthetic rubber, fibers, and filament	3252	1.7
Pharmaceuticals and medicines	3254	12.7
Other chemicals	other 325	3.3
Plastics and rubber products	326	2.0
Nonmetallic mineral products	327	1.8
Primary metals	331	0.6
Fabricated metal products	332	0.8
Machinery	333	3.7
Computer and electronic products	334	D
Computers and peripheral equipment	3341	5.4
Communications equipment	3342	D
Semiconductor and other electronic components	3344	10.6
Navigational, measuring, electromedical, and control instruments	3345	12.8
Other computer and electronic products	other 334	5.7
Electrical equipment, appliances, and components	335	2.4
Transportation equipment	336	D
Motor vehicles, trailers, and parts	3361–63	D
Aerospace products and parts	3364	6.6
Other transportation equipment	other 336	D
Furniture and related products	337	0.8
Miscellaneous manufacturing	339	6.2
Medical equipment and supplies	3391	7.7
Other miscellaneous manufacturing	other 339	2.9
Nonmanufacturing industries	21–23, 42, 44–81	3.2
Mining, extraction, and support activities	21	D
Utilities	22	0.1
Construction	23	D
Wholesale trade	42	D
Retail trade	44, 45	D
Transportation and warehousing	48, 49	D
Information	51	5.4
Publishing	511	17.1
Newspaper, periodical, book, and directory	5111	3.1
Software	5112	21.9
Telecommunications	517	1.0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	1.1
Satellite telecommunications	5174	3.4
Other telecommunications	other 517	0.5 i
Internet service providers, Web search portals, and data-processing services	518	9.1
Internet service providers and Web search portals	5181	9.0
Data-processing, hosting, and related services	5182	9.2
Other information	other 51	0.5

TABLE 20. Funds for industrial R&D as a percent of net sales of companies performing industrial R&D in the United States, by industry and company size: 2005

Industry and company size	NAICS codes	% of net sales
Finance, insurance, and real estate	52, 53	0.5
Professional, scientific, and technical services	54	12.2
Architectural, engineering, and related services	5413	9.4
Computer systems design and related services	5415	10.0
Scientific R&D services	5417	35.6
Other professional, scientific, and technical services	other 54	3.6
Health care services	621–23	3.9
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	2.8
Company size (employees)		
All companies	-	3.7
5–24	-	10.1
25–49	-	9.6
50–99	-	8.5
100–249	-	6.6
250–499	-	5.2
500–999	-	4.7
1,000–4,999	-	3.6
5,000–9,999	-	2.6
10,000–24,999	-	3.3
25,000 or more	-	3.3

D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this tables are R&D not performed within the company (e.g., R&D performed by other organizations) and R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 21. Company and other nonfederal funds for industrial R&D as a percent of net sales of companies performing industrial R&D in the United States, by industry and company size: 2005

Industry and company size	NAICS codes	% of net sales
All industries	21–23, 31–33, 42, 44–81	3.3
Manufacturing industries	31–33	3.6
Food	311	0.7
Beverage and tobacco products	312	1.4 i
Textiles, apparel, and leather	313–16	1.6
Wood products	321	0.8
Paper, printing, and support activities	322, 323	1.5
Petroleum and coal products	324	0.4
Chemicals	325	6.9
Basic chemicals	3251	2.0
Resin, synthetic rubber, fibers, and filament	3252	1.7
Pharmaceuticals and medicines	3254	12.7
Other chemicals	other 325	3.3
Plastics and rubber products	326	1.9
Nonmetallic mineral products	327	1.8
Primary metals	331	0.5
Fabricated metal products	332	0.8
Machinery	333	3.6
Computer and electronic products	334	9.0
Computers and peripheral equipment	3341	5.4
Communications equipment	3342	14.0
Semiconductor and other electronic components	3344	10.6
Navigational, measuring, electromedical, and control instruments	3345	7.0
Other computer and electronic products	other 334	5.6
Electrical equipment, appliances, and components	335	2.3
Transportation equipment	336	3.0
Motor vehicles, trailers, and parts	3361–63	2.5
Aerospace products and parts	3364	4.8
Other transportation equipment	other 336	1.6
Furniture and related products	337	0.8
Miscellaneous manufacturing	339	6.1
Medical equipment and supplies	3391	7.7
Other miscellaneous manufacturing	other 339	2.7
Nonmanufacturing industries	21–23, 42, 44–81	2.9
Mining, extraction, and support activities	21	2.0
Utilities	22	0.1
Construction	23	2.2
Wholesale trade	42	2.0
Retail trade	44, 45	0.6
Transportation and warehousing	48, 49	0.4
Information	51	5.3
Publishing	511	17.1
Newspaper, periodical, book, and directory	5111	3.0
Software	5112	21.9
Telecommunications	517	1.0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	1.1
Satellite telecommunications	5174	3.4
Other telecommunications	other 517	0.5 i
Internet service providers, Web search portals, and data-processing services	518	8.7
Internet service providers and Web search portals	5181	9.0
Data-processing, hosting, and related services	5182	8.6
Other information	other 51	0.5

TABLE 21. Company and other nonfederal funds for industrial R&D as a percent of net sales of companies performing industrial R&D in the United States, by industry and company size: 2005

Industry and company size	NAICS codes	% of net sales
Finance, insurance, and real estate	52, 53	0.5
Professional, scientific, and technical services	54	10.0
Architectural, engineering, and related services	5413	4.9
Computer systems design and related services	5415	9.6
Scientific R&D services	5417	27.4
Other professional, scientific, and technical services	other 54	3.0
Health care services	621–23	3.9
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	2.7
Company size (employees)		
All companies	-	3.3
5–24	-	8.7
25–49	-	8.7
50–99	-	7.8
100–249	-	6.0
250–499	-	4.9
500–999	-	4.4
1,000–4,999	-	3.5
5,000–9,999	-	2.5
10,000–24,999	-	3.1
25,000 or more	-	2.8

i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds are predominantly the company's own but also include funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excludes company-funded R&D not performed within the company (e.g., R&D performed by other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 22. Funds for industrial R&D and as a percent of net sales of the top 20 industrial R&D-performing companies in the United States, by industry and company size, ranked by R&D program size: 2005

Industry and company size	NAICS codes	All funds (\$millions)			% of net sales		
		First 4 companies	Next 4 companies	Next 12 companies	First 4 companies	Next 4 companies	Next 12 companies
All industries	21–23, 31–33, 42, 44–81	21,203	17,097	30,093	18.4	9.1	6.1
Manufacturing industries	31–33	19,778	15,224	26,221	11.2	6.7	7.3
Food	311	993	422	585	1.3	0.7	0.8
Beverage and tobacco products	312	500	33	6	1.8	0.6	0.1
Textiles, apparel, and leather	313–16	279	67	99	1.7	2.5	1.8
Wood products	321	140	18	15	1.6	0.2	0.9
Paper, printing, and support activities	322, 323	1,874	188	176	4.0	0.4	0.6
Petroleum and coal products	324	1,389	35	20	0.4	0.1	0.4
Chemicals	325	12,462	6,449	9,183	15.9	11.4	9.7
Basic chemicals	3251	503	355	639	3.2	2.1	2.6
Resin, synthetic rubber, fibers, and filament	3252	1,907	144	174	2.2	0.7	0.8
Pharmaceuticals and medicines	3254	12,462	6,449	7,625	15.9	11.4	12.9
Other chemicals	other 325	1,592	423	687	8.1	2.6	2.6
Plastics and rubber products	326	685	115	219	4.3	2.1	2.0
Nonmetallic mineral products	327	502	131	122	3.2	3.5	1.0
Primary metals	331	287	77	123	1.3	0.5	0.3
Fabricated metal products	332	297	119	205	2.9	1.2	1.8
Machinery	333	2,968	971	1,273	7.2	5.2	2.9
Computer and electronic products	334	15,518	5,477	7,428	17.4	14.0	8.5
Computers and peripheral equipment	3341	2,292	884	951	16.7	1.9	11.4
Communications equipment	3342	6,496	595	943	18.9	10.4	10.8
Semiconductor and other electronic components	3344	8,265	2,943	2,728	13.8	5.6	21.7
Navigational, measuring, electromedical, and control instruments	3345	8,153	1,524	2,544	19.1	8.1	12.7
Other computer and electronic products	other 334	647	136	103	6.7	3.6	5.9
Electrical equipment, appliances, and components	335	560	267	496	2.3	3.1	2.8
Transportation equipment	336	17,171	9,071	5,282	6.0	3.6	4.0
Motor vehicles, trailers, and parts	3361–63	11,259	1,375	1,767	3.4	1.9	2.4
Aerospace products and parts	3364	12,378	1,803	653	6.4	9.9	13.8
Other transportation equipment	other 336	4,562	191	109	8.0	1.7	1.3
Furniture and related products	337	167	81	63	0.8	1.2	0.6
Miscellaneous manufacturing	339	2,045	553	677	12.3	8.9	7.4
Medical equipment and supplies	3391	2,045	528	519	12.3	10.8	6.2
Other miscellaneous manufacturing	other 339	302	58	104	5.5	2.4	2.2

TABLE 22. Funds for industrial R&D and as a percent of net sales of the top 20 industrial R&D-performing companies in the United States, by industry and company size, ranked by R&D program size: 2005

Industry and company size	NAICS codes	All funds (\$millions)			% of net sales		
		First 4 companies	Next 4 companies	Next 12 companies	First 4 companies	Next 4 companies	Next 12 companies
Nonmanufacturing industries	21–23, 42, 44–81	13,196	3,899	6,597	18.7	4.0	12.9
Mining, extraction, and support activities	21	537	62	59	2.8	2.4	1.5
Utilities	22	98	38	37	0.3	0.1	0.1
Construction	23	1,073	33	28	5.5	1.6	0.2
Wholesale trade	42	191	101	227	48.2	7.7	7.7
Retail trade	44, 45	930	158	69	4.3	0.7	0.0
Transportation and warehousing	48, 49	281	19	12	0.5	0.3	0.1
Information	51	9,405	2,543	3,498	20.4	3.0	15.1
Publishing	511	9,103	1,327	2,386	23.9	24.7	16.5
Newspaper, periodical, book, and directory	5111	660	71	56	4.6	1.4	3.7
Software	5112	9,103	1,327	1,995	23.9	24.7	30.7
Telecommunications	517	1,845	374	244	1.8	0.4	0.4
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	1,845	350	140	1.8	0.5	0.3
Satellite telecommunications	5174	1	0	0	0.1	0.0	0.0
Other telecommunications	other 517	143	14	4	0.4	1.3	0.5
Internet service providers, Web search portals, and data-processing services	518	1,915	247	307	9.4	14.0	5.5
Internet service providers and Web search portals	5181	843	49	15	8.1	22.8	2.3
Data-processing, hosting, and related services	5182	1,263	188	234	9.4	7.1	5.8
Other information	other 51	119	50	38	0.3	5.4	3.2
Finance, insurance, and real estate	52, 53	566	291	349	0.5	0.3	0.3
Professional, scientific, and technical services	54	7,290	2,022	2,464	14.8	20.2	12.0
Architectural, engineering, and related services	5413	2,823	503	422	31.1	9.4	15.0
Computer systems design and related services	5415	6,198	870	812	13.9	8.0	5.7
Scientific R&D services	5417	1,222	485	934	15.5	116.3	132.3
Other professional, scientific, and technical services	other 54	352	114	176	2.7	19.4	3.1
Health care services	621–23	796	51	41	8.3	2.9	0.7
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	663	180	216	4.1	6.9	2.1

TABLE 22. Funds for industrial R&D and as a percent of net sales of the top 20 industrial R&D-performing companies in the United States, by industry and company size, ranked by R&D program size: 2005

Industry and company size	NAICS codes	All funds (\$millions)			% of net sales		
		First 4 companies	Next 4 companies	Next 12 companies	First 4 companies	Next 4 companies	Next 12 companies
Company size (employees)							
All companies	-	21,203	17,097	30,093	18.4	9.1	6.1
5-24	-	50	37	78	66.5	8.1	13.5
25-49	-	117	77	180	28.6	12.5	151.1
50-99	-	170	128	308	187.8	359.3	3.5
100-249	-	371	263	594	192.6	107.9	144.4
250-499	-	454	339	817	239.6	47.8	73.1
500-999	-	1,256	862	1,759	66.0	20.8	45.3
1,000-4,999	-	2,912	1,636	3,837	69.5	23.3	23.9
5,000-9,999	-	4,541	2,573	4,136	14.7	17.3	12.5
10,000-24,999	-	7,394	5,368	8,855	14.8	18.7	11.1
25,000 or more	-	21,203	17,097	28,355	18.4	9.1	5.6

i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). Rankings were based on total funds from all sources (company, federal, and other) spent for R&D and are determined separately for each industry and company size category. Consequently, industry and company size detail does not add to totals. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 23. Company and other nonfederal funds for industrial R&D and as a percent of net sales of the top 20 companies performing company-funded industrial R&D in the United States, by industry and company size, ranked by nonfederally funded R&D program size: 2005

Industry and company size	NAICS codes	Company and other nonfederal R&D funds (\$millions)			% of net sales		
		First 4 companies	Next 4 companies	Next 12 companies	First 4 companies	Next 4 companies	Next 12 companies
All industries	21–23, 31–33, 42, 44–81	19,677	15,736	24,559	15.9	5.4	7.1
Manufacturing industries	31–33	17,936	12,981	21,005	9.1	6.8	5.9
Food	311	993	418	582	1.3	0.7	0.8
Beverage and tobacco products	312	500	33	6	1.8	0.6	0.1
Textiles, apparel, and leather	313–16	279	67	99	1.7	2.5	1.8
Wood products	321	140	18	15	1.6	0.2	0.9
Paper, printing, and support activities	322, 323	1,859	188	176	3.9	0.4	0.6
Petroleum and coal products	324	1,375	35	20	0.4	0.1	0.4
Chemicals	325	12,462	6,441	9,169	15.9	11.4	9.7
Basic chemicals	3251	483	346	614	3.1	2.0	2.5
Resin, synthetic rubber, fibers, and filament	3252	1,893	144	174	2.2	0.7	0.8
Pharmaceuticals and medicines	3254	12,462	6,441	7,625	15.9	11.4	12.9
Other chemicals	other 325	1,587	422	687	8.1	2.6	2.6
Plastics and rubber products	326	685	115	219	4.3	2.1	2.0
Nonmetallic mineral products	327	497	131	121	3.1	3.5	0.9
Primary metals	331	280	74	115	1.3	0.3	0.4
Fabricated metal products	332	290	111	190	2.8	1.0	1.7
Machinery	333	2,938	944	1,273	7.1	5.1	2.9
Computer and electronic products	334	11,923	4,048	6,581	14.4	12.3	6.7
Computers and peripheral equipment	3341	2,292	884	951	16.7	1.9	11.4
Communications equipment	3342	6,467	595	885	18.8	10.4	10.2
Semiconductor and other electronic components	3344	8,265	2,934	2,724	13.8	5.6	21.7
Navigational, measuring, electromedical, and control instruments	3345	2,479	1,313	1,916	4.9	14.4	11.4
Other computer and electronic products	other 334	647	134	103	6.7	3.5	5.9
Electrical equipment, appliances, and components	335	560	267	469	2.3	3.1	2.6
Transportation equipment	336	14,666	6,276	3,373	4.1	3.6	2.2
Motor vehicles, trailers, and parts	3361–63	11,196	1,374	1,756	3.3	1.9	2.4
Aerospace products and parts	3364	9,746	700	330	5.0	4.5	4.4
Other transportation equipment	other 336	1,015	183	94	1.8	1.5	1.2
Furniture and related products	337	167	81	63	0.8	1.2	0.6
Miscellaneous manufacturing	339	2,045	553	676	12.3	8.9	7.4
Medical equipment and supplies	3391	2,045	528	518	12.3	10.8	6.2
Other miscellaneous manufacturing	other 339	302	58	104	5.5	2.4	2.2

TABLE 23. Company and other nonfederal funds for industrial R&D and as a percent of net sales of the top 20 companies performing company-funded industrial R&D in the United States, by industry and company size, ranked by nonfederally funded R&D program size: 2005

Industry and company size	NAICS codes	Company and other nonfederal R&D funds (\$millions)			% of net sales		
		First 4 companies	Next 4 companies	Next 12 companies	First 4 companies	Next 4 companies	Next 12 companies
Nonmanufacturing industries	21–23, 42, 44–81	13,130	3,314	5,712	18.6	3.5	13.6
Mining, extraction, and support activities	21	535	62	59	2.8	2.4	1.5
Utilities	22	74	35	32	0.2	0.1	0.1
Construction	23	1,068	33	28	5.5	1.6	0.2
Wholesale trade	42	191	101	224	48.2	7.7	8.2
Retail trade	44, 45	930	158	69	4.3	0.7	0.0
Transportation and warehousing	48, 49	281	19	12	0.5	0.3	0.1
Information	51	9,305	2,543	3,498	20.1	3.0	15.1
Publishing	511	9,103	1,327	2,384	23.9	24.7	16.4
Newspaper, periodical, book, and directory	5111	660	71	50	4.6	1.4	3.4
Software	5112	9,103	1,327	1,993	23.9	24.7	30.7
Telecommunications	517	1,845	374	244	1.8	0.4	0.4
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	1,845	350	140	1.8	0.5	0.3
Satellite telecommunications	5174	1	0	0	0.2	0.0	0.0
Other telecommunications	other 517	143	14	4	0.4	1.3	0.6
Internet service providers, Web search portals, and data-processing services	518	1,815	247	307	8.9	14.0	5.5
Internet service providers and Web search portals	5181	843	49	15	8.1	22.8	2.3
Data-processing, hosting, and related services	5182	1,163	188	234	8.7	7.1	5.8
Other information	other 51	119	50	38	0.3	5.4	3.2
Finance, insurance, and real estate	52, 53	566	291	349	0.5	0.3	0.3
Professional, scientific, and technical services	54	6,473	1,227	2,010	14.9	21.1	6.6
Architectural, engineering, and related services	5413	1,368	195	248	14.7	4.3	2.5
Computer systems design and related services	5415	6,131	870	746	13.7	8.0	5.4
Scientific R&D services	5417	850	462	838	10.8	144.9	141.1
Other professional, scientific, and technical services	other 54	246	88	117	1.9	7.5	1.9
Health care services	621–23	793	51	40	8.3	2.9	0.7
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	663	180	212	4.1	6.9	2.1

TABLE 23. Company and other nonfederal funds for industrial R&D and as a percent of net sales of the top 20 companies performing company-funded industrial R&D in the United States, by industry and company size, ranked by nonfederally funded R&D program size: 2005

		Company and other nonfederal R&D funds (\$millions)			% of net sales		
		First 4	Next 4	Next 12	First 4	Next 4	Next 12
Industry and company size	NAICS codes	companies	companies	companies	companies	companies	companies
Company size (employees)							
All companies	-	19,677	15,736	24,559	15.9	5.4	7.1
5–24	-	50	37	76	11.3	40.4	13.3
25–49	-	117	77	179	28.6	12.5	150.5
50–99	-	170	128	300	187.8	359.3	3.4
100–249	-	356	254	543	252.4	145.9	95.7
250–499	-	454	338	789	239.6	50.2	72.0
500–999	-	1,256	861	1,679	66.0	20.8	39.8
1,000–4,999	-	2,727	1,562	3,744	37.8	23.7	23.3
5,000–9,999	-	4,541	2,573	4,121	14.7	17.3	12.1
10,000–24,999	-	7,386	5,368	8,391	14.8	18.7	9.6
25,000 or more	-	19,677	15,736	20,536	15.9	5.4	5.5

i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds are predominantly the company's own, but also include funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D performed by other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). Rankings were based on company and other funds from nonfederal sources spent for R&D and are determined separately for each industry and company size. Consequently, industry and company size detail does not add to total. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 24. Federal funds for industrial R&D and as a percent of net sales of the top 20 companies performing federally funded industrial R&D in the United States, by industry and company size, ranked by federally funded R&D program size: 2005

Industry and company size	NAICS codes	Federal R&D funds (\$millions)			% of net sales		
		First 4 companies	Next 4 companies	Next 12 companies	First 4 companies	Next 4 companies	Next 12 companies
All industries	21–23, 31–33, 42, 44–81	10,721	2,362	3,128	14.4	5.4	1.6
Manufacturing industries	31–33	10,387	1,937	2,047	14.8	2.9	1.2
Food	311	6	0	0	0.0	0.0	0.0
Beverage and tobacco products	312	0	0	0	0.0	0.0	0.0
Textiles, apparel, and leather	313–16	3	0	0	1.7	0.0	0.0
Wood products	321	D	0	0	0.0	0.0	0.0
Paper, printing, and support activities	322, 323	D	0	0	0.1	0.0	0.0
Petroleum and coal products	324	D	0	0	0.0	0.0	0.0
Chemicals	325	91	21	38	0.4	0.1	0.1
Basic chemicals	3251	84	11	3	0.8	0.2	0.0
Resin, synthetic rubber, fibers, and filament	3252	14	D	0	0.0	0.0	0.0
Pharmaceuticals and medicines	3254	21	10	7	0.1	4.2	1.0
Other chemicals	other 325	12	2	1	0.3	0.0	0.1
Plastics and rubber products	326	12	D	0	1.3	0.0	0.0
Nonmetallic mineral products	327	6	0	0	0.1	0.0	0.0
Primary metals	331	21	1	0	0.1	0.0	0.0
Fabricated metal products	332	49	2	*	0.9	0.0	0.5
Machinery	333	76	18	13	0.3	5.1	0.3
Computer and electronic products	334	6,280	467	247	15.5	6.2	0.5
Computers and peripheral equipment	3341	50	3	D	15.1	0.2	2.8
Communications equipment	3342	160	12	1	0.8	8.5	0.4
Semiconductor and other electronic components	3344	27	16	17	0.1	2.4	0.1
Navigational, measuring, electromedical, and control instruments	3345	6,280	417	99	15.5	5.4	1.5
Other computer and electronic products	other 334	4	0	0	0.8	0.0	0.0
Electrical equipment, appliances, and components	335	67	7	2	28.0	0.1	0.6
Transportation equipment	336	5,913	1,174	631	6.6	0.8	0.2
Motor vehicles, trailers, and parts	3361–63	70	31	4	0.0	0.1	0.0
Aerospace products and parts	3364	2,930	973	174	4.2	0.7	2.7
Other transportation equipment	other 336	D	1	0	7.3	1.4	0.0
Furniture and related products	337	*	0	0	0.1	0.0	0.0
Miscellaneous manufacturing	339	18	7	7	13.9	18.8	0.4
Medical equipment and supplies	3391	18	5	4	12.7	2.0	0.3
Other miscellaneous manufacturing	other 339	6	1	* i	0.8	1.3	0.4

TABLE 24. Federal funds for industrial R&D and as a percent of net sales of the top 20 companies performing federally funded industrial R&D in the United States, by industry and company size, ranked by federally funded R&D program size: 2005

Industry and company size	NAICS codes	Federal R&D funds (\$millions)			% of net sales		
		First 4 companies	Next 4 companies	Next 12 companies	First 4 companies	Next 4 companies	Next 12 companies
Nonmanufacturing industries	21–23, 42, 44–81	2,145	373	636	14.2	3.4	1.5
Mining, extraction, and support activities	21	D	0	0	0.0	0.0	0.0
Utilities	22	30	D	0	0.2	0.0	0.0
Construction	23	D	D	0	0.0	0.0	0.0
Wholesale trade	42	22	2	1	7.3	2.9	0.5
Retail trade	44, 45	D	0	0	0.1	0.0	0.0
Transportation and warehousing	48, 49	D	0	0	0.0	0.0	0.0
Information	51	121	7	7	1.1	2.6	0.8
Publishing	511	14	4	4	4.3	10.4	0.4
Newspaper, periodical, book, and directory	5111	D	0	0	21.9	0.0	0.0
Software	5112	7	3	3	2.5	11.3	0.3
Telecommunications	517	0	0	0	0.0	0.0	0.0
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	0	0	0	0.0	0.0	0.0
Satellite telecommunications	5174	0	0	0	0.0	0.0	0.0
Other telecommunications	other 517	0	0	0	0.0	0.0	0.0
Internet service providers, Web search portals, and data-processing services	518	114	0	0	1.1	0.0	0.0
Internet service providers and Web search portals	5181	0	0	0	0.0	0.0	0.0
Data-processing, hosting, and related services	5182	D	0	0	1.1	0.0	0.0
Other information	other 51	0	0	0	0.0	0.0	0.0
Finance, insurance, and real estate	52, 53	0	0	0	0.0	0.0	0.0
Professional, scientific, and technical services	54	2,145	344	600	14.2	77.6	1.4
Architectural, engineering, and related services	5413	1,831	141	130	22.1	3.9	2.9
Computer systems design and related services	5415	212	53	81	0.6	38.2	22.6
Scientific R&D services	5417	636	191	294	8.8	61.9	43.8
Other professional, scientific, and technical services	other 54	180	41	8	2.7	39.7	21.5
Health care services	621–23	7	1	*	1.6	0.2	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	10	1	0	5.1	1.0	0.0

TABLE 24. Federal funds for industrial R&D and as a percent of net sales of the top 20 companies performing federally funded industrial R&D in the United States, by industry and company size, ranked by federally funded R&D program size: 2005

		Federal R&D funds (\$millions)			% of net sales		
Industry and company size	NAICS codes	First 4 companies	Next 4 companies	Next 12 companies	First 4 companies	Next 4 companies	Next 12 companies
Company size (employees)							
All companies	-	10,721	2,362	3,128	14.4	5.4	1.6
5–24	-	21	14	31	100.8	84.2	55.1
25–49	-	45	35	69	108.0	84.5	81.7
50–99	-	60	50	119	89.1	86.3	84.6
100–249	-	207	121	202	79.8	75.2	34.4
250–499	-	167	96	95	64.8	48.0	13.2
500–999	-	466	237	155	53.2	44.5	8.3
1,000–4,999	-	956	181	176	33.2	11.1	1.8
5,000–9,999	-	570	37	13	6.7	0.3	0.0
10,000–24,999	-	1,761	98	54	9.8	0.6	0.1
25,000 or more	-	10,721	1,796	778	14.4	1.2	0.2

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Rankings were based on federal funds spent for R&D and are determined separately for each industry and company size category. Consequently, industry and company size detail does not add total. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded by the federal government. Excluded from this table are R&D not performed within the company (e.g., R&D contracted out to other organizations) and R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 25. Funds for industrial basic research, applied research, and development performed in the United States: 1953–2005
(Millions of current and constant 2000 dollars)

Year	All R&D		Basic research		Applied research		Development	
	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$
1953	3,630	19,901	151	828	726	3,980	2,753	15,093
1954	4,070	22,096	166	901	814	4,419	3,090	16,775
1955	4,640	24,747	189	1,008	928	4,949	3,523	18,789
1956	6,605	34,064	253	1,305	1,268	6,539	5,084	26,220
1957	7,731	38,578	271	1,352	1,670	8,333	5,790	28,892
1958	8,389	40,922	295	1,439	1,911	9,322	6,183	30,161
1959	9,618	46,352	320	1,542	1,991	9,595	7,307	35,214
1960	10,509	49,948	376	1,787	2,029	9,644	8,104	38,517
1961	10,908	51,259	395	1,856	1,977	9,290	8,536	40,113
1962	11,464	53,148	488	2,262	2,449	11,354	8,527	39,532
1963	12,630	57,936	522	2,394	2,457	11,271	9,651	44,271
1964	13,512	61,057	549	2,481	2,600	11,749	10,363	46,828
1965	14,185	62,960	592	2,628	2,658	11,798	10,935	48,535
1966	15,548	67,075	624	2,692	2,843	12,265	12,081	52,118
1967	16,385	68,585	629	2,633	2,915	12,202	12,841	53,751
1968	17,429	69,968	642	2,577	3,124	12,541	13,663	54,849
1969	18,308	70,011	618	2,363	3,287	12,570	14,403	55,078
1970	18,067	65,627	602	2,187	3,427	12,448	14,038	50,992
1971	18,320	63,369	590	2,041	3,415	11,813	14,315	49,516
1972	19,552	64,806	593	1,966	3,514	11,647	15,445	51,193
1973	21,249	66,716	631	1,981	3,825	12,009	16,793	52,725
1974	22,887	65,900	699	2,013	4,288	12,347	17,900	51,540
1975	24,187	63,650	730	1,921	4,570	12,026	18,887	49,703
1976	26,997	67,157	819	2,037	5,112	12,716	21,066	52,403
1977	29,825	69,766	911	2,131	5,636	13,184	23,278	54,451
1978	33,304	72,780	1,035	2,262	6,300	13,767	25,969	56,750
1979	38,226	77,146	1,158	2,337	7,225	14,581	29,843	60,228
1980	44,505	82,356	1,325	2,452	8,450	15,637	34,730	64,267
1981	51,810	87,635	1,614	2,730	10,699	18,097	39,497	66,808
1982	58,650	93,496	1,904	3,035	12,323	19,645	44,423	70,816
1983	65,268	100,089	2,223	3,409	13,927	21,357	49,118	75,323
1984	74,800	110,553	2,608	3,855	15,765	23,300	56,427	83,398
1985	84,239	120,842	2,862	4,106	18,255	26,187	63,122	90,549
1986	87,823	123,260	4,047	5,680	19,759	27,732	64,017	89,848
1987	92,155	125,895	4,324	5,907	19,813	27,067	68,018	92,921
1988	97,015	128,174	4,500	5,945	20,748	27,412	71,767	94,817
1989	102,055	129,907	5,216	6,640	22,691	28,884	74,148	94,384
1990	109,727	134,486	5,128	6,285	24,785	30,377	79,814	97,823
1991	116,952	138,503	7,837	9,281	27,446	32,504	81,669	96,718
1992	119,110	137,891	7,002	8,106	26,168	30,294	85,940	99,491
1993	117,400	132,835	6,919	7,829	24,686	27,932	85,796	97,076
1994	119,595	132,501	7,017	7,774	23,490	26,025	89,088	98,702
1995	132,103	143,419	6,099	6,621	27,454	29,806	98,552	106,994
1996	144,667	154,147	8,207	8,745	29,241	31,157	107,218	114,244
1997	157,539	165,118	10,419	10,920	32,642	34,212	114,478	119,985
1998	169,180	175,371	6,421	6,656	32,438	33,625	130,320	135,089
1999	184,129	188,136	7,202	7,359	36,912	37,715	140,015	143,062

TABLE 25. Funds for industrial basic research, applied research, and development performed in the United States: 1953–2005
(Millions of current and constant 2000 dollars)

Year	All R&D		Basic research		Applied research		Development	
	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$
2000	201,962	201,962	7,588	7,588	39,446	39,446	154,929	154,929
2001	202,017	197,284	8,053	7,864	44,012	42,981	149,952	146,439
2002	193,868	186,078	7,547	7,244	28,533	27,386	157,788	151,448
2003	200,724 r	188,643 r	8,330 r	7,829 r	37,334 r	35,087 r	155,060 r	145,727 r
2004	208,301	190,356	7,835	7,160	45,432	41,518	155,034	141,678
2005	226,159	200,609	8,667	7,688	45,284	40,168	172,207	152,752

r = data significantly revised, replaces previously published data.

NOTES: Beginning with 2001, excludes federally funded research and development centers. Gross domestic product implicit price deflators were used to convert current dollars to constant 2000 dollars. During statistical processing, when R&D was not allocated among the three character-of-work categories (basic research, applied research, and development) by survey respondents, algorithms were used to do the allocation. See table A-7 for the amount of undistributed R&D and the number of companies that reported R&D in each category. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). Improved edit checks and imputation routines were implemented during statistical processing of 2001 survey results to produce the basic research, applied research, and development estimates. Also at that time estimates for 1998, 1999, and 2000 were recalculated. Consequently, statistics for 1998 and later years are not directly comparable to statistics for 1997 and earlier years. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 26. Company and other nonfederal funds for industrial basic research, applied research, and development performed in the United States: 1953–2005

(Millions of current and constant 2000 dollars)

Year	Company and other R&D		Basic research		Applied research		Development	
	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$
1953	2,200	12,061	132	724	438	2,401	1,630	8,936
1954	2,320	12,595	143	776	492	2,671	1,685	9,148
1955	2,460	13,120	162	864	560	2,987	1,738	9,269
1956	3,277	16,900	216	1,114	794	4,095	2,267	11,692
1957	3,396	16,946	230	1,148	992	4,950	2,174	10,848
1958	3,630	17,707	252	1,229	1,137	5,546	2,241	10,932
1959	3,983	19,195	248	1,195	1,178	5,677	2,557	12,323
1960	4,428	21,046	297	1,412	1,196	5,684	2,935	13,950
1961	4,668	21,936	314	1,476	1,165	5,475	3,189	14,986
1962	5,029	23,315	345	1,599	1,438	6,667	3,246	15,049
1963	5,360	24,587	375	1,720	1,450	6,651	3,535	16,216
1964	5,792	26,173	384	1,735	1,560	7,049	3,848	17,388
1965	6,445	28,606	406	1,802	1,620	7,190	4,419	19,614
1966	7,216	31,130	451	1,946	1,804	7,783	4,961	21,402
1967	8,020	33,571	427	1,787	1,849	7,740	5,744	24,044
1968	8,869	35,604	462	1,855	2,081	8,354	6,326	25,395
1969	9,857	37,694	458	1,751	2,272	8,688	7,127	27,254
1970	10,288	37,370	444	1,613	2,378	8,638	7,466	27,120
1971	10,654	36,852	456	1,577	2,441	8,443	7,757	26,832
1972	11,535	38,233	463	1,535	2,562	8,492	8,510	28,207
1973	13,104	41,143	499	1,567	2,832	8,892	9,773	30,684
1974	14,667	42,232	536	1,543	3,263	9,395	10,868	31,293
1975	15,582	41,005	573	1,508	3,440	9,053	11,569	30,445
1976	17,436	43,373	634	1,577	3,912	9,731	12,890	32,065
1977	19,340	45,240	701	1,640	4,311	10,084	14,328	33,516
1978	22,115	48,328	785	1,715	4,870	10,642	16,460	35,970
1979	25,708	51,883	893	1,802	5,670	11,443	19,145	38,638
1980	30,476	56,395	1,035	1,915	6,550	12,121	22,891	42,359
1981	35,428	59,926	1,313	2,221	8,359	14,139	25,756	43,566
1982	40,105	63,933	1,523	2,428	9,363	14,926	29,219	46,579
1983	44,588	68,376	1,760	2,699	10,286	15,774	32,542	49,903
1984	51,404	75,974	2,132	3,151	11,541	17,057	37,731	55,766
1985	57,043	81,829	2,373	3,404	12,908	18,517	41,762	59,908
1986	59,932	84,115	3,496	4,907	15,082	21,168	41,354	58,041
1987	61,403	83,884	3,583	4,895	15,153	20,701	42,667	58,288
1988	66,672	88,086	3,507	4,633	16,531	21,840	46,634	61,612
1989	73,501	93,560	3,832	4,878	17,993	22,904	51,676	65,779
1990	81,602	100,015	3,760	4,608	18,432	22,591	59,410	72,815
1991	90,580	107,271	6,125	7,254	21,425	25,373	63,030	74,645
1992	94,388	109,271	5,816	6,733	21,184	24,524	67,385	78,010
1993	94,591	107,028	5,961	6,745	19,956	22,580	68,678	77,708
1994	97,131	107,612	6,078	6,734	19,372	21,462	71,683	79,418
1995	108,652	117,959	5,379	5,840	23,755	25,790	79,516	86,327
1996	121,015	128,945	6,848	7,297	25,370	27,032	88,798	94,617
1997	133,611	140,039	8,766	9,188	29,782	31,215	95,064	99,637
1998	145,016	150,322	4,851	5,029	29,576	30,658	110,590	114,637
1999	161,594	165,111	5,537	5,658	33,821	34,557	122,236	124,896

TABLE 26. Company and other nonfederal funds for industrial basic research, applied research, and development performed in the United States: 1953–2005

(Millions of current and constant 2000 dollars)

Year	Company and other R&D		Basic research		Applied research		Development	
	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$
2000	182,844	182,844	6,115	6,115	36,494	36,494	140,236	140,236
2001	185,118	180,781	7,299	7,128	40,409	39,462	137,410	134,190
2002	177,467	170,336	6,659	6,391	26,081	25,033	144,727	138,911
2003	182,926 r	171,916 r	6,944 r	6,526 r	32,861 r	30,883 r	143,121 r	134,507 r
2004	188,035	171,836	6,763	6,180	40,657	37,155	140,615	128,501
2005	204,250	181,175	7,559	6,705	39,995	35,477	156,696	138,993

r = data significantly revised, replaces previously published data.

NOTES: Gross domestic product implicit price deflators were used to convert current dollars to constant 2000 dollars. During statistical processing, when R&D was not allocated among the three character-of-work categories (basic research, applied research, and development) by survey respondents, algorithms were used to do the allocation. See table A-7 for the amount of undistributed R&D and the number of companies that reported R&D in each category. The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excludes company-funded R&D not performed within the company (e.g., R&D performed by other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). Improved edit checks and imputation routines were implemented during statistical processing of 2001 survey results to produce the basic research, applied research, and development estimates. Also at that time estimates for 1998, 1999, and 2000 were recalculated. Consequently, statistics for 1998 and later years are not directly comparable to statistics for 1997 and earlier years. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 27. Federal funds for industrial basic research, applied research, and development performed in the United States: 1953–2005
(Millions of current and constant 2000 dollars)

Year	Federal R&D		Basic research		Applied research		Development	
	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$
1953	1,430	7,840	19	104	288	1,579	1,123	6,157
1954	1,750	9,501	23	125	322	1,748	1,405	7,628
1955	2,180	11,627	27	144	368	1,963	1,785	9,520
1956	3,328	17,163	37	191	474	2,445	2,817	14,528
1957	4,335	21,632	41	205	678	3,383	3,616	18,044
1958	4,759	23,215	43	210	774	3,776	3,942	19,229
1959	5,635	27,157	72	347	813	3,918	4,750	22,892
1960	6,081	28,902	79	375	833	3,959	5,169	24,567
1961	6,240	29,323	81	381	812	3,816	5,347	25,127
1962	6,434	29,828	143	663	1,011	4,687	5,281	24,483
1963	7,270	33,349	147	674	1,007	4,619	6,116	28,055
1964	7,720	34,885	165	746	1,040	4,700	6,515	29,440
1965	7,740	34,354	186	826	1,038	4,607	6,516	28,921
1966	8,332	35,945	173	746	1,039	4,482	7,120	30,716
1967	8,365	35,015	202	846	1,066	4,462	7,097	29,707
1968	8,560	34,364	180	723	1,043	4,187	7,337	29,454
1969	8,451	32,317	160	612	1,015	3,881	7,276	27,824
1970	7,779	28,256	158	574	1,049	3,810	6,572	23,872
1971	7,666	26,517	134	464	974	3,369	6,558	22,684
1972	8,017	26,573	130	431	952	3,155	6,935	22,986
1973	8,145	25,573	132	414	993	3,118	7,020	22,041
1974	8,220	23,668	163	469	1,025	2,951	7,032	20,248
1975	8,605	22,645	157	413	1,130	2,974	7,318	19,258
1976	9,561	23,784	185	460	1,200	2,985	8,176	20,338
1977	10,485	24,526	210	491	1,325	3,099	8,950	20,936
1978	11,189	24,451	250	546	1,430	3,125	9,509	20,780
1979	12,518	25,263	265	535	1,555	3,138	10,698	21,590
1980	14,029	25,960	290	537	1,900	3,516	11,839	21,908
1981	16,382	27,710	301	509	2,340	3,958	13,741	23,243
1982	18,545	29,563	381	607	2,960	4,719	15,204	24,237
1983	20,680	31,713	463	710	3,641	5,583	16,576	25,419
1984	23,396	34,579	476	704	4,224	6,243	18,696	27,632
1985	27,196	39,013	489	701	5,347	7,670	21,360	30,641
1986	27,891	39,145	551	773	4,678	6,566	22,662	31,806
1987	30,752	42,011	740	1,011	4,660	6,366	25,352	34,634
1988	30,343	40,089	993	1,312	4,217	5,571	25,133	33,205
1989	28,554	36,347	1,384	1,762	4,698	5,980	22,472	28,605
1990	28,125	34,471	1,368	1,677	6,353	7,786	20,404	25,008
1991	26,372	31,232	1,712	2,027	6,021	7,131	18,639	22,074
1992	24,722	28,620	1,186	1,373	4,983	5,769	18,555	21,481
1993	22,809	25,808	958	1,084	4,730	5,352	17,118	19,369
1994	22,463	24,887	939	1,040	4,119	4,563	17,405	19,283
1995	23,451	25,460	720	782	3,699	4,016	19,031	20,661
1996	23,653	25,203	1,358	1,447	3,871	4,125	18,423 i	19,630
1997	23,928	25,079	1,654	1,734	2,861	2,999	19,412	20,346
1998	24,164	25,048	1,570	1,627	2,862	2,967	19,730	20,452
1999	22,535	23,025	1,665	1,701	3,091	3,158	17,779	18,166

TABLE 27. Federal funds for industrial basic research, applied research, and development performed in the United States: 1953–2005
(Millions of current and constant 2000 dollars)

Year	Federal R&D		Basic research		Applied research		Development	
	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$
2000	19,118	19,118	1,472	1,472	2,951	2,951	14,695	14,695
2001	16,899	16,503	754	736	3,603	3,519	12,542	12,248
2002	16,401	15,742	888	852	2,452	2,353	13,061 i	12,536
2003	17,798 r	16,727 r	1,386 r	1,303 r	4,473 r	4,204 r	11,939 r	11,220 r
2004	20,266	18,520	1,072	980	4,775	4,364	14,419	13,177
2005	21,909	19,434	1,108	983	5,289	4,691	15,511	13,759

i = more than 50% of the value is imputed; r = data significantly revised, replaces previously published data.

NOTES: Beginning with 2001, excludes federally funded research and development centers. Gross domestic product implicit price deflators were used to convert current dollars to constant 2000 dollars. During statistical processing, when R&D was not allocated among the three character-of-work categories (basic research, applied research, and development) by survey respondents, algorithms were used to do the allocation. See table A-7 for the amount of undistributed R&D and the number of companies that reported R&D in each category. The R&D in this table is the industrial R&D performed within company facilities funded by the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). Improved edit checks and imputation routines were implemented during statistical processing of 2001 survey results to produce the basic research, applied research, and development estimates. Also at that time estimates for 1998, 1999, and 2000 were recalculated. Consequently, statistics for 1998 and later years are not directly comparable to statistics for 1997 and earlier years. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 28. Funds for and companies performing industrial basic research, applied research, and development in the United States, by industry and company size, by source of funds: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Companies (number)	All industrial R&D			Basic research		
			Total	Federal	Company and other	Total	Federal	Company and other
All industries	21–23, 31–33, 42, 44–81	43,880	226,159	21,909	204,250	8,667	1,108	7,559
Manufacturing industries	31–33	19,232	158,190	15,635	142,555	6,503	481	6,022
Food	311	1,096	2,716	6	2,710	112	D	D
Beverage and tobacco products	312	38	539 i	0	539 i	D	0	D
Textiles, apparel, and leather	313–16	948	816	5	811	D	0	D
Wood products	321	251	D	D	218	D	0	D
Paper, printing, and support activities	322, 323	464	D	D	2,451	D	0	D
Petroleum and coal products	324	117	D	D	1,442	D	0	D
Chemicals	325	1,962	42,995	169	42,826	3,238	14	3,224
Basic chemicals	3251	201	2,277	98	2,179	174	4	171
Resin, synthetic rubber, fibers, and filament	3252	122	2,294	15	2,280	194	1	193
Pharmaceuticals and medicines	3254	445	34,839	41	34,798	2,753	D	D
Other chemicals	other 325	1,194	3,584	15	3,569	116	D	D
Plastics and rubber products	326	1,212	1,760	12	1,747	103	0	103
Nonmetallic mineral products	327	443	894	6	889	80	0	80
Primary metals	331	186	631	22 i	609	D	0	D
Fabricated metal products	332	2,013	1,375	52	1,323	19	0	19
Machinery	333	2,923	8,531	109	8,422	117	D	D
Computer and electronic products	334	3,425	D	D	42,463	D	D	1,230
Computers and peripheral equipment	3341	340	4,955	53	4,902	112	D	D
Communications equipment	3342	499	D	D	9,660	D	0	D
Semiconductor and other electronic components	3344	907	18,724	122	18,602	629	29	601
Navigational, measuring, electromedical, and control instruments	3345	1,513	15,204	6,879	8,325	489	D	D
Other computer and electronic products	other 334	167	997	23	974	D	D	D
Electrical equipment, appliances, and components	335	1,033	2,424	103	2,322	50	D	D
Transportation equipment	336	1,140	D	D	28,321	D	D	D
Motor vehicles, trailers, and parts	3361–63	616	D	D	16,025	D	D	D
Aerospace products and parts	3364	254	15,005	4,076	10,928	510	D	D
Other transportation equipment	other 336	270	D	D	1,368	D	D	D
Furniture and related products	337	405	400	*	400	10	0	10
Miscellaneous manufacturing	339	1,576	5,143	82	5,061	298	46	252
Medical equipment and supplies	3391	869	4,374	31	4,343	249	4	245
Other miscellaneous manufacturing	other 339	707	769	51	718	48	42	6

TABLE 28. Funds for and companies performing industrial basic research, applied research, and development in the United States, by industry and company size, by source of funds: 2005
(Millions of dollars)

Industry and company size	NAICS codes	Companies (number)	All industrial R&D			Basic research		
			Total	Federal	Company and other	Total	Federal	Company and other
Nonmanufacturing industries	21–23, 42, 44–81	24,647	67,969	6,274	61,695	2,164	627	1,537
Mining, extraction, and support activities	21	245	D	D	669	D	0	D
Utilities	22	83	210	30	180	1	0	1
Construction	23	1,063	D	D	1,248	D	D	D
Wholesale trade	42	4,473	D	D	2,144	D	D	44
Retail trade	44, 45	1,759	D	D	1,285	D	0	D
Transportation and warehousing	48, 49	36	D	D	312	D	0	D
Information	51	3,206	23,836	219	23,617	118	D	D
Publishing	511	1,861	17,747	60	17,687	51	D	D
Newspaper, periodical, book, and directory	5111	346	821	27	794	D	0	D
Software	5112	1,514	16,926	33	16,893	D	D	D
Telecommunications	517	108	2,539	0	2,539	D	0	D
Wired and wireless (except satellite)								
telecommunications carriers	5171, 5172	44	2,358	0	2,358	D	0	D
Satellite telecommunications	5174	47	13	0	13	0	0	0
Other telecommunications	other 517	17	168 i	0	168 i	D	0	D
Internet service providers, Web search portals, and data-processing services	518	1,194	3,337	159	3,178	5	0	5
Internet service providers and Web search portals	5181	430	1,042	0	1,042	0	0	0
Data-processing, hosting, and related services	5182	763	2,295	159	2,136	5	0	5
Other information	other 51	43	213	0	213	D	0	D
Finance, insurance, and real estate	52, 53	920	3,030	0	3,030	26	0	26
Professional, scientific, and technical services	54	9,197	32,021	5,839	26,181	1,689	618	1,071
Architectural, engineering, and related services	5413	683	4,687	2,239	2,448	141	68	73
Computer systems design and related services	5415	4,609	13,592	545	13,046	226	D	D
Scientific R&D services	5417	2,074	12,299	2,826	9,473	1,295	519	776
Other professional, scientific, and technical services	other 54	1,831	1,444	229	1,214	27	D	D
Health care services	621–23	1,091	989	7	981	D	D	D
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	2,574	2,137	90	2,047	14	D	D

TABLE 28. Funds for and companies performing industrial basic research, applied research, and development in the United States, by industry and company size, by source of funds: 2005
(Millions of dollars)

			All industrial R&D			Basic research		
Industry and company size	NAICS codes	Companies (number)	Total	Federal	Company and other	Total	Federal	Company and other
Company size (employees)								
All companies	-	43,880	226,159	21,909	204,250	8,667	1,108	7,559
5–24	-	21,712	7,373	1,076	6,297	286	152	133
25–49	-	8,602	7,488	675	6,813	248	97	151
50–99	-	4,789	7,144	646	6,498	449	92	357
100–249	-	4,149	10,327	951	9,375	578	120	459
250–499	-	1,699	8,149	411	7,738	208	14	194
500–999	-	1,147	13,992	895	13,097	533	106	427
1,000–4,999	-	1,319	34,969	1,364	33,605	1,205	75	1,130
5,000–9,999	-	218	18,170	620	17,550	504	13	491
10,000–24,999	-	145	33,564	1,918	31,646	2,310	103	2,207
25,000 or more	-	101	84,983	13,352	71,631	2,346	336	2,009

TABLE 28. Funds for and companies performing industrial basic research, applied research, and development in the United States, by industry and company size, by source of funds: 2005
(Millions of dollars)

Industry and company size	NAICS codes	Applied research			Development		
		Total	Federal	Company and other	Total	Federal	Company and other
All industries	21–23, 31–33, 42, 44–81	45,284	5,289	39,995	172,207	15,511	156,696
Manufacturing industries	31–33	32,417	2,663	29,753	119,270	12,491	106,779
Food	311	587	D	D	2,017	0	2,017
Beverage and tobacco products	312	D	0	D	D	0	D
Textiles, apparel, and leather	313–16	D	D	D	748	D	D
Wood products	321	69	0	69	D	D	D
Paper, printing, and support activities	322, 323	D	D	D	1,708	0	1,708
Petroleum and coal products	324	830	D	D	D	D	D
Chemicals	325	11,159	92	11,067	28,598	63	28,535
Basic chemicals	3251	745	62	683	1,358	33	1,325
Resin, synthetic rubber, fibers, and filament	3252	1,105	D	D	996	D	D
Pharmaceuticals and medicines	3254	8,154	19	8,135	23,931	D	D
Other chemicals	other 325	1,154	D	D	2,313	11	2,302
Plastics and rubber products	326	289	D	D	1,367	D	D
Nonmetallic mineral products	327	304	D	D	511	D	D
Primary metals	331	D	D	D	420	D	D
Fabricated metal products	332	243	8	234	1,113	44 i	1,070
Machinery	333	1,548	D	D	6,866	D	D
Computer and electronic products	334	D	D	9,124	38,557	6,448	32,109
Computers and peripheral equipment	3341	404	D	D	4,438	D	D
Communications equipment	3342	1,901	D	D	D	D	7,568
Semiconductor and other electronic components	3344	5,026	29	4,996	13,069	64	13,005
Navigational, measuring, electromedical, and control instruments	3345	2,210	D	D	12,505	6,211	6,295
Other computer and electronic products	other 334	D	D	D	D	D	D
Electrical equipment, appliances, and components	335	363	D	D	2,011	96	1,915
Transportation equipment	336	D	D	D	30,112	D	D
Motor vehicles, trailers, and parts	3361–63	D	D	D	13,692	D	D
Aerospace products and parts	3364	2,783	D	D	11,712	2,143	9,569
Other transportation equipment	other 336	D	D	D	4,708	D	D
Furniture and related products	337	17	0	17	373	*	373
Miscellaneous manufacturing	339	931	14	917	3,914	22	3,892
Medical equipment and supplies	3391	863	9	854	3,262	18	3,244
Other miscellaneous manufacturing	other 339	68	5	64	652	4	648

TABLE 28. Funds for and companies performing industrial basic research, applied research, and development in the United States, by industry and company size, by source of funds: 2005
(Millions of dollars)

Industry and company size	NAICS codes	Applied research			Development		
		Total	Federal	Company and other	Total	Federal	Company and other
Nonmanufacturing industries	21–23, 42, 44–81	12,867	2,626	10,242	52,937	3,021	49,916
Mining, extraction, and support activities	21	D	D	D	474	D	D
Utilities	22	61	D	D	148	D	D
Construction	23	709	D	D	D	D	D
Wholesale trade	42	515	46	470	1,635	5	1,630
Retail trade	44, 45	D	0	D	1,144	D	D
Transportation and warehousing	48, 49	D	D	D	274	0	274
Information	51	3,222	D	D	20,496	163	20,332
Publishing	511	1,979	D	D	15,717	28	15,689
Newspaper, periodical, book, and directory	5111	D	D	D	787	D	D
Software	5112	D	D	D	14,930	D	D
Telecommunications	517	D	0	D	1,731	0	1,731
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	D	0	D	D	0	D
Satellite telecommunications	5174	6	0	6	8	0	8
Other telecommunications	other 517	D	0	D	D	0	D
Internet service providers, Web search portals, and data-processing services	518	391	23	368	2,941	135	2,806
Internet service providers and Web search portals	5181	147	0	147	895	0	895
Data-processing, hosting, and related services	5182	244	23	220	2,046	135	1,910
Other information	other 51	D	0	D	107	0	107
Finance, insurance, and real estate	52, 53	67	0	67	2,937	0	2,937
Professional, scientific, and technical services	54	7,551	2,510	5,041	22,781	2,711	20,070
Architectural, engineering, and related services	5413	1,625	1,353	272	2,921	819	2,102
Computer systems design and related services	5415	1,573	D	D	11,793	333	11,461
Scientific R&D services	5417	4,189	948	3,241	6,815	1,359	5,455
Other professional, scientific, and technical services	other 54	164	D	D	1,252	201	1,052
Health care services	621–23	D	D	D	D	D	D
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	324	D	D	1,800	85	1,715

TABLE 28. Funds for and companies performing industrial basic research, applied research, and development in the United States, by industry and company size, by source of funds: 2005
(Millions of dollars)

		Applied research			Development		
Industry and company size	NAICS codes	Total	Federal	Company and other	Total	Federal	Company and other
Company size (employees)							
All companies	-	45,284	5,289	39,995	172,207	15,511	156,696
5–24	-	2,449	333	2,115	4,638	590	4,048
25–49	-	1,719	318	1,401	5,521	260	5,260
50–99	-	1,808	266	1,542	4,887	289	4,598
100–249	-	2,139	282	1,857	7,609	550	7,060
250–499	-	1,817	102	1,715	6,124	295	5,829
500–999	-	3,539	342 i	3,197	9,921	447 i	9,474
1,000–4,999	-	6,934	693	6,241	26,829	595	26,234
5,000–9,999	-	5,504	55	5,448	12,162	552 i	11,610
10,000–24,999	-	8,268	353	7,915	22,986	1,463	21,523
25,000 or more	-	11,107	2,544	8,563	71,530	10,472	61,059

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. During statistical processing, when R&D was not allocated among the three character-of-work categories (basic research, applied research, and development) by survey respondents, algorithms were used to do the allocation. See table A-7 for the amount of undistributed R&D and the number of companies that reported R&D in each category. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 29. Funds for industrial R&D performed in the United States, by state: Selected years 1991–2005

(Millions of dollars)

State	1991	1993	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	% change, 2004–05
United States	116,952	117,400	132,103	157,539	169,180	184,129	201,962	202,017	193,868	200,724 r	208,301	226,159	8.6
Alabama	596	557 i	686	589 i	845	823	821 i	905	846	992 r	1,227	1,417	15.5
Alaska	21	14	30	24 i	37 e	82 e	48 e	68	51 e	36 e	35 e	32 e	-8.6
Arizona	1,080	1,039	1,356 i	1,854	1,801	2,109 i	2,182 i	2,707	3,201	2,604 r	2,570	2,980	16.0
Arkansas	S	179	181	118	213 e	326	400	254 e	225 e	270	287	271	-5.6
California	S	21,975	28,710	34,011	32,856	38,169	45,455	44,628	42,177	46,401 r	46,614	50,683	8.7
Colorado	S	1,966	1,865	2,248	3,180	3,266	3,143	3,082	2,823	3,543 r	4,008	4,299	7.3
Connecticut	1,756	2,228	3,906	3,014	3,346	4,145 i	4,132 i	4,686	6,077	5,834	7,177	7,885	9.9
Delaware	D	913 i	1,077 i	1,009 i	1,356 i	1,295 i	1,468 i	1,232	1,219	1,298	1,059	1,511	42.7
District of Columbia	46	515 i	672 i	D	598 i	268 e	196 e	242	194	235	182 e	166	-8.8
Florida	S	2,386	4,101	3,442	3,265	3,482	3,773 i	3,755	3,707	3,155 r	3,486	4,164	19.4
Georgia	993	792	1,175	1,273	1,617	1,904	2,159 i	1,912	2,107	2,104 r	2,160	2,282	5.6
Hawaii	13	255	14	87	55 e	68 e	93 e	93	103	133	131	168	28.2
Idaho	S	686	827	1,181 i	1,103 i	1,239	1,363	884	992	745	681	642	-5.7
Illinois	5,750	5,023	5,776 i	6,248	7,318	8,102	8,393 i	8,232	7,616	8,319	8,554	9,712	13.5
Indiana	2,274	2,141	2,721 i	2,677	2,922	2,863 i	2,888 i	3,583	3,572	3,658	4,208	4,610 i	9.6
Iowa	527	505	998	578	750	730	762	817	753	833	963	1,039	7.9
Kansas	S	280 i	569	1,136 i	1,384 i	1,448 i	1,327 i	1,299 i	1,427 i	1,675 i	1,804 i	1,993 i	10.5
Kentucky	176	282	452	359	606	777	762	636	656	601	565	660	16.8
Louisiana	S	106	61	172	377 e	516 e	364 e	316 e	248 e	289 r	311	300	-3.5
Maine	S	D	286	83	137	208	255	249	250 i	200	213	350	64.3
Maryland	1,376	1,296	1,075	1,425	1,905	2,020	2,213	3,682	3,800	3,118 r	3,826	3,706	-3.1
Massachusetts	S	5,960	7,416	8,300	10,367	9,781	10,857	11,756	10,609	11,092 r	11,819	13,342	12.9
Michigan	9,283	18,845	12,388	13,009	12,554	16,877	17,489 i	14,283	13,565	15,217 r	15,170	16,752	10.4
Minnesota	2,070	2,341	2,636 i	3,116	3,367	3,695	3,971	4,355	4,460	5,003	5,199	6,340	21.9
Mississippi	S	51	66	73	183 e	224 e	242 e	219 e	224	199 r	160	194	21.3
Missouri	S	1,339 i	2,028 i	1,290 i	1,505	1,664	1,978	1,792	1,592	1,742	2,151	2,602	21.0
Montana	S	D	17	92	63	92 e	78 e	70 e	66	65	70	77 i	10.0
Nebraska	67	93	150	71	195 e	217 e	335 e	306	342	363	383	407	6.3
Nevada	95	65	322	380	476	490	433	290	339	383	417	382	-8.4
New Hampshire	D	247	472	652	1,138	1,157	722	1,339	1,153	1,349	1,330	1,435	7.9
New Jersey	8,933	8,009	8,200	11,069	11,107	10,145	10,580	10,164	11,566	11,405 r	10,993	13,214	20.2
New Mexico	1,217	D	1,461	1,310 i	1,450 i	1,352 i	1,203 i	231	331	338 r	450	405	-10.0
New York	9,457	8,597	8,651	9,939 i	10,283	12,260	11,622	10,884	9,234	8,528 r	8,793	9,474	7.7
North Carolina	1,470	1,886	2,226	3,590	3,483	3,754	4,535	4,437	3,704	4,423 r	4,565	5,158	13.0
North Dakota	S	D	12	33	46 e	95 e	83 e	347	154	216	379 i	104	-72.6

TABLE 29. Funds for industrial R&D performed in the United States, by state: Selected years 1991–2005

(Millions of dollars)

State	1991	1993	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	% change, 2004–05
Ohio	5,406	4,494	4,001	5,608	5,742	6,531	6,245	6,694	6,230	6,258 r	5,516	5,900	7.0
Oklahoma	448	299	288	428	369	562 e	463	543 e	412	576 r	410	422	2.9
Oregon	S	455	741	1,102	1,345	1,408	1,533	2,677	2,320 i	2,956 r	3,057	3,252	6.4
Pennsylvania	S	4,652	5,331	6,609 i	7,393	7,474	8,473	8,967	7,064	7,091	8,005	8,846	10.5
Rhode Island	174	154	520	704 i	1,332 i	1,317 i	1,167 i	1,134 i	1,121	1,203 i	1,320 i	1,387 i	5.1
South Carolina	479	461	739	783 i	996	922	1,059	921	1,054	976	961	1,402	45.9
South Dakota	6	D	19	26	40 e	57 e	89 e	87 e	53	75	72	68	-5.6
Tennessee	843	788	1,003	1,089	2,440	2,205	1,644	1,503	1,289	1,507	1,630	1,246	-23.6
Texas	5,439	4,562	6,211 i	7,265	8,984	8,661	10,048	9,839	10,744	11,008 r	10,992	12,438	13.2
Utah	407	279	803	1,027	1,119	1,028	1,063	1,173	1,116	996	1,089	1,234	13.3
Vermont	D	D	248	246	114	346	389	339	286 i	360	423	360	-14.9
Virginia	1,275	1,046	1,577	1,767	2,540	2,662	2,683	2,957	2,920	3,492 r	4,006	4,379	9.3
Washington	3,677	4,575 i	4,294 i	6,610 i	7,072 i	7,093 i	8,235 i	8,933 i	8,579	9,220 r	8,840 i	9,736	10.1
West Virginia	D	100 i	243	D	335	351	329	211	264	219	202	242	19.8
Wisconsin	1,304	1,296	1,706	1,707	1,929	2,194	2,415	2,469 i	2,649 e	2,623	2,645	2,729	3.2
Wyoming	2	15	25	28	20 e	65 e	37 e	28 e	21	37	23	30	30.4
Undistributed funds ^a	772	683	1,773 i	7,211 i	5,521 i	5,610 i	9,762 i	9,770 i	8,361	5,762	7,169	3,731 i	-48.0

D = suppressed to avoid disclosure of confidential information; e = estimated, more than 50% of cell value is imputed due to raking of state data; i = more than 50% of the value is imputed;

r = data significantly revised, replaces previously published data; S = suppressed for reliability, prior to 1993, cells with imputation of more than 50% were suppressed.

^a Includes data reported on Form RD-1 that were not allocated to a specific state. Data reported on Form RD-1A were allocated to the state in the address on the company's survey form which is usually the company's headquarters.

NOTES: Detail does not add to total due to rounding or suppression. Excludes federally funded research and development centers for years after 2001. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 30. Funds for and companies performing industrial R&D in the United States, by state and source of funds:

1999–2005

(Amount in millions of dollars)

State	1999						2000					
	All R&D		Federal		Company and other		All R&D		Federal		Company and other	
	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
United States	38,957	184,129	2,860	22,535	37,750	161,594	35,272	201,962	3,033	19,118	34,372	182,844
Alabama	635	823	35	171	619	652	355	821 i	83	154 i	340	667 e
Alaska	9	82 e	1	3 e	9	79 e	10	48 e	1	3 e	10	46 e
Arizona	780	2,109 i	12	233 i	777	1,876 i	1,066	2,182 i	251	125 i	1,063	2,057 i
Arkansas	97	326	7	8 e	96	318	99	400	3	11	99	389
California	6,907	38,169	638	4,107	6,574	34,062	6,634	45,455	882	3,966 i	6,192	41,489
Colorado	1,158	3,266	35	988	1,152	2,278	1,213	3,143	122	806 i	1,206	2,336
Connecticut	754	4,145 i	42	185	729	3,960 i	423	4,132 i	17	128	420	4,004 i
Delaware	54	1,295 i	9	11	54	1,284 i	49	1,468 i	6	11	49	1,457 i
District of Columbia	39	268 e	5	68	38	200 e	18	196 e	5	58 i	16	138 e
Florida	1,144	3,482	26	746	1,134	2,736	1,393	3,773 i	51	505	1,380	3,268
Georgia	762	1,904	25	107	761	1,797	854	2,159 i	8	116	854	2,043
Hawaii	81	68 e	2	4 e	81	64 e	84	93 e	68	6	69	87 e
Idaho	209	1,239	3	551	207	688	217	1,363	2	D	216	D
Illinois	2,223	8,102	13	103 e	2,222	7,999	1,522	8,393 i	68	93 e	1,470	8,300 i
Indiana	815	2,863 i	8	50 e	812	2,813 i	405	2,888 i	14	43	405	2,845 i
Iowa	250	730	47	12 e	204	718	347	762	4	11 i	345	751
Kansas	526	1,448 i	4	D	525	D	334	1,327 i	6	800 i	333	527
Kentucky	599	777	51	9 e	598	768	200	762	3	8 e	198	754
Louisiana	105	516 e	10	48	104	468 e	198	364 e	22	10 e	197	354 e
Maine	16	208	4	56	15	152	135	255	5	57	134	198
Maryland	977	2,020	355	395	687	1,625	776	2,213	288	349	715	1,864
Massachusetts	1,405	9,781	111	2,338 i	1,400	7,443	1,166	10,857	271	1,890 i	1,159	8,967
Michigan	1,846	16,877	42	150	1,843	16,727	1,328	17,489 i	32	118	1,324	17,372 i
Minnesota	741	3,695	22	257	741	3,438	1,259	3,971	40	167	1,257	3,804 i
Mississippi	288	224 e	54	39	285	185 e	48	242 e	12	22 i	45	220 e
Missouri	498	1,664	104	30 e	497	1,634	647	1,978	18	30 e	646	1,948
Montana	7	92 e	1	4 e	7	88 e	104	78 e	1	2 e	104	75 e
Nebraska	258	217 e	8	10 e	252	207 e	578	335 e	3	11 e	578	324 e
Nevada	29	490	8	D	27	D	25	433	3	100	24	333 e
New Hampshire	301	1,157	7	D	301	D	371	722	6	20	371	702

TABLE 30. Funds for and companies performing industrial R&D in the United States, by state and source of funds:

1999–2005

(Amount in millions of dollars)

State	1999						2000					
	All R&D		Federal		Company and other		All R&D		Federal		Company and other	
	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
New Jersey	1,466	10,145	21	201	1,459	9,944	1,537	10,580	149	269	1,531	10,311
New Mexico	420	1,352 i	274	1,158 i	407	194 e	107	1,203 i	28	D	97	D
New York	1,862	12,260	208	2,045 i	1,851	10,215	2,332	11,622	53	1,839 i	2,327	9,783
North Carolina	392	3,754	38	48 e	387	3,706	875	4,535	117	63 e	772	4,472
North Dakota	21	95 e		2 e	21	93 e	162	83 e	1	1 e	162	82
Ohio	2,253	6,531	29	1,189	2,245	5,342	1,748	6,245	25	581	1,739	5,664
Oklahoma	231	562 e	5	14	231	548 e	457	463	11	9	457	455
Oregon	1,455	1,408	8	20	1,455	1,388	1,152	1,533	6	22	1,152	1,511
Pennsylvania	2,264	7,474	211	484 i	2,098	6,990	1,775	8,473	144	456 i	1,667	8,018
Rhode Island	194	1,317 i	5	D	193	D	110	1,167 i	7	D	107	D
South Carolina	110	922	13	93 i	107	829	105	1,059	7	96 i	101	963
South Dakota	13	57 e		2	13	55 e	65	89 e	52	2	64	87 e
Tennessee	433	2,205	7	939	429	1,266	349	1,644	6	357 i	347	1,287
Texas	2,495	8,661	54	186	2,487	8,475	2,061	10,048	177	287	2,046	9,762
Utah	585	1,028	7	214	584	814	197	1,063	11	167 i	195	896
Vermont	125	346	3	36	125	310	216	389	4	19 i	215	370
Virginia	1,383	2,662	473	726	1,079	1,936	1,100	2,683	186	728 i	1,008	1,955
Washington	1,368	7,093 i	11	870 i	1,367	6,223 i	954	8,235 i	9	1,153 i	953	7,082 i
West Virginia	91	351	1	4 e	90	347	22	329	3	33	21	296
Wisconsin	1,023	2,194	38	55 e	1,018	2,139	909	2,415	9	37 e	908	2,378
Wyoming	1	65 e	0	1 e	1	64 e	5	37 e	0	1 e	5	36 e
Undistributed funds ^a	204	5,610 i	34	1,051	204	4,559	242	9,762 i	42	973	236	8,789

TABLE 30. Funds for and companies performing industrial R&D in the United States, by state and source of funds:

1999–2005

(Amount in millions of dollars)

State	2001						2002					
	All R&D		Federal		Company and other		All R&D		Federal		Company and other	
	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
United States	33,263	202,017	3,217	16,899	32,450	185,118	29,001	193,868	2,496	16,401	28,200	177,467
Alabama	476	905	21	176	466	730	242	846	133	258	229	588
Alaska	11	68	2	2 e	11	66	65	51 e	4	3 i	64	48 e
Arizona	150	2,707	22	232	146	2,475	604	3,201	52	470	601	2,731
Arkansas	91	254 e	2	5 e	91	249 e	64	225 e	2	4 e	64	221
California	6,605	44,628	565	3,648 i	6,589	40,980	5,589	42,177	228	2,975	5,560	39,202
Colorado	1,149	3,082	95	579	1,146	2,503	1,050	2,823	35	169 i	1,044	2,654
Connecticut	371	4,686	12	110	369	4,576	516	6,077	27	317	513	5,761
Delaware	55	1,232	6	10	55	1,222	146	1,219	6	10	145	1,208
District of Columbia	32	242	8	78	28	163	33	194	10	92	27	102 e
Florida	1,262	3,755	65	736	1,252	3,019	1,038	3,707	41	858	1,021	2,848
Georgia	655	1,912	6	57 e	654	1,855	460	2,107	7	71	458	2,036
Hawaii	135	93	6	14 i	134	79 e	53	103	16	37	50	66 e
Idaho	279	884	1	3 e	279	882	366	992	251	3 e	116	990
Illinois	2,899	8,232	109	749	2,801	7,483	1,483	7,616	54	996	1,478	6,620
Indiana	782	3,583	18	63	782	3,520	566	3,572	91	123 i	566	3,450
Iowa	629	817	6	21 i	626	796	228	753	2	6 e	228	748
Kansas	351	1,299 i	57	D	351	D	228	1,427 i	7	D	226	D
Kentucky	474	636	3	8 e	472	628	127	656	3	6 e	126	650
Louisiana	205	316 e	5	13 e	204	304 e	174	248 e	7	14 e	173	233 e
Maine	40	249	4	49	40	200	168	250 i	10	21	167	229 i
Maryland	588	3,682	51	1,119	574	2,562	553	3,800	103	1,165 i	521	2,635
Massachusetts	1,480	11,756	155	1,812 i	1,425	9,944	1,058	10,609	105	1,995 i	1,045	8,614
Michigan	814	14,283	116	117	712	14,166	1,159	13,565	268	133	908	13,432
Minnesota	1,514	4,355	265	207	1,513	4,149	1,006	4,460	23	137	1,005	4,323
Mississippi	101	219 e	4	7 e	100	212 e	91	224	8	14	88	210
Missouri	535	1,792	56	142	533	1,650	923	1,592	15	151	920	1,441
Montana	154	70 e	1	3 e	154	67 e	48	66	1	1 e	48	65
Nebraska	458	306	3	9 e	458	297	76	342	8	7 i	76	335
Nevada	45	290	2	8 e	44	282	151	339	4	7 e	150	333
New Hampshire	209	1,339	4	D	209	D	289	1,153	15	D	280	D

TABLE 30. Funds for and companies performing industrial R&D in the United States, by state and source of funds:

1999–2005

(Amount in millions of dollars)

State	2001						2002					
	All R&D		Federal		Company and other		All R&D		Federal		Company and other	
	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
New Jersey	1,300	10,164	36	207	1,292	9,957	1,011	11,566	141	238	899	11,328
New Mexico	189	231	69	95	179	135 e	253	331	158	92	246	239
New York	2,052	10,884	838	994	1,702	9,890	2,198	9,234	339	539	2,191	8,695
North Carolina	598	4,437	18	70 e	591	4,367	739	3,704	34	50 e	733	3,654
North Dakota	144	347	1	1 e	144	346	68	154	2	1 e	68	153
Ohio	1,581	6,694	43	783	1,560	5,912	1,568	6,230	113	823	1,553	5,407
Oklahoma	457	543 e	8	14 e	454	529 e	276	412	72	15	274	397
Oregon	218	2,677	55	19 e	218	2,658	670	2,320	118	17 e	593	2,302
Pennsylvania	1,634	8,967	372	122 e	1,529	8,844	2,020	7,064	52	114	2,015	6,950
Rhode Island	203	1,134 i	118	D	187	D	74	1,121 i	10	D	71	D
South Carolina	222	921	12	17 e	217	904	187	1,054	7	24	184	1,031
South Dakota	18	87 e	3	2 e	18	86 e	102	53	2	1 e	101	52
Tennessee	525	1,503	5	154	523	1,348	542	1,289	40	216	537	1,073
Texas	1,527	9,839	107	185	1,518	9,654	1,540	10,744	117	534	1,525	10,209
Utah	621	1,173	9	168 i	619	1,005	378	1,116	16	201 i	373	915
Vermont	225	339	3	7 i	224	332	80	286	3	7 i	79	279
Virginia	644	2,957	146	680	600	2,277	815	2,920	110	719	791	2,201
Washington	609	8,933 i	33	555	589	8,378 i	719	8,579 i	22	460	715	8,120 i
West Virginia	122	211	2	6	121	205	99	264	2	4	99	260
Wisconsin	1,200	2,469	4	22 e	1,200	2,447	914	2,649	9	19 e	914	2,630
Wyoming	9	28 e	0	1 e	9	28 e	35	21 e	9	1	30	20 e
Undistributed funds ^a	179	9,770 i	22	784 i	179	8,986 i	148	8,361	11	277	152	8,084

TABLE 30. Funds for and companies performing industrial R&D in the United States, by state and source of funds:

1999–2005

(Amount in millions of dollars)

State	2003						2004					
	All R&D		Federal		Company and other		All R&D		Federal		Company and other	
	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
United States	37,843	200,724 r	2,028	17,798 r	36,958	182,926 r	41,029	208,301	3,008	20,266	40,222	188,035
Alabama	253	992 r	31	454 r	241	538 r	291	1,227	64	583	251	644
Alaska	22	36 e	3	5 e	20	31 e	26	35 e	9	8	24	28 e
Arizona	546	2,604 r	18	573 r	542	2,031	968	2,570	24	245	961	2,325
Arkansas	158	270	2	7 e	158	263	165	287	6	27	164	259
California	7,237	46,401 r	323	3,792 r	7,116	42,609 r	8,558	46,614	1,014	3,980 i	8,415	42,634
Colorado	874	3,543 r	105	94 r	797	3,449	1,346	4,008	86	118	1,326	3,890
Connecticut	661	5,834	20	852	655	4,982	864	7,177	22	1,717	859	5,460
Delaware	52	1,298	3	12	52	1,285	373	1,059	4	14	373	1,045
District of Columbia	128	235	10	95	122	140	77	182 e	11	68	73	114 e
Florida	1,610	3,155 r	82	1,009 r	1,594	2,146 r	1,619	3,486	94	1,270	1,607	2,216
Georgia	596	2,104 r	9	53 er	591	2,051	1,134	2,160	24	58 e	1,127	2,102
Hawaii	199	133	17	53	190	80	372	131	16	52	363	78
Idaho	209	745	9	9	201	736	229	681	43	11	216	670
Illinois	1,721	8,319	59	190	1,720	8,129	2,112	8,554	111	267	2,046	8,286
Indiana	1,223	3,658	61	256	1,188	3,401	1,389	4,208	23	232	1,389	3,976
Iowa	424	833	1	7 e	424	826	750	963	15	7 e	749	956
Kansas	288	1,675 i	49	D	244	D	315	1,804 i	65	D	310	D
Kentucky	999	601	4	21 e	997	580	328	565	8	11 e	323	554
Louisiana	360	289 r	19	19 er	358	270 r	152	311	25	19 e	149	293
Maine	243	200	4	30	242	169	177	213	14	D	170	D
Maryland	449	3,118 r	78	970 r	411	2,148 r	495	3,826	118	1,286	445	2,540
Massachusetts	1,153	11,092 r	174	2,151 ir	1,137	8,941	1,468	11,819	184	2,331 i	1,432	9,488
Michigan	1,399	15,217 r	28	213	1,392	15,004 r	1,818	15,170	64	204	1,809	14,966
Minnesota	1,615	5,003	27	236	1,612	4,767	1,513	5,199	37	261	1,506	4,938
Mississippi	184	199 r	10	D	178	D	93	160	10	D	86	D
Missouri	910	1,742	34	80	898	1,662	1,102	2,151	13	84 i	1,097	2,067
Montana	294	65	1	2 e	294	63	100	70	4	3 e	99	67
Nebraska	216	363	4	7	215	356	137	383	7	6 e	137	377
Nevada	248	383	6	31	245	352	512	417	8	23	509	394
New Hampshire	252	1,349	55	D	220	D	293	1,330	40	D	265	D

TABLE 30. Funds for and companies performing industrial R&D in the United States, by state and source of funds:

1999–2005

(Amount in millions of dollars)

State	2003						2004					
	All R&D		Federal		Company and other		All R&D		Federal		Company and other	
	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount	Companies	Amount
New Jersey	1,182	11,405 r	70	219 r	1,166	11,186 r	1,105	10,993	52	294	1,095	10,699
New Mexico	118	338 r	22	154 r	109	184	149	450	32	176	133	275
New York	1,786	8,528 r	79	574 r	1,784	7,954 r	2,138	8,793	193	721	2,131	8,071
North Carolina	967	4,423 r	36	107 r	961	4,315	771	4,565	37	87	758	4,478
North Dakota	61	216	2	2 e	60	214	67	379 i	3	2 e	66	377 i
Ohio	2,032	6,258 r	154	423 r	1,920	5,835	2,284	5,516	80	395	2,256	5,121
Oklahoma	562	576 r	21	32 r	545	545	487	410	262	22	232	387
Oregon	951	2,956 r	92	22 r	942	2,934	532	3,057	33	20 e	529	3,036
Pennsylvania	2,089	7,091	105	166	2,014	6,925	1,766	8,005	167	160	1,745	7,845
Rhode Island	149	1,203 i	19	D	145	D	192	1,320 i	7	D	190	D
South Carolina	381	976	32	36	377	940	368	961	10	37	363	924
South Dakota	90	75	2	2	89	73	109	72	3	3 i	108	69
Tennessee	404	1,507	18	206	392	1,302	568	1,630	14	322	564	1,308
Texas	3,266	11,008 r	74	590 r	3,250	10,418 r	2,259	10,992	68	610	2,243	10,382
Utah	360	996	31	135	355	861	580	1,089	29	174	575	915
Vermont	113	360	2	10 i	112	349	101	423	8	34	100	389
Virginia	1,154	3,492 r	130	1,278 r	1,104	2,214 r	1,034	4,006	230	1,499 i	967	2,507
Washington	643	9,220 r	56	101 r	629	9,119	1,426	8,840 i	125	146	1,336	8,694 i
West Virginia	61	219	4	21	59	198	66	202	6	D	62	D
Wisconsin	1,355	2,623	271	34 e	1,096	2,589	1,424	2,645	47	47	1,419	2,598
Wyoming	79	37	8	2 e	79	35	35	23	16	3	34	21
Undistributed funds ^a	116	5,762	7	104 e	116	5,658	200	7,169	14	44 i	199	7,125

TABLE 30. Funds for and companies performing industrial R&D in the United States, by state and source of funds:
1999–2005

(Amount in millions of dollars)

State	2005					
	All R&D		Federal		Company and other	
	Companies	Amount	Companies	Amount	Companies	Amount
United States	43,880	226,159	2,855	21,909	42,954	204,250
Alabama	1,312	1,417	302	719	1,296	698
Alaska	17	32 e	2	2 e	16	30 e
Arizona	991	2,980	24	269	985	2,711
Arkansas	318	271	6	8 e	317	262
California	6,056	50,683	660	5,065 i	5,741	45,618
Colorado	1,469	4,299	45	131	1,450	4,168
Connecticut	850	7,885	37	1,443	838	6,442
Delaware	500	1,511	17	21	500	1,490
District of Columbia	41	166	15	73	34	93 e
Florida	2,421	4,164	94	1,190	2,392	2,974
Georgia	1,732	2,282	20	56 e	1,724	2,226
Hawaii	99	168	26	46	86	122
Idaho	176	642	9	7	171	635
Illinois	2,065	9,712	48	205	2,064	9,506
Indiana	623	4,610 i	47	283	615	4,327 i
Iowa	451	1,039	56	10 e	416	1,029
Kansas	408	1,993 i	12	D	403	D
Kentucky	524	660	14	11 e	513	650
Louisiana	336	300	9	22	332	278
Maine	164	350	31	20 i	154	331
Maryland	923	3,706	215	1,254	856	2,452
Massachusetts	2,528	13,342	208	2,554 i	2,478	10,788
Michigan	2,148	16,752	118	204	2,111	16,548
Minnesota	1,064	6,340	60	287	1,028	6,053
Mississippi	182	194	23	47	164	147
Missouri	706	2,602	33	79	704	2,523
Montana	59	77 i	7	6 i	58	71 i
Nebraska	502	407	44	7 e	463	400
Nevada	282	382	9	17 e	277	365
New Hampshire	450	1,435	25	D	445	D

TABLE 30. Funds for and companies performing industrial R&D in the United States, by state and source of funds:
1999–2005

(Amount in millions of dollars)

State	2005					
	All R&D		Federal		Company and other	
	Companies	Amount	Companies	Amount	Companies	Amount
New Jersey	1,445	13,214	131	311	1,424	12,902
New Mexico	799	405	48	128	775	278
New York	2,226	9,474	101	654	2,213	8,819
North Carolina	916	5,158	61	107	907	5,051
North Dakota	85	104	3	D	84	D
Ohio	1,433	5,900	103	455	1,415	5,445
Oklahoma	170	422	13	20	165	401
Oregon	1,024	3,252	87	30	1,014	3,223
Pennsylvania	2,380	8,846	191	205 e	2,310	8,640
Rhode Island	250	1,387 i	18	D	238	D
South Carolina	645	1,402	29	38 i	624	1,364
South Dakota	219	68	4	2 e	219	66
Tennessee	391	1,246	14	96	387	1,150
Texas	2,694	12,438	119	858	2,641	11,579
Utah	1,288	1,234	51	197	1,264	1,036
Vermont	136	360	25	22	130	338
Virginia	1,316	4,379	139	1,696 i	1,230	2,683
Washington	1,257	9,736	97	181	1,229	9,555
West Virginia	52	242	9	D	51	D
Wisconsin	1,360	2,729	49	69	1,358	2,660
Wyoming	33	30	4	1 e	33	29
Undistributed funds ^a	272	3,731 i	25	96	269	3,636 i

D = suppressed to avoid disclosure of confidential information; e = estimated, more than 50% of cell value is imputed due to raking of state data; i = more than 50% of the value is imputed; r = data significantly revised, replaces previously published data.

^a Includes data reported on Form RD-1 that were not allocated to a specific state. Data reported on the Form RD-1A were allocated to the state in the address on the company's survey form which is usually the company's headquarters.

NOTES: Detail does not add to total for numbers of companies because categories are not mutually exclusive. Beginning with 2001, excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see the technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Companies (number)	United States	Alabama	Alaska	Arizona	Arkansas	California
All industries	21–23, 31–33, 42, 44–81	43,880	226,159	1,417	32 e	2,980	271	50,683
Manufacturing industries	31–33	19,232	158,190	687	3 e	2,232	166	33,454
Food	311	1,096	2,716	4 e	2 e	2 e	21	135
Beverage and tobacco products	312	38	539 i	* e	D	* e	* e	D
Textiles, apparel, and leather	313–16	948	816	12 e	* e	1 e	4	72 e
Wood products	321	251	D	1 e	* e	1 e	1 e	22
Paper, printing, and support activities	322, 323	464	D	5	*	1 e	8 i	D
Petroleum and coal products	324	117	D	* e	D	* e	* e	D
Chemicals	325	1,962	42,995	45	D	D	11	5,685
Basic chemicals	3251	201	2,277	21	0	* e	D	43 i
Resin, synthetic rubber, fibers, and filament	3252	122	2,294	1	0	D	2	58
Pharmaceuticals and medicines	3254	445	34,839	18 i	D	D	D	5,356
Other chemicals	other 325	1,194	3,584	4 e	0	D	5	228
Plastics and rubber products	326	1,212	1,760	4 e	* e	20	7	81
Nonmetallic mineral products	327	443	894	2 e	* e	2 e	2	50
Primary metals	331	186	631	9 i	* e	3 i	3 i	10
Fabricated metal products	332	2,013	1,375	8 e	* e	19	7	210
Machinery	333	2,923	8,531	23	* e	55	15	2,454
Computer and electronic products	334	3,425	D	411	* e	1,679	30	16,852
Computers and peripheral equipment	3341	340	4,955	28	0	D	* e	1,863
Communications equipment	3342	499	D	69	0	54	2 i	4,141 i
Semiconductor and other electronic components	3344	907	18,724	33 e	0	1,046	13 e	6,877
Navigational, measuring, electromedical, and control instruments	3345	1,513	15,204	277	* e	548 i	11 i	3,882 i
Other computer and electronic products	other 334	167	997	5 e	0	D	3 i	88
Electrical equipment, appliances, and components	335	1,033	2,424	6 i	0	10	29	260
Transportation equipment	336	1,140	D	150	* e	D	13	6,503
Motor vehicles, trailers, and parts	3361–63	616	D	15	* e	52	8	D
Aerospace products and parts	3364	254	15,005	130	* e	106	4 e	4,160
Other transportation equipment	other 336	270	D	6 i	* e	D	1 i	D
Furniture and related products	337	405	400	3	* e	1	10	30 i
Miscellaneous manufacturing	339	1,576	5,143	6 e	* e	97 i	5 e	819
Medical equipment and supplies	3391	869	4,374	4 e	* e	84 i	2 e	731
Other miscellaneous manufacturing	other 339	707	769	2 e	* i	13	3	89

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Companies (number)	United States	Alabama	Alaska	Arizona	Arkansas	California
Nonmanufacturing industries	21–23, 42, 44–81	24,647	67,969	729	29	748	105	17,229
Mining, extraction, and support activities	21	245	D	D	* e	D	* e	D
Utilities	22	83	210	D	* e	D	D	21
Construction	23	1,063	D	2 e	9 i	16	1 e	D
Wholesale trade	42	4,473	D	22 e	1 e	21 e	6 e	598 i
Retail trade	44, 45	1,759	D	D	* e	D	1 e	854
Transportation and warehousing	48, 49	36	D	* e	* e	7 i	D	D
Information	51	3,206	23,836	60	1 e	97	42	6,994
Publishing	511	1,861	17,747	41	* e	67	2 e	5,223
Newspaper, periodical, book, and directory	5111	346	821	* e	* e	D	* e	47
Software	5112	1,514	16,926	40	* e	D	1 e	5,176
Telecommunications	517	108	2,539	* e	* e	1	* e	626
Wired and wireless (except satellite)								
telecommunications carriers	5171, 5172	44	2,358	*	* e	1	* e	623
Satellite telecommunications	5174	47	13	* e	* e	* e	0	1 e
Other telecommunications	other 517	17	168 i	* e	* e	* e	* e	2 i
Internet service providers, Web search portals, and data-processing services	518	1,194	3,337	18	* e	29	40	1,030
Internet service providers and Web search portals	5181	430	1,042	1 e	* e	2 e	D	746 i
Data-processing, hosting, and related services	5182	763	2,295	18	* e	27 i	D	284
Other information	other 51	43	213	*	* e	*	*	115
Finance, insurance, and real estate	52, 53	920	3,030	17 e	2 e	24 e	6 e	367 e
Professional, scientific, and technical services	54	9,197	32,021	576	14 e	513	38 e	8,073
Architectural, engineering, and related services	5413	683	4,687	224	4	19	2 e	1,238
Computer systems design and related services	5415	4,609	13,592	75	3 e	374	27 e	2,432
Scientific R&D services	5417	2,074	12,299	271	2 e	113	7 e	4,180
Other professional, scientific, and technical services	other 54	1,831	1,444	6 e	5 i	8 e	2 e	223 e
Health care services	621–23	1,091	989	1 e	* e	5 i	1 e	D
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	2,574	2,137	11 e	2 e	36	8 i	240

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Companies (number)	United States	Alabama	Alaska	Arizona	Arkansas	California
Company size (employees)								
All companies	-	43,880	226,159	1,417	32 e	2,980	271	50,683
5-24	-	21,712	7,373	89 e	8 e	96 e	34 e	1,492 e
25-49	-	8,602	7,488	73 e	13 i	102 e	28 e	1,752 e
50-99	-	4,789	7,144	89	6 i	99 i	13 e	2,092
100-249	-	4,149	10,327	137	1 e	104	16	3,074
250-499	-	1,699	8,149	60 i	* e	86	4 e	2,633
500-999	-	1,147	13,992	216	D	139	10	3,670
1,000-4,999	-	1,319	34,969	256	D	430	58	10,404
5,000-9,999	-	218	18,170	276	* e	64	57	5,530
10,000-24,999	-	145	33,564	28	D	226	24	5,426
25,000 or more	-	101	84,983	193	D	1,634	25	14,610

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
All industries	21–23, 31–33, 42, 44–81	4,299	7,885	1,511	166	4,164	2,282	168
Manufacturing industries	31–33	3,133	7,166	952	55	2,381	1,262	45
Food	311	18	184 i	1 e	* e	10	83	1 e
Beverage and tobacco products	312	D	D	* e	0	* e	D	* e
Textiles, apparel, and leather	313–16	2 e	4 e	D	* e	6 e	43	1 e
Wood products	321	* e	* e	* e	0	2 e	13	* e
Paper, printing, and support activities	322, 323	6	D	2 i	* e	14	109	* e
Petroleum and coal products	324	D	* e	* e	0	2 i	* e	* e
Chemicals	325	95	3,967	876	2	462	312	40
Basic chemicals	3251	2 i	D	25 i	0	21	22 i	0
Resin, synthetic rubber, fibers, and filament	3252	D	D	D	D	4	154	D
Pharmaceuticals and medicines	3254	D	3,824	200	D	402	101	D
Other chemicals	other 325	5	68	D	0	36	35	D
Plastics and rubber products	326	6	29	7 i	D	33	16	* e
Nonmetallic mineral products	327	9	3 i	* e	* e	6 e	3 e	* e
Primary metals	331	* e	8 i	2	0	4 i	1	0
Fabricated metal products	332	36	D	3 i	* e	34	11	* e
Machinery	333	32	262	5 i	* e	79	64	* e
Computer and electronic products	334	1,328	278	16	D	1,201	D	1
Computers and peripheral equipment	3341	525	5 i	* e	0	7	36	D
Communications equipment	3342	D	57 i	* e	D	57	D	0
Semiconductor and other electronic components	3344	350	116	3	D	252	35	D
Navigational, measuring, electromedical, and control instruments	3345	99	98	12	D	874	47	* e
Other computer and electronic products	other 334	D	2 i	* e	0	10 i	1 e	* e
Electrical equipment, appliances, and components	335	7 i	D	1 i	* e	20	33	0
Transportation equipment	336	D	D	D	D	434	D	* e
Motor vehicles, trailers, and parts	3361–63	4 i	9 i	* e	D	18 i	19	* e
Aerospace products and parts	3364	D	D	D	0	176	97	D
Other transportation equipment	other 336	3	D	D	* e	239	D	D
Furniture and related products	337	D	1 e	* e	* e	2	4	* e
Miscellaneous manufacturing	339	89 i	31	29 i	* e	73	54	1 e
Medical equipment and supplies	3391	73 i	21	D	* e	68 i	36	* e
Other miscellaneous manufacturing	other 339	16	9	D	* e	5 e	17	* i

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
Nonmanufacturing industries	21–23, 42, 44–81	1,166	719	559	111 e	1,783	1,020	124
Mining, extraction, and support activities	21	25	D	* e	* e	D	18	* e
Utilities	22	* e	1 e	* e	* e	20	* e	D
Construction	23	11	D	1 e	* e	14 e	25	1 e
Wholesale trade	42	58	32	2 e	1 e	64 e	46 e	3 e
Retail trade	44, 45	3 e	3 i	* e	* e	6 e	4 e	1 e
Transportation and warehousing	48, 49	D	* e	* e	* e	D	*	D
Information	51	476	81 i	11 e	34	471	397	28
Publishing	511	314	54 i	1 e	21	298	122	D
Newspaper, periodical, book, and directory	5111	11	1 e	* e	* e	15 i	1 e	* e
Software	5112	303	53 i	1 e	20	283	121	D
Telecommunications	517	43	1 e	1	2	D	141	* e
Wired and wireless (except satellite)								
telecommunications carriers	5171, 5172	D	*	D	D	D	126	* e
Satellite telecommunications	5174	* e	* e	* e	1 e	1 e	D	* e
Other telecommunications	other 517	D	* e	D	D	* e	D	* e
Internet service providers, Web search portals, and data-processing services	518	119	26 i	9 e	12	75	133	D
Internet service providers and Web search portals	5181	27	3 e	* e	2	10	22	* e
Data-processing, hosting, and related services	5182	92	24 i	9 e	10	65	110	D
Other information	other 51	*	* e	* e	* e	D	1 i	* e
Finance, insurance, and real estate	52, 53	61	76 e	9 e	8 e	107 e	78	7 e
Professional, scientific, and technical services	54	465	471	D	63 e	970	387	D
Architectural, engineering, and related services	5413	D	41	2 e	17	203	32	15 i
Computer systems design and related services	5415	D	134	18 e	13 e	576	244	12 i
Scientific R&D services	5417	251	272	D	14 e	150 e	77 e	D
Other professional, scientific, and technical services	other 54	12 e	24	2 e	20 e	40 e	35 e	2 e
Health care services	621–23	D	1 e	D	* i	12 i	10 i	* e
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	36	14 e	4 e	3 e	118 e	54	7 e

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
Company size (employees)								
All companies	-	4,299	7,885	1,511	166	4,164	2,282	168
5-24	-	145 e	121 e	32 e	32 e	292 e	179 e	19 e
25-49	-	109 e	149 e	24 e	16 e	238 e	122 e	16 e
50-99	-	226	97	14 e	6 e	155 e	117 e	19
100-249	-	144	351	104	7	159	165	27
250-499	-	184	191	3	D	148	107 i	D
500-999	-	192	180	23	23	154	243	10
1,000-4,999	-	1,077	424	166	D	800	609	16
5,000-9,999	-	299	568	D	D	122	159	* e
10,000-24,999	-	326	842	D	49	888	212	24
25,000 or more	-	1,597	4,962	D	10	1,208	370	D

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
All industries	21–23, 31–33, 42, 44–81	642	9,712	4,610 i	1,039	1,993 i	660	300
Manufacturing industries	31–33	580	7,951	4,312 i	911	1,777 i	531	204
Food	311	14	293	19	58	27	21	3 e
Beverage and tobacco products	312	* e	D	* e	* e	* i	D	* e
Textiles, apparel, and leather	313–16	* e	D	2 e	D	1 e	4 e	1 e
Wood products	321	1 e	1 e	2 e	13	* e	1	* e
Paper, printing, and support activities	322, 323	14	18	6	2 i	6 i	1 e	4 i
Petroleum and coal products	324	* e	D	D	D	1	* e	D
Chemicals	325	10	1,833	D	162	102	55	56
Basic chemicals	3251	D	122	30	D	D	33	35
Resin, synthetic rubber, fibers, and filament	3252	D	28	D	D	D	10	D
Pharmaceuticals and medicines	3254	4	1,508	D	33	19	5	D
Other chemicals	other 325	5	175	24	42	31	7	6 e
Plastics and rubber products	326	1	109	27	11	3 e	9	1 e
Nonmetallic mineral products	327	* e	78	5 i	6	1 e	1 e	1 e
Primary metals	331	D	14	D	15	1 i	1 e	* e
Fabricated metal products	332	4 i	91	D	12 i	D	15	4 e
Machinery	333	3 i	1,007 i	215	442	74	D	13 i
Computer and electronic products	334	D	3,633	328	24	1,219 i	D	5 e
Computers and peripheral equipment	3341	5 e	48	1 e	D	D	D	* e
Communications equipment	3342	5	D	D	D	4	* i	1 e
Semiconductor and other electronic components	3344	D	D	44	10	8 e	12 e	3
Navigational, measuring, electromedical, and control instruments	3345	4 i	D	D	12 i	D	18	1 e
Other computer and electronic products	other 334	* e	34	67	0	1 i	2 i	* e
Electrical equipment, appliances, and components	335	D	172	63	102	4 i	8	D
Transportation equipment	336	D	516	1,067	27	D	85	25
Motor vehicles, trailers, and parts	3361–63	* e	235	780	19	5	D	D
Aerospace products and parts	3364	1	259	D	8	D	D	D
Other transportation equipment	other 336	D	22 i	D	* e	4 i	* e	6
Furniture and related products	337	* e	11 i	34	24	1 i	4 i	* e
Miscellaneous manufacturing	339	1 e	78 i	150	D	7 e	15	3 e
Medical equipment and supplies	3391	1 e	38	101	3 e	5 i	9	2 e
Other miscellaneous manufacturing	other 339	* e	40 i	48	D	1 e	6	1 e

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
Nonmanufacturing industries	21–23, 42, 44–81	62	1,760	298	128 e	216	129 e	96 e
Mining, extraction, and support activities	21	* e	D	D	* i	*	* e	3
Utilities	22	D	3 e	1 e	1 e	D	2	D
Construction	23	1 e	D	5 e	5 i	4	5	3 e
Wholesale trade	42	D	92 e	23 e	11 e	7 e	17 e	12 e
Retail trade	44, 45	2 i	28 i	10	4 i	3 i	5	1 e
Transportation and warehousing	48, 49	* e	D	* e	* e	D	* e	D
Information	51	21	391	41	19 e	49	13 e	10 e
Publishing	511	14	317	19	8 e	15	4	3 e
Newspaper, periodical, book, and directory	5111	* e	29	* e	2 i	* e	* e	* e
Software	5112	14	287	19	7 e	15	4	3 e
Telecommunications	517	* e	22 i	1	* e	D	* e	1 e
Wired and wireless (except satellite)								
telecommunications carriers	5171, 5172	* e	D	*	* e	D	* e	* e
Satellite telecommunications	5174	* e	D	* e	* e	0	* e	* e
Other telecommunications	other 517	* e	* e	* e	* e	* e	* e	* e
Internet service providers, Web search portals, and data-processing services	518	6 i	53	21	11 e	D	8 e	6
Internet service providers and Web search portals	5181	D	7 e	1 e	1 e	D	* e	* e
Data-processing, hosting, and related services	5182	D	45	20	10 e	14	8 e	5
Other information	other 51	* e	* e	* e	* e	* e	* e	*
Finance, insurance, and real estate	52, 53	3 e	154	25 e	15 e	10 e	14 e	13 e
Professional, scientific, and technical services	54	19	431 e	D	65	129	64	42 e
Architectural, engineering, and related services	5413	3	25 e	12	3 e	42	5 e	7 e
Computer systems design and related services	5415	7 e	208 e	68	28	31 e	29 i	15 e
Scientific R&D services	5417	5	137	D	7 e	53 i	26	14 e
Other professional, scientific, and technical services	other 54	4 i	61 e	7 e	27	3 e	4 e	6 e
Health care services	621–23	1 e	D	55 i	1 e	2 i	1 e	1 e
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	8 i	52 e	15 e	8 e	11 i	8 e	10 e

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana
Company size (employees)								
All companies	-	642	9,712	4,610 i	1,039	1,993 i	660	300
5-24	-	D	289 e	98 e	33 e	41 e	37 e	41 e
25-49	-	15 e	278 e	95 e	40 e	37 e	33 e	29 e
50-99	-	10 i	210 e	58 e	30 e	24 e	24 e	16 e
100-249	-	25	209 i	69 i	53	38 i	38	12 e
250-499	-	D	221	72	20 i	32	33	8
500-999	-	9 i	552 i	66	32 i	24	34	21
1,000-4,999	-	57	1,131	422	169	209	314	34
5,000-9,999	-	12	249	383	85	57	24	4
10,000-24,999	-	D	1,143	2,666 i	125	25	46 i	21
25,000 or more	-	15	5,431	679	451	1,507 i	78	114

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
All industries	21–23, 31–33, 42, 44–81	350	3,706	13,342	16,752	6,340	194	2,602
Manufacturing industries	31–33	202	2,297	8,827	15,730	4,895	111	1,723
Food	311	1 e	D	10	D	271	4 e	42
Beverage and tobacco products	312	* e	* e	D	* e	D	* e	D
Textiles, apparel, and leather	313–16	3	13 i	110 i	17	4 e	3 e	3 e
Wood products	321	D	1 e	* e	6	D	1 e	1 e
Paper, printing, and support activities	322, 323	17	7 i	22	9 i	D	* e	8 i
Petroleum and coal products	324	D	D	1 i	D	D	5 i	4 i
Chemicals	325	111	768	1,760	1,599	340	18	793
Basic chemicals	3251	D	47	77	163 i	3	5	D
Resin, synthetic rubber, fibers, and filament	3252	1 i	D	20	D	15	D	D
Pharmaceuticals and medicines	3254	103	702	1,548	1,098	217	D	430
Other chemicals	other 325	D	D	114	D	105	7	293
Plastics and rubber products	326	* e	17 i	35	134	28	2 e	30
Nonmetallic mineral products	327	1	1 e	D	90	6	1 e	2 e
Primary metals	331	* e	3 i	2 i	72	10	* e	2
Fabricated metal products	332	1 e	3 e	46	99	D	5	26
Machinery	333	4 i	122 i	250	188	274	5 e	375
Computer and electronic products	334	46	419	5,485	393	1,332	12	120
Computers and peripheral equipment	3341	D	14	871	5 i	430	* e	1 e
Communications equipment	3342	1 e	95	514 i	3 e	21 i	4	2 e
Semiconductor and other electronic components	3344	41	18 e	833	141	D	8	113
Navigational, measuring, electromedical, and control instruments	3345	4	292	3,046 i	241 i	679	* e	4 e
Other computer and electronic products	other 334	D	1 e	220	4	D	0	* e
Electrical equipment, appliances, and components	335	1 e	4	254	206	26	4	D
Transportation equipment	336	4 i	D	D	12,544	334	39	246
Motor vehicles, trailers, and parts	3361–63	D	5	5	12,444	47	19	60
Aerospace products and parts	3364	D	211	290	70	163	D	D
Other transportation equipment	other 336	1 e	D	D	31	124	D	D
Furniture and related products	337	* i	* e	22 i	86	14 i	9	8 i
Miscellaneous manufacturing	339	4 e	110	461	121	1,290	3 e	19
Medical equipment and supplies	3391	3 e	105	411	107	1,278	2 e	14
Other miscellaneous manufacturing	other 339	1 e	5 i	50	13 i	12	1 e	5 e

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
Nonmanufacturing industries	21–23, 42, 44–81	148	1,409	4,516	1,022	1,445	82	879
Mining, extraction, and support activities	21	* e	D	D	D	* e	* e	* e
Utilities	22	D	* e	1 e	5	D	* e	2 e
Construction	23	* e	19	D	6 e	9	1 e	22
Wholesale trade	42	3 e	43 i	150 i	49 e	34 e	5 e	39
Retail trade	44, 45	1 e	3 e	11	10 i	8 i	1 e	25
Transportation and warehousing	48, 49	* e	D	D	D	D	* e	* e
Information	51	88	147	1,616	327	267	9	271
Publishing	511	79	110	889	D	231	5 i	114
Newspaper, periodical, book, and directory	5111	D	D	D	D	3	* e	D
Software	5112	D	D	D	D	228	5 i	D
Telecommunications	517	D	14	D	1 e	D	* e	4
Wired and wireless (except satellite)								
telecommunications carriers	5171, 5172	D	D	D	*	1 i	* e	4
Satellite telecommunications	5174	* e	D	* e	* e	* e	* e	1 e
Other telecommunications	other 517	D	* e	D	* e	D	* e	* e
Internet service providers, Web search portals, and data-processing services	518	D	23 e	D	D	33	4	153
Internet service providers and Web search portals	5181	D	3 e	21 i	D	1 e	1 e	1 e
Data-processing, hosting, and related services	5182	2 e	20 e	D	D	32	4	152
Other information	other 51	*	* e	* e	1	D	* e	* e
Finance, insurance, and real estate	52, 53	5 e	40 e	155	33 e	43 e	6 e	72 i
Professional, scientific, and technical services	54	45	1,135	2,460	489	1,060	55	416
Architectural, engineering, and related services	5413	21 i	220	111	85	42	16	36
Computer systems design and related services	5415	10 e	324 e	911	136 e	901	24	282
Scientific R&D services	5417	12 e	568	1,369	173	101	12	83
Other professional, scientific, and technical services	other 54	2 e	23 e	69 i	96 i	16 e	3 e	14 e
Health care services	621–23	D	4 i	4 i	D	3 i	1 i	2 e
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	3 e	17 e	25 e	93 i	20 e	4 e	31

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
Company size (employees)								
All companies	-	350	3,706	13,342	16,752	6,340	194	2,602
5-24	-	20 e	257 e	421 e	199 e	140 e	20 e	105 e
25-49	-	35	174 e	461	186 e	143 e	18 e	101 e
50-99	-	17	195	586	135 e	116	12 e	67 e
100-249	-	19	268 i	843	301 i	212	12 e	98
250-499	-	D	158	665	221	149	2 e	30
500-999	-	11	617	920	594	499	18	118 i
1,000-4,999	-	96	865	2,143	951	728	32	386
5,000-9,999	-	D	104	753	989	466	11	399
10,000-24,999	-	D	382	2,087	1,245	1,985	12	346
25,000 or more	-	78	688	4,465 i	11,929	1,903	57	951

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York
All industries	21–23, 31–33, 42, 44–81	77 i	407	382	1,435	13,214	405	9,474
Manufacturing industries	31–33	40 i	150	248	372	10,598	280	5,938
Food	311	* e	48	1	1 i	308	2	194
Beverage and tobacco products	312	* e	* e	* e	* e	D	* e	* e
Textiles, apparel, and leather	313–16	* e	* e	* e	26	12 e	* e	40 e
Wood products	321	* e	2 i	* e	D	* e	* e	1 e
Paper, printing, and support activities	322, 323	* i	D	1 i	3 i	20	* e	45 i
Petroleum and coal products	324	* e	* e	D	* e	D	* e	D
Chemicals	325	11 i	14	5 e	19	8,681	D	2,692
Basic chemicals	3251	D	D	1 e	5	308	D	130
Resin, synthetic rubber, fibers, and filament	3252	0	D	* e	* i	57	D	26
Pharmaceuticals and medicines	3254	D	8	3 e	10	7,824	1 e	1,674
Other chemicals	other 325	* e	4	1 i	4	492	1 e	863
Plastics and rubber products	326	1 i	5 i	1 e	2 e	50	* e	23
Nonmetallic mineral products	327	* e	* e	1 e	2	6	1 e	D
Primary metals	331	* e	D	10	D	D	1 i	6
Fabricated metal products	332	* e	9	6 i	10	10 e	1 e	56
Machinery	333	D	21 i	4 i	94	133 i	1 e	443
Computer and electronic products	334	D	23 i	62 i	158	758	179	624
Computers and peripheral equipment	3341	* e	D	D	23	17	D	44
Communications equipment	3342	* e	D	D	33	D	* e	67
Semiconductor and other electronic components	3344	1 e	4	9 e	62 e	203	21	169
Navigational, measuring, electromedical, and control instruments	3345	D	12 i	12 i	36	310	D	324
Other computer and electronic products	other 334	* e	* e	4 i	3 i	D	2 i	21
Electrical equipment, appliances, and components	335	* e	3	12 i	8	44 i	* i	129
Transportation equipment	336	* e	11	D	5	136	D	1,107
Motor vehicles, trailers, and parts	3361–63	* e	7	*	D	22	D	D
Aerospace products and parts	3364	* e	D	D	D	85	D	614
Other transportation equipment	other 336	* e	D	* e	D	29	* e	D
Furniture and related products	337	* e	2 i	* e	* e	2	* e	6
Miscellaneous manufacturing	339	5	8	D	31	237	4 e	256
Medical equipment and supplies	3391	2 i	6	D	28	230	1 e	233
Other miscellaneous manufacturing	other 339	2	3	D	4	7 e	3 i	22 e

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York
Nonmanufacturing industries	21–23, 42, 44–81	38	257	134 e	1,062	2,616	126	3,535
Mining, extraction, and support activities	21	* e	* e	* e	* e	D	* e	* e
Utilities	22	* e	* e	* e	* e	5 i	* e	33
Construction	23	1 e	1 e	2 e	1 e	D	1 e	12 e
Wholesale trade	42	2 e	7 e	9 e	10 i	90	4 e	109 e
Retail trade	44, 45	* e	1 e	1 e	1 e	11	1 e	78
Transportation and warehousing	48, 49	* e	* e	* e	D	D	* e	* e
Information	51	15	47	33	164	700	7	1,068
Publishing	511	12	D	30	155	261	6	805
Newspaper, periodical, book, and directory	5111	* e	D	* e	* e	69	2	397
Software	5112	11	12 e	30	155	192	4 i	408
Telecommunications	517	* e	* e	* e	* e	391	D	15
Wired and wireless (except satellite)								
telecommunications carriers	5171, 5172	* e	* e	* e	* e	D	D	14
Satellite telecommunications	5174	* e	* e	* e	* e	1 e	* e	1 e
Other telecommunications	other 517	* e	* e	* e	* e	D	* e	1 e
Internet service providers, Web search portals, and data-processing services	518	3	33	2	9 i	D	1 e	247
Internet service providers and Web search portals	5181	* e	* e	1 e	* e	D	* e	84
Data-processing, hosting, and related services	5182	3	32	1	9 i	32	1 e	163
Other information	other 51	* e	D	*	*	D	D	1
Finance, insurance, and real estate	52, 53	3 e	84 i	8 e	5 e	156	4 e	336 e
Professional, scientific, and technical services	54	16 e	111	65 e	873	1,041	105	1,819
Architectural, engineering, and related services	5413	1 e	9 i	18 i	D	147	18	63
Computer systems design and related services	5415	9 i	29	11 e	D	272 e	19	1,371
Scientific R&D services	5417	4 e	62	32 e	73	595	66	290 e
Other professional, scientific, and technical services	other 54	1 e	10 e	5 e	2 e	27 e	2 e	94 e
Health care services	621–23	* e	2 i	1 e	D	15	* e	12 i
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	2 e	5 e	15 e	7 e	82	4 e	69 e

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York
Company size (employees)								
All companies	-	77 i	407	382	1,435	13,214	405	9,474
5-24	-	11 e	29 e	41 e	60 e	326 e	38 e	449 e
25-49	-	8 e	23 e	49 e	D	393 e	23 e	403 e
50-99	-	7 i	15 e	27 i	50	253	30	252
100-249	-	6 i	16 i	29	126	405	13	331
250-499	-	D	19 i	5	62	349	111	322
500-999	-	19 i	29	52 i	86	679	6 e	749
1,000-4,999	-	3	132	130	129	2,262	19	1,354
5,000-9,999	-	D	8	12	13	2,172	4	629
10,000-24,999	-	*	32	10 i	95	3,110	14	1,221
25,000 or more	-	D	103 i	27	D	3,265	146	3,764

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
All industries	21–23, 31–33, 42, 44–81	5,158	104	5,900	422	3,252	8,846	1,387 i
Manufacturing industries	31–33	3,134	D	4,737	227	2,760	6,969	D
Food	311	50 i	1	114 i	4 e	10 i	68	1 e
Beverage and tobacco products	312	D	* e	* e	* e	* e	* e	* e
Textiles, apparel, and leather	313–16	85	1	9	1 e	D	24 e	4 i
Wood products	321	D	* e	3 e	D	D	42	* e
Paper, printing, and support activities	322, 323	20	*	670 i	* e	15	28	* e
Petroleum and coal products	324	* e	* e	D	D	* e	20	* e
Chemicals	325	1,400	2	925	41	27	4,792	11
Basic chemicals	3251	43	* e	160	D	D	315	1
Resin, synthetic rubber, fibers, and filament	3252	115	D	78	D	D	81	* e
Pharmaceuticals and medicines	3254	1,167	D	546	8	9 e	4,147	4
Other chemicals	other 325	74	D	141	2 e	10 i	249	6 i
Plastics and rubber products	326	63	2 i	310 i	2 e	4 i	109	2 i
Nonmetallic mineral products	327	7	* e	99	1 e	1 e	37	D
Primary metals	331	11	* e	43	2 i	15	95	*
Fabricated metal products	332	19	* e	146	5 e	17	62	10
Machinery	333	154	D	232	42	73	235	4
Computer and electronic products	334	938	6	277	37	2,158	606	D
Computers and peripheral equipment	3341	7	0	3 e	D	34	70	D
Communications equipment	3342	508 i	0	14	10	34	52	* e
Semiconductor and other electronic components	3344	365	3 e	56 e	15 e	1,921	272	26
Navigational, measuring, electromedical, and control instruments	3345	56	D	204	D	162	197	D
Other computer and electronic products	other 334	2 e	D	* e	* e	7 i	15	* e
Electrical equipment, appliances, and components	335	54	* e	180	6	39	107 i	1
Transportation equipment	336	204	D	1,623 i	72	178	584	2
Motor vehicles, trailers, and parts	3361–63	151	* e	879	D	D	36	* e
Aerospace products and parts	3364	D	D	737 i	15	17	539	* e
Other transportation equipment	other 336	D	* i	7 i	D	D	9	2
Furniture and related products	337	35	* e	D	4 i	2 i	9	* e
Miscellaneous manufacturing	339	45	1 e	70	5	22	151	78
Medical equipment and supplies	3391	38	* e	56	4	15	129	12
Other miscellaneous manufacturing	other 339	7 i	* e	15 i	1 e	6	22	67

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
Nonmanufacturing industries	21–23, 42, 44–81	2,024	D	1,163	195	492	1,877	D
Mining, extraction, and support activities	21	2 i	* e	D	60	* e	D	* e
Utilities	22	11	* i	11	* e	9	11	*
Construction	23	14	1	132	4	2 e	14	* e
Wholesale trade	42	67	5	46 e	7 e	25	93	5 i
Retail trade	44, 45	5 e	* e	92	1 e	2 e	52	* e
Transportation and warehousing	48, 49	* e	* e	D	* e	D	D	D
Information	51	398	2 e	171	28	237	291	5
Publishing	511	356	1 e	114	8 e	227	188	3 e
Newspaper, periodical, book, and directory	5111	1 e	* e	24	* e	1 i	17	* e
Software	5112	356	1 e	91	8 e	226	170	3 e
Telecommunications	517	1 e	* e	5	* e	D	25	* e
Wired and wireless (except satellite)								
telecommunications carriers	5171, 5172	1	* e	5	* e	* e	21	*
Satellite telecommunications	5174	* e	* e	* e	* e	* e	* e	0
Other telecommunications	other 517	* e	* e	* e	* i	D	4 i	* e
Internet service providers, Web search portals, and data-processing services	518	40	1 e	51	20	10 e	70	2
Internet service providers and Web search portals	5181	1 e	* e	3 e	* e	1 e	3 e	* e
Data-processing, hosting, and related services	5182	39	1 e	48	20	9 e	67	2
Other information	other 51	* e	* e	* e	*	D	8	*
Finance, insurance, and real estate	52, 53	120 i	D	61 e	16 e	13 e	203	25
Professional, scientific, and technical services	54	1,362	14	535	69	D	1,162	49
Architectural, engineering, and related services	5413	37	1 e	72	29	45	366	1 e
Computer systems design and related services	5415	1,021	6	216	20 e	74	357	18
Scientific R&D services	5417	290	7 i	228	15 i	D	372	27 i
Other professional, scientific, and technical services	other 54	14 e	1 e	19 e	5 e	9 e	68	3 e
Health care services	621–23	4 i	* e	4 e	1 e	3 i	7	D
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	41	1 e	110	8 e	8 e	34 e	42

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
Company size (employees)								
All companies	-	5,158	104	5,900	422	3,252	8,846	1,387 i
5-24	-	175 e	7 e	221 e	38 e	77 e	263 e	25 e
25-49	-	183 e	7 e	232 e	44 e	D	307 e	30 e
50-99	-	169	10 i	166 e	17 e	65	203	15 e
100-249	-	246	9	211	57	122	319	15
250-499	-	117 i	1 i	166	10 i	90	267	D
500-999	-	303	5	261	10 e	163	297	6 e
1,000-4,999	-	825	4	999	76	393	1,785	149
5,000-9,999	-	558	D	355	22	44	558	16
10,000-24,999	-	1,217	D	857	56 i	273	2,203	2
25,000 or more	-	1,365	D	2,431 i	91	D	2,644	D

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
All industries	21–23, 31–33, 42, 44–81	1,402	68	1,246	12,438	1,234	360	4,379
Manufacturing industries	31–33	1,204	37	828	7,732	548	120	2,522
Food	311	2 e	1	22	86	7 i	6 i	D
Beverage and tobacco products	312	* e	* e	D	D	* e	* e	D
Textiles, apparel, and leather	313–16	36	* i	10 e	14 e	1 e	2	13
Wood products	321	2 i	* e	5	7	* e	1 i	1 e
Paper, printing, and support activities	322, 323	32	D	15	61	7	1 i	6
Petroleum and coal products	324	* e	* e	* e	686	* e	* e	D
Chemicals	325	81	3 e	268	582	69	15	253
Basic chemicals	3251	12	D	216	101 i	D	0	100
Resin, synthetic rubber, fibers, and filament	3252	23	D	24	232	D	* e	D
Pharmaceuticals and medicines	3254	37	1 e	14	164	46	D	63
Other chemicals	other 325	9 i	1	14	84	12	D	D
Plastics and rubber products	326	D	1 i	18	34	3 e	D	36 i
Nonmetallic mineral products	327	1 e	* e	D	10	1 e	* e	8 i
Primary metals	331	D	D	44	36 i	* e	* e	3
Fabricated metal products	332	12	1	10 e	38 e	8	1	29
Machinery	333	37	4 i	97	330	44	13 i	D
Computer and electronic products	334	353	6	68	4,646	115	20	246
Computers and peripheral equipment	3341	D	D	5	408 i	29	0	4 e
Communications equipment	3342	3 i	D	8 i	145	11	* e	33
Semiconductor and other electronic components	3344	D	2 e	31	3,871	29	12	107
Navigational, measuring, electromedical, and control instruments	3345	22	D	22 i	213	39	8 i	101
Other computer and electronic products	other 334	1 e	0	2 e	9 i	6	* e	* e
Electrical equipment, appliances, and components	335	50	1	102	83	3	1 e	9
Transportation equipment	336	176	4 i	88	813	222	44	D
Motor vehicles, trailers, and parts	3361–63	60	4 i	41	60	D	D	29
Aerospace products and parts	3364	D	* e	D	726	D	D	133
Other transportation equipment	other 336	D	* e	D	27	* e	D	D
Furniture and related products	337	* e	* e	9 i	D	1 i	D	7 i
Miscellaneous manufacturing	339	7	13	61	303	67	9	19
Medical equipment and supplies	3391	4 e	*	54	292	53	* e	6 e
Other miscellaneous manufacturing	other 339	3	13	8 i	11 e	14	9	13

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
Nonmanufacturing industries	21–23, 42, 44–81	198	31	418	4,706	686	240	1,857
Mining, extraction, and support activities	21	* e	* e	* e	437	1 i	D	* i
Utilities	22	* i	* e	* e	2 e	* e	* e	D
Construction	23	2 e	* e	4 e	D	1 e	* e	7 e
Wholesale trade	42	17 e	2 e	28 e	108 e	D	4 i	41
Retail trade	44, 45	1 e	* e	2 e	21	2	1 i	3 e
Transportation and warehousing	48, 49	D	* e	D	D	* e	* e	D
Information	51	38 i	3	31	1,219	301	38	375
Publishing	511	32 i	1	12	630	266	D	199
Newspaper, periodical, book, and directory	5111	* e	* e	* e	12	2	* e	1 e
Software	5112	31 i	1	11	618	264	D	199
Telecommunications	517	* e	1 i	* e	333	D	* e	D
Wired and wireless (except satellite)								
telecommunications carriers	5171, 5172	* e	D	* e	332	* e	* e	D
Satellite telecommunications	5174	* e	* e	* e	1 e	* e	* e	1 e
Other telecommunications	other 517	* e	D	* e	* e	D	* e	* e
Internet service providers, Web search portals, and data-processing services	518	6 e	1 e	18	254	24	D	D
Internet service providers and Web search portals	5181	1 e	* e	1 e	25	1 e	* e	46 e
Data-processing, hosting, and related services	5182	6 e	1 e	17	229	23	D	D
Other information	other 51	*	* e	1 i	2	D	* e	* e
Finance, insurance, and real estate	52, 53	34	3 e	27 e	216	11 e	2 e	49 e
Professional, scientific, and technical services	54	90	19	D	2,527	288	189	1,336
Architectural, engineering, and related services	5413	5 e	4 i	21	272	30	3	241
Computer systems design and related services	5415	54	4	169 i	1,661	126	D	469 e
Scientific R&D services	5417	26 i	1 e	D	517	129	D	487
Other professional, scientific, and technical services	other 54	5 e	10	9 e	78 e	4 e	1 e	139
Health care services	621–23	D	1 i	3 e	6 e	D	D	2 e
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	10 e	3 i	43 i	150	12 i	3 i	39 e

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia
Company size (employees)								
All companies	-	1,402	68	1,246	12,438	1,234	360	4,379
5-24	-	47 e	6 e	76 e	429 e	64 e	D	363 e
25-49	-	30 e	7 e	91 e	407 e	102 i	14 e	226 e
50-99	-	24 e	11	41 e	388	56	14 i	161 e
100-249	-	48 i	8	79 i	342	96	19 i	420
250-499	-	24 i	4 i	47	440	95	17	122
500-999	-	465	5	84	481	114	10 i	636 i
1,000-4,999	-	115	25	212	1,611	430	53	478
5,000-9,999	-	105	D	93	1,559	28	D	100
10,000-24,999	-	102	D	360	3,816	204	45	272
25,000 or more	-	440	*	163	2,965	45	D	1,599

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Washington	West Virginia	Wisconsin	Wyoming	Undistributed ^b
All industries	21–23, 31–33, 42, 44–81	9,736	242	2,729	30	3,731 i
Manufacturing industries	31–33	2,647	D	2,258	20	1,708 i
Food	311	18	* e	98	* e	9
Beverage and tobacco products	312	* e	* e	*	* e	0
Textiles, apparel, and leather	313–16	7	* e	9	*	11 i
Wood products	321	2 e	* e	7 i	* e	0
Paper, printing, and support activities	322, 323	43	* e	325	* e	6
Petroleum and coal products	324	1	* e	D	D	10 i
Chemicals	325	534 i	D	231	4	755
Basic chemicals	3251	5	1	23	2	34 i
Resin, synthetic rubber, fibers, and filament	3252	D	D	10	D	37 i
Pharmaceuticals and medicines	3254	524 i	D	51	1 i	675
Other chemicals	other 325	D	1 e	147	D	9 i
Plastics and rubber products	326	5 e	D	46	* e	18
Nonmetallic mineral products	327	2 e	1 e	D	* e	6 i
Primary metals	331	5	1 e	34	* e	6 i
Fabricated metal products	332	30 i	1 e	57	* e	36 i
Machinery	333	102 i	3 e	312	* e	62 i
Computer and electronic products	334	542	6 e	201	D	576 i
Computers and peripheral equipment	3341	82	2	39	0	9 i
Communications equipment	3342	38	0	4 i	0	164 i
Semiconductor and other electronic components	3344	78	2 e	82	D	323
Navigational, measuring, electromedical, and control instruments	3345	340	2 i	76	* e	64 i
Other computer and electronic products	other 334	4 i	0	1 e	* e	15 i
Electrical equipment, appliances, and components	335	8 i	2	171	* e	58 i
Transportation equipment	336	1,284	D	644	D	96 i
Motor vehicles, trailers, and parts	3361–63	64	1	D	* e	73 i
Aerospace products and parts	3364	D	D	D	D	12 i
Other transportation equipment	other 336	D	* i	200	* e	10
Furniture and related products	337	5	* i	16 i	* e	0
Miscellaneous manufacturing	339	60	3	31	* e	59 i
Medical equipment and supplies	3391	29 i	3	22	* i	45 i
Other miscellaneous manufacturing	other 339	31	* e	9 i	* e	15 i

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Washington	West Virginia	Wisconsin	Wyoming	Undistributed ^b
Nonmanufacturing industries	21–23, 42, 44–81	7,089	D	471	10 e	2,023 i
Mining, extraction, and support activities	21	* e	* e	* i	* e	0
Utilities	22	1 i	* e	12 i	* e	0
Construction	23	6 e	* e	3 e	3 i	60 i
Wholesale trade	42	68	3 e	26 e	1 e	69 i
Retail trade	44, 45	11 i	* e	10	1 i	0
Transportation and warehousing	48, 49	1 i	* e	D	* e	31
Information	51	6,108	3	95	1 e	496 i
Publishing	511	D	1	81	* e	264 i
Newspaper, periodical, book, and directory	5111	2	* e	* e	* e	10
Software	5112	D	1	81	* e	254 i
Telecommunications	517	11	1	* e	* e	117 i
Wired and wireless (except satellite)						
telecommunications carriers	5171, 5172	D	D	* e	* e	10 i
Satellite telecommunications	5174	1 e	* e	0	* e	0
Other telecommunications	other 517	D	D	* e	* e	107 i
Internet service providers, Web search portals, and data-processing services	518	D	1 e	14	* e	102 i
Internet service providers and Web search portals	5181	19	* e	1 e	* e	0
Data-processing, hosting, and related services	5182	D	1 e	13	* e	102 i
Other information	other 51	D	* e	* e	* e	13
Finance, insurance, and real estate	52, 53	38 e	D	142	1 e	120 i
Professional, scientific, and technical services	54	827	38 i	D	2 e	681 i
Architectural, engineering, and related services	5413	21 e	5	D	1	39 i
Computer systems design and related services	5415	192	22 i	63 e	1 e	153 i
Scientific R&D services	5417	592	9 i	D	* e	299 i
Other professional, scientific, and technical services	other 54	22	1 e	9 e	* e	189
Health care services	621–23	2 e	* e	1 e	* e	3 i
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	28 e	3 e	21 e	1 e	563

TABLE 31. Funds for industrial R&D performed in the United States, by industry and company size, by state: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Washington	West Virginia	Wisconsin	Wyoming	Undistributed ^b
Company size (employees)						
All companies	-	9,736	242	2,729	30	3,731 i
5-24	-	183 e	10 e	98 e	6 i	52 i
25-49	-	D	9 e	115 e	3 e	167 i
50-99	-	235	20 i	76 e	2 e	405 i
100-249	-	387	23 i	96 i	2 e	414 i
250-499	-	331	1	92	1 i	352 i
500-999	-	363	7	154	D	631
1,000-4,999	-	570	56	541	2	830 i
5,000-9,999	-	245 i	D	483	* e	7 i
10,000-24,999	-	185	74	577	D	117 i
25,000 or more	-	D	D	497	D	757

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; e = estimated, more than 50% of cell value is imputed due to raking of state data;

i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.^b Includes data reported on Form RD-1 that were not allocated to a specific state. Data reported on the Form RD-1A were allocated to the state in the address on the company's survey form which is usually the company's headquarters.

NOTES: Detail does not add to total because of rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 32. Domestic employment of companies performing industrial R&D in the United States, by industry, by company size: 2005

(Thousands)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
All industries	21–23, 31–33, 42, 44–81	16,032	245	300	335	655	576	830	2,863	1,554	2,260	6,413
Manufacturing industries	31–33	9,436	87	125	204	418	447	446	1,978	1,043	1,502	3,185
Food	311	995	5	1	15	32	61	30	106	105	153	487
Beverage and tobacco products	312	57	D	*	*	1	1	D	23	D	D	0
Textiles, apparel, and leather	313–16	204	3	3	9	28	12	D	67	D	D	D
Wood products	321	108	0	4	4	6	3	D	24	34	D	0
Paper, printing, and support activities	322, 323	421	*	5	8	16	18	12	62	45	52	202
Petroleum and coal products	324	164	1	1	2	1	2	D	9	D	D	128
Chemicals	325	1,074	10	10	23	40	39	52	272	129	253	246
Basic chemicals	3251	167	*	2	2	4	6	6	D	32	D	0
Resin, synthetic rubber, fibers, and filament	3252	110	*	1	2	3	5	3	D	0	D	D
Pharmaceuticals and medicines	3254	482	1	2	5	14	14	26	D	38	D	D
Other chemicals	other 325	314	9	6	15	19	13	16	D	59	48	D
Plastics and rubber products	326	377	3	17	9	27	32	D	113	76	D	D
Nonmetallic mineral products	327	198	2	2	5	6	5	4	52	44	78	0
Primary metals	331	262	D	1	2	8	8	D	52	42	93	D
Fabricated metal products	332	626	11	5	29	32	44	D	315	72	54	D
Machinery	333	832	14	22	33	68	54	61	166	82	161	171
Computer and electronic products	334	1,253	19	25	30	53	50	73	241	91	209	461
Computers and peripheral equipment	3341	158	2	D	D	4	4	13	43	D	D	D
Communications equipment	3342	155	2	3	D	10	13	17	33	0	D	D
Semiconductor and other electronic components	3344	444	3	11	8	13	15	23	83	27	50	211
Navigational, measuring, electromedical, and control instruments	3345	454	10	D	D	23	16	17	63	D	118	D
Other computer and electronic products	other 334	43	1	1	D	2	2	3	18	0	D	0
Electrical equipment, appliances, and components	335	321	5	8	8	22	18	35	96	58	72	0
Transportation equipment	336	1,972	4	6	8	30	56	36	224	135	172	1,302
Motor vehicles, trailers, and parts	3361–63	1,019	1	3	6	20	20	29	174	109	128	529
Aerospace products and parts	3364	639	1	1	1	3	30	D	18	D	D	537
Other transportation equipment	other 336	315	2	2	2	7	6	D	32	D	D	235
Furniture and related products	337	235	2	2	1	11	18	D	39	49	58	D
Miscellaneous manufacturing	339	338	9	11	18	37	26	26	117	43	49	0
Medical equipment and supplies	3391	220	6	D	9	19	16	15	72	D	49	0
Other miscellaneous manufacturing	other 339	118	3	D	9	18	10	12	45	D	0	0
Nonmanufacturing industries	21–23, 42, 44–81	6,596	158	175	130	237	129	384	885	510	759	3,228
Mining, extraction, and support activities	21	97	D	D	*	1	D	5	23	D	D	D

TABLE 32. Domestic employment of companies performing industrial R&D in the United States, by industry, by company size: 2005

(Thousands)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
Utilities	22	304	D	D	*	0	D	2	D	172	83	D
Construction	23	171	3	22	*	59	2	7	19	D	D	0
Wholesale trade	42	247	29	35	33	45	30	30	D	D	0	0
Retail trade	44, 45	608	12	*	0	2	3	6	20	40	91	436 i
Transportation and warehousing	48, 49	642	*	0	D	D	D	D	D	D	46	574
Information	51	1,493	20	18	31	30	31	39	114	66	108	1,035
Publishing	511	381	D	8	16	19	22	22	84	D	D	D
Newspaper, periodical, book, and directory	51111	127	4	0	D	2	2	D	26	D	D	D
Software	5112	254	D	8	D	18	20	D	58	D	D	D
Telecommunications	517	714	D	*	1	2	2	5	6	D	D	D
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	D	D	*	D	D	D	D	6	D	D	D
Satellite telecommunications	5174	1	D	0	0	0	0	D	0	0	0	0
Other telecommunications	other 517	D	0	0	D	D	D	D	0	0	D	D
Internet service providers, Web search portals, and data-processing services	518	149	6	10	14	7	D	8	17	20	D	D
Internet service providers and Web search portals	5181	20	4	0	1	*	D	0	D	D	0	0
Data-processing, hosting, and related services	5182	129	2	10	13	6	D	8	D	D	D	D
Other information	other 51	249	D	*	*	2	D	3	7	0	D	D
Finance, insurance, and real estate	52, 53	1,265	3	8	D	D	D	D	D	55	D	D
Professional, scientific, and technical services	54	1,182	60	72	48	60	44	41	289	51	193	323
Architectural, engineering, and related services	5413	221	6	D	9	6	9	8	53	D	83	D
Computer systems design and related services	5415	660	32	D	23	29	21	16	200	27	62	D
Scientific R&D services	5417	129	14	D	16	21	12	14	14	D	D	0
Other professional, scientific, and technical services	other 54	172	9	D	1	3	3	3	22	D	D	D
Health care services	621–23	93	3 i	11	16	4	6	7	D	D	D	0
Other nonmanufacturing ^a	55–56, 61, 624, 71–72, 81	494	24	8	1	35	9	25	44	59	106	183

* = amount < 500; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Detail does not add to total due to rounding or suppression. The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. Data recorded in March represent entire year. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 33. Total employment in companies performing industrial R&D in the United States, ranked by R&D program size: 1994–2005
(Percent distribution)

Companies ranked by R&D program size	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
All companies	100	100	100	100	100	100	100	100	100	100	100	100
First 4 (1–4)	6	6	6	5	5	4	2	2	3	2 r	3	3
Next 4 (5–8)	2	2	2	2	3	2	2	2	2	3	2	2
Next 12 (9–20)	4	4	4	3	4	5	6	6	5	5 r	6	5
Next 20 (21–40)	4	4	4	4	4	3	4	4	5	4	3	3
Next 60 (41–100)	7	7	7	6	7	5	8	4	8	9	9	7
Next 100 (101–200)	8	7	8	6	8	7	7	8	10	9	9	9
Next 100 (201–300)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	6
Next 100 (301–400)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	5
Next 100 (401–500)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	3
All others ^a	69	70	69	74	69	74	71	74	67	68	54	57

NA = not available; r = data significantly revised, replaces previously published data.

^a Includes companies in 201–500 size categories prior to 2004.

NOTES: This table shows the percentage of total employment in the top R&D-performing companies. The companies are grouped for analysis. For example, if you would like to know the percentage of total employment accounted for by the top 20 R&D performing companies in 1999, you would add the percentages shown for the categories "first 4," "next 4," and "next 12." The result is 11%. Some percentages for 1997 and 1999 have been revised since originally published. Beginning with 2001, excludes data for federally funded research and development centers. Data recorded in March each year. Prior to 2004, this table focused on the top 400 R&D performers. Data for the 201–300 and 301–400 categories were aggregated and data for the 401–500 category were included in all others category. Beginning in 2004, the focus of the table was changed to the top 500 R&D performers. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 34. R&D funds per employee spent by companies performing industrial R&D in the United States, by company size: 1999–2005
(Dollars)

Company size (employees)	1999 ^a	2000	2001	2002	2003	2004	2005	% change, 2004–05
All R&D	8,025	11,425	12,047	12,560	13,094 r	14,055	14,107	0.4
5–24	34,057	37,703	30,366	29,559	28,885	26,199	30,035	14.6
25–49	19,590	27,786	21,040	23,695	21,883	25,034	24,961	-0.3
50–99	20,460	22,381	22,801	22,019	16,317	18,149	21,353	17.7
100–249	11,892	15,190	20,206	24,721	15,845	17,405	15,767	-9.4
250–499	11,861	12,915	16,736	14,755	17,616	15,362	14,145	-7.9
500–999	9,031	12,550	12,981	14,384	15,998	17,728	16,862	-4.9
1,000–4,999	9,276	9,819	11,465	12,307	13,519	13,540	12,212	-9.8
5,000–9,999	7,897	9,160	9,880	12,025	10,486	13,250	11,695	-11.7
10,000–24,999	8,454	7,693	11,292	10,961	10,350 r	13,915	14,849	6.7
25,000 or more	6,173	10,942	10,758	11,009	12,691 r	12,548	13,251	5.6
Company and other								
All companies	7,044	10,344	10,977	11,498	11,933 r	12,688	12,740	0.4
5–24	31,087	32,637	26,260	24,083	24,979	23,348	25,652	9.9
25–49	18,072	26,552	19,911	22,096	18,797	22,438	22,710	1.2
50–99	18,754	20,797	21,277	20,366	14,429	16,441	19,421	18.1
100–249	10,781	14,063	18,792	23,589	14,792	15,738	14,315	-9.0
250–499	11,132	11,775	15,660	13,499	16,382	14,359	13,432	-6.5
500–999	8,272	11,866	12,211	13,614	14,829	16,480	15,783	-4.2
1,000–4,999	8,942	9,570	11,204	11,883	13,036	13,329	11,736	-12.0
5,000–9,999	6,837	8,273	8,944	10,971	9,738	11,780	11,296	-4.1
10,000–24,999	8,327	10,274	10,915	10,453	9,861 r	13,219	14,000	5.9
25,000 or more	7,955	9,251	9,411	9,653	11,128 r	10,643	11,169	4.9

r = data significantly revised, replaces previously published data.

^a Some statistics for 1999 have been revised since originally published.

NOTES: Beginning with 2001, excludes federally funded research and development centers. Amounts were derived by dividing total and company R&D funds spent during a calendar year by employment in March of that year. The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excludes R&D performed outside of the company (e.g., R&D performed by other organizations) and R&D performed outside of the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 35. R&D funds per full-time equivalent R&D scientist or engineer spent by companies that performed industrial R&D in the United States, by industry, by company size: 2005
(Dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
All industries	21–23, 31–33, 42, 44–81	217,483	169,995	217,155	191,636	179,078	187,481	219,416	205,268	194,208	188,504	267,339
Manufacturing industries	31–33	233,737	162,224	259,016	157,980	154,939	192,882	235,576	209,760	225,580 i	196,250 i	288,088
Food	311	246,894	236,076	90,772	123,644	164,366	173,997	176,752	185,379	233,600	282,184	317,190
Beverage and tobacco products	312	117,767 i	D	D	0 i	D	0	D	125,556	D	D	0
Textiles, apparel, and leather	313–16	128,702 i	131,991 i	161,487 i	143,814	217,270 i	162,370	256,379	69,520 i	D	D	D
Wood products	321	169,946	0	D	31,075 i	158,608	211,732	170,726	222,894	133,916	D	0
Paper, printing, and support activities	322, 323	221,087 i	D	161,543 i	151,171 i	149,721	93,292	223,349	212,512	341,405 i	80,717 i	384,756 i
Petroleum and coal products	324	340,424 i	80,297	148,062	140,461 i	109,632	90,527	D	411,000 i	D	D	363,780 i
Chemicals	325	371,322	159,225	431,883	274,527	315,633	307,498	375,760	322,699 i	354,002 i	330,139	495,124 i
Basic chemicals	3251	236,917	47,527	106,392	132,472	354,252	200,626	290,722	278,347 i	120,675	D	0
Resin, synthetic rubber, fibers, and filament	3252	269,186	206,407	78,457	97,574	219,820	187,979	202,211	348,489 i	0	D	D
Pharmaceuticals and medicines	3254	433,317	339,363	901,237	432,129	369,958	371,017	407,680	405,236 i	544,681 i	331,950	559,028 i
Other chemicals	other 325	207,746	101,896	166,965	206,114	147,722	161,073	137,881	149,473	186,797	D	D
Plastics and rubber products	326	162,278	D	68,559	63,283 i	251,088	150,855	350,180	126,678	123,111	D	D
Nonmetallic mineral products	327	143,643 i	130,743	127,751	216,367 i	96,365	176,600 i	151,427	150,603	D	74,680 i	0
Primary metals	331	197,964 i	D	D	199,928 i	115,288	201,710	121,078	284,879 i	171,327 i	142,861	D
Fabricated metal products	332	90,861	64,380 i	58,519	86,338	131,338	124,403	71,891	67,567	106,206	180,523	D
Machinery	333	141,554	111,265	147,449	157,742	123,692	155,592	148,284	172,391	48,092 i	155,111	153,632 i
Computer and electronic products	334	198,324	169,668	326,784	157,649	153,181	173,827	226,462	212,833	288,205	162,970 i	192,833 i
Computers and peripheral equipment	3341	143,791	181,504 i	150,071	147,828	82,427	150,768	242,099	198,317	D	D	D
Communications equipment	3342	194,907 i	201,259	135,600	167,507	173,448	172,510 i	219,894	183,699	0	D	D
Semiconductor and other electronic components	3344	217,438	191,881	493,204	161,847	178,142	211,922	255,820	247,252	327,436	D	157,238
Navigational, measuring, electromedical, and control instruments	3345	203,731 i	139,321	127,621	150,081	152,724	148,212	172,323	210,720	196,882	116,723 i	D
Other computer and electronic products	other 334	198,775	283,308 i	135,714	131,782	200,712	111,960	127,025	198,308	0	D	0
Electrical equipment, appliances, and components	335	145,602	D	135,690	105,023	154,436	180,845	149,276	142,305 i	138,923 i	141,313	0
Transportation equipment	336	264,152	133,300	241,168	150,987	41,747	232,244	234,073	178,946	135,125 i	101,517 i	349,927
Motor vehicles, trailers, and parts	3361–63	180,431 i	D	246,222	177,178	29,534	130,923	224,812	175,850	108,361 i	62,040 i	259,692
Aerospace products and parts	3364	379,164 i	101,202	258,388	154,523	110,216	383,445	535,090	300,128	D	D	378,508 i
Other transportation equipment	other 336	647,023	306,472	196,605	92,589	258,821	146,688	151,204	104,242 i	D	D	D
Furniture and related products	337	136,923	72,551 i	0	152,215	147,841	113,961	108,924 i	108,680	123,144 i	188,378 i	D
Miscellaneous manufacturing	339	260,685	272,630	215,730	198,885	148,908	214,867	233,575	189,896	365,111 i	440,179	0

TABLE 35. R&D funds per full-time equivalent R&D scientist or engineer spent by companies that performed industrial R&D in the United States, by industry, by company size: 2005

(Dollars)

Industry	NAICS codes	Company size (employees)										
		All companies	5–24	25–49	50–99	100–249	250–499	500–999	1,000–4,999	5,000–9,999	10,000–24,999	25,000 +
Medical equipment and supplies	3391	309,936	413,038	215,327	213,650	180,361	256,109	272,333	235,736	351,887 i	440,179	0
Other miscellaneous manufacturing	other 339	136,891	77,152 i	216,313	168,225	103,576	125,154	121,893	130,379	D	0	0
Nonmanufacturing industries	21–23, 42, 44–81	187,188	172,037	198,330	210,379	202,940	180,462	196,665	194,405	135,989	165,389	204,971
Mining, extraction, and support activities	21	182,812 i	27,193	D	D	0	195,951	152,502	239,531	D	D	D
Utilities	22	297,623	295,223	0 i	D	0	D	D	293,377	399,973 i	295,383	D
Construction	23	131,332	117,022 i	0	D	D	184,598	129,562 i	100,395 i	D	D	0
Wholesale trade	42	158,369	104,991	142,839	193,982	165,330	186,941	235,957	316,910	D	0	0
Retail trade	44, 45	163,613	48,293	264,417	0	133,125	87,035 i	281,363 i	114,308	203,822 i	D	188,224
Transportation and warehousing	48, 49	342,739 i	54,404 i	0	D	D	D	D	177,283 i	D	D	D
Information	51	182,155	147,035	148,425	151,889	133,666	150,678	162,773	192,283	182,692	206,966	194,844
Publishing	511	182,441	122,963	145,616	158,761	129,168	147,587 i	160,601	193,358	165,672	D	D
Newspaper, periodical, book, and directory	51111	159,477	94,892 i	0	D	D	99,695	D	136,242	D	D	D
Software	5112	183,724	126,115	145,616	159,757	128,968	149,378 i	162,145	202,239	168,051	D	D
Telecommunications	517	235,473	88,046	118,438	D	210,984	D	180,814 i	D	D	D	300,807 i
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	238,406	D	118,438	D	218,112	D	209,165 i	D	D	D	295,746 i
Satellite telecommunications	5174	282,602	285,000	0	0	0	0	D	0	0	0	0
Other telecommunications	other 517	198,446 i	0	0	0 i	D	D	D	0	0	D	D
Internet service providers, Web search portals, and data-processing services	518	155,428	264,036 i	155,163	121,914	129,590	197,750	178,369	195,391	D	D	D
Internet service providers and Web search portals	5181	275,056 i	454,847	0	D	186,009 i	276,018	0	D	D	0	0
Data-processing, hosting, and related services	5182	129,786	112,025 i	155,163	152,134	122,919	152,317	178,369	127,426	D	D	D
Other information	other 51	160,375	D	0 i	147,333 i	215,145	165,745	127,577	D	0	D	D
Finance, insurance, and real estate	52, 53	126,212	D	D	87,078	171,626	101,840 i	309,151	111,730	162,198	D	57,620
Professional, scientific, and technical services	54	206,512	211,407	207,954	244,270	241,807	204,825	172,663	235,667	49,342	134,578 i	269,425
Architectural, engineering, and related services	5413	146,175	73,692	122,621	180,643	190,816	172,567	192,195 i	263,840	D	D	D
Computer systems design and related services	5415	179,108	153,760	160,444	151,461	152,855	163,924	118,842	175,004	D	183,044 i	D
Scientific R&D services	5417	298,418	338,990	277,805	338,542	311,146	253,449	212,798	354,950 i	D	D	0

TABLE 35. R&D funds per full-time equivalent R&D scientist or engineer spent by companies that performed industrial R&D in the United States, by industry, by company size: 2005
(Dollars)

		Company size (employees)										
		All							1,000–	5,000–	10,000–	
Industry	NAICS codes	companies	5–24	25–49	50–99	100–249	250–499	500–999	4,999	9,999	24,999	25,000 +
Other professional, scientific, and technical services	other 54	244,912	587,638	158,956	197,592 i	333,579	160,607 i	D	184,159 i	D	D	D
Health care services	621–23	265,860 i	9,029 i	145,185	68,306 i	102,029 i	115,666 i	D	274,235	D	D	0
Other nonmanufacturing ^a	55–56, 61 624, 71–72, 81	168,228	139,934 i	453,466 i	156,928	173,427	154,517	137,171 i	93,390 i	52,499	391,992 i	D

D = suppressed to avoid disclosure of confidential data; i = more than 50% of the value is imputed.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. Data recorded in January represent employment for the previous year; the number of full-time-equivalent R&D scientists and engineers used to estimate the cost per R&D scientist or engineer is the arithmetic mean of the numbers of R&D scientists and engineers reported for January 2005 and January 2006. This number is then divided into the total R&D expenditures for 2005, and the ratio is attributed to 2005. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 36. R&D funds per full-time equivalent R&D scientist or engineer spent by the top 500 companies performing industrial R&D in the United States, ranked by R&D program size: 1994–2005
(Dollars)

Companies ranked by R&D program size	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	% change, 2004–05
First 4	218,906	234,791	231,784	229,602 i	242,408	289,072 i	283,219 i	229,610 i	270,753	327,999 r	278,489	322,051	15.6
Next 4	245,626 i	188,928 i	185,032 i	180,389	193,597	192,657	199,586	215,439	193,858	270,642 r	437,109	365,862	-16.3
Next 12	188,437	190,548	202,670	238,022 i	239,162	266,117 i	261,858 i	254,460 i	255,263	212,871 r	234,473	274,325	17.0
Next 20	182,699	204,159	210,552	213,496	196,276	213,047 i	219,627 i	236,402	225,623	297,109 r	215,341	258,720	20.1
Next 60	181,163	196,023	202,405	206,350	208,144	206,956	230,259	223,650	212,780	210,795 r	221,772	245,881	10.9
Next 100	174,524	162,707	160,560	155,255	162,965	162,654	176,239	182,360	158,657	153,877 r	179,392	193,403	7.8
Next 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	167,928	190,367	13.4
Next 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	174,406	203,205	16.5
Next 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	207,597	166,043	-20.0
Average for top 500 R&D performers	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	225,846	247,736	9.7

i = more than 50% of the value is imputed; NA = not available; r = data significantly revised, replaces previously published data.

NOTES: This table shows R&D funds spent per each full-time equivalent R&D scientist and engineer by the top R&D-performing companies. The companies are grouped for analysis. For example, if you would like to know the average amount spent on R&D by the top 4 R&D-performing companies in 1999, you would look at the category "first 4." The result is \$289,072. Some estimates for 1999 have been revised since originally published. Beginning with 2001, excludes federally funded research and development centers. The number of full-time-equivalent R&D scientists and engineers used to estimate the cost per R&D scientist or engineer is the arithmetic mean of the numbers of R&D scientists and engineers reported for January 2005 and January 2006. This number is then divided into the total R&D expenditures for 2005, and the ratio is attributed to 2005. Data recorded in January represent employment for the previous year. Prior to 2004, this table focused on the top 400 R&D performers. Beginning in 2004, the focus of the table was changed to the top 500 R&D performers. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 37. Full-time equivalent R&D scientists and engineers in companies performing industrial R&D in the United States, by industry and company size, by source of R&D funds: January 2006

(Thousands)

Industry and company size	NAICS codes	All R&D	Federal	Company and other
All industries	21–23, 31–33, 42, 44–81	1,097.7	74.7 i	1,023.0
Manufacturing industries	31–33	695.8	44.9 i	650.9
Food	311	11.8	* i	11.7
Beverage and tobacco products	312	4.7 i	0.0	4.7 i
Textiles, apparel, and leather	313–16	7.8 i	* i	7.8 i
Wood products	321	D	D	1.6
Paper, printing, and support activities	322, 323	D	D	8.9 i
Petroleum and coal products	324	D	D	4.4 i
Chemicals	325	118.0	0.7	117.3 i
Basic chemicals	3251	9.8	*	9.4
Resin, synthetic rubber, fibers, and filament	3252	8.4	* i	8.3 i
Pharmaceuticals and medicines	3254	81.1	* i	80.9 i
Other chemicals	other 325	18.7	* i	18.6
Plastics and rubber products	326	11.0	* i	11.0
Nonmetallic mineral products	327	6.7 i	* i	6.6 i
Primary metals	331	3.8 i	* i	3.7
Fabricated metal products	332	16.7	* i	16.6
Machinery	333	59.6	0.8 i	58.8
Computer and electronic products	334	262.5	29.4 i	233.2
Computers and peripheral equipment	3341	33.1	*	32.9
Communications equipment	3342	50.4	1.2 i	49.3
Semiconductor and other electronic components	3344	92.4	0.7 i	91.7
Navigational, measuring, electromedical, and control instruments	3345	81.6 i	27.2 i	54.3
Other computer and electronic products	other 334	5.0	* i	4.9
Electrical equipment, appliances, and components	335	17.9	* i	17.5
Transportation equipment	336	135.0	12.9 i	122.1 i
Motor vehicles, trailers, and parts	3361–63	83.9 i	0.5	83.4 i
Aerospace products and parts	3364	41.5 i	9.5	32.0 i
Other transportation equipment	other 336	9.5	2.8 i	6.7 i
Furniture and related products	337	3.6	0.0	3.6
Miscellaneous manufacturing	339	21.7	* i	21.4
Medical equipment and supplies	3391	16.1	* i	15.9
Other miscellaneous manufacturing	other 339	5.6	* i	5.5
Nonmanufacturing industries	21–23, 42, 44–81	401.9	29.8 i	372.2
Mining, extraction, and support activities	21	D	D	3.7
Utilities	22	0.8	*	0.7
Construction	23	10.3	* i	10.0 i
Wholesale trade	42	19.3	* i	19.1
Retail trade	44, 45	D	D	10.0
Transportation and warehousing	48, 49	D	D	0.9 i
Information	51	134.2	2.5 i	131.7
Publishing	511	98.7	0.9 i	97.7
Newspaper, periodical, book, and directory	5111	5.7	*	5.3
Software	5112	93.0	0.6 i	92.4
Telecommunications	517	10.2	0.0	10.2
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	9.4	0.0	9.4
Satellite telecommunications	5174	*	0.0	*
Other telecommunications	other 517	0.8 i	0.0	0.8 i
Internet service providers, Web search portals, and data-processing services	518	23.8	1.5	22.3
Internet service providers and Web search portals	5181	5.1	0.0	5.1
Data-processing, hosting, and related services	5182	18.7	1.5	17.2

TABLE 37. Full-time equivalent R&D scientists and engineers in companies performing industrial R&D in the United States, by industry and company size, by source of R&D funds: January 2006
(Thousands)

Industry and company size	NAICS codes	All R&D	Federal	Company and other
Other information	other 51	1.5	0.0	1.5
Finance, insurance, and real estate	52, 53	30.2	0.0	30.2
Professional, scientific, and technical services	54	170.6	25.8 i	144.8
Architectural, engineering, and related services	5413	30.1	9.0 i	21.1
Computer systems design and related services	5415	90.3	4.1	86.2
Scientific R&D services	5417	42.7	11.7 i	31.0
Other professional, scientific, and technical services	other 54	7.6	1.0	6.6
Health care services	621-23	4.7	*	4.6
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	17.4	0.8	16.5
Company size (employees)				
All companies	-	1,097.7	74.7 i	1,023.0
5-24	-	66.4	6.0	60.4
25-49	-	45.9	4.0	41.9
50-99	-	44.7	2.8	41.9
100-249	-	58.0	4.5	53.4
250-499	-	45.8	1.7	44.1
500-999	-	69.3	4.8	64.5
1,000-4,999	-	180.1	3.4	176.7
5,000-9,999	-	91.1	4.1	87.0
10,000-24,999	-	180.9	15.7	165.1
25,000 or more	-	315.6	27.6	288.0

* = amount < 50; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. Data for number of full-time equivalent scientists and engineers by funding source are collected only on Form RD-1, the questionnaire sent to larger R&D-performing companies. Consequently, data for smaller R&D-performing companies are not distributed by source of R&D funds. Data recorded in January represent employment for the previous year. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE 38. Full-time equivalent R&D scientists and engineers per 1,000 employees in companies performing industrial R&D in the United States, by industry and company size: 2005

Industry and company size	NAICS codes	Per 1,000 employees
All industries	21–23, 31–33, 42, 44–81	65
Manufacturing industries	31–33	72
Food	311	11
Beverage and tobacco products	312	80 i
Textiles, apparel, and leather	313–16	31 i
Wood products	321	D
Paper, printing, and support activities	322, 323	D
Petroleum and coal products	324	D
Chemicals	325	108
Basic chemicals	3251	57
Resin, synthetic rubber, fibers, and filament	3252	77
Pharmaceuticals and medicines	3254	167
Other chemicals	other 325	55
Plastics and rubber products	326	29
Nonmetallic mineral products	327	31 i
Primary metals	331	12 i
Fabricated metal products	332	24
Machinery	333	72
Computer and electronic products	334	200
Computers and peripheral equipment	3341	218
Communications equipment	3342	327 i
Semiconductor and other electronic components	3344	194
Navigational, measuring, electromedical, and control instruments	3345	164 i
Other computer and electronic products	other 334	117
Electrical equipment, appliances, and components	335	52
Transportation equipment	336	69
Motor vehicles, trailers, and parts	3361–63	88 i
Aerospace products and parts	3364	62 i
Other transportation equipment	other 336	24
Furniture and related products	337	12
Miscellaneous manufacturing	339	58
Medical equipment and supplies	3391	64
Other miscellaneous manufacturing	other 339	48
Nonmanufacturing industries	21–23, 42, 44–81	55
Mining, extraction, and support activities	21	D
Utilities	22	2
Construction	23	57
Wholesale trade	42	56
Retail trade	44, 45	D
Transportation and warehousing	48, 49	D
Information	51	88
Publishing	511	255
Newspaper, periodical, book, and directory	5111	41
Software	5112	362
Telecommunications	517	15
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	D
Satellite telecommunications	5174	40
Other telecommunications	other 517	D
Internet service providers, Web search portals, and data-processing services	518	144
Internet service providers and Web search portals	5181	193 i
Data-processing, hosting, and related services	5182	137

TABLE 38. Full-time equivalent R&D scientists and engineers per 1,000 employees in companies performing industrial R&D in the United States, by industry and company size: 2005

Industry and company size	NAICS codes	Per 1,000 employees
Other information	other 51	5
Finance, insurance, and real estate	52, 53	19
Professional, scientific, and technical services	54	131
Architectural, engineering, and related services	5413	145
Computer systems design and related services	5415	115
Scientific R&D services	5417	320
Other professional, scientific, and technical services	other 54	34
Health care services	621–23	40 i
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	26
Company size (employees)		
All companies	-	65
5–24	-	177
25–49	-	115
50–99	-	111
100–249	-	88
250–499	-	75
500–999	-	77
1,000–4,999	-	59
5,000–9,999	-	60
10,000–24,999	-	79
25,000 or more	-	50

D = suppressed to avoid disclosure of confidential data; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. Data recorded in January represent employment for the previous year. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

Appendix A. Technical Notes

Survey Methodology

Much of the information for this appendix was provided by the Manufacturing and Construction Division of the U.S. Bureau of the Census, which collected and compiled the survey data. Copies of the technical papers cited can be obtained from NSF's Research and Development Statistics Program in the Division of Science Resources Statistics. The first part of this appendix focuses on recent changes to the survey methodology; major historical changes are discussed later in Comparability of Statistics. More detailed historical information is available from individual annual reports (<http://www.nsf.gov/statistics/industry/>).

Reporting Unit

The reporting unit for the Survey of Industrial Research and Development is initially the company, defined as a business organization of one or more establishments under common ownership or control.[1] Some companies, at their own request, comprise multiple reporting units. These reporting units are compiled into a single company record at the time of tabulation.

Frame Creation and Industry Classification

The Business Register (BR), a Bureau of the Census database, containing industry, geographic, employment, and payroll information, was the foundation from which the frame used to select the 2005 survey sample was created (see table A-1 for population and sample sizes). For companies with more than one establishment, data were summed to the company level and the resulting company record was used to select the sample and process and tabulate the survey data.

After data were summed to the company level, each company then was assigned a single North American Industry Classification System (NAICS) code based on payroll.[2] The method used followed the hierarchical structure of the NAICS. The company was first assigned to the economic sector, defined by a 2-digit NAICS code, or combination thereof, representing manufacturing, mining, trade, etc., that accounted for the highest percentage of its aggregated payroll. Then the company was assigned to a subsector, defined by a 3-digit NAICS code, that accounted for the highest percentage of its payroll within the economic sector. Then the company was assigned a 4-digit NAICS code within the subsector, again based on the highest percentage of its aggregated payroll within the subsector. Finally, the company was assigned a 6-digit NAICS code within the 4-digit NAICS, based on the highest percentage of its aggregated payroll within the 4-digit NAICS. Assignment below the 6-digit level was not done because the 6-digit level was the lowest level needed to guarantee publication-level industry classification. Some originally assigned industry codes were revised later during statistical processing (see "Industry Reclassification," below).

Frame Partitioning

For the 2005 survey, the frame was partitioned into four groups: (1) top 500 R&D-performing companies still in the frame from the 2004 survey year and any company classified in NAICS 42 or 55 with R&D greater than \$3 million, (2) other companies known to conduct R&D in any of the previous five survey years, (3) companies that previously only reported zero R&D in all of the previous five survey years, and (4) companies for which information about the extent of R&D activity was uncertain. There were 868 companies in the first group, 12,447 companies in the second group, 85,304 companies in the third group, and 1,962,184 companies in the fourth group for a total of 2,060,803 companies.

Defining Sampling Strata

For the first, second, and fourth partitioned groups the sampling strata were defined corresponding to the 4-digit industries and groups of industries for which statistics were

developed and published. There were 28 manufacturing and 23 nonmanufacturing strata in each of these partitioned groups. (Note: one manufacturing and one nonmanufacturing were “unclassifieds.”) Also, the second partitioned group was divided into two strata, one certainty and the other noncertainty.

Identifying Ad Hoc Certainty Companies

Ad hoc certainty companies were companies selected with certainty independent of relative standard error (RSE) constraints. There were different criteria defining an ad hoc certainty company depending on the partitioned group the company was in. Companies in the first two partitioned groups that also had previously reported or had imputed R&D of \$3 million or more were ad hoc certainties. Companies in the third partition that had any establishments in NAICS 5417 were ad hoc certainties. Companies in the fourth partition, which were also in the top 50 of their strata by payroll or in the top 50 of their state by payroll, were ad hoc certainties.

Probability Proportionate to Size

The distribution of companies by R&D in the first and second partitioned groups or by payroll in the fourth partitioned group was skewed as in earlier frames. Because of this skewness, a fixed sample probability proportionate to size (pps) method remained the appropriate selection technique for these partitioned groups. That is, with the pps method large companies had higher probabilities of selection than did small companies. The fixed sample size methodology has been replicated for every survey year since the 1998 survey.

Companies in the first partitioned group received a probability of one. Companies in the second partitioned group received a measure of size equal to the most recently reported positive R&D expenditures. Companies in the third and fourth partitioned groups received a measure of size equal to their company payroll. RSE constraints by industry and by state were imposed separately in the second and fourth partitioned groups, and the company received a probability of selection for each industry in which it had activity.

Simple Random Sampling

The third partitioned group was split into two strata, certainty and noncertainty. The noncertainty stratum was sampled using simple random sampling. Companies in the noncertainty stratum received a probability of selection of roughly 0.01.

Sample Stratification and Relative Standard Error Constraints

The particular sample selected was one of a large number of samples of the same type and size that by chance might have been selected. Statistics resulting from the different samples would differ somewhat from each other. These differences are represented by estimates of sampling error or variance. The smaller the sampling error is, the less variable the statistic. The accuracy of the estimate, that is, how close it is to the true value, is also a function of nonsampling error.

Controlling Sampling Error. Historically, it has been difficult to achieve control over the sampling error of survey estimates. Efforts were confined to controlling the amount of error due to sample size variation, but this was only one component of the overall sampling error. The other component depended on the correlation between the data from the sampling frame used to assign probabilities (namely R&D values either imputed or reported in the previous survey) and the actual current year reported data. The nature of R&D is such that these correlations could not be predicted with any reliability. Consequently, precise controls on overall sampling error were difficult to achieve (U.S. Bureau of the Census 1994d).

Sampling Strata and Standard Error Estimates. The constraints used to control the sample size in each stratum were based on a universe total that, in large part, was improvised. That is, as previously noted, a prior R&D value for the first two partitioned groups and payroll for the fourth partitioned group were assigned to companies in their respective groups. Assignment

of sampling probability was, nevertheless, based on this distribution. The presumption was that actual variation in the sample design would be less than that estimated, because many of the sampled companies in the fourth partitioned group have true R&D values of zero, not the widely varying values that were imputed using total payroll as a predictor of R&D. Previous sample selections indicate that in general, this presumption held, but exceptions have occurred when companies with large sampling weights have reported large amounts of R&D spending. See table A-2 for a list by industry of the standard error estimates for selected items and table A-3 for a list of the standard error estimates of total R&D by state.

Nonsampling Error. In addition to sampling error, estimates are subject to nonsampling error. Errors are grouped in five categories: specification, coverage, response, nonresponse, and processing. For detailed discussions on the sources, control, and measurement of each of these types of error, see U.S. Bureau of the Census 1994b and 1994f.

Sample Size

The parameters set to control sampling error resulted in sample sizes of 868 companies from the first frame partition, 9,290 companies from the second frame partition, 1,083 companies from the third frame partition, and 20,759 companies from the fourth frame partition. The overall final sample consisted of 32,000 companies. This total included an adjustment to the sample size based on a minimum probability rule and changes in the operational status of some companies.

Minimum Probability Rule. A minimum probability rule was imposed for both the second and fourth partitions. As noted earlier, probabilities of selection proportionate to size were assigned to each company in these partitions, where size was the prior reported R&D or payroll value assigned to each company. Selected companies received a sample weight that was the inverse of their probability. Selected companies that ultimately report R&D expenditures vastly larger than their assigned values can have adverse effects on the statistics, which were based on the weighted value of survey responses. In order to minimize these effects on the final statistics, a minimum probability rule was imposed to control the maximum weight of a company. If the probability based on company size was less than the minimum probability, then it was reset to this minimum value. The consequence of raising these original probabilities to the specific minimum probability was to raise the final sample size.

Changes in Operational Status. Between the time that the frame was created and the survey was prepared for mailing, the operational status of some companies changed. That is, they were merged with or acquired by another company, or they were no longer in business. Before preparing the survey for mailing, the operational status was updated to identify these changes. As a result, the number of companies mailed a survey questionnaire was somewhat smaller than the number of companies initially selected for the survey.

Weighting, Maximum Weights, and Probabilities of Selection

Sample weights were applied to each company record to produce national estimates. Within the second partition of the sample, consisting of known R&D performers (positive R&D expenditures), the maximum sample weight was roughly 20. For the fourth partition, consisting of companies with uncertain R&D activity, the maximum sample weight was roughly 100 for companies classified in manufacturing and 250 for those classified in nonmanufacturing.

Survey Questionnaires

Two questionnaires are used each year to collect data for the survey. Known large R&D performers are sent a detailed survey form, Form RD-1.[3] The Form RD-1 collects data on sales or receipts, total employment, employment of scientists and engineers, expenditures for R&D performed within the company with federal funds and with company and other funds, character of work (basic research, applied research, and development), company-sponsored

R&D expenditures in foreign countries, R&D performed by others, R&D performed in collaboration with others, federally funded R&D by contracting agency, R&D costs by type of expense, R&D costs by technology area, domestic R&D expenditures by state, energy-related R&D, R&D done in collaboration with others, and foreign R&D by country. Because companies receiving the Form RD-1 have participated in previous surveys, computer-imprinted data reported by the company for the previous year are supplied for reference. Companies are encouraged to revise or update the data for a prior year if they have more current information; however, already published prior-year statistics were revised in this report series only if large disparities were reported.

Small R&D performers and firms included in the sample for the first time were sent Form RD-1A. This questionnaire collects the same information as Form RD-1 except for five items: Federal R&D support to the firm by contracting agency, R&D costs by type of expense, domestic R&D expenditures by state, energy-related R&D, and foreign R&D by country. It also includes a screening item that allows respondents to indicate that they did not perform R&D during the study year. No prior-year information was made available because the majority of the companies that received the Form RD-1A were not surveyed in the previous year.

Recent Survey Questionnaire Content Changes

For 2005, the five mandatory items remained total R&D expenditures (question 5d, column 3), federally funded R&D (question 5d, column 1), net sales (question 2), total employment (question 3), and the distribution of R&D by state (question 17). The question that asked for the cost of the R&D performed in collaboration with other organizations was moved from the end of the questionnaire (question 17 for 2004) toward the beginning of the questionnaire (question 9 for 2005), following the question that asked for the cost of the R&D performed outside the company by other organizations. This change was made based on cognitive interviews that concluded that respondents are confused by the two concepts. Research continues to make the distinction clear and to improve response to both of these questions. A question asking whether the company's R&D involved nanotechnology (question 15) was added.

Number of Survey Questionnaires Sent

Form RD-1 (for companies that reported R&D expenditures of \$3 million or more in the 2004 survey) was mailed to 3,356 companies and 28,491 companies received Form RD-1A. Both survey questionnaires and the instructions provided to respondents are reproduced in appendix B, Survey Documents.

Follow-Up for Survey Nonresponse

The 2005 survey questionnaires were mailed in February 2006. Recipients of Form RD-1A were asked to respond within 30 days, and Form RD-1 recipients were given 60 days. A follow-up questionnaire and letter were mailed to Form RD-1A recipients every 30 days up to a total of five times, if their completed survey form had not been received. After questionnaire and letter follow-ups, three additional automated telephone follow-ups were conducted for the remaining delinquent Form RD-1A recipients.

A letter was mailed to Form RD-1 recipients 30 days after the initial mailing, reminding them that their completed survey questionnaires were due within the next 30 days. A second questionnaire and reminder letter were mailed after 60 days. Two additional follow-ups (one mail, two telephone) were conducted for delinquent Form RD-1 recipients not ranked among the 500 largest R&D performers based on total R&D expenditures reported in the previous year. For the top 500 performers, multiple special telephone follow-ups were used to encourage response. Table A-4 shows the number of companies in each industry or industry group that received survey questionnaires, by type of form, and the percentage that responded to the survey.

Imputation for Item Nonresponse

For various reasons, many firms chose to return the survey questionnaire with one or more blank items.[4] For some firms, internal accounting systems and procedures may not have allowed quantification of specific expenditures. Others may have refused to answer any voluntary questions as a matter of company policy.

When respondents did not provide the requested information, estimates for the missing data were made using imputation algorithms. In general, the imputation algorithms computed values for missing items by applying the average percentage change for the target item in the nonresponding firm's industry to the item's prior-year value for that firm, reported or imputed. This approach, with minor variation, was used for most items.[5] Table A-5 contains imputation rates for the principal survey items.

Response Rates and Mandatory/Voluntary Reporting

Survey reporting requirements divided survey items into two groups: mandatory and voluntary. Responses to five data items were mandatory; responses to the remaining items were voluntary. The mandatory items were total R&D expenditures, federal R&D funds, net sales, total employment and the distribution of R&D by state (the first four were included in the Census Bureau's annual mandatory statistical program). Table A-6 shows the percentage of R&D-performing companies that also reported data for other selected items.

During the 1990 survey cycle, NSF conducted a test of the effect of reporting on a completely voluntary basis to determine whether combining both mandatory and voluntary items on one survey questionnaire influences response rates. For this test, the 1990 sample was divided into two panels of approximately equal size. One panel, the mandatory panel, was asked to report as usual on four mandatory items with the remainder voluntary, and the other panel was asked to report all items on a completely voluntary basis. The result of the test was a decrease in the overall survey response rate to 80% from levels of 88% in 1989 and 89% in 1988. The response rates for the mandatory and voluntary panels were 89% and 69%, respectively. Detailed results of the test were published in *Research and Development in Industry: 1990* (NSF 1993).

Industry Reclassification

Beginning with the 2004 survey and continuing for 2005, some companies' electronically assigned industry codes were manually examined and changed. Beginning in the late 1990s, increasingly large amounts of R&D were attributed to the wholesale trade industries, resulting from the payroll-based methodology used to assign industry classifications (see "Frame Creation and Industry Classification," above) and the change from the Standard Industrial Classification (SIC) system to the North American Industry Classification System (NAICS) in 1999. Such classification artifacts were of particular concern for companies traditionally thought of as pharmaceutical or computer-manufacturing firms. As these firms increasingly marketed their own products and more of their payroll involved employees in selling and distribution activities, the potential for the companies to be classified among the wholesale trade industries increased. To maintain the relevance and usefulness of the industrial R&D statistics, NSF evaluated ways to ameliorate the negative effects of the industry classification methodology and change in classification systems. In addition to firms originally assigned NAICS codes among the wholesale trade (NAICS 42) industries, firms in the information (NAICS 51), professional, scientific, and technical services (NAICS 54), and management of companies and enterprises (NAICS 55) industries using the payroll-based methodology were manually reviewed by NSF and Census. These firms were reclassified based on primary R&D activity, which in most cases corresponded to their primary products or service activities. The result was that most of the R&D previously attributed to NAICS 42 and 55 industries was redistributed. Statistics resulting from the old and new industry classification methods were

published in tables A-9 and A-10 in *Research and Development in Industry: 2004* (NSF 2009). Also, for detailed information about the industry reclassification methodology, see NSF 2007d.

Character-of-Work Estimates

Response to questions about character of work (basic research, applied research, and development) declined in the mid-1980s, and as a result, imputation rates increased. The general imputation procedure described above became increasingly dependent upon information imputed in prior years, thereby distancing current-year estimates from any reported information. Because of the increasing dependence on imputed data, NSF chose not to publish character-of-work estimates in 1986. The imputation procedure used to develop these estimates was revised in 1987 for use with later data and differs from the general imputation approach. The new method calculated the character-of-work distribution for a nonresponding firm only if that firm reported a distribution within a 5-year period, extending from 2 years before to 2 years after the year requiring imputation. Imputation for a given year was initially performed in the year the data were collected and was based on a character-of-work distribution reported in either of the 2 previous years, if any. It was again performed using new data collected in the next 2 years. If reported data followed no previously imputed or reported data, previous period estimates were inserted based on the currently reported information. Similarly, if reported data did not follow 2 years of imputed data, the 2 years of previously imputed data were removed. Thus, character-of-work estimates were revised as newly reported information became available and were not final for 2 years following their initial publication.

Beginning with 1995, previously estimated values were not removed for firms that did not report in the third year, nor were estimates made for the 2 previous years for firms reporting after 2 years of nonresponse. This process was changed because in the prior period revisions were minimal. Estimates continued to be made for 2 consecutive years of nonresponse and discontinued if the firm did not report character of work in the third year. If no reported data were available for a firm, character of work estimates were not imputed. As a consequence, only a portion of the total estimated R&D expenditures were distributed for character of work at the firm level. Those expenditures not meeting the requirements of the new imputation methodology were placed in a “not distributed” category.

NSF's objective in conducting the survey has always been to provide estimates for the entire population of firms performing R&D in the United States. However, the revised imputation procedure would no longer produce such estimates because of the not-distributed component. A baseline estimation method thus was developed to allocate the not-distributed amounts among the character of work components. In the baseline estimation method, the not-distributed expenditures were allocated by industry group to basic research, applied research, and development categories using the percentage splits in the distributed category for that industry. The allocation was done at the lowest level of published industry detail only; higher levels were derived by aggregation, just as national totals were derived by aggregation of individual industry estimates, and result in higher performance shares for basic and applied research and lower estimates for development's share than would have been calculated using the previous method.

Using data collected during the 1999 and 2000 cycles of the survey, reporting anomalies for the character-of-work survey items, especially for basic research, were investigated. It was discovered that a number of large companies known to develop and manufacture products reported all of their R&D as basic research. This phenomenon is not logical and prompted a renewed effort to strengthen character-of-work estimates produced from the survey. Identification of the anomalous reporting patterns was completed and edit checks were improved for processing of the 2001 and 2002 data. Publication of character-of-work distributions of R&D was resumed, and the tables containing historical basic research, applied research, and development estimates have been revised and footnoted accordingly.

Edit checks for this phenomenon continue to be performed annually and extensive follow-up with respondents undertaken.

State Estimates

Form RD-1 requests a distribution of the total cost of R&D among the states where R&D was performed. Prior to the 1999 survey, an independent source, the *Directory of American Research and Technology*, published by the Data Base Publishing Group of the R. R. Bowker Company was used in conjunction with previous survey results to estimate R&D expenditures by state for companies that did not provide this information. The information on scientists and engineers published in the directory was used as a proxy indicator of the proportion of R&D expenditures within each state. R&D expenditures by state were estimated by applying the distribution of scientists and engineers by state from the directory to total R&D expenditures for these companies. These estimates were included with reported survey data to arrive at published estimates of R&D expenditures for each state. However, the practice of using outside information to formulate or adjust estimates of R&D expenditures for each state had to be discontinued because a suitable source for supporting information was no longer available. State estimates resulting from the 1999 and 2000 surveys were based solely on respondent reports and information internal to the survey. Beginning with the 2001 survey, because of the lack of a reliable, comprehensive outside source of information, in an effort to improve the quality of reported data, NSF sought and was granted authorization by the Office of Management and Budget, the federal agency that oversees and controls burden on respondents, to make reporting of the distribution of R&D by state mandatory.

Also beginning in 2001, the sampling and estimation methodologies used to produce state estimates were modified from previous years to yield better accuracy and precision and to reduce erroneous fluctuations in year-to-year estimates due to small sample sizes of R&D performers by state. The new sampling methodology selects known R&D performers with a higher probability than nonperformers and selects with certainty the largest 50 companies in each state based on payroll, thus providing more coverage of R&D performers. The new estimation methodology for state estimates takes the form of a hybrid estimator combining the unweighted reported amount by state with a weighted amount apportioned (or raked) across states with industrial activity. The hybrid estimator smoothes the estimate over states with R&D activity by industry and accounts for real change within a state. The Horvitz-Thompson estimator continues to be used to estimate the number of R&D performers by state.

Comparability of Statistics

This section summarizes major survey improvements, enhancements, and changes in procedures and practices that may have affected the comparability of statistics produced from the Survey of Industrial Research and Development over time and with other statistical series (see also NSF 2002a and U.S. Bureau of the Census 1995). This section focuses on major historical changes. Detailed descriptions of the specific revisions made to the pre-1967 surveys are scarce, but the U.S. Bureau of the Census (1995) summarizes some of the major revisions. Documented revisions to the post-1967 surveys through 1992 are summarized in NSF 1994a and 1994b. For subsequent surveys, detailed information is available from individual annual reports at <http://www.nsf.gov/statistics/industry/>.

Industry Classification System

Beginning with the 1999 cycle of the survey, industry statistics are published using the North American Industry Classification System (NAICS). The ongoing development of NAICS has been a joint effort of statistical agencies in Canada, Mexico, and the United States. The system replaced the Standard Industrial Classification (1980) of Canada, the Mexican Classification of Activities and Products (1994), and Standard Industrial Classification (SIC 1987) of the United States.[6] NAICS was designed to provide a production-oriented system

under which economic units with similar production processes are classified in the same industry. NAICS was developed with special attention to classifications for new and emerging industries, service industries, and industries that produce advanced technologies. NAICS not only eases comparability of information about the economies of the three North American countries, but it also increases comparability with the two-digit level of the United Nations' International Standard Industrial Classification system. Important for the Survey of Industrial Research and Development is the creation of several new classifications that cover major performers of R&D in the United States. Among manufacturers, the computer and electronic products classification (NAICS 334) includes makers of computers and peripherals, semiconductors, and navigational and electromedical instruments. Among nonmanufacturing industries are information (NAICS 51) and professional, scientific, and technical services (NAICS 54). Information includes publishing, both print and electronic; broadcasting; and telecommunications. Professional, scientific, and technical services include a variety of industries. Of specific importance for the survey are engineering (NAICS 5413) and scientific R&D service industries (NAICS 5417).

The change of industry classification system affected most of the detailed statistical tables produced from the survey. Prior to the 1999 report, tables classified by industry contained the current survey's statistics plus statistics for 10 previous years. Because of the new classification system, the tables classified in the 1999–2005 reports contain only statistics for the study year and previous years back to 1999. However, to provide a bridge for users who wanted to make year-to-year comparisons below the aggregate level, in several tables in *Research and Development in Industry: 1999* (NSF 2002c) and *Research and Development in Industry: 2000* (NSF 2003a) statistics from the 1997 and 1998 cycles of the survey, previously classified and published using the SIC system, were reclassified using the new NAICS codes. These reclassified statistics were slotted using their new NAICS classifications alongside the 1999 and 2000 statistics, which were estimated using NAICS from the outset.

Industry Classification Methodology

For 1999 and 2000, the frame from which the statistical samples were selected was divided into two partitions based on total company employment. In the manufacturing sector, companies with employment of 50 or more were included in the large-company partition. In the nonmanufacturing sector, companies with employment of 15 or more were included in the large-company partition. Companies in the respective sectors with employment below these values but with at least 5 employees were included in the small-company partition. The purpose of partitioning the sample this way was to reduce the variability in industry estimates largely attributed to the random year-to-year selection of small companies by industry and the high sampling weights that sometimes were assigned to them. Therefore, in the 1999 and 2000 reports detailed industry statistics were published only from the large-company partition; detailed industry statistics from the small-company partition were not. Statistics from the small-company partition were included in the manufacturing, nonmanufacturing, and all industries totals but were aggregated into "small-manufacturing" and "small-nonmanufacturing" classifications instead of being included in their respective industry classifications. Beginning with the 2001 survey, this practice was evaluated and discontinued because it was determined that the data for small companies are more useful if they are included in their respective industries even given the sampling concerns described above.

Beginning with the 2004 survey and continuing for 2005, some companies' electronically assigned industry codes were manually examined and changed. Beginning in the late 1990s, increasingly large amounts of R&D were attributed to the wholesale trade industries, resulting from the payroll-based methodology used to assign industry classifications (see "Frame Creation and Industry Classification," above) and the change from the SIC system to NAICS in 1999. Such classification artifacts were of particular concern for companies traditionally thought of as pharmaceutical or computer-manufacturing firms. As these firms increasingly marketed their own products and more of their payroll involved employees in selling and

distribution activities, the potential for the companies to be classified among the wholesale trade industries increased. To maintain the relevance and usefulness of the industrial R&D statistics, NSF evaluated ways to ameliorate the negative effects of the industry classification methodology and change in classification systems. In addition to firms originally assigned NAICS codes among the wholesale trade (NAICS 42) industries, firms in the information (NAICS 51); professional, scientific, and technical services (NAICS 54), and management of companies and enterprises (NAICS 55) industries using the payroll-based methodology were manually reviewed by NSF and Census. These firms were reclassified based on primary R&D activity, which in most cases corresponded to their primary products or service activities. The result was that most of the R&D previously attributed to NAICS 42 and 55 industries was redistributed. Statistics resulting from the old and new industry classification methods were published in tables A-9 and A-10 in *Research and Development in Industry: 2004* (NSF 2009). Also, for detailed information about the industry reclassification methodology, see NSF 2007d.

Company Size Classifications

Beginning with the 1999 cycle of the survey, the number of company size categories used to classify survey statistics was increased (NSF 2001a). The original 6 categories were expanded to 10 to emphasize the role of small companies in R&D performance. The more detailed business size information also facilitates better international comparisons; the new classifications of the U.S. statistics enable more direct comparisons with other countries' statistics. Generally, statistics produced by foreign countries measuring their industrial R&D enterprise are reported with more detailed company size classifications at the lower end of the scale than U.S. industrial R&D statistics traditionally have been. (For more information, visit the Organisation for Economic Co-operation and Development website at <http://www.oecd.org/>.)

Revisions to Historical and Immediate Prior-Year Statistics

Revisions to historical statistics usually have been made because of changes in the industry classification of companies caused by changes in payroll composition detected when a new sample was drawn. Various methodologies have been adopted over the years to revise, or backcast, the data when revisions to historical statistics have become necessary. Documented revisions to the historical statistics from post-1967 surveys through 1992 are summarized in NSF 1994a and in annual reports for subsequent surveys. Detailed descriptions of the specific revisions made to the statistics from pre-1967 surveys are scarce, but the U.S. Bureau of the Census (1995) summarizes some of the major revisions.

Changes to reported data can come from three sources: respondents, analysts involved in survey and statistical processing, and the industry reclassification process. Prior to 1995, routine revisions were made to prior-year statistics based on information from all three sources. Consequently, results from the current-year survey were used not only to develop current-year statistics but also to revise immediate prior-year statistics. Beginning with the 1995 survey, this practice was discontinued. The reasons for discontinuation of this practice were annual sampling; continual strengthening of sampling methodology; and improvements in data verification, processing, and nonresponse follow-up. Moreover, it was not clear that respondents or those who processed the survey results had any better information a year after the data were first reported. Thus, it was determined that routinely revising published survey statistics increased the potential for error and often confused users of the statistics. Revisions are now made to historical and immediate prior-year statistics only if substantial errors are discovered.

For 1999, an error in the sample frame caused one very large company (based on payroll) to be selected for the sample and its statistical record to be assigned a large weight (see “Frame Creation and Industry Classification” and “Weighting, Maximum Weights, and Probabilities of Selection,” above). Because the company's record had received a large weight during 1999 sampling, the company was selected with certainty for the 2000 sample and assigned a weight

of one (see “Identifying Ad Hoc Certainty Companies,” above). This sampling artifact caused an abnormally large decrease in the industry data, especially for sales and employment, when comparing the 2000 statistics with the statistics originally published for 1999. The weight in the company's record in the 1999 statistical file was corrected, and the 1999 statistics were revised and included in subsequent reports. R&D estimates for the company also were affected; however, the amount of R&D was relatively small, even after weighting.

As summarized above under “Character-of-Work Estimates,” reporting anomalies for the character-of-work survey items, especially for basic research, were discovered and investigated using data collected during the 1999 and 2000 cycles of the survey. Companies known to develop and manufacture products but that reported all of their R&D as basic research were contacted and queried regarding their R&D activities. After reviewing the definitions of basic research, applied research, and development, all but several changed their distribution of R&D. Census, the collection and tabulation agent for the survey, was able to go back as far as 1998 and correct the statistical files. Consequently, the tables containing historical basic research, applied research, and development estimates have been revised and footnoted accordingly.

During statistical processing for the 2003 survey two problems were discovered. The first involved a very large company classified among the manufacturing industries. The company was properly sampled for the survey and sent a questionnaire but did not respond. The company had responded to the survey in the late 1990s but not since then. In such cases, estimates for the missing data are made using imputation algorithms (see “Imputation for Item Nonresponse,” above). Using publicly available information, it was discovered that the amount of R&D imputed for the company for 2003 was much lower than the amount from the public sources. Further, amounts imputed since the company's last report were similarly much lower. The company was contacted and it provided a corrected amount for 2003 and updated R&D amounts for several previous years. Consequently, the historical statistics for 1999–2002 were revised and affected tables footnoted accordingly. The second problem involved another very large company that significantly revised its 2003 data, which was preprinted (see “Survey Questionnaires,” above) on its 2004 questionnaire. During 2003 the company had acquired a portion of another company that also had been in the survey in previous years. Through contact with the acquiring company, it was discovered that a significant amount of R&D had been reported twice to the 2003 and 2004 surveys. The double-counted portion of the data was corrected in both survey files, and tables in this report reflect the corrections.

Year-to-Year Changes

Comparability from year to year may be affected by new sample design, annual sample selection, and industry shifts.

Sample Design

By far the most profound influence on statistics from recent surveys occurred when the new sample design for the 1992 survey was introduced. Revisions to the 1991 statistics were dramatic (see *Research and Development in Industry: 1992* (NSF 1995b) for a detailed discussion). Although the allocation of the sample has been changed somewhat, the sample designs used for subsequent surveys have been comparable to the 1992 sample design in terms of size and coverage.

Annual Sample Selection

With annual sampling (introduced in 1992), more year-to-year change is evident than when survey panels were used, for two reasons. First, prior to annual sampling, a wedging operation, which was performed when a new sample was selected, adjusted the data series gradually to account for the changes in classification (see the discussion on wedging later under “Time-Series Analyses,” below). Second, yearly correlation of R&D data is weakened when independent samples are drawn each year.

Industry Shifts

The industry classification of companies is redefined each year with the creation of the sampling frame. By redefining the frame, the sample reflects current distributions of companies by size and industry. A company may move from one industry to another because of either changes in its payroll composition, which is used to determine the industry classification code changes in the industry classification system itself; or changes in the way the industry classification code was assigned or revised during survey processing.

A company's payroll composition can change because of the growth or decline of product or service lines, the merger of two or more companies, the acquisition of one company by another, divestitures, or the formation of conglomerates. Although an unlikely occurrence, a company's industry designation could be reclassified yearly with the introduction of annual sampling. When companies shift industry classifications, the result is a downward movement in R&D expenditures in one industry that is balanced by an upward movement in another industry from one year to the next.

From time to time, the industry coding system used by federal agencies that publish industry statistics is changed or revised to reflect the changing composition of U.S. and North American industry. The SIC system, as revised in 1987, was used for statistics developed from the 1988–91 panel surveys and the 1992–98 annual surveys. As discussed above, the industrial classification system has been completely changed, and beginning with the 1999 cycle of the survey, NAICS is now used.

Large year-to-year changes may occur because of the way industry classifications are assigned during statistical processing. As discussed above, a company's industry classification is a function of its primary activity based on payroll, which is not necessarily the primary source of its R&D activity. If the majority of a company's payroll shifts to an activity other than an R&D-related activity, for example, trade, the classification of its R&D similarly shifts to the new activity. Further, the design of the statistical sample sometimes contributes to large year-to-year changes in industry estimates. Relatively few companies perform R&D, and there is no national register of industrial R&D performers; thus, a large statistical “net” must be cast to capture new R&D performers. When these companies are sampled for the first time, they are often given weights much higher than they would be given if the size and the amount of R&D they perform were known at the time of sampling. After the size of the company and the amount of R&D performed are discovered via the first survey, the weight assigned for subsequent surveys is adjusted. The method used to classify firms during survey processing was revised slightly in 1992. The effect of the changes, which research has shown was minor, is discussed in detail in U.S. Bureau of the Census 1994a and 1994e. The current method used to classify firms was discussed previously under “Frame Creation and Industry Classification,” above. Methods used for past surveys are discussed in U.S. Bureau of the Census 1995.

Capturing Small and Nonmanufacturing R&D Performers

Until the 1967 cycle of the survey, the sample was selected at irregular intervals; after 1967, samples were selected approximately every 5 years for 1971, 1976, 1981, and 1987. In intervening years, a panel of the largest firms known to perform R&D was surveyed. For example, a sample of about 14,000 firms was selected for the 1987 survey. For the 1988–91 studies, about 1,700 of these firms were resurveyed annually; the other firms did not receive survey questionnaires, and their R&D data were estimated. This sample design was adequate during the survey's early years because R&D performance was concentrated in relatively few manufacturing industries. However, as more and more firms began entering the R&D arena, the old sample design proved increasingly inefficient because it did not capture births of new R&D-performing firms. The entry of fledgling R&D performers into the marketplace was completely missed during panel years. Additionally, beginning in the early 1970s, the need for more detailed R&D information for nonmanufacturing industries was recognized. At that time, the broad industry classifications “miscellaneous business services” and “miscellaneous

services” were added to the list of industry groups for which statistics were published. By 1975, about 3% of total R&D was performed by firms in nonmanufacturing industries. (NSF 1994a, 1995a, and 1996a.)

During the mid-1980s there was evidence that a significant amount of R&D was being conducted by an increasing number of companies classified among the nonmanufacturing industries. Again, the number of industries used to develop the statistics for nonmanufacturing was increased. Consequently, the annual reports in this series for 1987–91 included separate R&D estimates for firms in the communication, utility, engineering, architectural, research, development, testing, computer programming, and data processing service industries; hospitals; and medical labs. Approximately 9% of the estimated industrial R&D performance during 1987 was undertaken by nonmanufacturing firms.

After the list of industries for which statistics were published was expanded, it became clear that the sample design itself should be changed to reflect the widening population of R&D performers among firms in the nonmanufacturing industries (NSF 1995a) and small firms in all industries so as to account better for births of R&D-performing firms and to produce more reliable statistics. Beginning with the 1992 survey, NSF decided to (1) draw new samples with broader coverage annually and (2) increase the sample size to approximately 25,000 firms.[7] As a result of the sample redesign, for 1992 the reported nonmanufacturing share was (and has continued to be) 25%–30% of total R&D (NSF 1997a, 1998a, 1999a, 2000a, 2001a, 2002a, 2003b, 2004, 2005a, 2006a, 2007c, and 2008a).

Time-Series Analyses

The statistics resulting from this survey are better indicators of changes in, rather than absolute levels of, R&D spending and personnel. In spite of that, the statistics are often used as if they were prepared using the same collection, processing, and tabulation methods over time for longitudinal analyses. Such uniformity has not been the case. Since the survey was first fielded, improvements have been made to increase the reliability of the statistics and to make the survey results more useful. To that end, past practices have been changed and new procedures instituted. Preservation of the comparability of the statistics has, however, been an important consideration in making these improvements. Nonetheless, changes to survey definitions, the industry classification system, and the procedure used to assign industry codes to multiestablishment companies have had some, though not substantial, effects on the comparability of statistics. For discussions of each of these changes, see U.S. Bureau of the Census 1994g; for considerations of comparability, see U.S. Bureau of the Census 1993 and 1994e.

The aspect of the survey that had the greatest effect on comparability was the selection of samples at irregular intervals and the use of a subset or panel of the last sample drawn to develop statistics for intervening years. As discussed earlier, this practice introduced cyclical deterioration of the statistics. As compensation for this deterioration, periodic revisions were made to the statistics produced from the panels surveyed between sample years. Early in the survey's history, various methods were used to make these revisions (U.S. Bureau of the Census 1995). After 1976 and until the 1992 advent of annual sampling, a linking procedure called wedging was used. In wedging, the two sample years on each end of a series of estimates served as benchmarks in the algorithms used to adjust the estimates for the intervening years. The process was dubbed wedging because of the wedgelike area produced on a graph that compares originally reported statistics with the revised statistics that resulted after linking. For a full discussion of the mathematical algorithm used for the wedging process that linked statistics from the 1992 survey with those from the 1987 survey, see U.S. Bureau of the Census 1994g and NSF 1995b.

Comparisons to Other Statistical Series

NSF collects data on federally financed R&D from both federal funding agencies, using the Survey of Federal Funds for Research and Development, and from performers of the

R&D—industry, federally funded research and development centers, universities, and other nonprofit organizations—using the Survey of Industrial Research and Development and other surveys (<http://www.nsf.gov/statistics/survey.cfm>). NSF publishes data on federal R&D budget authority and outlays, in addition to federal obligations, all supplied by federal agencies. These terms are defined below (NSF 2008b):

- *Budget authority* is the primary source of legal authorization to enter into obligations that will result in outlays. Budget authority is most commonly granted in the form of appropriations by the congressional committees assigned to determine the budget for each function.
- *Obligations* represent the amounts for orders placed, contracts awarded, services received, and similar transactions during a given period, regardless of when the funds were appropriated or when future payment of money is required.
- *Outlays* represent the amounts for checks issued and cash payments made during a given period, regardless of when the funds were appropriated or obligated.

National R&D expenditure totals in NSF's *National Patterns of R&D Resources* report series are primarily constructed with data reported by performers and include estimates of federal R&D funding to these sectors. But until performer-reported survey data on federal R&D expenditures are available from industry and academia, data collected from the federal agency funders of R&D are used to project R&D performance. When survey data from the performers subsequently are tabulated, as they were for this report, these statistics replace the projections. Until the mid-1990s, the two survey systems tracked fairly closely. For example, in 1980, performers reported using \$29.5 billion in federal R&D funding, and federal agencies reported total R&D funding between \$29.2 billion in outlays and \$29.8 billion in obligations (NSF 1996b). However, since the mid-1990s, the two series have diverged considerably. The difference in the federal R&D totals appears to be concentrated in funding of industry, primarily aircraft and missile firms, by the Department of Defense. Overall, industrial firms have reported significant declines in federal R&D support since 1990 (table 2), whereas federal agencies have reported level or slightly increased funding of industrial R&D (NSF 2006b, 2007b, and 2008c). NSF continues to identify and examine the factors behind these divergent trends.

Survey Definitions

Employment, FTE R&D scientists and engineers. Number of people employed in the 50 U.S. states and DC by R&D-performing companies who were engaged in scientific or engineering work at a level that required knowledge, gained either formally or by experience, of engineering or of the physical, biological, mathematical, statistical, or computer sciences equivalent to at least that acquired through completion of a 4-year college program with a major in one of those fields. The statistics show full-time-equivalent (FTE) employment of persons employed by the company during the January following the survey year who were assigned full time to R&D, plus a prorated number of employees who worked on R&D only part of the time.

Employment, total. Number of people employed in the 50 U.S. states and DC by R&D-performing companies in all activities during the pay period that included the 12th of March of the study year (March 12 is the date most employers use when paying first quarter employment taxes to the Internal Revenue Service).

Federally funded R&D centers (FFRDCs). R&D-performing organizations administered by industrial, academic, or other institutions on a nonprofit basis and exclusively or substantially financed by the federal government. To avoid the possibility of disclosing company-specific information and therefore violating the confidentiality provisions of Title 13 of the United States Code, beginning in 2001 data for industry-administered FFRDCs are now collected through NSF's annual academic R&D expenditure survey, the Survey of Research and Development Expenditures at Universities and Colleges, as are data from FFRDCs

administered by academic institutions and nonprofit organizations. More information about this survey is available from NSF's Division of Science Resources Statistics website at <http://www.nsf.gov/statistics/rdexpenditures/>. For current lists of FFRDCs, visit <http://www.nsf.gov/statistics/ffrdc/>.

Funds for R&D, company and other nonfederal. The cost of R&D performed within the company and funded by the company itself or by other nonfederal sources in the 50 U.S. states and DC; does not include the cost of R&D funded by the company but contracted to outside organizations, such as research institutions, universities and colleges, nonprofit organizations, or—to avoid double counting—other companies.

Funds for R&D, federal. The cost of R&D performed within the company in the 50 U.S. states and DC funded by federal R&D contracts, subcontracts, R&D portions of federal procurement contracts and subcontracts, grants, or other arrangements; does not include the cost of R&D supported by the federal government but contracted to outside organizations, such as research institutions, universities and colleges, nonprofit organizations, or other companies.

Funds for R&D, total. The cost of R&D performed within the company in its own laboratories or in other company-owned or company-operated facilities in the 50 U.S. states and DC, including expenses for wages and salaries, fringe benefits for R&D personnel, materials and supplies, property and other taxes, maintenance and repairs, depreciation, and an appropriate share of overhead; does not include capital expenditures or the cost of R&D contracted to outside organizations, such as research institutions, universities and colleges, nonprofit organizations, or—to avoid double-counting—other companies.

Funds per R&D scientist or engineer. All costs associated with the performance of industrial R&D (salaries, wages, and fringe benefits paid to R&D personnel; materials and supplies used for R&D; depreciation on capital equipment and facilities used for R&D; and any other R&D costs) divided by the number of R&D scientists and engineers employed in the 50 U.S. states and DC. To obtain a per person cost of R&D for a given year, the total R&D expenditures of that year were divided by an estimate of the number of full-time-equivalent (FTE) scientists and engineers engaged in the performance of R&D for that year. For accuracy, this estimate was the mean of the number of FTE R&D-performing scientists and engineers reported in January for the year in question and in January of the subsequent year.

Net sales and receipts. Dollar values for goods sold or services rendered by R&D-performing companies to customers outside the company, including the federal government, less such items as returns, allowances, freight, charges, and excise taxes. Domestic intracompany transfers and sales by foreign subsidiaries were excluded, but transfers to foreign subsidiaries and export sales to foreign companies were included.

R&D and industrial R&D. R&D is the planned, systematic pursuit of new knowledge or understanding toward general application (basic research); the acquisition of knowledge or understanding to meet a specific, recognized need (applied research); or the application of knowledge or understanding toward the production or improvement of a product, service, process, or method (development). *Basic research* analyzes properties, structures, and relationships toward formulating and testing hypotheses, theories, or laws; *applied research* is undertaken either to determine possible uses for the findings of basic research or to determine new ways of achieving specific, predetermined objectives; and *development* draws on research findings or other scientific knowledge for the purpose of producing new or significantly improving products, services, processes, or methods. As used in this survey, industrial *basic research* is the pursuit of new scientific knowledge or understanding that does not have specific immediate commercial objectives, although it may be in fields of present or potential commercial interest; industrial *applied research* is investigation that may

use findings of basic research toward discovering new scientific knowledge that has specific commercial objectives with respect to new products, services, processes, or methods; and industrial *development* is the systematic use of the knowledge or understanding gained from research or practical experience directed toward the production or significant improvement of useful products, services, processes, or methods, including the design and development of prototypes, materials, devices, and systems. The survey covers industrial R&D performed by people trained, either formally or by experience, in engineering or in the physical, biological, mathematical, statistical, or computer sciences and employed by a publicly or privately owned firm engaged in for-profit activity in the United States. Specifically excluded from the survey are quality control, routine product testing, market research, sales promotion, sales service, and other nontechnological activities; routine technical services; and research in the social sciences or psychology.

Notes

[1] In the Survey of Industrial Research and Development and in the publications presenting statistics resulting from the survey, the terms *firm*, *company*, and *enterprise* are used interchangeably. *Industry* refers to the 2-, 3-, or 4-digit North American Industry Classification System (NAICS) codes or group of NAICS codes used to publish statistics resulting from the survey.

[2] The 1999 survey was the first in which companies were classified using NAICS. Prior to 1999, the Standard Industrial Classification (SIC) system was used. The two systems are discussed later under Comparability of Statistics.

[3] Form RD-1 is a revised version of the Form RD-1L, formerly used to collect data from large R&D performers for odd-numbered years. For even-numbered years, an abbreviated questionnaire, Form RD-1S was used. Beginning in 1998 the Form RD-1L was streamlined, renamed Form RD-1, and the odd/even-numbered year cycle abandoned.

[4] For detailed discussions on the sources, control, and measurement of error resulting from item nonresponse, see U.S. Bureau of the Census 1994b.

[5] For detailed descriptions and analyses of the imputation methods and algorithms used, see U.S. Bureau of the Census 1994c.

[6] For a detailed comparison of naics to the Standard Industrial Classification (1987) of the United States, visit <http://www.census.gov/epcd/www/naics.html>.

[7] Annual sampling also remedies the cyclical deterioration of the statistics that results from changes in a company's payroll composition because of product line and corporate structural changes.

Table **Technical Tables**

- A-1 Companies in the target population and selected for the sample, by industry and company size: 2005
- A-2 Relative standard error for survey estimates, by industry and company size: 2005
- A-3 Relative standard error for estimates of all R&D and percentage of estimates attributed to certainty companies, by state: 2005
- A-4 Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005
- A-5 Imputation rates for survey items, by industry and company size: 2005

- A-6 R&D-performing companies that reported nonzero data for major survey items: 2005
- A-7 Funds for and number of companies performing industrial basic research, applied research, and development in the United States and funds, by industry and company size, by source of funds: 2005

TABLE A-1. Companies in the target population and selected for the sample, by industry and company size: 2005

Industry and company size	NAICS codes	Companies in target population	Companies selected for the sample			Companies with imputed R&D expenditures	
			All companies	Noncertainties	Certainties	Greater than or equal to \$3 million	Less than \$3 million
All industries	21–23, 31–33, 42, 44–81	2,060,803	32,000	18,686	13,314	466	92
Manufacturing industries	31–33	170,165	12,531	6,163	6,368	195	23
Food	311	12,846	645	261	384	3	0
Beverage and tobacco products	312	1,372	154	85	69	0	0
Textiles, apparel, and leather	313–16	11,125	436	224	212	2	0
Wood products	321	8,966	327	202	125	0	0
Paper, printing, and support activities	322, 323	19,324	548	312	236	0	0
Petroleum and coal products	324	551	123	27	96	1	0
Chemicals	325	5,673	1,179	395	784	26	2
Basic chemicals	3251	707	203	48	155	7	2
Resin, synthetic rubber, fibers, and filament	3252	396	155	48	107	3	0
Pharmaceuticals and medicines	3254	891	297	97	200	14	0
Other chemicals	other 325	3,679	524	202	322	2	0
Plastics and rubber products	326	7,956	637	243	394	4	1
Nonmetallic mineral products	327	6,841	344	180	164	2	2
Primary metals	331	2,826	296	128	168	3	0
Fabricated metal products	332	32,770	971	513	458	6	2
Machinery	333	15,387	1,934	1,260	674	23	6
Computer and electronic products	334	8,120	1,906	797	1,109	81	3
Computers and peripheral equipment	3341	766	226	76	150	5	0
Communications equipment	3342	1,072	349	123	226	28	0
Semiconductor and other electronic components	3344	2,945	557	294	263	14	1
Navigational, measuring, electromedical, and control instruments	3345	2,629	633	266	367	30	2
Other computer and electronic products	other 334	708	141	38	103	4	0
Electrical equipment, appliances, and components	335	3,278	579	305	274	12	0
Transportation equipment	336	6,505	1,057	516	541	13	1
Motor vehicles, trailers, and parts	3361–63	4,260	674	386	288	9	1
Aerospace products and parts	3364	822	191	67	124	4	0
Other transportation equipment	other 336	1,423	192	63	129	0	0
Furniture and related products	337	10,634	390	234	156	1	1
Miscellaneous manufacturing	339	14,514	892	418	474	18	5
Medical equipment and supplies	3391	4,886	419	165	254	15	1
Other miscellaneous manufacturing	other 339	9,628	473	253	220	3	4
Unclassified		1,477	113	63	50	0	0

TABLE A-1. Companies in the target population and selected for the sample, by industry and company size: 2005

Industry and company size	NAICS codes	Companies in target population	Companies selected for the sample			Companies with imputed R&D expenditures	
			All companies	Noncertainties	Certainties	Greater than or equal to \$3 million	Less than \$3 million
Nonmanufacturing industries	21–23, 42, 44–81	1,890,638	19,469	12,523	6,946	271	69
Mining, extraction, and support activities	21	7,487	289	167	122	2	0
Utilities	22	1,504	151	54	97	0	0
Construction	23	257,837	1,408	1,091	317	1	0
Wholesale trade	42	139,600	3,175	2,084	1,091	41	4
Retail trade	44, 45	293,452	1,507	1,248	259	5	0
Transportation and warehousing	48, 49	55,532	411	236	175	0	0
Information	51	27,990	1,685	835	850	66	13
Publishing	511	10,550	978	478	500	49	9
Newspaper, periodical, book, and directory	5111	7,198	224	136	88	1	0
Software	5112	3,352	754	342	412	48	9
Telecommunications	517	3,903	227	113	114	4	2
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	2,210	140	74	66	3	2
Satellite telecommunications	5174	183	16	7	9	0	0
Other telecommunications	other 517	1,510	71	32	39	1	0
Internet service providers, Web search portals, and data-processing services	518	4,696	234	95	139	11	2
Internet service providers and Web search portals	5181	1,505	42	20	22	2	0
Data-processing, hosting, and related services	5182	3,191	192	75	117	9	2
Other information	other 51	8,841	246	149	97	2	0
Finance, insurance, and real estate	52, 53	132,924	1,000	585	415	16	1
Professional, scientific, and technical services	54	200,429	4,907	2,889	2,018	106	47
Architectural, engineering, and related services	5413	35,438	629	345	284	11	8
Computer systems design and related services	5415	21,156	2,101	1,591	510	28	21
Scientific R&D services	5417	4,112	1,267	361	906	64	18
Other professional, scientific, and technical services	other 54	139,723	910	592	318	3	0
Health care services	621–23	213,543	1,327	921	406	1	2
Other nonmanufacturing ^a	56, 61, 624, 71, 72, 81	556,383	3,532	2,386	1,146	33	2
Unclassified		3,957	77	27	50	0	0

TABLE A-1. Companies in the target population and selected for the sample, by industry and company size: 2005

			Companies selected for the sample			Companies with imputed R&D expenditures	
Industry and company size	NAICS codes	Companies in target population	All companies	Noncertainties	Certainties	Greater than or equal to \$3 million	Less than \$3 million
Company size (employees)							
All companies	-	2,060,803	32,000	18,686	13,314	466	92
5–24	-	1,627,954	11,000	10,373	627	11	8
25–49	-	237,092	4,440	3,383	1,057	12	13
50–99	-	110,033	4,594	2,623	1,971	65	22
100–249	-	56,731	5,230	1,692	3,538	107	25
250–499	-	15,375	2,643	373	2,270	65	14
500–999	-	6,747	1,626	144	1,482	59	1
1,000–4,999	-	5,320	1,775	86	1,689	107	8
5,000–9,999	-	762	319	8	311	15	0
10,000–24,999	-	473	222	2	220	17	0
25,000 or more	-	316	151	2	149	8	1

- = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: Certainties are companies whose probability of selection is one based on prior-year R&D expenditures equal to or greater than \$3 million as well as others included in the sample for analytical purposes (analytical certainties). Noncertainties are companies whose probability of selection is less than one. Companies that were missing or had an incomplete North American Industry Classification System (NAICS) codes at the time of sampling were assigned to an "unclassified" industry category temporarily. If an unclassified company reported R&D expenditures, its primary industrial activity was investigated and a NAICS code was assigned during statistical processing. The total number of "companies selected for the sample" is larger than the number of "companies receiving a questionnaire" in table A-4 because some companies selected for the survey went out of business or were merged with other companies during the time between sample selection and survey mailout; that is, the sample was updated before actual mailout took place. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	All R&D			Basic research		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded
All industries	21–23, 31–33, 42, 44–81	0.8	0.8	1.2	2.2	2.2	7.7
Manufacturing industries	31–33	0.6	0.7	0.5	3.3	3.3	14.5
Food	311	3.9	3.9	0.0	0.9	0.9	0.0
Beverage and tobacco products	312	0.0	0.0	0.0	0.1	0.1	0.0
Textiles, apparel, and leather	312	21.7	21.8	44.0	25.0	25.0	0.0
Wood products	312	15.1	15.1	0.0	3.1	3.1	0.0
Paper, printing, and support activities	312	0.8	0.8	0.0	9.9	9.9	0.0
Petroleum and coal products	312	0.1	0.1	0.0	0.9	0.9	0.0
Chemicals	312	0.6	0.6	1.5	1.1	1.1	3.7
Basic chemicals	312	2.7	2.9	0.0	0.2	0.2	0.0
Resin, synthetic rubber, fibers, and filament	312	0.1	0.1	3.8	0.3	0.0	73.6
Pharmaceuticals and medicines	312	0.7	0.7	6.0	0.1	0.1	0.2
Other chemicals	312	2.2	2.2	0.4	5.4	5.4	0.0
Plastics and rubber products	312	4.9	4.9	0.0	2.7	2.7	0.0
Nonmetallic mineral products	312	2.8	2.8	0.0	4.2	4.2	0.0
Primary metals	312	3.2	3.3	0.0	10.9	10.9	0.0
Fabricated metal products	312	7.0	7.2	0.2	3.2	3.2	0.0
Machinery	312	0.8	0.9	1.5	14.4	14.7	4.5
Computer and electronic products	312	1.8	2.1	0.7	5.9	5.1	23.3
Computers and peripheral equipment	312	1.3	1.3	0.0	0.4	0.4	0.0
Communications equipment	312	0.3	0.2	9.0	1.2	1.2	0.0
Semiconductor and other electronic components	312	4.7	4.8	31.1	2.1	0.5	45.6
Navigational, measuring, electromedical, and control instruments	3345	0.3	0.5	0.4	12.1	1.9	26.0
Other computer and electronic products	other 334	2.7	1.9	86.2	5.4	1.9	191.3
Electrical equipment, appliances, and components	335	1.4	1.0	21.7	1.7	1.7	4.5
Transportation equipment	336	0.1	0.1	0.2	0.4	0.4	1.5
Motor vehicles, trailers, and parts	3361–63	0.1	0.1	0.9	0.9	0.8	9.3
Aerospace products and parts	3364	0.2	0.3	0.0	0.0	0.0	0.0
Other transportation equipment	other 336	0.3	0.6	0.4	4.0	4.7	5.7
Furniture and related products	337	2.7	2.7	91.6	35.0	35.0	0.0
Miscellaneous manufacturing	339	2.4	2.3	54.0	13.8	3.4	87.1
Medical equipment and supplies	3391	2.5	2.5	10.2	4.1	3.4	60.2
Other miscellaneous manufacturing	other 339	7.0	3.9	86.8	82.6	0.8	95.0

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	All R&D			Basic research		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded
Nonmanufacturing industries	21–23, 42, 44–81	2.1	2.3	4.2	3.8	4.2	7.9
Mining, extraction, and support activities	21	0.3	0.3	0.0	0.0	0.0	0.0
Utilities	22	10.6	12.4	0.0	0.5	0.5	0.0
Construction	23	8.9	7.1	79.3	1.5	1.5	0.9
Wholesale trade	42	6.8	6.8	51.9	35.3	37.2	79.8
Retail trade	44, 45	5.2	5.2	0.0	33.5	33.5	0.0
Transportation and warehousing	48, 49	0.1	0.1	0.0	0.6	0.6	0.0
Information	51	0.9	0.8	23.5	8.0	8.2	24.3
Publishing	511	0.5	0.5	38.5	2.4	1.7	24.3
Newspaper, periodical, book, and directory	5111	2.4	0.6	70.7	75.8	75.8	0.0
Software	5112	0.5	0.5	39.3	2.2	1.4	24.3
Telecommunications	517	0.7	0.7	0.0	8.0	8.0	0.0
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	0.5	0.5	0.0	0.0	0.0	0.0
Satellite telecommunications	5174	96.9	96.9	0.0	0.0	0.0	0.0
Other telecommunications	other 517	3.9	3.9	0.0	1.2	1.2	0.0
Internet service providers, Web search portals, and data-processing services	518	5.5	5.2	29.0	56.2	56.2	0.0
Internet service providers and Web search portals	5181	11.4	11.4	0.0	0.0	0.0	0.0
Data-processing, hosting, and related services	5182	6.1	5.4	29.0	55.6	55.6	0.0
Other information	other 51	1.4	1.4	0.0	0.6	0.6	0.0
Finance, insurance, and real estate	52, 53	38.0	38.0	0.0	6.2	6.2	0.0
Professional, scientific, and technical services	54	2.3	2.7	4.2	4.8	5.7	8.0
Architectural, engineering, and related services	5413	4.9	8.8	3.4	17.3	31.8	10.6
Computer systems design and related services	5415	3.6	3.7	15.0	3.1	3.1	13.4
Scientific R&D services	5417	2.7	2.8	7.6	5.9	7.2	9.5
Other professional, scientific, and technical services	other 54	26.7	31.8	0.0	3.2	4.4	0.0
Health care services	621–23	6.1	6.1	0.0	32.6	35.6	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	16.6	16.9	86.0	13.4	14.5	0.0

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

		All R&D			Basic research		
Industry and company size	NAICS codes	Total	Company funded	Federally funded	Total	Company funded	Federally funded
Company size (employees)							
All companies	-	0.8	0.8	1.2	2.2	2.2	7.7
5–24	-	9.7	11.0	15.5	16.2	15.6	24.2
25–49	-	13.6	14.8	17.6	21.0	21.4	42.1
50–99	-	4.1	3.7	26.4	12.8	13.9	31.8
100–249	-	2.4	2.6	7.1	3.3	3.4	3.3
250–499	-	0.6	0.6	4.2	0.3	0.3	0.0
500–999	-	7.9	8.5	0.3	0.8	1.0	0.0
1,000–4,999	-	1.0	1.1	0.0	0.2	0.2	0.0
5,000–9,999	-	0.0	0.0	0.0	0.0	0.0	0.0
10,000–24,999	-	0.0	0.0	0.0	0.0	0.0	0.0
25,000 or more	-	0.0	0.0	0.0	0.0	0.0	0.0

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Applied research			Development		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded
All industries	21–23, 31–33, 42, 44–81	2.3	2.6	3.8	2.5	2.7	1.3
Manufacturing industries	31–33	3.1	3.4	1.1	3.1	3.5	0.5
Food	311	19.1	19.3	0.0	1.5	1.5	0.0
Beverage and tobacco products	312	0.1	0.1	0.0	0.1	0.1	0.0
Textiles, apparel, and leather	313–16	11.6	11.7	51.8	23.9	24.0	0.0
Wood products	321	0.7	0.7	0.0	23.4	23.4	0.0
Paper, printing, and support activities	322, 323	4.2	4.2	0.0	1.8	1.8	0.0
Petroleum and coal products	324	0.0	0.0	0.0	0.2	0.2	0.0
Chemicals	325	2.4	2.4	0.1	0.3	0.3	4.0
Basic chemicals	3251	0.3	0.3	0.0	4.6	4.7	0.0
Resin, synthetic rubber, fibers, and filament	3252	0.1	0.1	0.8	0.1	0.1	2.2
Pharmaceuticals and medicines	3254	2.9	2.9	0.2	0.1	0.1	19.1
Other chemicals	other 325	6.7	6.7	2.4	0.8	0.8	0.0
Plastics and rubber products	326	3.1	3.2	0.0	6.5	6.5	0.0
Nonmetallic mineral products	327	4.7	4.7	0.0	3.9	4.0	0.0
Primary metals	331	6.9	6.9	0.0	2.0	2.1	0.0
Fabricated metal products	332	14.2	14.7	0.1	8.2	8.5	0.3
Machinery	333	1.3	1.3	0.0	1.0	1.0	2.4
Computer and electronic products	334	4.2	4.4	4.9	4.3	5.2	0.8
Computers and peripheral equipment	3341	0.6	0.6	0.0	1.5	1.5	0.0
Communications equipment	3342	0.5	0.5	2.1	0.3	0.2	11.8
Semiconductor and other electronic components	3344	0.9	0.8	51.3	6.8	6.8	28.2
Navigational, measuring, electromedical, and control instruments	3345	1.0	1.1	2.3	0.5	0.5	0.8
Other computer and electronic products	other 334	13.8	2.0	95.8	1.9	1.9	191.3
Electrical equipment, appliances, and components	335	2.6	2.6	29.1	1.5	1.0	23.1
Transportation equipment	336	0.2	0.3	0.1	0.1	0.1	0.3
Motor vehicles, trailers, and parts	3361–63	0.2	0.2	0.3	0.1	0.1	0.8
Aerospace products and parts	3364	0.3	0.8	0.0	0.3	0.3	0.0
Other transportation equipment	other 336	2.9	3.3	5.7	0.4	0.4	0.5
Furniture and related products	337	9.8	9.8	0.0	2.7	2.7	91.7
Miscellaneous manufacturing	339	9.1	9.1	36.2	1.8	1.9	8.8
Medical equipment and supplies	3391	9.8	9.8	26.2	2.0	2.0	2.0
Other miscellaneous manufacturing	other 339	6.9	2.1	93.2	4.4	4.4	47.3

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Applied research			Development		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded
Nonmanufacturing industries	21–23, 42, 44–81	3.7	4.3	7.5	4.6	4.8	6.5
Mining, extraction, and support activities	21	0.4	0.4	0.0	0.3	0.3	0.0
Utilities	22	37.2	40.8	0.0	0.4	0.5	0.0
Construction	23	1.2	1.2	0.9	31.6	26.7	96.3
Wholesale trade	42	9.6	8.5	59.9	7.5	7.6	61.4
Retail trade	44, 45	11.1	11.1	0.0	5.0	5.0	0.0
Transportation and warehousing	48, 49	0.1	0.1	0.0	0.0	0.0	0.0
Information	51	9.9	10.0	58.3	10.4	10.5	15.3
Publishing	511	1.7	1.4	69.1	0.6	0.6	35.6
Newspaper, periodical, book, and directory	5111	57.7	5.4	99.1	0.5	0.5	0.0
Software	5112	1.4	1.4	41.6	0.6	0.6	49.2
Telecommunications	517	6.8	6.8	0.0	4.9	4.9	0.0
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	0.0	0.0	0.0	0.7	0.7	0.0
Satellite telecommunications	5174	98.9	98.9	0.0	94.8	94.8	0.0
Other telecommunications	other 517	1.6	1.6	0.0	4.4	4.4	0.0
Internet service providers, Web search portals, and data-processing services	518	35.8	36.5	97.8	6.3	6.4	17.0
Internet service providers and Web search portals	5181	80.7	80.7	0.0	1.3	1.3	0.0
Data-processing, hosting, and related services	5182	22.3	16.4	97.8	5.0	5.0	17.0
Other information	other 51	0.6	0.6	0.0	2.6	2.6	0.0
Finance, insurance, and real estate	52, 53	6.2	6.2	0.0	39.4	39.4	0.0
Professional, scientific, and technical services	54	4.4	5.4	7.6	2.8	3.1	6.5
Architectural, engineering, and related services	5413	10.7	8.7	12.6	8.1	10.3	11.0
Computer systems design and related services	5415	12.6	14.1	19.6	3.4	3.4	14.1
Scientific R&D services	5417	4.8	5.7	8.4	3.4	3.3	10.7
Other professional, scientific, and technical services	other 54	25.8	29.6	0.0	30.1	35.8	0.0
Health care services	621–23	0.4	0.4	0.0	6.8	6.8	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	44.0	44.5	23.1	16.6	16.8	90.9

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

		Applied research			Development		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded
Industry and company size	NAICS codes						
Company size (employees)							
All companies	-	2.3	2.6	3.8	2.5	2.7	1.3
5–24	-	13.8	15.6	18.4	15.9	18.0	21.8
25–49	-	17.1	19.9	27.1	18.3	19.1	17.5
50–99	-	6.5	6.5	22.4	4.8	4.8	27.0
100–249	-	2.0	2.3	1.5	3.2	3.3	11.8
250–499	-	0.5	0.5	0.9	0.8	0.7	6.5
500–999	-	0.4	0.5	0.0	11.2	11.7	0.5
1,000–4,999	-	0.2	0.2	0.0	1.4	1.4	0.0
5,000–9,999	-	0.0	0.0	0.0	0.0	0.0	0.0
10,000–24,999	-	0.0	0.0	0.0	0.0	0.0	0.0
25,000 or more	-	0.0	0.0	0.0	0.0	0.0	0.0

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	R&D performed by other organizations			Company-funded R&D projected for next year		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded
All industries	21–23, 31–33, 42, 44–81	2.0	2.1	1.6	0.8	0.8	1.3
Manufacturing industries	31–33	2.4	2.5	1.5	0.6	0.7	0.5
Food	311	1.7	1.7	0.0	4.4	4.4	0.0
Beverage and tobacco products	312	0.0	0.0	0.0	0.0	0.0	0.0
Textiles, apparel, and leather	313–16	41.1	41.3	0.0	15.7	15.7	2.7
Wood products	321	4.7	4.7	0.0	14.7	14.7	0.0
Paper, printing, and support activities	322, 323	0.0	0.0	0.0	0.8	0.8	0.0
Petroleum and coal products	324	0.3	0.3	0.0	0.1	0.1	0.0
Chemicals	325	4.3	4.3	17.9	0.8	0.8	1.8
Basic chemicals	3251	19.3	20.3	0.0	2.7	2.8	0.0
Resin, synthetic rubber, fibers, and filament	3252	0.4	0.4	16.9	0.1	0.1	2.6
Pharmaceuticals and medicines	3254	4.6	4.6	39.8	0.9	0.9	6.7
Other chemicals	other 325	0.9	0.9	0.0	2.4	2.4	1.3
Plastics and rubber products	326	0.4	0.4	0.0	4.8	4.8	0.0
Nonmetallic mineral products	327	11.6	11.6	0.0	2.1	2.1	0.0
Primary metals	331	0.7	0.7	0.0	2.1	2.1	0.0
Fabricated metal products	332	10.6	10.6	0.0	7.0	7.2	0.2
Machinery	333	2.7	2.8	0.0	0.6	0.6	4.2
Computer and electronic products	334	1.2	1.3	2.4	1.7	2.0	0.9
Computers and peripheral equipment	3341	1.0	1.1	0.0	1.2	1.2	0.0
Communications equipment	3342	4.0	4.0	0.0	0.2	0.2	0.0
Semiconductor and other electronic components	3344	5.8	5.9	0.0	4.3	4.3	37.9
Navigational, measuring, electromedical, and control instruments	3345	0.6	0.7	1.4	0.3	0.5	0.4
Other computer and electronic products	other 334	19.2	10.3	68.2	2.8	1.8	89.5
Electrical equipment, appliances, and components	335	20.8	9.6	83.6	1.2	1.1	22.2
Transportation equipment	336	3.2	3.8	0.0	0.1	0.2	0.1
Motor vehicles, trailers, and parts	3361–63	0.0	0.0	0.0	0.1	0.1	2.8
Aerospace products and parts	3364	8.5	13.7	0.0	0.3	0.4	0.0
Other transportation equipment	other 336	6.8	10.0	0.0	0.3	0.6	0.3
Furniture and related products	337	16.4	14.8	91.6	1.8	1.8	0.0
Miscellaneous manufacturing	339	4.5	4.6	11.0	2.2	2.0	51.9
Medical equipment and supplies	3391	4.8	4.9	11.1	2.3	2.3	25.4
Other miscellaneous manufacturing	other 339	12.3	12.3	70.3	6.7	3.3	88.8

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	R&D performed by other organizations			Company-funded R&D projected for next year		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded
Nonmanufacturing industries	21–23, 42, 44–81	3.5	3.8	3.3	2.1	2.2	4.3
Mining, extraction, and support activities	21	0.2	0.2	0.0	0.4	0.4	0.0
Utilities	22	36.8	38.3	0.0	2.4	2.7	0.0
Construction	23	0.0	0.0	0.0	8.4	6.2	85.1
Wholesale trade	42	3.4	3.4	52.0	6.5	6.5	52.2
Retail trade	44, 45	1.1	1.1	0.0	4.8	4.8	0.0
Transportation and warehousing	48, 49	0.0	0.0	0.0	0.1	0.1	0.0
Information	51	4.0	4.0	69.6	0.8	0.8	25.3
Publishing	511	4.3	4.3	69.6	0.8	0.8	43.2
Newspaper, periodical, book, and directory	5111	0.0	0.0	0.0	2.9	0.8	71.5
Software	5112	5.0	5.0	69.6	0.8	0.8	51.9
Telecommunications	517	5.7	5.7	0.0	0.5	0.5	0.0
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	0.0	0.0	0.0	0.3	0.3	0.0
Satellite telecommunications	5174	96.4	96.4	0.0	97.2	97.2	0.0
Other telecommunications	other 517	0.0	0.0	0.0	5.1	5.1	0.0
Internet service providers, Web search portals, and data-processing services	518	9.9	9.9	0.0	4.5	4.1	30.9
Internet service providers and Web search portals	5181	59.1	59.1	0.0	5.5	5.5	0.0
Data-processing, hosting, and related services	5182	6.4	6.4	0.0	6.1	5.5	30.9
Other information	other 51	0.0	0.0	0.0	1.6	1.6	0.0
Finance, insurance, and real estate	52, 53	5.4	5.4	0.0	39.3	39.3	0.0
Professional, scientific, and technical services	54	5.4	6.4	3.4	2.3	2.7	4.2
Architectural, engineering, and related services	5413	3.1	0.0	4.0	4.7	8.4	2.7
Computer systems design and related services	5415	13.0	14.6	1.6	3.6	3.7	16.6
Scientific R&D services	5417	7.2	7.8	8.8	3.3	3.8	7.9
Other professional, scientific, and technical services	other 54	15.0	15.8	0.0	24.2	29.4	0.0
Health care services	621–23	0.0	0.0	0.0	6.1	6.2	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	0.0	0.0	0.0	17.8	18.2	83.8

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

		R&D performed by other organizations			Company-funded R&D projected for next year		
Industry and company size	NAICS codes	Total	Company funded	Federally funded	Total	Company funded	Federally funded
Company size (employees)							
All companies	-	2.0	2.1	1.6	0.8	0.8	1.3
5–24	-	22.5	24.4	27.9	9.5	10.6	16.4
25–49	-	31.3	32.5	31.0	13.4	14.4	16.1
50–99	-	6.2	6.5	3.6	4.0	3.8	26.4
100–249	-	2.1	2.2	0.4	2.1	2.1	8.4
250–499	-	0.6	0.7	0.0	0.6	0.6	0.6
500–999	-	0.3	0.3	0.0	7.6	8.0	0.3
1,000–4,999	-	0.7	0.7	0.0	1.0	1.0	0.0
5,000–9,999	-	3.4	3.5	0.0	0.0	0.0	0.0
10,000–24,999	-	0.0	0.0	0.0	0.0	0.0	0.0
25,000 or more	-	0.0	0.0	0.0	0.0	0.0	0.0

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Sales	Domestic employment	R&D area				
				Biotechnology	Software development	Materials synthesis and processing	Other areas	Percentage of nanotechnology
All industries	21–23, 31–33, 42, 44–81	2.4	2.7	1.4	1.5	4.6	1.7	11.6
Manufacturing industries	31–33	1.9	2.1	1.4	0.5	5.5	0.5	14.3
Food	311	3.6	3.7	3.5	10.4	0.4	5.6	6.5
Beverage and tobacco products	312	3.2	1.8	0.0	0.0	1.0	0.4	0.0
Textiles, apparel, and leather	313–16	17.5	9.1	0.0	0.5	4.2	41.2	7.2
Wood products	321	7.0	6.8	0.0	6.6	0.8	7.9	0.0
Paper, printing, and support activities	322, 323	1.2	1.5	0.0	11.8	5.4	3.8	0.0
Petroleum and coal products	324	0.1	0.5	0.0	0.0	0.3	0.3	0.0
Chemicals	325	0.6	0.6	1.6	1.7	0.7	1.4	29.8
Basic chemicals	3251	0.4	0.8	0.8	0.7	0.3	8.0	14.6
Resin, synthetic rubber, fibers, and filament	3252	0.1	0.3	0.0	0.0	0.7	0.1	1.7
Pharmaceuticals and medicines	3254	1.1	0.3	1.6	4.4	1.8	0.1	43.2
Other chemicals	other 325	2.0	2.1	3.1	0.1	1.3	6.9	50.7
Plastics and rubber products	326	1.4	2.0	0.4	18.3	3.8	7.5	44.2
Nonmetallic mineral products	327	1.0	1.5	0.0	0.4	7.6	5.9	85.2
Primary metals	331	1.2	2.3	0.0	31.0	4.7	5.1	53.2
Fabricated metal products	332	43.3	30.4	0.0	2.3	19.0	9.9	61.2
Machinery	333	1.0	1.6	59.0	2.6	1.2	1.3	30.1
Computer and electronic products	334	1.1	0.4	1.3	0.9	11.7	0.4	14.6
Computers and peripheral equipment	3341	0.4	0.5	1.2	0.7	11.5	0.2	41.2
Communications equipment	3342	0.4	1.0	90.2	2.0	0.9	0.9	16.3
Semiconductor and other electronic components	3344	3.0	1.0	0.0	4.0	12.9	0.7	17.0
Navigational, measuring, electromedical, and control instruments	3345	0.3	0.6	2.2	1.8	2.1	0.6	22.1
Other computer and electronic products	other 334	0.6	1.9	0.0	0.1	0.0	2.8	0.0
Electrical equipment, appliances, and components	335	1.5	2.0	0.0	5.0	10.2	0.5	36.2
Transportation equipment	336	0.3	1.4	0.0	0.0	0.3	0.2	18.4
Motor vehicles, trailers, and parts	3361–63	0.1	0.8	0.0	0.7	0.2	0.2	25.7
Aerospace products and parts	3364	1.1	4.1	0.0	0.0	0.9	0.5	0.0
Other transportation equipment	other 336	0.4	0.6	0.0	0.5	4.0	0.3	16.3
Furniture and related products	337	1.7	3.0	0.6	62.2	14.8	1.3	0.0
Miscellaneous manufacturing	339	1.0	1.6	6.0	23.5	9.7	4.0	21.1
Medical equipment and supplies	3391	1.0	1.6	6.1	31.3	7.7	5.6	22.1
Other miscellaneous manufacturing	other 339	2.4	3.5	0.0	25.2	20.6	4.3	37.1

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Sales	Domestic employment	R&D area				
				Biotechnology	Software development	Materials synthesis and processing	Other areas	Percentage of nanotechnology
Nonmanufacturing industries	21–23, 42, 44–81	6.0	6.0	3.4	2.0	7.6	9.5	19.7
Mining, extraction, and support activities	21	1.5	1.8	0.0	0.0	0.8	0.4	0.0
Utilities	22	37.6	38.0	0.0	67.4	67.6	12.9	0.0
Construction	23	24.7	35.7	0.0	34.5	6.0	56.8	0.0
Wholesale trade	42	8.3	12.2	13.3	8.7	11.6	10.2	60.4
Retail trade	44, 45	0.7	0.7	40.1	0.4	0.6	0.8	7.6
Transportation and warehousing	48, 49	0.2	0.1	0.0	0.0	0.0	0.3	0.0
Information	51	0.6	0.9	14.6	1.1	0.2	1.0	50.6
Publishing	511	2.4	2.0	45.2	0.6	0.0	1.5	57.1
Newspaper, periodical, book, and directory	5111	9.1	5.7	99.7	10.1	0.0	0.0	0.0
Software	5112	0.5	0.9	5.5	0.6	0.0	20.0	57.1
Telecommunications	517	0.3	0.1	0.0	2.1	0.2	0.0	0.0
Wired and wireless (except satellite)								
telecommunications carriers	5171, 5172	0.3	0.1	0.0	2.1	0.0	0.0	0.0
Satellite telecommunications	5174	30.9	38.6	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	0.4	0.3	0.0	9.2	33.2	0.0	0.0
Internet service providers, Web search portals, and data-processing services	518	2.4	6.9	0.0	7.1	0.0	4.0	77.7
Internet service providers and Web search portals	5181	2.1	16.0	0.0	17.9	0.0	0.0	0.0
Data-processing, hosting, and related services	5182	3.4	7.6	0.0	7.0	0.0	4.5	77.7
Other information	other 51	0.5	0.5	0.0	2.2	0.0	1.5	0.0
Finance, insurance, and real estate	52, 53	15.3	26.2	0.0	21.2	0.0	83.9	0.0
Professional, scientific, and technical services	54	10.5	13.5	3.5	4.7	8.9	3.0	20.5
Architectural, engineering, and related services	5413	2.1	2.6	20.4	3.0	27.7	1.0	55.3
Computer systems design and related services	5415	19.1	24.0	3.9	5.2	3.4	5.9	50.3
Scientific R&D services	5417	20.5	1.6	3.6	10.5	9.7	6.0	24.9
Other professional, scientific, and technical services	other 54	13.2	9.8	0.0	28.6	94.4	0.0	0.0
Health care services	621–23	19.5	19.1	37.0	0.0	0.0	1.1	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	9.5	7.4	0.0	15.1	0.3	19.8	0.0

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

		R&D area						
		Sales	Domestic employment	Biotechnology	Software development	Materials synthesis and processing	Other areas	Percentage of nanotechnology
Industry and company size	NAICS codes							
Company size (employees)								
All companies	-	2.4	2.7	1.4	1.5	4.6	1.7	11.6
5–24	-	14.6	7.3	19.2	16.8	39.2	12.0	22.4
25–49	-	16.8	10.5	21.4	16.6	49.8	11.2	35.0
50–99	-	8.2	7.3	6.8	6.7	8.0	6.0	22.1
100–249	-	11.5	11.1	1.5	3.5	2.6	6.5	7.8
250–499	-	8.7	8.2	0.2	0.6	0.2	1.6	0.7
500–999	-	28.5	25.6	0.0	0.1	0.1	19.2	3.2
1,000–4,999	-	8.7	12.4	0.0	5.1	0.0	0.6	0.4
5,000–9,999	-	12.0	7.5	0.0	0.0	0.0	0.0	0.0
10,000–24,999	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25,000 or more	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Scientists and engineers by source of funds			Company-funded R&D performed outside of the 50 United States and DC
		Total	Company funded	Federally funded	
All industries	21–23, 31–33, 42, 44–81	1.1	1.1	2.1	0.9
Manufacturing industries	31–33	0.5	0.6	0.8	0.3
Food	311	4.3	4.4	0.0	0.0
Beverage and tobacco products	312	0.1	0.1	0.0	0.0
Textiles, apparel, and leather	313–16	19.4	19.5	60.6	0.9
Wood products	321	16.9	17.0	0.0	0.8
Paper, printing, and support activities	322, 323	2.5	2.5	0.0	0.0
Petroleum and coal products	324	0.6	0.6	0.0	0.0
Chemicals	325	0.4	0.4	4.6	0.5
Basic chemicals	3251	2.0	2.1	0.0	2.9
Resin, synthetic rubber, fibers, and filament	3252	0.2	0.2	4.6	0.0
Pharmaceuticals and medicines	3254	0.2	0.2	19.7	0.6
Other chemicals	other 325	2.0	2.1	1.3	0.0
Plastics and rubber products	326	5.0	5.0	0.0	0.2
Nonmetallic mineral products	327	4.7	4.7	0.0	0.4
Primary metals	331	3.3	3.3	0.0	0.0
Fabricated metal products	332	6.0	6.1	1.5	0.1
Machinery	333	0.8	0.8	5.1	4.1
Computer and electronic products	334	1.1	1.2	1.0	0.7
Computers and peripheral equipment	3341	1.3	1.3	0.0	0.0
Communications equipment	3342	0.3	0.3	2.6	0.5
Semiconductor and other electronic components	3344	3.1	3.1	32.8	2.3
Navigational, measuring, electromedical, and control instruments	3345	0.6	0.8	0.6	0.5
Other computer and electronic products	other 334	2.9	2.7	81.1	0.0
Electrical equipment, appliances, and components	335	1.8	1.7	23.2	0.2
Transportation equipment	336	0.4	0.4	0.3	0.1
Motor vehicles, trailers, and parts	3361–63	0.2	0.2	6.7	0.1
Aerospace products and parts	3364	1.1	1.4	0.0	0.0
Other transportation equipment	other 336	0.8	1.2	0.7	0.0
Furniture and related products	337	4.0	4.0	0.0	0.0
Miscellaneous manufacturing	339	2.7	2.6	46.7	0.0
Medical equipment and supplies	3391	3.3	3.3	13.7	0.0
Other miscellaneous manufacturing	other 339	4.7	3.9	83.1	0.3

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Scientists and engineers by source of funds			
		Total	Company funded	Federally funded	Company-funded R&D performed outside of the 50 United States and DC
Nonmanufacturing industries	21–23, 42, 44–81	2.8	2.9	5.2	4.5
Mining, extraction, and support activities	21	3.0	3.0	0.0	0.0
Utilities	22	10.6	11.6	0.0	0.0
Construction	23	12.8	10.8	83.2	2.7
Wholesale trade	42	12.1	12.2	44.8	53.2
Retail trade	44, 45	24.0	24.0	0.0	0.0
Transportation and warehousing	48, 49	1.8	1.8	0.0	0.0
Information	51	1.5	1.3	30.1	0.9
Publishing	511	0.9	0.8	34.5	1.0
Newspaper, periodical, book, and directory	5111	5.1	4.4	43.8	0.0
Software	5112	0.9	0.8	50.0	1.0
Telecommunications	517	1.2	1.2	0.0	0.0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	0.8	0.8	0.0	0.0
Satellite telecommunications	5174	96.1	96.1	0.0	0.0
Other telecommunications	other 517	6.6	6.6	0.0	0.0
Internet service providers, Web search portals, and data-processing services	518	7.9	6.7	43.8	2.2
Internet service providers and Web search portals	5181	17.6	17.6	0.0	31.5
Data-processing, hosting, and related services	5182	9.0	7.2	43.8	0.0
Other information	other 51	1.2	1.2	0.0	0.0
Finance, insurance, and real estate	52, 53	26.0	26.0	0.0	0.0
Professional, scientific, and technical services	54	3.1	3.6	4.3	2.2
Architectural, engineering, and related services	5413	4.1	5.7	3.5	1.2
Computer systems design and related services	5415	5.2	5.4	14.2	2.7
Scientific R&D services	5417	3.0	3.2	7.6	5.3
Other professional, scientific, and technical services	other 54	22.0	25.2	0.0	2.0
Health care services	621–23	18.5	18.7	0.0	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	22.8	23.5	89.1	5.2

TABLE A-2. Relative standard error for survey estimates, by industry and company size: 2005
(Percent)

		Scientists and engineers by source of funds			
Industry and company size	NAICS codes	Total	Company funded	Federally funded	Company-funded R&D performed outside of the 50 United States and DC
Company size (employees)					
All companies	-	1.1	1.1	2.1	0.9
5–24	-	9.4	10.1	17.6	30.9
25–49	-	10.3	10.7	21.3	15.4
50–99	-	5.3	5.3	25.8	16.8
100–249	-	3.3	3.4	9.1	29.5
250–499	-	1.5	1.5	1.8	0.3
500–999	-	9.8	10.5	1.0	0.1
1,000–4,999	-	2.6	2.6	0.0	0.6
5,000–9,999	-	0.0	0.0	0.0	0.0
10,000–24,999	-	0.0	0.0	0.0	0.0
25,000 or more	-	0.0	0.0	0.0	0.0

- = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. A description of the standard error of estimate is given in the technical notes in appendix A. The percentage (or relative) standard errors (RSE) may be converted to standard errors of estimate by multiplying the percentages shown by the associated estimates. For example, the relative standard error of estimate for company-funded R&D performance by the wood products industry (NAICS 321) is shown as 15.1%, and the associated company-funded R&D estimate for this industry is shown as \$218 million in Table 10. The standard error of estimate is 0.151 times \$218 million, or \$32.9 million. A relative standard error of 0.0 either relates to an estimate of 0 or indicates that the RSE itself has been rounded to zero. Also, RSEs for data items only collected on the Form RD-1 from companies selected for the sample with certainty are equal to 0.0. However, for data items only collected on Form RD-1, but imputed for companies receiving Form RD-1A, the respective RSEs are equal to some positive value. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE A-3. Relative standard error for estimates of all R&D and percentage of estimates attributed to certainty companies, by state: 2005

State	All R&D (\$millions)	Relative standard error (%)	% of estimate from certainty companies
United States	226,159	0.8	91.0
Alabama	1,417	1.5	83.4
Alaska	32 e	6.8	47.6 i
Arizona	2,980	0.9	91.4
Arkansas	271	3.7	66.7
California	50,683	0.7	91.1
Colorado	4,299	0.7	92.0
Connecticut	7,885	0.6	95.3
Delaware	1,511	0.6	94.9
District of Columbia	166	7.9	62.5
Florida	4,164	2.0	82.4
Georgia	2,282	1.9	79.2
Hawaii	168	3.3	75.4
Idaho	642	1.1	92.7
Illinois	9,712	0.9	91.3
Indiana	4,610 i	0.5	94.1 i
Iowa	1,039	1.3	87.9
Kansas	1,993 i	0.6	94.0 i
Kentucky	660	2.2	81.3
Louisiana	300	4.3	63.2
Maine	350	2.5	83.5
Maryland	3,706	1.3	84.6
Massachusetts	13,342	0.6	91.6
Michigan	16,752	0.2	96.7
Minnesota	6,340	0.7	93.3
Mississippi	194	3.6	69.2
Missouri	2,602	1.0	88.2
Montana	77 i	3.3	68.4 i
Nebraska	407	2.2	81.4
Nevada	382	3.1	72.7
New Hampshire	1,435	1.8	88.8
New Jersey	13,214	0.6	93.0
New Mexico	405	1.5	82.0
New York	9,474	2.1	86.0
North Carolina	5,158	1.0	90.2
North Dakota	104	2.2	81.3
Ohio	5,900	0.9	88.8
Oklahoma	422	3.0	74.2
Oregon	3,252	0.6	93.1
Pennsylvania	8,846	0.8	91.2
Rhode Island	1,387 i	0.4	95.6 i
South Carolina	1,402	1.1	90.3
South Dakota	68	4.2	68.5
Tennessee	1,246	2.7	80.3
Texas	12,438	0.8	90.6
Utah	1,234	1.7	82.9

TABLE A-3. Relative standard error for estimates of all R&D and percentage of estimates attributed to certainty companies, by state: 2005

State	All R&D (\$millions)	Relative standard error (%)	% of estimate from certainty companies
Vermont	360	1.2	89.1
Virginia	4,379	1.6	82.3
Washington	9,736	0.4	94.8
West Virginia	242	1.4	87.8
Wisconsin	2,729	1.3	88.3
Wyoming	30	4.9	68.8
Undistributed funds	3,731 i	0.0	100.0 i

e = estimated; more than 50% of cell value is imputed due to raking of state data; i = more than 50% of the value is imputed.

NOTES: A description of the standard error of estimate is given in the technical notes in appendix A. The percentage (or relative) standard errors may be converted to standard errors of estimate by multiplying the percentages shown by the associated estimates. For example, the relative standard error of estimate for United States, all R&D is shown as 0.8%, and the associated R&D estimate is shown as \$226.2 billion. The standard error of estimate is 0.008 times \$226.2 billion, or \$1.8 billion. Certainties are companies whose probability of selection is one based on prior-year R&D expenditures equal to or greater than \$3 million as well as other companies included in the sample for analytical purposes (analytical certainties). Noncertainties are companies whose probability of selection is less than one. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

Industry and company size	NAICS codes	All companies			
		Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
All industries	21–23, 31–33, 42, 44–81	31,847	25,084	78.8	35.8
Manufacturing industries	31–33	13,113	10,461	79.8	56.6
Food	311	676	525	77.7	54.1
Beverage and tobacco products	312	161	117	72.7	18.8
Textiles, apparel, and leather	313–16	447	327	73.2	44.0
Wood products	321	328	265	80.8	22.6
Paper, printing, and support activities	322, 323	553	467	84.4	34.9
Petroleum and coal products	324	128	103	80.5	54.4
Chemicals	325	1,353	1,104	81.6	74.4
Basic chemicals	3251	219	170	77.6	70.0
Resin, synthetic rubber, fibers, and filament	3252	161	144	89.4	60.4
Pharmaceuticals and medicines	3254	399	317	79.4	79.8
Other chemicals	other 325	574	473	82.4	76.5
Plastics and rubber products	326	658	535	81.3	64.9
Nonmetallic mineral products	327	352	284	80.7	36.3
Primary metals	331	303	256	84.5	44.9
Fabricated metal products	332	993	835	84.1	43.1
Machinery	333	1,984	1,597	80.5	51.8
Computer and electronic products	334	2,074	1,578	76.1	77.3
Computers and peripheral equipment	3341	258	204	79.1	80.4
Communications equipment	3342	395	267	67.6	85.4
Semiconductor and other electronic components	3344	599	463	77.3	65.7
Navigational, measuring, electromedical, and control instruments	3345	668	533	79.8	85.6
Other computer and electronic products	other 334	154	111	72.1	61.3
Electrical equipment, appliances, and components	335	600	481	80.2	68.0
Transportation equipment	336	1,073	856	79.8	56.0
Motor vehicles, trailers, and parts	3361–63	689	553	80.3	52.3
Aerospace products and parts	3364	189	145	76.7	59.3
Other transportation equipment	other 336	195	158	81.0	65.8
Furniture and related products	337	394	317	80.5	34.4
Miscellaneous manufacturing	339	946	762	80.5	63.3
Medical equipment and supplies	3391	445	352	79.1	76.7
Other miscellaneous manufacturing	other 339	501	410	81.8	51.7
Unclassified manufacturing	-	90	52	57.8	0.0

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

Industry and company size	NAICS codes	All companies			
		Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
Nonmanufacturing industries	21–23, 42, 44–81	18,734	14,623	78.1	20.9
Mining, extraction, and support activities	21	291	234	80.4	16.7
Utilities	22	148	126	85.1	29.4
Construction	23	1,413	1,149	81.3	3.1
Wholesale trade	42	2,845	2,283	80.2	19.7
Retail trade	44, 45	1,530	1,234	80.7	4.7
Transportation and warehousing	48, 49	409	316	77.3	6.3
Information	51	1,705	1,264	74.1	49.1
Publishing	511	993	732	73.7	63.3
Newspaper, periodical, book, and directory	5111	225	184	81.8	15.8
Software	5112	768	548	71.4	79.2
Telecommunications	517	228	167	73.2	21.6
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	139	103	74.1	23.3
Satellite telecommunications	5174	16	11	68.8	18.2
Other telecommunications	other 517	73	53	72.6	18.9
Internet service providers, Web search portals, and data-processing services	518	235	170	72.3	56.5
Internet service providers and Web search portals	5181	44	32	72.7	40.6
Data-processing, hosting, and related services	5182	191	138	72.3	60.1
Other information	other 51	249	195	78.3	12.8
Finance, insurance, and real estate	52, 53	1,004	819	81.6	6.7
Professional, scientific, and technical services	54	4,837	3,686	76.2	41.0
Architectural, engineering, and related services	5413	624	514	82.4	28.2
Computer systems design and related services	5415	2,105	1,512	71.8	42.2
Scientific R&D services	5417	1,195	903	75.6	72.6
Other professional, scientific, and technical services	other 54	913	757	82.9	9.8
Health care services	621–23	1,327	1,130	85.2	7.5
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	3,150	2,348	74.5	5.8
Unclassified nonmanufacturing	-	75	34	45.3	0.0

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

		All companies			
Industry and company size	NAICS codes	Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
Company size (employees)					
All companies	-	31,847	25,084	78.8	35.8
5–24	-	10,911	8,564	78.5	12.1
25–49	-	4,511	3,613	80.1	32.8
50–99	-	4,588	3,616	78.8	42.3
100–249	-	5,183	4,075	78.6	50.5
250–499	-	2,647	2,020	76.3	56.1
500–999	-	1,623	1,290	79.5	56.9
1,000–4,999	-	1,721	1,345	78.2	65.5
5,000–9,999	-	323	278	86.1	69.1
10,000–24,999	-	200	166	83.0	75.9
25,000 or more	-	140	117	83.6	77.8

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

Industry and company size	NAICS codes	Top 500 R&D-performing companies			
		Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
All industries	21–23, 31–33, 42, 44–81	500	447	89.4	98.9
Manufacturing industries	31–33	353	315	89.2	98.7
Food	311	15	13	86.7	100.0
Beverage and tobacco products	312	1	1	100.0	0.0
Textiles, apparel, and leather	313–16	2	2	100.0	100.0
Wood products	321	0	0	0.0	0.0
Paper, printing, and support activities	322, 323	6	5	83.3	100.0
Petroleum and coal products	324	4	4	100.0	100.0
Chemicals	325	109	98	89.9	99.0
Basic chemicals	3251	14	13	92.9	100.0
Resin, synthetic rubber, fibers, and filament	3252	4	4	100.0	100.0
Pharmaceuticals and medicines	3254	75	65	86.7	98.5
Other chemicals	other 325	16	16	100.0	100.0
Plastics and rubber products	326	4	4	100.0	100.0
Nonmetallic mineral products	327	4	4	100.0	100.0
Primary metals	331	2	2	100.0	100.0
Fabricated metal products	332	4	3	75.0	100.0
Machinery	333	22	19	86.4	100.0
Computer and electronic products	334	109	94	86.2	98.9
Computers and peripheral equipment	3341	16	13	81.3	100.0
Communications equipment	3342	22	19	86.4	100.0
Semiconductor and other electronic components	3344	37	32	86.5	100.0
Navigational, measuring, electromedical, and control instruments	3345	29	26	89.7	96.2
Other computer and electronic products	other 334	5	4	80.0	100.0
Electrical equipment, appliances, and components	335	11	9	81.8	100.0
Transportation equipment	336	45	42	93.3	100.0
Motor vehicles, trailers, and parts	3361–63	27	24	88.9	100.0
Aerospace products and parts	3364	12	12	100.0	100.0
Other transportation equipment	other 336	6	6	100.0	100.0
Furniture and related products	337	1	1	100.0	0.0
Miscellaneous manufacturing	339	14	14	100.0	100.0
Medical equipment and supplies	3391	11	11	100.0	100.0
Other miscellaneous manufacturing	other 339	3	3	100.0	100.0
Unclassified manufacturing	-	0	0	0.0	0.0

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

Industry and company size	NAICS codes	Top 500 R&D-performing companies			
		Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
Nonmanufacturing industries	21–23, 42, 44–81	147	132	89.8	99.2
Mining, extraction, and support activities	21	2	2	100.0	100.0
Utilities	22	0	0	0.0	0.0
Construction	23	1	1	100.0	100.0
Wholesale trade	42	1	1	100.0	100.0
Retail trade	44, 45	5	4	80.0	100.0
Transportation and warehousing	48, 49	1	1	100.0	100.0
Information	51	59	48	81.4	100.0
Publishing	511	43	34	79.1	100.0
Newspaper, periodical, book, and directory	5111	3	3	100.0	100.0
Software	5112	40	31	77.5	100.0
Telecommunications	517	9	7	77.8	100.0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	8	7	87.5	100.0
Satellite telecommunications	5174	0	0	0.0	0.0
Other telecommunications	other 517	1	0	0.0	0.0
Internet service providers, Web search portals, and data-processing services	518	7	7	100.0	100.0
Internet service providers and Web search portals	5181	2	2	100.0	100.0
Data-processing, hosting, and related services	5182	5	5	100.0	100.0
Other information	other 51	0	0	0.0	0.0
Finance, insurance, and real estate	52, 53	9	8	88.9	100.0
Professional, scientific, and technical services	54	59	58	98.3	98.3
Architectural, engineering, and related services	5413	9	9	100.0	100.0
Computer systems design and related services	5415	17	17	100.0	100.0
Scientific R&D services	5417	30	29	96.7	96.6
Other professional, scientific, and technical services	other 54	3	3	100.0	100.0
Health care services	621–23	4	4	100.0	100.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	6	5	83.3	100.0
Unclassified nonmanufacturing	-	0	0	0.0	0.0

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

		Top 500 R&D-performing companies			
Industry and company size	NAICS codes	Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
Company size (employees)					
All companies	-	500	447	89.4	98.9
5-24	-	0	0	0.0	0.0
25-49	-	0	0	0.0	0.0
50-99	-	1	1	100.0	100.0
100-249	-	14	14	100.0	100.0
250-499	-	25	23	92.0	91.3
500-999	-	73	61	83.6	98.4
1,000-4,999	-	171	146	85.4	100.0
5,000-9,999	-	65	61	93.8	100.0
10,000-24,999	-	78	72	92.3	97.2
25,000 or more	-	73	69	94.5	100.0

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

Industry and company size	NAICS codes	All companies			
		Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
Form RD-1					
All industries	21-23, 31-33, 42, 44-81	3,356	2,731	81.4	91.0
Manufacturing industries	31-33	1,931	1,628	84.3	95.3
Food	311	67	61	91.0	96.7
Beverage and tobacco products	312	8	7	87.5	85.7
Textiles, apparel, and leather	313-16	36	33	91.7	90.9
Wood products	321	8	8	100.0	100.0
Paper, printing, and support activities	322, 323	44	43	97.7	93.0
Petroleum and coal products	324	8	8	100.0	87.5
Chemicals	325	341	293	85.9	95.9
Basic chemicals	3251	66	54	81.8	98.1
Resin, synthetic rubber, fibers, and filament	3252	27	23	85.2	100.0
Pharmaceuticals and medicines	3254	172	144	83.7	94.4
Other chemicals	other 325	76	72	94.7	95.8
Plastics and rubber products	326	86	78	90.7	94.9
Nonmetallic mineral products	327	25	22	88.0	95.5
Primary metals	331	32	28	87.5	82.1
Fabricated metal products	332	81	69	85.2	95.7
Machinery	333	216	180	83.3	93.9
Computer and electronic products	334	559	443	79.2	96.6
Computers and peripheral equipment	3341	74	62	83.8	96.8
Communications equipment	3342	144	106	73.6	95.3
Semiconductor and other electronic components	3344	141	119	84.4	96.6
Navigational, measuring, electromedical, and control instruments	3345	178	140	78.7	97.1
Other computer and electronic products	other 334	22	16	72.7	100.0
Electrical equipment, appliances, and components	335	99	81	81.8	95.1
Transportation equipment	336	168	148	88.1	95.9
Motor vehicles, trailers, and parts	3361-63	114	101	88.6	96.0
Aerospace products and parts	3364	33	27	81.8	96.3
Other transportation equipment	other 336	21	20	95.2	95.0
Furniture and related products	337	17	15	88.2	93.3
Miscellaneous manufacturing	339	136	111	81.6	95.5
Medical equipment and supplies	3391	96	76	79.2	98.7
Other miscellaneous manufacturing	other 339	40	35	87.5	88.6
Unclassified manufacturing	-	0	0	0.0	0.0

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

Industry and company size	NAICS codes	All companies			
		Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
Nonmanufacturing industries	21–23, 42, 44–81	1,425	1,103	77.4	84.6
Mining, extraction, and support activities	21	22	18	81.8	94.4
Utilities	22	21	19	90.5	89.5
Construction	23	12	11	91.7	90.9
Wholesale trade	42	96	70	72.9	68.6
Retail trade	44, 45	29	23	79.3	78.3
Transportation and warehousing	48, 49	13	12	92.3	66.7
Information	51	349	262	75.1	88.2
Publishing	511	253	190	75.1	90.0
Newspaper, periodical, book, and directory	5111	18	17	94.4	88.2
Software	5112	235	173	73.6	90.2
Telecommunications	517	28	20	71.4	75.0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	21	15	71.4	86.7
Satellite telecommunications	5174	1	1	100.0	0.0
Other telecommunications	other 517	6	4	66.7	50.0
Internet service providers, Web search portals, and data-processing services	518	54	40	74.1	85.0
Internet service providers and Web search portals	5181	9	6	66.7	100.0
Data-processing, hosting, and related services	5182	45	34	75.6	82.4
Other information	other 51	14	12	85.7	91.7
Finance, insurance, and real estate	52, 53	72	53	73.6	62.3
Professional, scientific, and technical services	54	728	567	77.9	89.2
Architectural, engineering, and related services	5413	87	59	67.8	93.2
Computer systems design and related services	5415	215	163	75.8	86.5
Scientific R&D services	5417	383	308	80.4	92.5
Other professional, scientific, and technical services	other 54	43	37	86.0	67.6
Health care services	621–23	18	13	72.2	61.5
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	65	55	84.6	67.3
Unclassified nonmanufacturing	-	0	0	0.0	0.0

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

		All companies			
Industry and company size	NAICS codes	Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
Company size (employees)					
All companies	-	3,356	2,731	81.4	91.0
5–24	-	60	37	61.7	51.4
25–49	-	206	159	77.2	91.8
50–99	-	369	271	73.4	86.7
100–249	-	585	470	80.3	90.6
250–499	-	500	407	81.4	91.6
500–999	-	434	365	84.1	90.7
1,000–4,999	-	778	646	83.0	93.3
5,000–9,999	-	182	166	91.2	94.6
10,000–24,999	-	139	117	84.2	91.5
25,000 or more	-	103	93	90.3	93.5

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

Industry and company size	NAICS codes	All companies			
		Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
Form RD-1A					
All industries	21-23, 31-33, 42, 44-81	28,491	22,353	78.5	29.0
Manufacturing industries	31-33	11,182	8,833	79.0	49.5
Food	311	609	464	76.2	48.5
Beverage and tobacco products	312	153	110	71.9	14.5
Textiles, apparel, and leather	313-16	411	294	71.5	38.8
Wood products	321	320	257	80.3	20.2
Paper, printing, and support activities	322, 323	509	424	83.3	29.0
Petroleum and coal products	324	120	95	79.2	51.6
Chemicals	325	1,012	811	80.1	66.6
Basic chemicals	3251	153	116	75.8	56.9
Resin, synthetic rubber, fibers, and filament	3252	134	121	90.3	52.9
Pharmaceuticals and medicines	3254	227	173	76.2	67.6
Other chemicals	other 325	498	401	80.5	73.1
Plastics and rubber products	326	572	457	79.9	59.7
Nonmetallic mineral products	327	327	262	80.1	31.3
Primary metals	331	271	228	84.1	40.4
Fabricated metal products	332	912	766	84.0	38.4
Machinery	333	1,768	1,417	80.1	46.5
Computer and electronic products	334	1,515	1,135	74.9	69.8
Computers and peripheral equipment	3341	184	142	77.2	73.2
Communications equipment	3342	251	161	64.1	78.9
Semiconductor and other electronic components	3344	458	344	75.1	54.9
Navigational, measuring, electromedical, and control instruments	3345	490	393	80.2	81.4
Other computer and electronic products	other 334	132	95	72.0	54.7
Electrical equipment, appliances, and components	335	501	400	79.8	62.5
Transportation equipment	336	905	708	78.2	47.6
Motor vehicles, trailers, and parts	3361-63	575	452	78.6	42.5
Aerospace products and parts	3364	156	118	75.6	50.8
Other transportation equipment	other 336	174	138	79.3	61.6
Furniture and related products	337	377	302	80.1	31.5
Miscellaneous manufacturing	339	810	651	80.4	57.8
Medical equipment and supplies	3391	349	276	79.1	70.7
Other miscellaneous manufacturing	other 339	461	375	81.3	48.3
Unclassified manufacturing	-	90	52	57.8	0.0

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

Industry and company size	NAICS codes	All companies			
		Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
Nonmanufacturing industries	21–23, 42, 44–81	17,309	13,520	78.1	15.7
Mining, extraction, and support activities	21	269	216	80.3	10.2
Utilities	22	127	107	84.3	18.7
Construction	23	1,401	1,138	81.2	2.3
Wholesale trade	42	2,749	2,213	80.5	18.1
Retail trade	44, 45	1,501	1,211	80.7	3.3
Transportation and warehousing	48, 49	396	304	76.8	3.9
Information	51	1,356	1,002	73.9	38.8
Publishing	511	740	542	73.2	53.9
Newspaper, periodical, book, and directory	5111	207	167	80.7	8.4
Software	5112	533	375	70.4	74.1
Telecommunications	517	200	147	73.5	14.3
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	118	88	74.6	12.5
Satellite telecommunications	5174	15	10	66.7	20.0
Other telecommunications	other 517	67	49	73.1	16.3
Internet service providers, Web search portals, and data-processing services	518	181	130	71.8	47.7
Internet service providers and Web search portals	5181	35	26	74.3	26.9
Data-processing, hosting, and related services	5182	146	104	71.2	52.9
Other information	other 51	235	183	77.9	7.7
Finance, insurance, and real estate	52, 53	932	766	82.2	2.9
Professional, scientific, and technical services	54	4,109	3,119	75.9	32.3
Architectural, engineering, and related services	5413	537	455	84.7	19.8
Computer systems design and related services	5415	1,890	1,349	71.4	36.8
Scientific R&D services	5417	812	595	73.3	62.4
Other professional, scientific, and technical services	other 54	870	720	82.8	6.8
Health care services	621–23	1,309	1,117	85.3	6.9
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	3,085	2,293	74.3	4.4
Unclassified nonmanufacturing	-	75	34	45.3	0.0

TABLE A-4. Unit response rates and percentage of companies performing R&D, by industry and type of survey form: 2005

		All companies			
Industry and company size	NAICS codes	Companies receiving a questionnaire	Companies responding to the survey	% of companies responding to the survey	% of responding companies reporting R&D
Company size (employees)					
All companies	-	28,491	22,353	78.5	29.0
5-24	-	10,851	8,527	78.6	12.0
25-49	-	4,305	3,454	80.2	30.1
50-99	-	4,219	3,345	79.3	38.7
100-249	-	4,598	3,605	78.4	45.3
250-499	-	2,147	1,613	75.1	47.1
500-999	-	1,189	925	77.8	43.6
1,000-4,999	-	943	699	74.1	39.8
5,000-9,999	-	141	112	79.4	31.3
10,000-24,999	-	61	49	80.3	38.8
25,000 or more	-	37	24	64.9	16.7

- = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. The calculation of the percent of companies responding to the survey was based on all companies responding to the survey including those that reported they were out-of-scope, out-of-business, or had merged with another company. It excludes companies for which total R&D expenditure data were imputed. Mathematically, the percentage was calculated by dividing the number of companies that received a questionnaire (indicated in the previous column) into the number of companies that returned a response or questionnaire regardless of the data or information supplied in the response or on the questionnaire. The total "number of companies receiving a questionnaire" may be larger than the number of "companies selected for the sample" in table A-1 because some companies, especially those originally assigned nonmanufacturing industry classifications, were reclassified among the manufacturing industries. Companies that were missing or had an incomplete North American Classification System (NAICS) code at the time of sampling were assigned to an "unclassified" industry category temporarily. If an unclassified company reported R&D expenditures, its primary industrial activity was investigated and a NAICS code was assigned during statistical processing. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	All R&D			Basic research			Applied research		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded	Total	Company funded	Federally funded
All industries	21–23, 31–33, 42, 44–81	6.0	6.8	2.5	18.9	19.9	10.0	11.9	12.5	9.7
Manufacturing industries	31–33	5.8	6.6	0.5	21.3	22.1	5.1	12.6	13.6	2.3
Food	311	14.3	14.4	0.0	0.8	2.3	0.0	2.6	2.7	0.0
Beverage and tobacco products	312	76.8	76.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles, apparel, and leather	313–16	3.5	3.6	0.0	6.0	6.0	0.0	0.0	0.0	0.0
Wood products	321	0.0	0.6	0.0	0.0	1.0	0.0	0.0	0.5	0.0
Paper, printing, and support activities	322, 323	26.2	26.4	0.0	5.2	5.2	0.0	0.0	0.0	0.0
Petroleum and coal products	324	0.7	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Chemicals	325	4.8	4.9	1.8	23.6	23.7	6.4	11.4	11.5	1.4
Basic chemicals	3251	10.9	11.3	1.9	4.3	3.8	23.7	14.3	15.7	0.0
Resin, synthetic rubber, fibers, and filament	3252	3.2	3.3	0.0	5.9	5.9	0.0	5.3	5.3	0.0
Pharmaceuticals and medicines	3254	4.9	4.9	3.1	26.5	26.6	0.0	12.4	12.5	6.8
Other chemicals	other 325	1.2	2.4	0.0	10.4	10.5	0.0	6.8	6.8	0.0
Plastics and rubber products	326	1.6	1.6	22.1	2.5	2.5	0.0	7.1	7.3	0.0
Nonmetallic mineral products	327	2.7	2.8	0.0	1.7	1.7	0.0	0.0	0.2	0.0
Primary metals	331	9.5	8.8	50.5	5.8	5.8	0.0	13.6	13.7	0.0
Fabricated metal products	332	10.1	11.1	0.0	38.0	38.0	0.0	0.7	0.8	0.0
Machinery	333	6.3	7.0	3.8	9.3	9.5	0.0	11.4	13.2	0.0
Computer and electronic products	334	7.3	8.5	0.5	19.5	20.8	4.7	19.0	19.2	14.1
Computers and peripheral equipment	3341	14.8	15.0	0.8	0.9	1.0	0.0	3.4	3.9	0.0
Communications equipment	3342	7.2	7.3	2.6	87.8	87.8	0.0	46.1	46.5	24.2
Semiconductor and other electronic components	3344	3.8	4.0	0.0	7.4	7.3	12.1	9.5	9.6	0.0
Navigational, measuring, electromedical, and control instruments	3345	8.8	15.8	0.4	19.3	24.4	1.1	28.1	28.8	22.0
Other computer and electronic products	other 334	12.1	12.4	0.0	0.0	0.5	100.0	48.3	56.1	0.5
Electrical equipment, appliances, and components	335	13.2	13.9	0.1	2.0	2.0	0.0	3.8	3.9	0.0
Transportation equipment	336	1.7	2.1	0.2	24.0	27.9	6.6	10.2	16.6	0.9
Motor vehicles, trailers, and parts	3361–63	3.4	3.5	0.0	43.6	43.7	40.2	9.7	9.5	19.9
Aerospace products and parts	3364	0.1	0.1	0.3	16.3	20.0	4.3	10.4	28.5	0.4
Other transportation equipment	other 336	0.6	2.2	0.0	48.2	52.3	28.5	10.0	9.1	39.2
Furniture and related products	337	4.6	5.4	0.0	42.3	42.3	0.0	5.5	5.5	0.0
Miscellaneous manufacturing	339	5.3	6.8	4.7	24.6	31.3	1.8	6.3	6.4	6.3
Medical equipment and supplies	3391	5.6	6.8	8.0	31.6	32.2	6.2	6.4	6.4	9.8
Other miscellaneous manufacturing	other 339	3.4	6.3	2.6	2.2	7.5	1.4	5.4	5.9	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	All R&D			Basic research			Applied research		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded	Total	Company funded	Federally funded
Nonmanufacturing industries	21–23, 42, 44–81	6.4	7.2	7.6	11.4	11.3	13.0	9.9	9.6	21.3
Mining, extraction, and support activities	21	3.0	3.0	0.0	8.8	8.8	0.0	3.9	3.9	0.0
Utilities	22	0.0	0.5	0.0	0.0	17.6	0.0	0.7	1.1	0.0
Construction	23	4.7	5.5	0.0	0.0	0.0	0.0	3.6	3.6	0.0
Wholesale trade	42	3.2	4.6	0.0	0.5	1.9	0.0	1.3	1.5	0.0
Retail trade	44, 45	17.7	22.6	0.0	0.0	0.0	0.0	48.3	48.3	0.0
Transportation and warehousing	48, 49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Information	51	7.5	7.6	0.9	32.1	33.1	0.0	7.0	7.2	0.0
Publishing	511	7.7	7.9	0.0	16.3	17.7	0.0	9.3	9.5	0.0
Newspaper, periodical, book, and directory	5111	1.6	1.6	0.0	0.0	0.0	0.0	11.7	27.6	0.0
Software	5112	8.0	8.2	0.0	16.5	18.0	0.0	9.2	9.4	0.0
Telecommunications	517	7.3	7.3	0.0	29.6	29.6	0.0	0.6	0.6	0.0
Wired and wireless (except satellite)										
telecommunications carriers	5171, 5172	3.9	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Satellite telecommunications	5174	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	54.9	54.9	0.0	100.0	100.0	0.0	88.3	88.3	0.0
Internet service providers, Web search portals, and data-processing services	518	5.3	5.6	1.2	19.9	19.9	0.0	5.6	5.9	0.0
Internet service providers and Web search portals	5181	2.3	2.3	0.0	0.0	0.0	0.0	12.1	12.1	0.0
Data-processing, hosting, and related services	5182	6.7	7.2	1.2	19.9	19.9	0.0	1.3	1.4	0.0
Other information	other 51	20.9	20.9	0.0	57.1	57.1	0.0	27.5	27.5	0.0
Finance, insurance, and real estate	52, 53	13.0	13.0	0.0	4.0	4.0	0.0	4.6	4.6	0.0
Professional, scientific, and technical services	54	5.1	5.1	8.1	12.2	12.2	13.2	12.9	12.7	23.2
Architectural, engineering, and related services	5413	2.3	3.4	1.2	12.3	1.7	51.1	41.5	28.0	50.7
Computer systems design and related services	5415	2.1	2.6	0.9	3.3	3.7	0.0	0.9	3.7	0.5
Scientific R&D services	5417	9.7	9.1	15.6	14.1	16.0	11.9	12.9	15.4	14.3
Other professional, scientific, and technical services	other 54	3.8	5.6	0.0	7.4	0.0	26.5	16.2	17.4	9.3
Health care services	621–23	1.0	0.9	12.7	0.0	0.0	0.0	0.2	0.3	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	6.4	20.8	2.6	0.0	0.0	0.0	0.5	0.5	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

		All R&D			Basic research			Applied research		
Industry and company size	NAICS codes	Total	Company funded	Federally funded	Total	Company funded	Federally funded	Total	Company funded	Federally funded
Company size (employees)										
All companies	-	6.0	6.8	2.5	18.9	19.9	10.0	11.9	12.5	9.7
5-24	-	1.2	8.8	1.1	1.0	2.1	1.2	1.0	3.2	5.8
25-49	-	3.0	4.3	4.1	12.0	15.5	10.5	3.0	7.8	5.2
50-99	-	9.4	10.6	5.0	28.3	24.5	54.2	6.4	5.8	14.2
100-249	-	9.1	9.8	5.2	14.9	13.9	18.7	22.7	22.1	28.9
250-499	-	13.6	15.0	0.7	8.6	9.3	0.0	4.5	5.5	1.3
500-999	-	15.8	17.3	1.0	15.7	19.7	1.1	21.3	17.5	51.9
1,000-4,999	-	13.3	13.9	1.3	16.4	17.4	0.0	13.3	14.0	0.0
5,000-9,999	-	3.2	3.4	0.1	1.7	1.5	6.6	2.1	2.1	0.0
10,000-24,999	-	5.8	5.0	20.7	11.7	11.9	1.7	18.7	19.0	8.6
25,000 or more	-	1.3	1.5	0.0	36.9	38.9	5.4	12.1	15.1	0.7

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Development			Type of R&D expense				
		Total	Company funded	Federally funded	Wages and salaries of R&D personnel	Fringe benefits of R&D personnel	Materials and supplies	R&D depreciation	Other costs
All industries	21–23, 31–33, 42, 44–81	15.6	15.2	27.6	44.3	48.3	52.0	45.6	48.1
Manufacturing industries	31–33	20.4	19.8	34.8	50.5	54.5	55.1	47.8	54.0
Food	311	20.4	20.4	0.0	37.8	37.0	32.9	34.5	25.4
Beverage and tobacco products	312	24.3	24.3	0.0	89.9	78.2	83.9	77.8	82.4
Textiles, apparel, and leather	313–16	5.4	5.5	0.0	17.2	22.9	46.9	37.1	20.8
Wood products	321	0.5	1.1	0.0	28.7	38.9	29.6	28.7	26.0
Paper, printing, and support activities	322, 323	0.6	0.8	0.0	83.0	88.8	87.6	92.7	87.8
Petroleum and coal products	324	4.4	4.6	0.0	66.9	74.6	57.2	87.1	40.9
Chemicals	325	16.6	16.6	17.7	58.4	54.8	69.3	53.2	66.2
Basic chemicals	3251	19.6	19.8	13.3	44.7	50.5	48.6	53.5	52.2
Resin, synthetic rubber, fibers, and filament	3252	28.5	28.7	0.0	10.3	21.4	10.9	8.2	54.7
Pharmaceuticals and medicines	3254	15.2	15.2	12.6	64.5	59.3	73.7	62.1	67.4
Other chemicals	other 325	27.1	27.2	45.9	50.6	41.9	53.5	33.8	68.1
Plastics and rubber products	326	2.0	2.0	40.5	22.1	35.2	7.5	47.2	30.1
Nonmetallic mineral products	327	10.5	10.6	0.0	39.2	33.4	35.3	33.8	46.9
Primary metals	331	53.7	51.7	87.3	74.4	33.5	61.2	54.1	58.7
Fabricated metal products	332	17.5	16.2	66.2	30.4	34.3	34.6	44.3	33.5
Machinery	333	9.8	10.6	2.6	52.7	51.2	44.1	46.9	35.2
Computer and electronic products	334	26.9	25.5	46.5	41.2	49.7	53.6	30.6	54.1
Computers and peripheral equipment	3341	18.6	18.6	7.1	40.7	42.9	51.2	26.4	48.3
Communications equipment	3342	54.4	54.0	66.5	39.6	33.9	61.1	33.5	52.1
Semiconductor and other electronic components	3344	13.6	13.6	18.9	18.2	28.6	18.2	18.9	49.2
Navigational, measuring, electromedical, and control instruments	3345	35.5	32.0	45.7	70.7	76.7	78.1	60.8	60.6
Other computer and electronic products	other 334	29.8	29.8	100.0	78.1	79.1	81.2	77.5	79.2
Electrical equipment, appliances, and components	335	17.6	18.6	0.2	37.1	37.9	45.6	55.5	31.1
Transportation equipment	336	20.8	20.1	27.2	55.5	63.1	47.9	60.7	39.1
Motor vehicles, trailers, and parts	3361–63	21.0	21.0	0.0	55.1	50.7	43.8	53.7	59.5
Aerospace products and parts	3364	19.2	18.6	21.7	43.1	72.9	37.6	54.6	14.9
Other transportation equipment	other 336	41.7	27.2	83.1	95.5	94.3	93.2	91.0	94.9
Furniture and related products	337	28.2	29.0	0.0	48.9	57.6	29.9	47.5	43.0
Miscellaneous manufacturing	339	24.2	25.2	4.3	57.0	50.3	71.2	58.6	44.3
Medical equipment and supplies	3391	29.2	29.5	0.9	61.0	54.1	73.7	58.9	47.3
Other miscellaneous manufacturing	other 339	7.1	10.4	18.5	33.8	26.7	36.5	56.0	22.9

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Development			Type of R&D expense				
		Total	Company funded	Federally funded	Wages and salaries of R&D personnel	Fringe benefits of R&D personnel	Materials and supplies	R&D depreciation	Other costs
Nonmanufacturing industries	21–23, 42, 44–81	5.9	5.9	11.3	29.7	31.6	32.8	37.0	28.3
Mining, extraction, and support activities	21	2.4	2.4	0.0	8.7	8.5	25.8	17.7	59.4
Utilities	22	7.4	9.4	0.0	20.7	20.7	29.9	35.0	27.6
Construction	23	0.8	3.5	0.0	93.9	95.2	73.4	98.9	97.6
Wholesale trade	42	4.1	5.9	0.0	31.4	31.8	39.0	36.2	30.0
Retail trade	44, 45	14.3	14.4	0.0	33.5	19.7	21.0	78.9	42.2
Transportation and warehousing	48, 49	1.1	1.1	0.0	66.4	78.5	66.4	80.8	41.1
Information	51	6.9	7.0	1.2	29.3	30.2	27.4	44.9	21.6
Publishing	511	4.9	5.0	0.0	27.2	25.0	24.0	43.4	19.9
Newspaper, periodical, book, and directory	5111	1.9	1.9	0.0	3.7	3.4	7.4	2.1	3.1
Software	5112	5.1	5.2	0.0	28.4	26.1	24.4	52.2	20.5
Telecommunications	517	9.9	9.9	0.0	52.0	56.5	47.9	64.0	32.2
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	5.2	5.2	0.0	50.1	54.2	42.5	61.2	28.7
Satellite telecommunications	5174	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	68.2	68.2	0.0	86.3	91.6	81.8	89.8	87.3
Internet service providers, Web search portals, and data-processing services	518	14.7	15.4	1.5	23.4	40.8	23.1	19.8	23.9
Internet service providers and Web search portals	5181	37.5	37.5	0.0	48.7	56.8	25.2	17.7	47.8
Data-processing, hosting, and related services	5182	3.9	4.1	1.5	13.8	29.0	19.3	33.7	12.7
Other information	other 51	8.0	8.0	0.0	25.7	17.2	20.6	19.1	32.4
Finance, insurance, and real estate	52, 53	5.4	5.4	0.0	34.2	44.4	40.3	54.6	16.4
Professional, scientific, and technical services	54	5.4	5.0	13.1	28.0	30.3	32.3	25.1	31.1
Architectural, engineering, and related services	5413	4.2	3.3	11.3	44.8	45.9	36.5	28.9	48.2
Computer systems design and related services	5415	2.8	2.9	5.6	15.3	15.1	14.6	13.6	10.1
Scientific R&D services	5417	11.3	10.6	18.1	40.0	40.5	37.5	39.0	40.6
Other professional, scientific, and technical services	other 54	3.3	5.2	0.0	36.7	31.0	71.2	75.5	68.2
Health care services	621–23	0.5	0.4	31.8	4.5	4.6	2.1	8.7	1.3
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	2.5	2.7	2.7	19.0	28.4	31.5	41.4	15.9

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size		Development			Type of R&D expense				
		Total	Company funded	Federally funded	Wages and salaries of				
					R&D personnel	Fringe benefits of R&D personnel	Materials and supplies	R&D depreciation	Other costs
NAICS codes									
Company size (employees)									
All companies	-	15.6	15.2	27.6	44.3	48.3	52.0	45.6	48.1
5-24	-	1.2	3.1	4.6	65.0	68.6	50.5	61.9	62.3
25-49	-	3.0	3.4	6.8	45.6	44.6	41.6	39.2	38.3
50-99	-	11.3	11.6	16.0	48.1	48.6	44.5	48.8	43.5
100-249	-	11.2	11.9	6.4	39.0	40.3	33.4	37.4	38.4
250-499	-	14.5	15.9	3.9	37.9	34.0	35.1	34.4	32.6
500-999	-	15.8	13.8	54.5	40.6	44.0	24.7	38.9	42.5
1,000-4,999	-	18.3	18.4	15.4	43.7	42.0	47.2	48.9	49.8
5,000-9,999	-	20.2	18.2	56.4	34.3	37.7	53.6	50.3	36.6
10,000-24,999	-	13.9	13.6	17.8	43.5	45.4	50.9	42.3	46.7
25,000 or more	-	17.4	16.5	38.7	48.1	56.6	59.6	47.2	54.6

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	R&D performed by other organizations			Company-funded R&D projected for next year		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded
All industries	21–23, 31–33, 42, 44–81	14.1	15.1	1.3	46.6	48.1	73.5
Manufacturing industries	31–33	12.8	13.4	2.1	52.6	55.4	81.3
Food	311	3.7	3.7	0.0	39.6	40.6	99.3
Beverage and tobacco products	312	0.0	0.0	0.0	80.9	80.9	0.0
Textiles, apparel, and leather	313–16	2.7	2.7	0.0	14.1	14.3	0.0
Wood products	321	0.0	0.3	0.0	37.1	41.7	38.0
Paper, printing, and support activities	322, 323	86.7	86.7	0.0	79.4	79.3	98.4
Petroleum and coal products	324	5.5	5.8	0.0	51.4	51.4	100.0
Chemicals	325	16.4	16.4	0.0	57.3	59.5	34.6
Basic chemicals	3251	8.7	9.2	0.0	46.2	50.9	39.0
Resin, synthetic rubber, fibers, and filament	3252	73.9	74.1	0.0	20.3	61.6	55.2
Pharmaceuticals and medicines	3254	15.9	15.9	0.0	61.0	61.1	13.7
Other chemicals	other 325	9.7	9.7	0.0	43.5	44.4	50.2
Plastics and rubber products	326	1.9	1.9	0.0	39.9	40.5	30.7
Nonmetallic mineral products	327	3.8	3.8	0.0	25.2	25.2	21.4
Primary metals	331	2.9	2.9	0.0	59.7	58.6	88.5
Fabricated metal products	332	12.6	12.7	0.0	29.9	28.5	65.1
Machinery	333	13.0	13.4	1.6	33.3	33.7	45.3
Computer and electronic products	334	7.1	8.0	0.0	59.0	55.5	83.8
Computers and peripheral equipment	3341	19.6	21.7	0.0	60.4	60.7	13.7
Communications equipment	3342	2.8	2.9	0.0	73.6	73.4	91.7
Semiconductor and other electronic components	3344	0.4	0.4	0.0	48.0	48.1	41.3
Navigational, measuring, electromedical, and control instruments	3345	6.8	8.1	0.0	63.6	48.1	85.1
Other computer and electronic products	other 334	11.6	15.7	0.0	62.2	63.8	0.0
Electrical equipment, appliances, and components	335	6.5	7.9	0.0	39.8	40.4	21.1
Transportation equipment	336	4.1	4.3	3.4	47.4	61.0	81.9
Motor vehicles, trailers, and parts	3361–63	5.5	5.5	0.0	51.8	52.0	33.3
Aerospace products and parts	3364	0.0	0.0	0.0	28.5	73.5	67.2
Other transportation equipment	other 336	50.9	27.3	100.0	90.0	66.9	99.6
Furniture and related products	337	0.8	0.8	0.0	49.0	50.0	0.0
Miscellaneous manufacturing	339	7.4	9.2	0.0	27.7	44.8	12.9
Medical equipment and supplies	3391	7.6	8.4	0.0	28.7	48.1	26.7
Other miscellaneous manufacturing	other 339	5.8	14.7	0.0	21.6	23.0	2.6

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	R&D performed by other organizations			Company-funded R&D projected for next year		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded
Nonmanufacturing industries	21–23, 42, 44–81	18.0	20.5	0.0	33.2	31.7	54.5
Mining, extraction, and support activities	21	28.4	28.4	0.0	10.2	10.2	0.0
Utilities	22	0.0	0.0	0.0	18.3	21.3	0.0
Construction	23	96.5	96.5	0.0	85.6	88.3	14.3
Wholesale trade	42	42.2	50.7	0.0	22.5	23.1	7.4
Retail trade	44, 45	76.1	76.1	0.0	73.8	73.9	0.0
Transportation and warehousing	48, 49	16.2	16.2	0.0	80.0	80.0	0.0
Information	51	10.6	10.6	0.0	36.0	36.8	5.6
Publishing	511	3.9	3.9	0.0	31.8	32.6	16.1
Newspaper, periodical, book, and directory	5111	0.3	0.3	0.0	5.9	5.0	28.0
Software	5112	4.5	4.5	0.0	32.9	33.7	6.2
Telecommunications	517	24.5	24.5	0.0	66.5	66.5	0.0
Wired and wireless (except satellite)							
telecommunications carriers	5171, 5172	7.6	7.6	0.0	66.3	66.3	0.0
Satellite telecommunications	5174	0.0	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	92.7	92.7	0.0	76.3	76.3	0.0
Internet service providers, Web search portals, and data-processing services	518	8.8	8.8	0.0	22.1	23.0	1.3
Internet service providers and Web search portals	5181	22.8	22.8	0.0	29.6	29.6	0.0
Data-processing, hosting, and related services	5182	6.5	6.5	0.0	18.6	19.7	1.3
Other information	other 51	9.9	9.9	0.0	29.6	29.6	0.0
Finance, insurance, and real estate	52, 53	3.6	3.6	0.0	19.8	19.8	0.0
Professional, scientific, and technical services	54	14.7	17.8	0.0	30.4	26.1	56.9
Architectural, engineering, and related services	5413	0.8	3.7	0.0	52.5	27.2	81.6
Computer systems design and related services	5415	6.6	7.4	0.0	17.2	17.3	21.3
Scientific R&D services	5417	20.0	21.5	0.0	37.9	36.8	47.5
Other professional, scientific, and technical services	other 54	4.9	5.2	0.0	23.8	24.3	23.9
Health care services	621–23	0.0	0.0	0.0	3.5	4.0	12.1
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	12.4	12.8	0.0	33.3	31.1	86.4

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

		R&D performed by other organizations			Company-funded R&D projected for next year		
		Total	Company funded	Federally funded	Total	Company funded	Federally funded
Industry and company size	NAICS codes						
Company size (employees)							
All companies	-	14.1	15.1	1.3	46.6	48.1	73.5
5–24	-	7.8	8.8	0.0	17.7	20.4	23.2
25–49	-	7.8	10.5	0.0	17.4	18.4	19.3
50–99	-	12.7	13.4	0.0	31.0	29.8	52.4
100–249	-	32.4	34.2	0.0	31.9	31.8	36.6
250–499	-	10.5	11.4	0.0	31.1	31.7	25.7
500–999	-	41.2	43.5	0.0	41.1	40.4	59.1
1,000–4,999	-	30.9	31.8	0.4	47.6	47.0	68.6
5,000–9,999	-	4.6	4.8	0.0	39.4	39.7	53.9
10,000–24,999	-	0.3	0.4	0.0	41.5	44.1	35.9
25,000 or more	-	9.9	10.5	3.5	61.2	65.6	93.1

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Company-funded R&D performed by other organizations					
		Total	For-profit companies	Federal agencies or laboratories	State government agencies or laboratories	Universities or colleges	Other nonprofit organizations
All industries	21–23, 31–33, 42, 44–81	15.2	16.1	0.1	8.8	10.5	11.1
Manufacturing industries	31–33	13.5	15.1	6.6	15.5	7.8	20.3
Food	311	3.9	66.1	0.0	0.0	0.6	4.3
Beverage and tobacco products	312	0.0	0.0	0.0	0.0	0.0	0.0
Textiles, apparel, and leather	313–16	15.1	13.1	0.0	0.0	0.0	0.0
Wood products	321	0.0	0.0	0.0	0.0	0.0	0.0
Paper, printing, and support activities	322, 323	89.8	0.2	0.0	0.0	6.4	5.1
Petroleum and coal products	324	5.9	5.3	0.0	0.0	13.9	0.0
Chemicals	325	17.4	23.8	0.0	0.0	10.7	21.8
Basic chemicals	3251	12.5	21.4	0.0	0.0	8.0	17.9
Resin, synthetic rubber, fibers, and filament	3252	77.0	81.7	0.0	0.0	8.1	0.0
Pharmaceuticals and medicines	3254	16.8	23.3	0.0	0.0	11.5	24.1
Other chemicals	other 325	10.0	12.5	0.0	0.0	0.0	0.0
Plastics and rubber products	326	2.3	0.0	0.0	0.0	0.0	0.0
Nonmetallic mineral products	327	2.7	0.0	0.0	0.0	0.0	0.0
Primary metals	331	20.0	12.8	0.0	0.0	38.9	0.0
Fabricated metal products	332	29.8	25.6	0.0	0.0	0.0	0.0
Machinery	333	8.7	8.6	0.0	0.0	41.0	0.0
Computer and electronic products	334	8.5	1.5	2.3	0.0	3.1	27.1
Computers and peripheral equipment	3341	10.7	1.6	0.0	0.0	31.2	0.0
Communications equipment	3342	3.1	2.5	100.0	0.0	0.0	100.0
Semiconductor and other electronic components	3344	0.4	1.3	0.0	0.0	0.3	0.0
Navigational, measuring, electromedical, and control instruments	3345	11.0	0.9	0.0	0.0	2.5	16.4
Other computer and electronic products	other 334	23.4	27.4	0.0	0.0	0.0	0.0
Electrical equipment, appliances, and components	335	13.8	1.0	0.0	0.0	0.0	0.0
Transportation equipment	336	3.8	3.8	0.0	0.0	1.9	0.0
Motor vehicles, trailers, and parts	3361–63	4.4	4.4	0.0	0.0	20.8	0.0
Aerospace products and parts	3364	0.0	0.0	0.0	0.0	0.0	0.0
Other transportation equipment	other 336	35.4	79.5	0.0	0.0	0.0	0.0
Furniture and related products	337	6.6	6.6	0.0	0.0	0.0	0.0
Miscellaneous manufacturing	339	9.3	10.5	15.2	100.0	11.3	0.0
Medical equipment and supplies	3391	9.0	10.3	15.2	100.0	10.4	0.0
Other miscellaneous manufacturing	other 339	11.9	13.4	0.0	0.0	86.6	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Company-funded R&D performed by other organizations					
		Total	For-profit companies	Federal agencies or laboratories	State government agencies or laboratories	Universities or colleges	Other nonprofit organizations
Nonmanufacturing industries	21–23, 42, 44–81	21.0	20.9	0.0	0.0	32.7	1.1
Mining, extraction, and support activities	21	29.1	40.4	83.3	0.0	59.8	100.0
Utilities	22	0.0	0.0	0.0	0.0	0.0	0.0
Construction	23	96.5	96.5	0.0	0.0	0.0	0.0
Wholesale trade	42	79.3	17.0	0.0	0.0	21.5	0.0
Retail trade	44, 45	78.3	82.1	0.0	0.0	0.0	0.0
Transportation and warehousing	48, 49	16.4	0.0	0.0	0.0	0.0	0.0
Information	51	11.7	5.4	0.0	0.0	0.0	0.0
Publishing	511	4.0	3.5	0.0	0.0	0.0	0.0
Newspaper, periodical, book, and directory	5111	0.3	0.0	0.0	0.0	0.0	0.0
Software	5112	4.6	4.0	0.0	0.0	0.0	0.0
Telecommunications	517	26.5	0.0	0.0	0.0	0.0	0.0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	7.6	0.0	0.0	0.0	0.0	0.0
Satellite telecommunications	5174	0.0	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	100.0	0.0	0.0	0.0	0.0	0.0
Internet service providers, Web search portals, and data-processing services	518	10.7	9.8	0.0	0.0	0.0	0.0
Internet service providers and Web search portals	5181	100.0	100.0	0.0	0.0	0.0	0.0
Data-processing, hosting, and related services	5182	7.1	6.1	0.0	0.0	0.0	0.0
Other information	other 51	10.7	10.7	0.0	0.0	0.0	0.0
Finance, insurance, and real estate	52, 53	4.0	4.4	0.0	0.0	0.0	0.0
Professional, scientific, and technical services	54	16.6	20.9	0.0	0.0	36.7	23.0
Architectural, engineering, and related services	5413	1.8	5.5	0.0	0.0	0.0	0.0
Computer systems design and related services	5415	13.5	13.6	0.0	0.0	40.0	0.0
Scientific R&D services	5417	18.2	26.4	0.0	0.0	36.6	26.6
Other professional, scientific, and technical services	other 54	10.3	6.8	0.0	0.0	0.0	0.0
Health care services	621–23	0.0	0.0	0.0	0.0	0.0	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	25.7	1.3	0.0	0.0	0.0	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

		Company-funded R&D performed by other organizations					
Industry and company size	NAICS codes	Total	For-profit companies	Federal agencies or laboratories	State government agencies or laboratories	Universities or colleges	Other nonprofit organizations
Company size (employees)							
All companies	-	15.2	16.1	0.1	8.8	10.5	11.1
5–24	-	76.6	79.0	0.0	0.0	0.0	0.0
25–49	-	22.9	16.1	0.0	0.0	42.4	33.0
50–99	-	26.2	19.4	100.0	93.2	20.3	0.0
100–249	-	24.0	30.3	0.0	0.0	15.8	0.0
250–499	-	11.9	12.5	3.4	0.0	6.8	42.7
500–999	-	38.0	41.4	0.0	0.0	38.5	63.5
1,000–4,999	-	28.5	40.5	0.0	0.0	34.6	22.3
5,000–9,999	-	4.5	5.0	0.0	0.0	0.1	0.5
10,000–24,999	-	1.1	0.4	0.0	0.0	0.0	0.0
25,000 or more	-	10.5	6.8	0.4	0.0	4.2	1.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Total	Company-funded collaborative R&D performed by other organizations					Domestic Sales employment	
			For-profit companies	Federal agencies or laboratories	State government agencies or laboratories	Universities or colleges	Other nonprofit organizations		
All industries	21–23, 31–33, 42, 44–81	29.0	28.9	0.0	0.0	0.0	0.0	9.9	10.0
Manufacturing industries	31–33	43.8	43.4	0.0	0.0	0.0	0.0	6.4	6.0
Food	311	0.0	0.0	0.0	0.0	0.0	0.0	7.7	7.2
Beverage and tobacco products	312	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles, apparel, and leather	313–16	0.0	0.0	0.0	0.0	0.0	0.0	2.2	1.3
Wood products	321	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0
Paper, printing, and support activities	322, 323	0.0	0.0	0.0	0.0	0.0	0.0	14.9	8.2
Petroleum and coal products	324	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.5
Chemicals	325	0.0	0.0	0.0	0.0	0.0	0.0	9.6	5.9
Basic chemicals	3251	0.0	0.0	0.0	0.0	0.0	0.0	17.0	13.7
Resin, synthetic rubber, fibers, and filament	3252	0.0	0.0	0.0	0.0	0.0	0.0	7.2	6.2
Pharmaceuticals and medicines	3254	0.0	0.0	0.0	0.0	0.0	0.0	10.7	5.7
Other chemicals	other 325	0.0	0.0	0.0	0.0	0.0	0.0	2.4	1.8
Plastics and rubber products	326	0.0	0.0	0.0	0.0	0.0	0.0	2.9	2.8
Nonmetallic mineral products	327	0.0	0.0	0.0	0.0	0.0	0.0	11.9	8.9
Primary metals	331	0.0	0.0	0.0	0.0	0.0	0.0	13.4	9.9
Fabricated metal products	332	0.0	0.0	0.0	0.0	0.0	0.0	1.9	2.0
Machinery	333	0.0	0.0	0.0	0.0	0.0	0.0	7.0	6.8
Computer and electronic products	334	0.0	0.0	0.0	0.0	0.0	0.0	10.2	9.0
Computers and peripheral equipment	3341	0.0	0.0	0.0	0.0	0.0	0.0	12.4	10.2
Communications equipment	3342	0.0	0.0	0.0	0.0	0.0	0.0	5.8	6.9
Semiconductor and other electronic components	3344	0.0	0.0	0.0	0.0	0.0	0.0	8.8	5.3
Navigational, measuring, electromedical, and control instruments	3345	0.0	0.0	0.0	0.0	0.0	0.0	9.6	10.6
Other computer and electronic products	other 334	0.0	0.0	0.0	0.0	0.0	0.0	35.4	33.9
Electrical equipment, appliances, and components	335	0.0	0.0	0.0	0.0	0.0	0.0	15.3	8.4
Transportation equipment	336	73.2	73.3	0.0	0.0	0.0	0.0	2.3	4.5
Motor vehicles, trailers, and parts	3361–63	0.0	0.0	0.0	0.0	0.0	0.0	1.8	4.0
Aerospace products and parts	3364	95.1	95.1	0.0	0.0	0.0	0.0	1.1	0.3
Other transportation equipment	other 336	0.0	0.0	0.0	0.0	0.0	0.0	9.1	14.8
Furniture and related products	337	0.0	0.0	0.0	0.0	0.0	0.0	6.0	8.1
Miscellaneous manufacturing	339	0.0	0.0	0.0	0.0	0.0	0.0	10.2	5.7
Medical equipment and supplies	3391	0.0	0.0	0.0	0.0	0.0	0.0	12.8	7.4
Other miscellaneous manufacturing	other 339	0.0	0.0	0.0	0.0	0.0	0.0	4.6	2.6

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Company-funded collaborative R&D performed by other organizations						Domestic Sales employment	
		Total	For-profit companies	Federal agencies or laboratories	State government agencies or laboratories	Universities or colleges	Other nonprofit organizations		
Nonmanufacturing industries	21–23, 42, 44–81	0.5	0.4	0.0	0.0	0.0	0.0	16.5	15.7
Mining, extraction, and support activities	21	0.0	0.0	0.0	0.0	0.0	0.0	2.4	1.3
Utilities	22	13.0	32.2	0.0	0.0	0.0	0.0	0.0	0.0
Construction	23	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.5
Wholesale trade	42	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.9
Retail trade	44, 45	0.0	0.0	0.0	0.0	0.0	0.0	42.3	40.6
Transportation and warehousing	48, 49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Information	51	0.0	0.0	0.0	0.0	0.0	0.0	16.1	20.8
Publishing	511	0.0	0.0	0.0	0.0	0.0	0.0	7.6	8.0
Newspaper, periodical, book, and directory	5111	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.5
Software	5112	0.0	0.0	0.0	0.0	0.0	0.0	9.8	11.2
Telecommunications	517	0.0	0.0	0.0	0.0	0.0	0.0	15.7	23.3
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	0.0	0.0	0.0	0.0	0.0	0.0	7.4	10.6
Satellite telecommunications	5174	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	0.0	0.0	0.0	0.0	0.0	0.0	69.8	80.5
Internet service providers, Web search portals, and data-processing services	518	0.0	0.0	0.0	0.0	0.0	0.0	11.5	12.2
Internet service providers and Web search portals	5181	0.0	0.0	0.0	0.0	0.0	0.0	2.9	3.4
Data-processing, hosting, and related services	5182	0.0	0.0	0.0	0.0	0.0	0.0	15.5	13.5
Other information	other 51	0.0	0.0	0.0	0.0	0.0	0.0	40.6	38.5
Finance, insurance, and real estate	52, 53	0.0	0.0	0.0	0.0	0.0	0.0	23.4	26.4
Professional, scientific, and technical services	54	0.7	0.7	0.0	0.0	0.0	0.0	9.4	6.5
Architectural, engineering, and related services	5413	0.0	0.0	0.0	0.0	0.0	0.0	1.9	12.8
Computer systems design and related services	5415	0.0	0.0	0.0	0.0	0.0	0.0	4.1	1.6
Scientific R&D services	5417	1.0	1.0	0.0	0.0	0.0	0.0	29.6	21.3
Other professional, scientific, and technical services	other 54	0.0	0.0	0.0	0.0	0.0	0.0	19.4	5.8
Health care services	621–23	0.0	0.0	0.0	0.0	0.0	0.0	20.1	22.9
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	0.0	0.0	0.0	0.0	0.0	0.0	9.7	8.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

		Company-funded collaborative R&D performed by other organizations								
Industry and company size	NAICS codes	Total	For-profit companies	Federal agencies or laboratories	State government agencies or laboratories	Universities or colleges	Other nonprofit organizations	Sales	Domestic employment	
Company size (employees)										
All companies	-	29.0	28.9	0.0	0.0	0.0	0.0	9.9	10.0	
5-24	-	0.0	0.0	0.0	0.0	0.0	0.0	15.1	1.2	
25-49	-	0.0	0.0	0.0	0.0	0.0	0.0	18.1	0.7	
50-99	-	5.4	5.3	0.0	0.0	0.0	0.0	16.3	2.3	
100-249	-	0.0	0.0	0.0	0.0	0.0	0.0	4.3	2.9	
250-499	-	0.0	0.0	0.0	0.0	0.0	0.0	6.9	4.9	
500-999	-	0.0	0.1	0.0	0.0	0.0	0.0	6.6	5.5	
1,000-4,999	-	0.0	0.0	0.0	0.0	0.0	0.0	10.3	8.6	
5,000-9,999	-	0.3	0.2	0.0	0.0	0.0	0.0	5.7	5.1	
10,000-24,999	-	0.0	0.0	0.0	0.0	0.0	0.0	14.3	12.4	
25,000 or more	-	61.5	62.3	0.0	0.0	0.0	0.0	9.5	13.8	

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	R&D area					Scientists and engineers by source of funds		
		Biotechnology	Software development	Materials synthesis and processing	Other areas	Percentage of nanotechnology	Total	Company funded	Federally funded
All industries	21–23, 31–33, 42, 44–81	19.9	11.2	12.9	21.8	0.0	34.7	34.9	68.5
Manufacturing industries	31–33	22.2	15.0	15.2	23.8	0.0	40.9	42.1	80.4
Food	311	6.4	0.0	2.5	18.2	0.0	32.1	27.6	100.0
Beverage and tobacco products	312	0.0	100.0	7.0	11.7	0.0	84.7	84.5	0.0
Textiles, apparel, and leather	313–16	0.0	0.0	8.0	2.6	0.0	60.2	54.6	93.8
Wood products	321	0.0	0.0	0.0	0.0	0.0	40.6	21.7	100.0
Paper, printing, and support activities	322, 323	0.0	53.3	5.1	2.1	0.0	63.5	58.6	97.5
Petroleum and coal products	324	0.0	0.0	53.3	2.9	0.0	48.5	57.5	12.9
Chemicals	325	24.4	66.4	34.5	11.5	0.0	43.4	53.1	37.8
Basic chemicals	3251	5.4	15.2	33.1	11.3	0.0	33.1	34.7	13.1
Resin, synthetic rubber, fibers, and filament	3252	1.2	0.0	41.6	70.8	0.0	12.4	84.1	91.8
Pharmaceuticals and medicines	3254	25.0	21.5	15.4	2.8	0.0	50.0	56.6	69.7
Other chemicals	other 325	16.1	98.5	51.1	29.2	0.0	33.9	33.5	50.2
Plastics and rubber products	326	0.0	6.3	7.6	3.2	0.0	30.1	28.0	85.0
Nonmetallic mineral products	327	0.0	55.1	18.0	0.5	0.0	53.2	52.9	70.6
Primary metals	331	0.0	4.3	77.7	16.7	0.0	53.6	42.8	98.8
Fabricated metal products	332	99.8	20.8	19.5	5.8	0.0	21.1	21.7	95.0
Machinery	333	2.1	41.8	8.2	22.3	0.0	40.8	46.2	79.9
Computer and electronic products	334	8.3	18.4	4.6	13.0	0.0	36.6	31.3	91.3
Computers and peripheral equipment	3341	0.0	5.1	27.6	14.2	0.0	16.1	14.6	17.6
Communications equipment	3342	0.0	27.4	45.7	11.4	0.0	42.0	42.9	68.8
Semiconductor and other electronic components	3344	0.3	7.0	2.0	14.4	0.0	22.5	22.9	78.1
Navigational, measuring, electromedical, and control instruments	3345	14.0	32.9	16.4	8.9	0.0	58.3	46.3	93.2
Other computer and electronic products	other 334	0.0	30.1	46.2	25.2	0.0	22.3	20.4	85.5
Electrical equipment, appliances, and components	335	0.0	33.9	2.4	20.6	0.0	32.3	35.4	72.1
Transportation equipment	336	0.0	6.1	23.9	42.0	0.0	49.6	54.5	58.0
Motor vehicles, trailers, and parts	3361–63	0.0	61.6	31.0	36.1	0.0	50.1	50.3	31.0
Aerospace products and parts	3364	0.0	0.0	4.7	11.7	0.0	56.0	64.3	47.3
Other transportation equipment	other 336	0.0	92.4	0.3	95.2	0.0	17.4	58.6	98.9
Furniture and related products	337	0.0	37.8	0.0	7.0	0.0	46.6	45.4	0.0
Miscellaneous manufacturing	339	2.7	21.8	18.0	18.0	0.0	25.2	27.2	77.9
Medical equipment and supplies	3391	2.7	15.1	25.4	22.8	0.0	24.8	29.0	53.1
Other miscellaneous manufacturing	other 339	0.0	38.2	7.8	8.4	0.0	26.6	21.9	97.7

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	R&D area					Scientists and engineers by source of funds		
		Biotechnology	Software development	Materials synthesis and processing	Other areas	Percentage of nanotechnology	Total	Company funded	Federally funded
Nonmanufacturing industries	21–23, 42, 44–81	13.4	10.0	4.8	12.2	0.0	24.0	22.3	50.6
Mining, extraction, and support activities	21	7.6	12.1	22.1	49.9	0.0	10.1	40.2	100.0
Utilities	22	0.0	0.0	0.0	0.9	0.0	24.3	28.7	11.1
Construction	23	0.0	89.5	4.1	7.9	0.0	10.7	90.3	97.7
Wholesale trade	42	9.2	5.2	16.9	5.3	0.0	21.5	16.2	82.9
Retail trade	44, 45	0.0	44.4	3.3	2.0	0.0	30.7	30.7	0.0
Transportation and warehousing	48, 49	0.0	0.0	0.0	12.0	0.0	64.0	63.0	100.0
Information	51	16.2	8.9	0.0	5.1	0.0	17.7	17.0	51.7
Publishing	511	50.2	8.8	0.7	0.9	0.0	16.4	16.3	61.8
Newspaper, periodical, book, and directory	5111	0.0	9.9	2.4	0.0	0.0	19.9	12.4	44.1
Software	5112	91.7	8.8	0.0	11.1	0.0	16.2	16.5	74.2
Telecommunications	517	0.0	15.3	0.0	8.9	0.0	25.9	25.0	0.0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	0.0	6.6	0.0	4.9	0.0	22.7	22.0	0.0
Satellite telecommunications	5174	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	0.0	78.0	0.0	67.8	0.0	68.1	65.4	0.0
Internet service providers, Web search portals, and data-processing services	518	0.0	8.9	0.0	0.0	0.0	18.3	15.6	45.4
Internet service providers and Web search portals	5181	0.0	8.9	0.0	0.0	0.0	29.4	28.8	0.0
Data-processing, hosting, and related services	5182	0.0	8.9	0.0	0.0	0.0	15.3	11.7	45.4
Other information	other 51	0.0	0.0	0.0	31.8	0.0	37.5	28.3	0.0
Finance, insurance, and real estate	52, 53	100.0	22.7	0.0	0.6	0.0	23.5	22.3	0.0
Professional, scientific, and technical services	54	14.0	8.9	4.3	19.1	0.0	29.0	22.7	51.4
Architectural, engineering, and related services	5413	5.6	4.9	19.0	15.0	0.0	44.8	36.0	64.2
Computer systems design and related services	5415	0.0	7.3	0.0	14.8	0.0	24.4	16.7	30.6
Scientific R&D services	5417	14.2	30.4	13.3	23.5	0.0	28.3	29.2	51.8
Other professional, scientific, and technical services	other 54	0.0	8.0	3.1	18.2	0.0	24.4	27.2	16.5
Health care services	621–23	2.5	0.0	0.0	0.5	0.0	17.5	18.0	37.7
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	0.0	8.1	0.0	8.3	0.0	34.7	17.8	0.8

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

		R&D area					Scientists and engineers by source of funds		
				Materials					
Industry and company size	NAICS codes	Biotechnology	Software development	synthesis and processing	Other areas	Percentage of nanotechnology	Total	Company funded	Federally funded
Company size (employees)									
All companies	-	19.9	11.2	12.9	21.8	0.0	34.7	34.9	68.5
5-24	-	18.5	5.9	3.2	14.2	0.0	24.5	16.9	47.3
25-49	-	11.6	6.3	3.0	10.9	0.0	20.3	18.9	75.3
50-99	-	16.4	14.9	12.5	14.1	0.0	26.5	17.6	62.2
100-249	-	12.6	19.8	23.8	12.9	0.0	27.5	23.0	42.3
250-499	-	17.6	27.2	19.6	11.4	0.0	25.7	27.2	41.8
500-999	-	26.1	28.0	19.3	12.4	0.0	30.4	29.5	45.6
1,000-4,999	-	59.1	14.9	21.7	16.6	0.0	34.1	35.2	27.0
5,000-9,999	-	0.0	9.3	7.5	6.9	0.0	29.5	32.9	16.7
10,000-24,999	-	0.0	11.4	2.5	13.8	0.0	48.3	55.3	91.5
25,000 or more	-	1.8	5.0	12.3	42.6	0.0	37.9	36.9	82.4

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Total	Company-funded R&D performed outside of the 50 United States and DC						
			By organizations more than 50% owned by the company						
			Puerto Rico	Canada	China	France	Germany	India	Ireland
All industries	21–23, 31–33, 42, 44–81	11.4	0.0	5.2	4.7	16.2	16.0	8.8	41.6
Manufacturing industries	31–33	12.7	0.0	3.6	5.6	17.1	17.1	3.5	53.0
Food	311	23.5	0.0	15.8	0.0	48.2	3.6	0.0	4.3
Beverage and tobacco products	312	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles, apparel, and leather	313–16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wood products	321	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Paper, printing, and support activities	322, 323	27.6	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Petroleum and coal products	324	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals	325	9.9	0.0	4.4	0.9	3.3	19.8	1.0	83.3
Basic chemicals	3251	17.7	0.0	0.0	0.0	0.0	74.4	0.0	0.0
Resin, synthetic rubber, fibers, and filament	3252	4.9	0.0	0.0	0.0	0.0	3.1	0.0	0.0
Pharmaceuticals and medicines	3254	10.7	0.0	4.0	1.4	3.6	11.7	1.6	83.6
Other chemicals	other 325	0.4	0.0	38.7	0.0	0.0	0.0	0.0	0.0
Plastics and rubber products	326	0.5	0.0	1.4	0.0	0.0	0.0	0.0	0.0
Nonmetallic mineral products	327	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Primary metals	331	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fabricated metal products	332	6.0	0.0	62.3	0.0	26.1	0.0	0.0	9.4
Machinery	333	5.8	0.0	33.5	3.4	6.5	9.3	0.0	0.0
Computer and electronic products	334	13.1	0.0	5.0	2.8	40.6	14.1	4.2	4.9
Computers and peripheral equipment	3341	1.6	0.0	0.0	0.0	34.7	0.0	0.0	0.7
Communications equipment	3342	8.8	0.0	6.6	23.2	0.0	17.0	17.2	2.4
Semiconductor and other electronic components	3344	2.8	0.0	3.1	1.9	61.2	4.7	3.3	2.8
Navigational, measuring, electromedical, and control instruments	3345	66.1	0.0	11.3	0.0	0.0	47.8	18.0	79.5
Other computer and electronic products	other 334	1.4	0.0	10.8	0.0	0.0	0.0	100.0	0.0
Electrical equipment, appliances, and components	335	27.7	0.0	0.0	0.0	0.0	64.9	0.0	0.0
Transportation equipment	336	18.3	0.0	0.6	32.6	46.8	16.4	2.5	0.0
Motor vehicles, trailers, and parts	3361–63	22.9	0.0	0.9	94.8	71.0	16.9	27.4	0.0
Aerospace products and parts	3364	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other transportation equipment	other 336	89.6	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Furniture and related products	337	3.9	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Miscellaneous manufacturing	339	2.3	0.0	3.7	0.0	0.0	7.7	0.0	0.9
Medical equipment and supplies	3391	2.7	0.0	4.6	0.0	0.0	8.4	0.0	0.9
Other miscellaneous manufacturing	other 339	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Company-funded R&D performed outside of the 50 United States and DC							
		Total	By organizations more than 50% owned by the company						
			Puerto Rico	Canada	China	France	Germany	India	Ireland
Nonmanufacturing industries	21–23, 42, 44–81	5.9	0.6	7.4	1.6	3.4	9.1	16.8	9.3
Mining, extraction, and support activities	21	6.8	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Utilities	22	36.9	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Construction	23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wholesale trade	42	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retail trade	44, 45	6.4	0.0	0.0	90.1	0.0	12.8	56.3	0.0
Transportation and warehousing	48, 49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Information	51	7.9	0.0	13.5	0.0	4.1	1.3	20.8	12.1
Publishing	511	11.3	0.0	18.2	0.0	5.8	4.4	26.6	14.3
Newspaper, periodical, book, and directory	5111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software	5112	11.4	0.0	18.4	0.0	5.8	4.5	26.6	14.3
Telecommunications	517	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wired and wireless (except satellite)									
telecommunications carriers	5171, 5172	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Satellite telecommunications	5174	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Internet service providers, Web search portals, and data-processing services	518	0.3	0.0	0.0	0.0	0.0	0.0	2.7	0.0
Internet service providers and Web search portals	5181	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Data-processing, hosting, and related services	5182	0.3	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Other information	other 51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Finance, insurance, and real estate	52, 53	37.4	0.0	0.0	0.0	0.0	88.4	100.0	0.0
Professional, scientific, and technical services	54	3.1	100.0	1.2	0.0	7.7	1.5	6.0	0.0
Architectural, engineering, and related services	5413	2.7	100.0	0.0	0.0	0.0	8.4	2.5	0.0
Computer systems design and related services	5415	3.1	0.0	1.6	0.0	9.6	0.4	7.6	0.0
Scientific R&D services	5417	3.5	0.0	0.4	0.0	0.0	2.0	0.0	0.0
Other professional, scientific, and technical services	other 54	1.9	0.0	2.6	0.0	89.0	54.2	0.0	0.0
Health care services	621–23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	1.4	0.0	3.5	0.0	0.4	0.0	0.0	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

		Company-funded R&D performed outside of the 50 United States and DC							
		By organizations more than 50% owned by the company							
Industry and company size	NAICS codes	Total	Puerto Rico	Canada	China	France	Germany	India	Ireland
Company size (employees)									
All companies	-	11.4	0.0	5.2	4.7	16.2	16.0	8.8	41.6
5–24	-	0.8	0.0	0.0	0.0	0.0	100.0	0.0	0.0
25–49	-	3.2	0.0	9.9	0.0	0.0	0.0	0.0	0.0
50–99	-	12.0	0.0	21.0	0.0	0.0	0.0	4.4	0.0
100–249	-	4.2	0.0	3.2	0.0	0.5	1.3	1.3	100.0
250–499	-	17.3	0.0	4.8	0.9	13.9	8.6	31.4	6.8
500–999	-	19.7	0.0	53.5	3.4	10.0	24.8	34.8	2.7
1,000–4,999	-	17.6	0.6	7.4	6.4	8.3	19.6	19.0	70.2
5,000–9,999	-	15.8	0.0	9.5	19.3	3.1	33.3	0.3	0.0
10,000–24,999	-	21.5	0.0	3.8	0.0	41.0	12.0	0.7	3.3
25,000 or more	-	6.2	0.0	0.5	5.0	30.7	13.2	0.6	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Company-funded R&D performed outside of the 50 United States and DC						
		By organizations more than 50% owned by the company						Other locations
		Israel	Italy	Japan	Singapore	Sweden	United Kingdom	
All industries	21–23, 31–33, 42, 44–81	1.6	11.2	7.2	72.6	2.3	14.3	14.4
Manufacturing industries	31–33	0.0	13.2	8.6	74.0	2.1	18.9	15.3
Food	311	0.0	57.9	0.0	0.0	0.0	25.4	51.5
Beverage and tobacco products	312	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles, apparel, and leather	313–16	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wood products	321	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Paper, printing, and support activities	322, 323	0.0	0.0	0.0	0.0	0.0	0.0	71.3
Petroleum and coal products	324	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals	325	0.0	14.0	2.7	0.0	1.7	12.0	2.6
Basic chemicals	3251	0.0	31.7	0.0	0.0	57.1	6.3	7.4
Resin, synthetic rubber, fibers, and filament	3252	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pharmaceuticals and medicines	3254	0.0	15.0	3.0	0.0	0.0	12.8	3.1
Other chemicals	other 325	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Plastics and rubber products	326	0.0	0.0	0.0	0.0	0.0	0.0	43.8
Nonmetallic mineral products	327	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Primary metals	331	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fabricated metal products	332	0.0	0.0	0.0	0.0	0.0	2.2	39.2
Machinery	333	0.0	2.6	4.4	6.5	0.0	10.1	14.5
Computer and electronic products	334	0.0	0.0	18.1	82.2	0.0	29.3	10.6
Computers and peripheral equipment	3341	0.0	0.0	7.5	0.0	0.0	2.7	1.6
Communications equipment	3342	0.0	0.0	24.2	98.9	0.0	43.2	39.0
Semiconductor and other electronic components	3344	0.0	0.0	0.8	0.0	0.0	1.4	70.3
Navigational, measuring, electromedical, and control instruments	3345	0.0	0.0	61.3	89.9	0.0	57.5	31.1
Other computer and electronic products	other 334	0.0	0.0	0.0	0.0	0.0	0.0	23.7
Electrical equipment, appliances, and components	335	0.0	0.0	0.0	0.0	0.0	47.8	0.0
Transportation equipment	336	1.0	28.8	27.0	0.0	3.0	32.5	76.8
Motor vehicles, trailers, and parts	3361–63	0.0	39.5	53.7	0.0	3.9	49.9	88.8
Aerospace products and parts	3364	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other transportation equipment	other 336	100.0	0.0	0.0	0.0	0.0	0.0	76.2
Furniture and related products	337	0.0	0.0	0.0	0.0	0.0	9.6	0.0
Miscellaneous manufacturing	339	0.0	0.0	16.4	0.0	0.0	18.0	37.1
Medical equipment and supplies	3391	0.0	0.0	19.2	0.0	0.0	49.9	40.1
Other miscellaneous manufacturing	other 339	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Company-funded R&D performed outside of the 50 United States and DC						
		By organizations more than 50% owned by the company						
		Israel	Italy	Japan	Singapore	Sweden	United Kingdom	Other locations
Nonmanufacturing industries	21–23, 42, 44–81	15.7	0.1	2.2	27.3	8.6	3.0	3.1
Mining, extraction, and support activities	21	0.0	0.0	0.0	0.0	0.0	0.0	2.5
Utilities	22	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	23	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wholesale trade	42	0.0	0.0	0.0	0.0	0.0	0.0	25.8
Retail trade	44, 45	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Transportation and warehousing	48, 49	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Information	51	25.2	0.0	3.1	1.4	14.0	3.6	3.1
Publishing	511	32.6	0.0	3.3	4.6	35.3	6.1	0.2
Newspaper, periodical, book, and directory	5111	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software	5112	33.0	0.0	3.3	4.6	35.3	6.5	0.2
Telecommunications	517	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Satellite telecommunications	5174	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Internet service providers, Web search portals, and data-processing services	518	13.2	0.0	0.0	0.0	0.0	0.2	5.6
Internet service providers and Web search portals	5181	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Data-processing, hosting, and related services	5182	13.2	0.0	0.0	0.0	0.0	0.2	0.0
Other information	other 51	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Finance, insurance, and real estate	52, 53	0.0	0.0	0.0	0.0	0.0	0.0	3.1
Professional, scientific, and technical services	54	3.7	0.2	0.9	59.9	0.0	2.1	2.9
Architectural, engineering, and related services	5413	0.0	0.0	0.0	66.1	0.0	1.1	11.7
Computer systems design and related services	5415	5.7	0.0	0.9	0.0	0.0	1.0	4.0
Scientific R&D services	5417	0.0	0.0	0.0	0.0	0.0	9.2	0.0
Other professional, scientific, and technical services	other 54	0.0	63.7	0.0	0.0	0.0	4.8	0.0
Health care services	621–23	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	0.0	0.0	0.0	0.0	0.0	3.9	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

		Company-funded R&D performed outside of the 50 United States and DC						
		By organizations more than 50% owned by the company						
Industry and company size	NAICS codes	Israel	Italy	Japan	Singapore	Sweden	United Kingdom	Other locations
Company size (employees)								
All companies	-	1.6	11.2	7.2	72.6	2.3	14.3	14.4
5–24	-	0.0	0.0	0.0	0.0	0.0	100.0	0.0
25–49	-	0.0	0.0	0.0	0.0	0.0	10.4	5.1
50–99	-	0.0	0.0	0.0	0.0	0.0	96.8	0.0
100–249	-	0.0	62.6	0.0	0.0	0.0	23.0	8.1
250–499	-	1.2	0.0	21.5	9.1	5.9	7.9	50.9
500–999	-	3.8	9.2	18.0	3.1	0.0	18.0	2.7
1,000–4,999	-	5.9	19.9	3.9	27.0	1.3	10.4	12.3
5,000–9,999	-	0.0	0.0	30.7	0.0	0.0	36.5	22.6
10,000–24,999	-	0.0	0.0	13.8	99.5	0.0	15.8	25.7
25,000 or more	-	0.0	7.4	4.2	0.0	2.7	8.6	13.4

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Energy R&D							
		Total				Federally funded			
		Fossil fuels	Geothermal and solar	Nuclear	All other energy sources	Fossil fuels	Geothermal and solar	Nuclear	All other energy sources
All industries	21–23, 31–33, 42, 44–81	0.0	0.0	1.7	1.4	1.5	0.0	79.9	0.0
Manufacturing industries	31–33	0.0	0.0	1.8	0.0	0.0	0.0	97.4	0.0
Food	311	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beverage and tobacco products	312	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles, apparel, and leather	313–16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wood products	321	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Paper, printing, and support activities	322, 323	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum and coal products	324	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals	325	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Basic chemicals	3251	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Resin, synthetic rubber, fibers, and filament	3252	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pharmaceuticals and medicines	3254	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other chemicals	other 325	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Plastics and rubber products	326	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nonmetallic mineral products	327	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Primary metals	331	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fabricated metal products	332	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Machinery	333	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer and electronic products	334	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0
Computers and peripheral equipment	3341	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Communications equipment	3342	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Semiconductor and other electronic components	3344	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Navigational, measuring, electromedical, and control instruments	3345	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0
Other computer and electronic products	other 334	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electrical equipment, appliances, and components	335	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation equipment	336	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Motor vehicles, trailers, and parts	3361–63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aerospace products and parts	3364	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other transportation equipment	other 336	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Furniture and related products	337	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Miscellaneous manufacturing	339	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Medical equipment and supplies	3391	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other miscellaneous manufacturing	other 339	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size	NAICS codes	Energy R&D							
		Total				Federally funded			
		Fossil fuels	Geothermal and solar	Nuclear	All other energy sources	Fossil fuels	Geothermal and solar	Nuclear	All other energy sources
Nonmanufacturing industries	21–23, 42, 44–81	0.0	0.0	0.0	14.0	2.2	0.0	0.0	0.0
Mining, extraction, and support activities	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Utilities	22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	23	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
Wholesale trade	42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retail trade	44, 45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation and warehousing	48, 49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Information	51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Publishing	511	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Newspaper, periodical, book, and directory	5111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software	5112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Telecommunications	517	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Satellite telecommunications	5174	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other telecommunications	other 517	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Internet service providers, Web search portals, and data-processing services	518	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Internet service providers and Web search portals	5181	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Data-processing, hosting, and related services	5182	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other information	other 51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Finance, insurance, and real estate	52, 53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Professional, scientific, and technical services	54	0.0	0.0	0.0	37.0	0.0	0.0	0.0	0.0
Architectural, engineering, and related services	5413	0.0	0.0	0.0	88.2	0.0	0.0	0.0	0.0
Computer systems design and related services	5415	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Scientific R&D services	5417	0.0	0.0	0.0	23.4	0.0	0.0	0.0	0.0
Other professional, scientific, and technical services	other 54	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Health care services	621–23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE A-5. Imputation rates for survey items, by industry and company size: 2005
(Percent)

Industry and company size		Energy R&D							
		Total				Federally funded			
		Fossil fuels	Geothermal and solar	Nuclear	All other energy sources	Fossil fuels	Geothermal and solar	Nuclear	All other energy sources
Company size (employees)									
All companies	-	0.0	0.0	1.7	1.4	1.5	0.0	79.9	0.0
5-24	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-49	-	0.0	0.0	0.0	36.5	0.0	0.0	0.0	0.0
50-99	-	0.0	0.0	0.0	65.8	0.0	0.0	0.0	0.0
100-249	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250-499	-	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0
500-999	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1,000-4,999	-	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
5,000-9,999	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000-24,999	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25,000 or more	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

- = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. The figures in this table represent the percentage of the value in a given table cell in the detailed statistical tables that has been imputed. In those tables, cells for which more than 50% of the value is imputed are noted with i. Cells in this table that contain 0.0 indicate that no imputation was performed or, if performed, imputation accounted for less than 0.1% of the estimate for the indicated item. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE A-6. Percentage of R&D-performing companies that reported non-zero data for major survey items:

2005

(Percent)

Survey item	Form RD-1	Form RD-1A
All R&D	100.0	100.0
Company-funded R&D	97.8	96.6
Federal R&D	14.2	6.1
Basic research	15.3	9.3
Company funded	14.3	8.6
Federally funded	3.0	1.1
Applied research	40.2	35.7
Company funded	38.8	34.0
Federally funded	6.5	2.8
Development	77.1	82.6
Company funded	75.5	80.1
Federally funded	7.0	3.0
Type of R&D expense		
Wages and salaries for R&D personnel ^a	71.8	-
Fringe benefits for R&D personnel ^a	64.0	-
Materials and supplies ^a	65.5	-
R&D depreciation ^a	54.0	-
Other costs ^a	64.3	-
R&D performed by other organizations	26.9	16.9
Company funded	25.4	16.1
Federally funded	3.5	1.1
Company-funded R&D projected for next year	71.7	87.5
Company funded	70.0	84.7
Federally funded	7.7	4.8
Company-funded R&D performed by other organizations ^a	26.7	-
For-profit companies ^a	22.7	-
Federal agencies or laboratories ^a	0.8	-
State government agencies or laboratories ^a	0.5	-
Universities or colleges ^a	7.0	-
Other nonprofit organizations ^a	1.9	-
Company-funded collaborative R&D ^a	10.0	-
For-profit companies ^a	9.4	-
Federal agencies or laboratories ^a	1.0	-
State government agencies or laboratories ^a	0.3	-
Universities or colleges ^a	2.3	-
Other nonprofit organizations ^a	0.7	-
Sales	97.5	97.8
Domestic employment	99.0	99.2
R&D area		
Biotechnology	11.7	5.3
Software development	27.4	26.1
Materials synthesis and processing	17.5	19.5
Other technology areas	41.9	52.6
Percentage of nanotechnology	6.6	4.4
Scientists and engineers by source of funds	76.6	79.1
Company funded ^a	72.4	-
Federally funded ^a	8.0	-

TABLE A-6. Percentage of R&D-performing companies that reported non-zero data for major survey items:
2005

(Percent)

Survey item	Form RD-1	Form RD-1A
Company-funded R&D performed outside of the 50 United States and DC		
by organizations more than 50% owned by the company	32.1	7.1
Puerto Rico ^a	0.8	-
Canada ^a	9.1	-
China ^a	5.4	-
France ^a	7.0	-
Germany ^a	8.6	-
India ^a	5.1	-
Ireland ^a	2.6	-
Israel ^a	2.0	-
Italy ^a	3.5	-
Japan ^a	5.2	-
Singapore ^a	2.7	-
Sweden ^a	2.7	-
United Kingdom ^a	11.1	-
Other locations ^a	13.5	-
Energy R&D		
Fossil fuels ^a	1.7	-
Geothermal and solar ^a	0.6	-
Nuclear ^a	0.4	-
All other energy sources ^a	2.2	-
Federally funded		
Fossil fuels ^a	0.3	-
Geothermal and solar ^a	0.3	-
Nuclear ^a	0.1	-
All other energy sources ^a	0.8	-

- = not applicable.

^a Data not collected on the Form RD-1A.

NOTES: Percentages are based on reported data for companies reporting any R&D expenditures. Imputed data are not included. Companies that reported they were out-of-scope, out-of-business, merged with another company, or had no R&D expenditures for 2005 were excluded from the calculations. For descriptions of the survey forms and more information, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

TABLE A-7. Funds for and number of companies performing industrial basic research, applied research, and development, in the United States and funds not distributed, by industry and company size, by source of funds: 2005
(Millions of dollars)

Industry and company size	NAICS codes	All industrial R&D				Basic research			
		Companies	All funds	Federal	Company and other	Companies	All funds	Federal	Company and other
All industries	21–23, 31–33, 42, 44–81	43,880	226,159	21,909	204,250	4,389	7,434	709	6,725
Manufacturing industries	31–33	19,232	158,190	15,635	142,555	2,000	5,630	270	5,360
Food	311	1,096	2,716	6	2,710	180	100	D	D
Beverage and tobacco products	312	38	539 i	0	539 i	1	D	0	D
Textiles, apparel, and leather	313–16	948	816	5	811	53	D	0	D
Wood products	321	251	D	D	218	12	D	0	D
Paper, printing, and support activities	322, 323	464	D	D	2,451	70	D	0	D
Petroleum and coal products	324	117	D	D	1,442	17	D	0	D
Chemicals	325	1,962	42,995	169	42,826	230	3,102	14	3,088
Basic chemicals	3251	201	2,277	98	2,179	44	162	4	158
Resin, synthetic rubber, fibers, and filament	3252	122	2,294	15	2,280	25	191	1	190
Pharmaceuticals and medicines	3254	445	34,839	41	34,798	71	2,671	D	D
Other chemicals	other 325	1,194	3,584	15	3,569	89	79	D	D
Plastics and rubber products	326	1,212	1,760	12	1,747	82	90	0	90
Nonmetallic mineral products	327	443	894	6	889	86	65	0	65
Primary metals	331	186	631	22 i	609	22	D	0	D
Fabricated metal products	332	2,013	1,375	52	1,323	105	18	0	18
Machinery	333	2,923	8,531	109	8,422	249	90	D	D
Computer and electronic products	334	3,425	D	D	42,463	429	D	D	1,054
Computers and peripheral equipment	3341	340	4,955	53	4,902	21	91	D	D
Communications equipment	3342	499	D	D	9,660	64	D	0	D
Semiconductor and other electronic components	3344	907	18,724	122	18,602	106	608	21	587
Navigational, measuring, electromedical, and control instruments	3345	1,513	15,204	6,879	8,325	234	269	D	D
Other computer and electronic products	other 334	167	997	23	974	5	D	D	D
Electrical equipment, appliances, and components	335	1,033	2,424	103	2,322	121	41	D	D
Transportation equipment	336	1,140	D	D	28,321	131	D	D	D
Motor vehicles, trailers, and parts	3361–63	616	D	D	16,025	78	D	D	D
Aerospace products and parts	3364	254	15,005	4,076	10,928	18	494	D	D
Other transportation equipment	other 336	270	D	D	1,368	35	D	D	D
Furniture and related products	337	405	400	*	400	44	9	0	9
Miscellaneous manufacturing	339	1,576	5,143	82	5,061	169	199	45	153
Medical equipment and supplies	3391	869	4,374	31	4,343	112	151	4	148
Other miscellaneous manufacturing	other 339	707	769	51	718	57	47	42	6

TABLE A-7. Funds for and number of companies performing industrial basic research, applied research, and development, in the United States and funds not distributed, by industry and company size, by source of funds: 2005
(Millions of dollars)

Industry and company size	NAICS codes	All industrial R&D				Basic research			
		Companies	All funds	Federal	Company and other	Companies	All funds	Federal	Company and other
Nonmanufacturing industries	21–23, 42, 44–81	24,647	67,969	6,274	61,695	2,389	1,804	439	1,365
Mining, extraction, and support activities	21	245	D	D	669	8	D	0	D
Utilities	22	83	210	30	180	5	1	0	1
Construction	23	1,063	D	D	1,248	253	D	D	D
Wholesale Trade	42	4,473	D	D	2,144	233	D	D	38
Retail trade	44, 45	1,759	D	D	1,285	506	D	0	D
Transportation and warehousing	48, 49	36	D	D	312	19	D	0	D
Information	51	3,206	23,836	219	23,617	192	104	D	D
Publishing	511	1,861	17,747	60	17,687	156	43	D	D
Newspaper, periodical, book, and directory	5111	346	821	27	794	104	D	0	D
Software	5112	1,514	16,926	33	16,893	52	D	D	D
Telecommunications	517	108	2,539	0	2,539	3	D	0	D
Wired and wireless (except satellite)									
telecommunications carriers	5171, 5172	44	2,358	0	2,358	2	D	0	D
Satellite telecommunications	5174	47	13	0	13	0	0	0	0
Other telecommunications	other 517	17	168 i	0	168 i	1	D	0	D
Internet service providers, Web search portals, and data-processing services	518	1,194	3,337	159	3,178	29	5	0	5
Internet service providers and Web search portals	5181	430	1,042	0	1,042	0	0	0	0
Data-processing, hosting, and related services	5182	763	2,295	159	2,136	29	5	0	5
Other information	other 51	43	213	0	213	4	D	0	D
Finance, insurance, and real estate	52, 53	920	3,030	0	3,030	7	23	0	23
Professional, scientific, and technical services	54	9,197	32,021	5,839	26,181	900	1,380	431	950
Architectural, engineering, and related services	5413	683	4,687	2,239	2,448	46	81	18 i	63
Computer systems design and related services	5415	4,609	13,592	545	13,046	322	214	D	D
Scientific R&D services	5417	2,074	12,299	2,826	9,473	514	1,059	385	674
Other professional, scientific, and technical services	other 54	1,831	1,444	229	1,214	18	26	D	D
Health care services	621–23	1,091	989	7	981	256	D	D	D
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	2,574	2,137	90	2,047	10	10	D	D

TABLE A-7. Funds for and number of companies performing industrial basic research, applied research, and development, in the United States and funds not distributed, by industry and company size, by source of funds: 2005
(Millions of dollars)

		All industrial R&D				Basic research			
Industry and company size	NAICS codes	Companies	All funds	Federal	Company and other	Companies	All funds	Federal	Company and other
Company size (employees)									
All companies	-	43,880	226,159	21,909	204,250	4,389	7,434	709	6,725
5–24	-	21,712	7,373	1,076	6,297	2,220	235	125	109
25–49	-	8,602	7,488	675	6,813	643	206	82	124
50–99	-	4,789	7,144	646	6,498	678	383	57 i	326
100–249	-	4,149	10,327	951	9,375	339	535	116	419
250–499	-	1,699	8,149	411	7,738	154	179	14	165
500–999	-	1,147	13,992	895	13,097	88	501	106	395
1,000–4,999	-	1,319	34,969	1,364	33,605	172	1,066	57	1,010
5,000–9,999	-	218	18,170	620	17,550	29	446	13	433
10,000–24,999	-	145	33,564	1,918	31,646	37	2,081	34	2,047
25,000 or more	-	101	84,983	13,352	71,631	30	1,802	106	1,696

TABLE A-7. Funds for and number of companies performing industrial basic research, applied research, and development, in the United States and funds not distributed, by industry and company size, by source of funds: 2005
(Millions of dollars)

Industry and company size	NAICS codes	Applied research				Development			
		Companies	All funds	Federal	Company and other	Companies	All funds	Federal	Company and other
All industries	21–23, 31–33, 42, 44–81	17,274	37,515	3,513	34,002	35,808	140,359	6,558	133,801
Manufacturing industries	31–33	6,940	27,012	2,160	24,852	16,192	93,699	4,546	89,154
Food	311	333	522	D	D	932	1,791	0	1,791
Beverage and tobacco products	312	11	D	0	D	33	D	0	D
Textiles, apparel, and leather	313–16	180	D	D	D	876	659	D	D
Wood products	321	48	67	0	67	224	D	D	D
Paper, printing, and support activities	322, 323	175	D	D	D	395	363	0	363
Petroleum and coal products	324	39	341	D	D	106	D	D	D
Chemicals	325	1,086	10,474	91	10,382	1,609	27,020	63	26,957
Basic chemicals	3251	98	694	62	632	169	1,259	33	1,227
Resin, synthetic rubber, fibers, and filament	3252	66	1,089	D	D	103	982	D	D
Pharmaceuticals and medicines	3254	205	7,909	19	7,890	339	23,211	D	D
Other chemicals	other 325	717	781	D	D	999	1,568	11	1,557
Plastics and rubber products	326	419	253	D	D	1,090	1,192	D	D
Nonmetallic mineral products	327	155	248	D	D	377	417	D	D
Primary metals	331	88	D	D	D	152	383 i	D	D
Fabricated metal products	332	693	230	8	222	1,521	1,056	43 i	1,013
Machinery	333	981	1,190	D	D	2,541	5,254	D	D
Computer and electronic products	334	1,236	D	D	7,870	2,864	28,727	1,927	26,800
Computers and peripheral equipment	3341	92	334	D	D	291	3,576	D	D
Communications equipment	3342	231	1,255	D	D	364	D	D	4,980 i
Semiconductor and other electronic components	3344	331	4,906	21	4,885	744	12,762	47	12,715
Navigational, measuring, electromedical, and control instruments	3345	485	1,462	D	D	1,366	6,520	1,733	4,787
Other computer and electronic products	other 334	96	D	D	D	101	D	D	D
Electrical equipment, appliances, and components	335	302	302	D	D	878	1,679	90	1,588
Transportation equipment	336	395	D	D	D	1,010	21,847	D	D
Motor vehicles, trailers, and parts	3361–63	155	D	D	D	573	9,602	D	D
Aerospace products and parts	3364	153	2,662	D	D	231	11,385	2,024	9,361
Other transportation equipment	other 336	87	D	D	D	205	860	D	D
Furniture and related products	337	156	16	0	16	327	342	*	342
Miscellaneous manufacturing	339	644	584	13	570	1,257	2,546	20	2,525
Medical equipment and supplies	3391	404	523	9	514	704	1,971	16	1,955
Other miscellaneous manufacturing	other 339	240	61	5	56	553	575	4	571

TABLE A-7. Funds for and number of companies performing industrial basic research, applied research, and development, in the United States and funds not distributed, by industry and company size, by source of funds: 2005
(Millions of dollars)

Industry and company size	NAICS codes	Applied research				Development			
		Companies	All funds	Federal	Company and other	Companies	All funds	Federal	Company and other
Nonmanufacturing industries	21–23, 42, 44–81	10,334	10,504	1,353	9,150	19,617	46,659	2,012	44,647
Mining, extraction, and support activities	21	96	D	D	D	216	474	D	D
Utilities	22	69	60	D	D	24	146	D	D
Construction	23	44	678	D	D	556	D	D	D
Wholesale Trade	42	2,043	452	39	413	3,744	1,438	4	1,434
Retail trade	44, 45	873	D	0	D	1,504	1,076	D	D
Transportation and warehousing	48, 49	4	D	D	D	34	103	0	103
Information	51	1,426	2,845	D	D	2,568	17,884	162	17,723
Publishing	511	687	1,681	D	D	1,561	13,420	26	13,393
Newspaper, periodical, book, and directory	5111	267	D	D	D	344	777	D	D
Software	5112	421	D	D	D	1,217	12,642	D	D
Telecommunications	517	57	D	0	D	99	1,586	0	1,586
Wired and wireless (except satellite)									
telecommunications carriers	5171, 5172	7	D	0	D	39	D	0	D
Satellite telecommunications	5174	46	6	0	6	47	8	0	8
Other telecommunications	other 517	3	D	0	D	13	D	0	D
Internet service providers, Web search portals, and data-processing services	518	673	372	23	349	879	2,780	135	2,644
Internet service providers and Web search portals	5181	402	147	0	147	277	892	0	892
Data-processing, hosting, and related services	5182	271	226	23	202	602	1,888	135	1,752
Other information	other 51	9	D	0	D	29	99	0	99
Finance, insurance, and real estate	52, 53	19	61	0	61	906	2,671	0	2,671
Professional, scientific, and technical services	54	4,281	5,762	1,246	4,516	6,992	20,274	1,705	18,569
Architectural, engineering, and related services	5413	350	599	365 i	234	576	2,025	221	1,804
Computer systems design and related services	5415	1,661	1,485	D	D	3,854	11,286	274	11,012
Scientific R&D services	5417	1,233	3,518	704	2,814	1,244	5,746	1,009	4,736
Other professional, scientific, and technical services	other 54	1,038	160	D	D	1,318	1,218	201	1,017
Health care services	621–23	290	D	D	D	1,042	D	D	D
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	1,189	245	D	D	2,031	1,378	85	1,293

TABLE A-7. Funds for and number of companies performing industrial basic research, applied research, and development, in the United States and funds not distributed, by industry and company size, by source of funds: 2005
(Millions of dollars)

		Applied research				Development			
Industry and company size	NAICS codes	Companies	All funds	Federal	Company and other	Companies	All funds	Federal	Company and other
Company size (employees)									
All companies	-	17,274	37,515	3,513	34,002	35,808	140,359	6,558	133,801
5–24	-	10,543	2,219	260	1,959	16,884	3,929	462	3,467
25–49	-	2,610	1,556	291	1,265	7,460	5,137	208	4,929
50–99	-	1,384	1,578	200	1,378	4,077	4,323	194	4,129
100–249	-	1,176	1,923	251	1,672	3,394	6,967	524	6,444
250–499	-	625	1,676	101	1,575	1,500	5,579	293	5,286
500–999	-	319	3,111	341 i	2,770	998	8,938	443 i	8,495
1,000–4,999	-	419	5,917	325	5,592	1,150	23,927	374	23,554
5,000–9,999	-	85	5,205	55	5,150	160	10,477	552 i	9,925
10,000–24,999	-	73	7,196	219	6,978	111	18,634	1,272	17,361
25,000 or more	-	41	7,133	1,470	5,663	74	52,447	2,236	50,211

TABLE A-7. Funds for and number of companies performing industrial basic research, applied research, and development, in the United States and funds not distributed, by industry and company size, by source of funds: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Companies	Expenditures not distributed ^b		
			All funds	Federal	Company and other
All industries	21–23, 31–33, 42, 44–81	3,480	40,851	11,129	29,722
Manufacturing industries	31–33	1,154	31,849	8,660	23,189
Food	311	89	304	*	303
Beverage and tobacco products	312	4	434	0	434
Textiles, apparel, and leather	313–16	30	97	0	97
Wood products	321	4	8	0	8
Paper, printing, and support activities	322, 323	52	1,946	15	1,931
Petroleum and coal products	324	4	854	2	852
Chemicals	325	85	2,399	1	2,398
Basic chemicals	3251	9	162	0	162
Resin, synthetic rubber, fibers, and filament	3252	3	33	0	33
Pharmaceuticals and medicines	3254	22	1,048	1	1,047
Other chemicals	other 325	50	1,156	*	1,156
Plastics and rubber products	326	24	225	*	225
Nonmetallic mineral products	327	54	163	1	162
Primary metals	331	15	56	0	56
Fabricated metal products	332	125	71	*	71
Machinery	333	160	1,998	4	1,995
Computer and electronic products	334	224	11,763	5,025	6,738
Computers and peripheral equipment	3341	15	954	*	954
Communications equipment	3342	40	3,333	29	3,304
Semiconductor and other electronic components	3344	65	448	33	415
Navigational, measuring, electromedical, and control instruments	3345	71	6,953	4,960	1,994
Other computer and electronic products	other 334	32	74	2	72
Electrical equipment, appliances, and components	335	121	402	6	396
Transportation equipment	336	65	9,279	3,602	5,678
Motor vehicles, trailers, and parts	3361–63	19	4,812	15	4,798
Aerospace products and parts	3364	14	464	226	238
Other transportation equipment	other 336	32	4,003	3,361	642
Furniture and related products	337	3	33	0	33
Miscellaneous manufacturing	339	95	1,815	3	1,811
Medical equipment and supplies	3391	75	1,729	3	1,726
Other miscellaneous manufacturing	other 339	20	86	*	85

TABLE A-7. Funds for and number of companies performing industrial basic research, applied research, and development, in the United States and funds not distributed, by industry and company size, by source of funds: 2005

(Millions of dollars)

Industry and company size	NAICS codes	Companies	Expenditures not distributed ^b		
			All funds	Federal	Company and other
Nonmanufacturing industries	21–23, 42, 44–81	2,326	9,002	2,469	6,533
Mining, extraction, and support activities	21	24	*	0	*
Utilities	22	3	3	0	3
Construction	23	503	55	*	55
Wholesale Trade	42	441	267	9	258
Retail trade	44, 45	253	76	0	76
Transportation and warehousing	48, 49	1	195	0	195
Information	51	251	3,003	3	3,000
Publishing	511	113	2,602	3	2,599
Newspaper, periodical, book, and directory	5111	1	10	0	10
Software	5112	112	2,593	3	2,590
Telecommunications	517	6	204	0	204
Wired and wireless (except satellite)					
telecommunications carriers	5171, 5172	4	167	0	167
Satellite telecommunications	5174	0	0	0	0
Other telecommunications	other 517	2	38	0	38
Internet service providers, Web search portals, and data-processing services	518	122	181	0	181
Internet service providers and Web search portals	5181	1	4	0	4
Data-processing, hosting, and related services	5182	121	177	0	177
Other information	other 51	10	15	0	15
Finance, insurance, and real estate	52, 53	9	275	0	275
Professional, scientific, and technical services	54	562	4,604	2,457	2,147
Architectural, engineering, and related services	5413	15	1,982	1,634	348
Computer systems design and related services	5415	228	607	96	511
Scientific R&D services	5417	314	1,975	727	1,248
Other professional, scientific, and technical services	other 54	5	40	0	40
Health care services	621–23	17	20	*	20
Other nonmanufacturing ^a	55, 56, 61, 624, 71, 72, 81	262	504	0	504

TABLE A-7. Funds for and number of companies performing industrial basic research, applied research, and development, in the United States and funds not distributed, by industry and company size, by source of funds: 2005
(Millions of dollars)

		Expenditures not distributed ^b			
Industry and company size	NAICS codes	Companies	All funds	Federal	Company and other
Company size (employees)					
All companies	-	3,480	40,851	11,129	29,722
5–24	-	1,977	990	228	761
25–49	-	334	589	95	494
50–99	-	382	861	196	665
100–249	-	445	901	60	841
250–499	-	86	714	3	711
500–999	-	67	1,442	5	1,437
1,000–4,999	-	101	4,058	608	3,449
5,000–9,999	-	32	2,042	0	2,042
10,000–24,999	-	30	5,653	393	5,260
25,000 or more	-	26	23,601	9,540	14,061

* = amount < \$500,000; D = suppressed to avoid disclosure of confidential information; i = more than 50% of the value is imputed; - = not applicable.

^a Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now are included in other nonmanufacturing.

^b The amounts of undistributed R&D are distributed among basic research, applied research, and development in Table 28.

NOTES: The method used to assign industry classifications has changed; industry-specific estimates are not directly comparable with those for years prior to 2004. Excludes federally funded research and development centers. Some company respondents did not distribute their R&D among the three character of work categories, basic research, applied research, and development. The data from these companies are included in the expenditures not distributed columns of this table. During statistical processing, algorithms were used to approximate the distribution and the resulting statistics are in Table 28. For definitions and more information about year-to-year comparability of the statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2005.

Appendix B. Survey Documents

Survey Form RD-1

Form RD-1 Instructions

Survey Form RD-1A

Form RD-1A Instructions

National Science Foundation Cover Letter

Bureau of the Census Cover Letter



U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

FORM
RD-1 (01-26-2006)

2005 SURVEY OF INDUSTRIAL RESEARCH AND DEVELOPMENT

OMB No. 0607-0912: Approval Expires 12/31/2007

Mail your completed form to:
U.S. CENSUS BUREAU
1201 East 10th Street
Jeffersonville, IN 47132-0001

Please **read** the accompanying instructions before answering the questions.

Need help or have questions about filling out this form?

Visit our Web site at www.census.gov/econhelp/rd

To **speak** with an analyst, call 1-800-851-2014, option "0" between 8:00 a.m. and 5:00 p.m., Eastern time, Monday through Friday.

- OR -

Write to the address above, include your 11-digit Identification Number (ID) printed in the mailing address.

Option to file electronically is located at www.census.gov/econhelp/rd

**INFORMATION COPY
DO NOT USE TO REPORT**

(Please correct any errors in this mailing address.)

YOUR RESPONSE IS REQUIRED BY LAW. Title 13, United States Code, requires businesses and other organizations that receive this questionnaire to answer the questions and return the report to the U.S. Census Bureau. By the same law, **YOUR CENSUS REPORT IS CONFIDENTIAL.** It may be seen only by persons sworn to uphold the confidentiality of Census Bureau information and may be used only for statistical purposes. Further, copies retained in respondents' files are immune from legal process. You will satisfy the mandatory requirements for this survey if you answer **2**, **3**, and **5**, line D, columns 1 and 3; and **17**. Except as noted in specific questions, this report should cover your entire consolidated domestic enterprise, **including all subsidiaries** in the 50 United States and D.C. Reasonable estimates are acceptable.

This survey is conducted jointly with the National Science Foundation.

1 Was this company owned or controlled by another company on December 31, 2005?

001 ☐ Yes - See instructions to determine if you should complete this questionnaire.

☐ No - Go to **2**.

Dollar figures should be rounded to thousands of dollars.

If a figure is **\$1,025,628.79: Report** →

2005		
\$ Billions	Millions	Thousands
	1	0 2 6

2 What was the amount of your company's **sales, shipments, operating receipts, or revenues**, net of returns and allowances attributable to domestic operations in the 50 United States or D.C. during 2005? (EXCLUDE domestic intracompany transfers and sales by foreign subsidiaries. INCLUDE receipts for sales of products and services provided to other companies, individuals, U.S. Government agencies, and foreign countries.)

Mark "X" if None 0130 ☐

Amount reported for 2004

2005		
\$ Billions	Millions	Thousands
102		

3 How many **employees** worked in the 50 United States or D.C. for your company on March 12, 2005? (INCLUDE number of full- and part-time employees whose payroll was reported on Internal Revenue Service Form 941, Employer's Quarterly Federal Tax Return.)

Mark "X" if None 0131 ☐

Amount reported for 2004

Number
112

- 4** What was the number of full-time equivalent (FTE) **scientists and engineers** employed by your company as of January 1, 2006 who worked on the following types of R&D in the 50 United States and D.C. during 2005?

(See Instructions for the definition of FTE scientists and engineers.)

A. Federally funded R&D Mark "X" if None 0132 ☐

Number of FTEs reported as of January 1, 2005

B. Company and other nonfederally funded R&D. Mark "X" if None 0133 ☐

Number of FTEs reported as of January 1, 2005

C. TOTAL (Add lines A and B.) Mark "X" if None 0134 ☐

Number of FTEs reported as of January 1, 2005

January 1, 2006									
Number of FTEs									
204									
205									
206									

- 5** What was the cost of R&D performed within your company in the 50 United States and D.C. from each of the sources of funding below during 2005?

A. Basic research (Activity toward the advancement of scientific knowledge without specific immediate commercial objectives.)

Mark "X" if no basic research 0135 ☐

Amount reported for 2004

2005								
(1) Federal funds			(2) Company and other nonfederal funds			(3) Total funds Columns 1 + 2		
\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
304			305			306		

B. Applied research (Activity directed primarily towards a specific commercial or practical objective.)

Mark "X" if no applied research. . . . 0136 ☐

Amount reported for 2004

(1) Federal funds			(2) Company and other nonfederal funds			(3) Total funds Columns 1 + 2		
\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
314			315			316		

C. Development (Activity translating research into new or improved products, services, or processes.)

Mark "X" if no development 0137 ☐

Amount reported for 2004

(1) Federal funds			(2) Company and other nonfederal funds			(3) Total funds Columns 1 + 2		
\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
324			325			326		

D. TOTAL (Add lines A through C.)

Mark "X" if no R&D 0138 ☐

Amount reported for 2004

(1) Federal funds			(2) Company and other nonfederal funds			(3) Total funds Columns 1 + 2		
\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
344			345			346		

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11000023

If not shown, please enter your 11-digit Identification Number (ID) from the mailing address.

- 6** If your company plans to perform R&D during 2006, what is the estimated projected cost?

(Comparable to the 2005 figure reported in 5, line D.)

Mark "X" if no R&D is planned for next year . . . 0139 ☐

2006

(1) Federal funds			(2) Company and other nonfederal funds			(3) Total funds Columns 1 + 2		
\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
403			402			401		

- 7** If **others outside your company performed R&D** funded by your company, what was the cost of the R&D performed in the 50 United States and D.C. during 2005?

(Include payments made via contracts, grants, or other agreements under which your company pays for **but does not perform** any of the R&D.)

Mark "X" if no R&D was performed by others 0140 ☐

2005

(1) Federal funds			(2) Company and other nonfederal funds			(3) Total funds Columns 1 + 2		
\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
354			355			356		

Amount reported for 2004

- 8** What was the cost of the R&D reported in 7, column 2, performed by each of the following **types of organizations**?

A. For-profit companies Mark "X" if None 0141 ☐

Amount reported for 2004

B. Federal agencies or laboratories Mark "X" if None 0142 ☐

Amount reported for 2004

C. State government agencies or laboratories Mark "X" if None 0143 ☐

Amount reported for 2004

D. Universities or colleges Mark "X" if None 0144 ☐

Amount reported for 2004

E. Other nonprofit organizations Mark "X" if None 0145 ☐

Amount reported for 2004

F. TOTAL (Add lines A through E. The sum should equal the total reported in 7, column 2.) Mark "X" if None 0146 ☐

Amount reported for 2004

2005		
Company and other nonfederal funds		
\$ Billions	Millions	Thousands
811		
812		
813		
821		
831		
841		

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11000031

- 9** What were your company's costs for R&D that your company performed within a joint venture, alliance, partnership, or other collaborative arrangement in the 50 United States and D.C. during 2005? Please report costs separately for each type of partner listed below. *(INCLUDE R&D your company performed in the 50 United States and D.C. regardless of the location of the other parties.)*

(These expenditures should also be included as part of the information reported in 5, line D, column 2. Do not include costs reported in 3.)

A. For-profit companies Mark "X" if None 0186 ☐

Amount reported for 2004

B. Federal agencies or laboratories Mark "X" if None 0187 ☐

Amount reported for 2004

C. State government agencies or laboratories Mark "X" if None 0190 ☐

Amount reported for 2004

D. Universities or colleges. Mark "X" if None 0188 ☐

Amount reported for 2004

E. Other nonprofit organizations Mark "X" if None 0189 ☐

Amount reported for 2004

F. TOTAL (Add lines A through E.) Mark "X" if None 0191 ☐

Amount reported for 2004

2005		
Company and other nonfederal funds		
\$ Billions	Millions	Thousands
1101		
1102		
1105		
1103		
1104		
1110		

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11000049

If not shown, please enter your 11-digit Identification Number (ID) from the mailing address.

- 10** If your company funded R&D performed **outside the 50 United States and D.C.** during 2005, what was the cost? (Please report costs of R&D performed by subsidiaries, affiliates, or others based on your company's percentage of ownership, if any, of the entity that conducted the R&D. Ownership can be based on voting stock or equivalent interest.)

Mark "X" if None 0147 ☐

A. More than 50% ownership (This category includes wholly owned subsidiaries and locations.)

Amount reported for 2004

B. 10% to 50% ownership

Amount reported for 2004

C. More than 0% but less than 10% ownership

Amount reported for 2004

D. 0% - No company ownership

Amount reported for 2004

E. TOTAL (Add lines A through D.)

Amount reported for 2004

2005		
Company and other nonfederal funds		
\$ Billions	Millions	Thousands
366		
365		
364		
363		
369		

- 11** What was the cost of the R&D reported in **10**, line A, in Puerto Rico and the following countries? (The total for this item should equal the amount reported in **10**, line A.)

A. Puerto Rico Mark "X" if None 0148 ☐

Amount reported for 2004

B. Canada Mark "X" if None 0149 ☐

Amount reported for 2004

C. China Mark "X" if None 0150 ☐

Amount reported for 2004

D. France Mark "X" if None 0151 ☐

Amount reported for 2004

E. Germany Mark "X" if None 0152 ☐

Amount reported for 2004

2005		
Company and other nonfederal funds		
\$ Billions	Millions	Thousands
1206		
1201		
1213		
1203		
1202		

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11000056

11 Continued**2005**Company and other
nonfederal funds

\$ Billions Millions Thousands

1214

F. India Mark "X" if None 0153 ☐

Amount reported for 2004

1215

G. Ireland Mark "X" if None 0154 ☐

Amount reported for 2004

1216

H. Israel Mark "X" if None 0155 ☐

Amount reported for 2004

1217

I. Italy Mark "X" if None 0156 ☐

Amount reported for 2004

1204

J. Japan Mark "X" if None 0157 ☐

Amount reported for 2004

1218

K. Singapore Mark "X" if None 0158 ☐

Amount reported for 2004

1219

L. Sweden Mark "X" if None 0159 ☐

Amount reported for 2004

1205

M. United Kingdom Mark "X" if None 0160 ☐

Amount reported for 2004

1207

N. Other - Specify 7

1209

1211

1220

1212

1221

O. TOTAL (Add lines A through
N. The sum should equal the
amount reported in **10**, line
A.) Mark "X" if None 0192 ☐

Amount reported for 2004

1210

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11000064

If not shown, please enter your 11-digit Identification Number (ID) from the mailing address.

- 12** If you reported Federally funded R&D in **5**, line D, column 1, what was the cost funded by each of the following Federal agencies?

A. Department of Defense (DoD). Mark "X" if None 0161 ☐

Amount reported for 2004

B. National Aeronautics and Space Administration (NASA). Mark "X" if None 0162 ☐

Amount reported for 2004

C. Department of Energy (DOE) Mark "X" if None 0163 ☐

Amount reported for 2004

D. Other Federal agencies . . . Mark "X" if None 0164 ☐

Amount reported for 2004

E. TOTAL (Add lines A through D. The sum should equal the total reported in **5**, line D, column 1.) Mark "X" if None 0165 ☐

Amount reported for 2004

2005		
Federal funds		
\$ Billions	Millions	Thousands
511		
521		
531		
541		
551		

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11000072

- 13** For the total R&D you reported in **5**, line D, column 3, what was the cost for each of the following types of expenses?

A. Wages and salaries of R&D personnel

(INCLUDE scientists and engineers, technicians, secretaries, and other personnel.) Mark "X" if None 0166 ☐

Amount reported for 2004

B. Fringe benefits of R&D personnel

(INCLUDE taxable and nontaxable benefits, 401K plans, employers' contribution to health plans.) Mark "X" if None 0167 ☐

Amount reported for 2004

C. Materials and supplies consumed

(INCLUDE the cost of all purchased materials consumed.) Mark "X" if None 0168 ☐

Amount reported for 2004

D. Depreciation on R&D property and equipment

(INCLUDE depreciation and amortization costs for property and equipment used for R&D during the year.) Mark "X" if None 0169 ☐

Amount reported for 2004

E. All other R&D expenses

(INCLUDE R&Ds share of company overhead and other expenses such as utilities, books and periodicals, and property and other taxes.) Mark "X" if None 0170 ☐

Amount reported for 2004

F. TOTAL (Add lines A through E. The sum should equal the total reported in **5**, line D, column 3.) Mark "X" if None 0171 ☐

Amount reported for 2004

2005		
Total funds		
\$ Billions	Millions	Thousands
611		
621		
631		
641		
651		
661		

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11000080

If not shown, please enter your 11-digit Identification Number (ID) from the mailing address.

- 14** For the total R&D you reported in **5**, line D, column 3, what was the cost for each of the following areas?

A. Biotechnology (The use of scientific and engineering data and techniques for the study and solution of problems concerning living organisms.) *Mark "X" if None* 0172 ☐

Amount reported for 2004

B. Software development (The formulation of programs, applications, routines, etc., for computers, excluding those used exclusively for internal company operations.). *Mark "X" if None* 0173 ☐

Amount reported for 2004

C. Materials synthesis and processing (The use of scientific and engineering data and techniques for the formulation and manipulation of new materials.) *Mark "X" if None* 0174 ☐

Amount reported for 2004

D. All other R&D areas *Mark "X" if None* 0175 ☐

Amount reported for 2004

E. TOTAL (Add lines A through D. The sum should equal the total reported in **5**, line D, column 3.) Mark "X" if None 0176 ☐

Amount reported for 2004

2005									
Total funds									
\$ Billions			Millions			Thousands			
7111									
7211									
7311									
7411									
7511									

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11000098

- 15** Did your company perform any R&D using **nanotechnology** during 2005? (Nanotechnology is the creation and utilization of materials, devices, and systems sized at the level of atoms and molecules. This includes R&D in the range of 1 to 100 nanometers.)

7001 ☐ Yes - Go to **16**.

7002 ☐ No - Go to **17**.

- 16** For the R&D costs reported in **14**, lines A through D, what percentage involved the use of **nanotechnology** for each of the following areas?

A. Biotechnology Mark "X" if None 0177 ☐

Amount reported for 2004

B. Software development Mark "X" if None 0178 ☐

Amount reported for 2004

C. Materials synthesis and processing Mark "X" if None 0179 ☐

Amount reported for 2004

D. All other R&D areas Mark "X" if None 0180 ☐

Amount reported for 2004

2005	
Whole percents	
7112	
	%
	%
7212	
	%
	%
7312	
	%
	%
7412	
	%
	%

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11000106

If not shown, please enter your 11-digit Identification Number (ID) from the mailing address.

- 17** For the Federal and total R&D you reported in **5**, line D, columns 1 and 3, what was the cost of the R&D performed in **each of the 50 United States and D.C.?** (The totals for this item should equal the totals reported in **5**, line D, columns 1 and 3.)

		2005					
		(1) Federal funds			(2) Total funds		
		\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
		9011			9012		
Alabama							
Amount reported for 2004							
		9021			9022		
Alaska							
Amount reported for 2004							
		9031			9032		
Arizona							
Amount reported for 2004							
		9041			9042		
Arkansas							
Amount reported for 2004							
		9051			9052		
California							
Amount reported for 2004							
		9061			9062		
Colorado							
Amount reported for 2004							
		9071			9072		
Connecticut							
Amount reported for 2004							
		9081			9082		
Delaware							
Amount reported for 2004							
		9091			9092		
District of Columbia . . .							
Amount reported for 2004							
		9101			9102		
Florida							
Amount reported for 2004							

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11000114

17 Continued

		2005					
		(1) Federal funds			(2) Total funds		
		\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
Georgia		9111			9112		
Amount reported for 2004							
Hawaii		9121			9122		
Amount reported for 2004							
Idaho		9131			9132		
Amount reported for 2004							
Illinois		9141			9142		
Amount reported for 2004							
Indiana		9151			9152		
Amount reported for 2004							
Iowa		9161			9162		
Amount reported for 2004							
Kansas		9171			9172		
Amount reported for 2004							
Kentucky		9181			9182		
Amount reported for 2004							
Louisiana		9191			9192		
Amount reported for 2004							
Maine		9201			9202		
Amount reported for 2004							
Maryland		9211			9212		
Amount reported for 2004							

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11000122

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17 Continued

		2005					
		(1) Federal funds			(2) Total funds		
		\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
		9221			9222		
Massachusetts							
Amount reported for 2004							
		9231			9232		
Michigan							
Amount reported for 2004							
		9241			9242		
Minnesota							
Amount reported for 2004							
		9251			9252		
Mississippi							
Amount reported for 2004							
		9261			9262		
Missouri							
Amount reported for 2004							
		9271			9272		
Montana							
Amount reported for 2004							
		9281			9282		
Nebraska							
Amount reported for 2004							
		9291			9292		
Nevada							
Amount reported for 2004							
		9301			9302		
New Hampshire							
Amount reported for 2004							
		9311			9312		
New Jersey							
Amount reported for 2004							
		9321			9322		
New Mexico							
Amount reported for 2004							

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11000130

17 Continued

		2005					
		(1) Federal funds			(2) Total funds		
		\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
		9331			9332		
New York							
Amount reported for 2004							
		9341			9342		
North Carolina							
Amount reported for 2004							
		9351			9352		
North Dakota							
Amount reported for 2004							
		9361			9362		
Ohio							
Amount reported for 2004							
		9371			9372		
Oklahoma							
Amount reported for 2004							
		9381			9382		
Oregon							
Amount reported for 2004							
		9391			9392		
Pennsylvania							
Amount reported for 2004							
		9401			9402		
Rhode Island							
Amount reported for 2004							
		9411			9412		
South Carolina							
Amount reported for 2004							
		9421			9422		
South Dakota							
Amount reported for 2004							
		9431			9432		
Tennessee							
Amount reported for 2004							

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11000148

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17 Continued

		2005					
		(1) Federal funds			(2) Total funds		
		\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
		9441			9442		
Texas							
Amount reported for 2004							
		9451			9452		
Utah							
Amount reported for 2004							
		9461			9462		
Vermont							
Amount reported for 2004							
		9471			9472		
Virginia							
Amount reported for 2004							
		9481			9482		
Washington							
Amount reported for 2004							
		9491			9492		
West Virginia							
Amount reported for 2004							
		9501			9502		
Wisconsin							
Amount reported for 2004							
		9511			9512		
Wyoming							
Amount reported for 2004							
TOTAL (The sums should equal the amounts reported in 5, line D, columns 1 and 3.)		9541			9542		
Amount reported for 2004							

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11000155

- 18** If your company performed **energy-related R&D** during 2005, what was the cost of the R&D performed in the 50 United States and D.C. for each of the following sources of energy?

(INCLUDE the portion of project cost incurred for the purpose of increasing energy capabilities for each source of funding. These expenditures should also be included as part of the information reported in **5**, line D, columns 1 and 3.)

A. Fossil fuels Mark "X" if None 0181 ☐

Amount reported for 2004

B. Geothermal and solar. . . Mark "X" if None 0182 ☐

Amount reported for 2004

C. Nuclear Mark "X" if None 0183 ☐

Amount reported for 2004

D. All other energy sources . Mark "X" if None 0184 ☐

Amount reported for 2004

E. TOTAL (Add lines A through D). Mark "X" if None 0185 ☐

Amount reported for 2004

2005					
(1) Federal funds			(2) Total funds		
\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
10211			10212		
10311			10312		
10111			10112		
10411			10412		
10511			10512		

- 19 A.** Does this report cover your entire consolidated domestic enterprise including all U.S. subsidiaries? (Mark "X" only ONE box.)

1301 ☐ Yes

1330 ☐ No - Please explain in **21**.

- B.** Was your company publicly or privately owned? (Mark "X" only ONE box.)

1302 ☐ Publicly owned

1334 ☐ Privately owned

1319 ☐ Other - Please describe **7**

1320

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11000163

If not shown, please enter your 11-digit Identification Number (ID) from the mailing address.

- 19 C.** Other than the parent company, how many subsidiaries, affiliates, or branches located **in the 50 United States and D.C.** owned or controlled by your company (by means of voting stock or other equivalent interest) are included in this report? (Mark "X" only **ONE** box.)

1303 ☐ None

1304 ☐ 1

1305 ☐ 2-5

1306 ☐ More than 5

1321 ☐ Other - Please describe ↴

1322

- D.** Other than the parent company, how many subsidiaries, affiliates, or branches located **outside the 50 United States and D.C.** owned or controlled by your company (by means of voting stock or other equivalent interest) are included in this report? (Mark "X" only **ONE** box.)

1307 ☐ None

1308 ☐ 1

1309 ☐ 2-5

1310 ☐ More than 5

1323 ☐ Other - Please describe ↴

1324

- E.** What percent of your company was owned or controlled (by means of voting stock or other equivalent interest) by one or more companies located **in the 50 United States and D.C.**? (Mark "X" only **ONE** box.)

1311 ☐ 0% - No ownership

1312 ☐ More than 0% but less than 10% ownership

1313 ☐ 10%-50% ownership

1314 ☐ More than 50% ownership

1325 ☐ Other - Please describe ↴

1327

- F.** What percent of your company was owned or controlled (by means of voting stock or other equivalent interest) by one or more companies located **outside the 50 United States and D.C.**? (Mark "X" only **ONE** box.)

1315 ☐ 0% - No ownership

1316 ☐ More than 0% but less than 10% ownership

1317 ☐ 10%-50% ownership

1318 ☐ More than 50% ownership

1326 ☐ Other - Please describe ↴

1328

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11000171

20 Reporting period, location of records, and contact information**A.** Is the time period covered by this report a calendar year?0078 ☐ Yes0079 ☐ No - Enter time period covered → FROM

Month	Year
0070	

TO

Month	Year
0071	

B. Are all of your company's R&D records and data in a central location?0080 ☐ Yes0081 ☐ No - How many locations? →

0086

--	--

0085 ☐ Other - Please describe →

0087

--

0084

--

C. How many people were involved in the preparation of this report (for example, providing, collecting, or reviewing information)?

0072 Name of person to contact regarding this report

0073 Title

Area code	Number			Extension	Area code	Number			
Telephone 0074			-		Fax 0075			-	
					Date completed 0069		Month	Day	Year
0076 Internet e-mail address									

21 REMARKS (Please use this space for any explanations that may help us in understanding your reported data.)

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Thank you for completing your 2005 SURVEY OF INDUSTRIAL RESEARCH AND DEVELOPMENT form.

PLEASE PHOTOCOPY THIS FORM FOR YOUR RECORDS AND RETURN THE ORIGINAL.

11000189

2005 Survey of Industrial Research and Development

Form RD-1

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2005 Survey of Industrial Research and Development
Form RD-1
General Instructions

Changes from 2004 to 2005 R&D survey year

- 1) The wording of some items has been changed for clarification.
- 2) Some item headings and numbers have changed. The five mandatory items are now as follows:
 - Question 2
 - Question 3
 - Question 5D, column 1
 - Question 5D, column 3
 - Question 17
- 3) Question 15 has been added.
- 4) Wording for Question 20, line C has been changed.

How this information is used

Information about corporate research and development (R&D) activities is important in assessing our nation's scientific and technological resources. Your survey answers help us to provide national data on industrial R&D. This information is not available from any other source. Your participation is appreciated so that we can produce timely and comprehensive data.

Who fills out this survey?

U.S. publicly traded and privately owned, nonfarm business firms

This survey does **not** include:

- Operations owned by Federal, state, or local governments
- Nonprofit organizations
- Trust or pension plans performing only investments

If you received this form in error, please explain in the Remarks section on page 18 of the survey form and return the form.

AUTHORITY AND CONFIDENTIALITY – Your response is required by law (Title 13, United States Code). By section 9 of the same law, your report is confidential. It may be seen only by persons sworn to uphold the confidentiality of Census Bureau information, and may be used only for statistical purposes. The law also provides that copies of your report retained in your files are immune from legal process. Response is not required to any information collection form unless it displays a valid approval number from the Office of Management and Budget. This 8-digit number appears in the upper right corner of the form.

Which company operations should you include in your survey answers?

Report all domestic operations of your **entire consolidated domestic enterprise**, including all U.S. subsidiaries.

Report all parts of the company located in the 50 United States and the District of Columbia (D.C.), except where indicated differently.

For holding companies, report for all U.S. subsidiaries under the ownership and control of the holding company.

EXCEPTION: If you report separately for a component of this company based upon an arrangement with the Census Bureau, please continue to do so.

Reporting period for your survey answers

Please provide calendar year 2005 information, if possible. If not, please use your fiscal year ending between September 2005 and March 2006

Comparing your 2004 and 2005 responses

If your company reported for 2004, entries from that form are preprinted on this form. (If you would like to correct these figures, please do so.) If your answers for 2005 are substantially higher or lower than your 2004 answers, you may comment on the reasons in the Remarks section on page 18 of the survey form. Such reasons may include new government contracts, a revised accounting method, or an R&D unit that was acquired or disposed of during 2004 or 2005.

How to report tax incentives for R&D

The Federal government and many states offer incentives for research and development activity. For purposes of this survey, please report your total R&D expenditures regardless of any tax incentives.

For further information on the Federal research tax credit please go to:

<http://www.irs.gov/businesses/>

For further information on state tax incentives, please contact the Comptroller of the Treasury in your state.

To request more time to complete your form or additional copies of the form

Please provide your 11-digit identification number (ID) as printed on the form above your address when you contact us.

For more time, call the Census Touchtone Data Entry System: 1-800-851-2014.

For official copies of the form, call (812) 218-3331.

OR

Write: U.S. Census Bureau
1201 East 10th Street
Jeffersonville, IN 47132-0001

To obtain a sample copy of the form, please visit the following web site. However, that sample copy **cannot** be used to submit your survey response because it lacks the appropriate labeling.

<http://help.econ.census.gov/econhelp/rd/>

For answers to your questions regarding this form

Write:

U.S. Census Bureau, Manufacturing and Construction Division
ATTN: Special Studies Branch
Room 2135/4
Washington, DC 20233-6900

Phone:

1-800-851-2014 (option "0")

Use our web site at **<http://help.econ.census.gov/econhelp/rd/>**

- Submit e-mail via our secure server to encrypt your message and to keep your survey participation confidential
- See answers to frequently asked questions

Electronic alternative for reporting

An electronic questionnaire may be used to report your responses. This electronic alternative potentially saves time for you and helps us to reduce processing costs: If you use the electronic alternative, please do **not** mail in the paper form. For questions about installing or using the electronic questionnaire, please call the Electronic Reporting Staff at 800-838-2640.

The system requirements for the electronic questionnaire are:

1. Microsoft Windows 98 or higher
2. Microsoft Internet Explorer or Netscape Navigator 4.0 or above (128-bit encryption)
3. If you set your screen display for the 16-bit color or higher, the forms will be easier to read. The forms are harder to read with 256-color display.

Have your username (UID) and password (PW) handy. **The username and password are case sensitive.**

1. Go to the Business Help Site at: www.census.gov/econhelp/rd
2. Click on Electronic Reporting
3. Follow the instructions for downloading software.

Transmitting your data

You may transmit you completed data to the Census Bureau electronically via Internet, or by mail.

WARNING CONCERNING ELECTRONIC MAIL: The Internet is not a secure means of transmitting information unless it is encrypted. If you choose to communicate with the Census Bureau via electronic mail, the Census Bureau cannot guarantee the privacy of the information while transmitted, but will safeguard it in accordance with Title 13. Be advised that making inquiries regarding this survey via electronic mail may divulge your participation in this survey.

Burden hour estimate

Public reporting burden for this collection of information is estimated to average 18 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspects of this collection of information, including suggestions for reducing this burden to:

Paperwork Project 0607-0912
U.S. Census Bureau
4700 Silver Hill Road, Stop 1500,
Washington, DC 20233-1500

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

Survey Definitions of R&D

R&D includes the following:

- the planned, systematic pursuit of new knowledge or understanding toward general application (basic research);
- the acquisition of knowledge or understanding to meet a specific, recognized need (applied research); and
- the application of knowledge or understanding toward the production or improvement of a product, service, process, or method (development).

This survey covers industrial R&D performed by people who are

- 1) trained—either formally or by experience—in engineering or in the physical, biological, mathematical, statistical, or computer sciences, and
- 2) employed by a publicly or privately owned firm engaged in for-profit activity in the 50 United States and D.C. (This also includes R&D they may perform **outside** of the 50 United States and D.C.)

This survey specifically **excludes** quality control, routine product testing, market research, sales promotion, sales service, and other nontechnological activities; routine technical services; and research in the social sciences or psychology.

This survey defines basic research, applied research, and development as follows:

Basic research is the pursuit of new scientific knowledge or understanding that does not have specific immediate commercial objectives, although it may be in fields of present or potential commercial interest.

Applied research applies the findings of basic research or other existing knowledge toward discovering new scientific knowledge that has specific commercial objectives with respect to new products, services, processes, or methods.

Development is the systematic use of the knowledge or understanding gained from research or practical experience directed toward the production or significant improvement of useful products, services, processes, or methods, including the design and development of prototypes, materials, devices, and systems.

Types of R&D activities to consider for this survey

INCLUDE:	EXCLUDE:
<ul style="list-style-type: none"> • Activities that incorporate: <ul style="list-style-type: none"> – Basic and applied research in the sciences and engineering – Design and development of new products and processes – Enhancement of existing products and processes • Activities carried on by persons trained, either formally or by experience, in: <ul style="list-style-type: none"> – Biological sciences (e.g., medicine) – Computer science – Engineering – Mathematical and statistical sciences – Physical sciences (e.g., chemistry and physics) • Activities that take place in: <ul style="list-style-type: none"> – Separate R&D organizational units of the company – Company laboratories – Technical groups not part of an R&D organization 	<ul style="list-style-type: none"> • R&D from acquired companies prior to acquisition (in-process R&D) • Amortization above the actual cost of property and equipment related to your R&D activities • Testing and evaluation once a prototype becomes a production model • Routine product testing • Geological and geophysical exploration activities • Technical services such as: <ul style="list-style-type: none"> – Quality and quantity control – Technical plant sanitation control – Troubleshooting in connection with breakdowns in full-scale production • Advertising programs to promote or demonstrate new products or processes • Assistance in preparation of speeches and publications for persons not engaged in R&D • Social science R&D including: <ul style="list-style-type: none"> – Personnel R&D – Economic R&D – Artificial intelligence and expert systems R&D – Consumer, market, and opinion R&D – Engineering psychology R&D – Management and organization R&D – Actuarial and demographic R&D – Educational processes and applications R&D – R&D in law

Question-by-Question Instructions

Question 1 Was this company owned or controlled by another company on December 31, 2005?

Question 1 asks about your company's ownership as of December 31, 2005.

If "yes," your company was owned or controlled by another company on December 31, 2005, follow the appropriate instructions below:

Your situation	Action to take
Your company was purchased by another company on or prior to March 31, 2005, located in the 50 United States or D.C.	Note the new owner and purchase date under the Remarks section on page 18 of the form and return the form without completing the rest of it.
Your company was purchased by another company after March 31, 2005, located in the 50 United States or D.C.	Note the new owner and purchase date under the Remarks section on page 18 of the form. Complete the rest of the form for the months prior to the purchase of your company.
Your company was owned or controlled by one or more companies located outside the 50 United States or D.C.	Note the new owner under the Remarks section on page 18 of the form and complete the rest of the form.

If you have questions, please call the R&D Survey staff at 1-800-851-2014 (option "0") to determine whether you are required to complete the form.

Question 2 What was the amount of your company's sales, shipments, operating receipts, or revenues, net of returns and allowances attributable to domestic operations in the 50 United States or D.C. during 2005?

Question 2 covers domestic company sales. Report only the parts of your company located **within** the 50 United States or D.C.

INCLUDE:	EXCLUDE:
<ul style="list-style-type: none">• Sales, operating receipts, and revenues from all domestic operations of the company, net of returns and allowances• Receipts from sales of products and services provided to other companies, individuals, U.S. Government agencies, and foreign countries• Net selling value of shipments, f.o.b. (freight on board) plant, after discounts and allowances minus freight charges and excise taxes• Revenue from investments, rents, and royalties only if it is the principal business of the company• Interest, dividends, commissions, and rental income as part of revenues only if you are a finance, insurance, or real estate company• Value of assets sold under a capital lease agreement• Export transfers to your foreign subsidiaries and affiliates	<ul style="list-style-type: none">• Sales and other taxes collected and paid directly to government taxing agencies• Domestic intracompany transfers• Receipts from sale of products and services provided by your foreign subsidiaries and affiliates• Receipts from sale of products and services provided by your subsidiaries and affiliates in Puerto Rico and other U.S. territories outside the 50 United States and D.C.• Income from interest, dividends, and commissions (Exception: Companies in the finance, insurance, and real estate industries)• Other nonoperating income (e.g., royalties)

Question 3 How many employees worked in the 50 United States or D.C. for your company on March 12, 2005?

Question 3 covers domestic company employment. Report only the parts of your company located **within** the 50 United States or D.C.

INCLUDE:

- Full- and part-time employees of the company as defined on Treasury Form 941, Employer's Quarterly Federal Tax Return, and Circular E, Employer's Tax Guide, if filed for the entire company
- Number of employees in all activities **within** the 50 United States or D.C. during the pay period that includes March 12, 2005
- Persons on paid sick leave, paid holidays, and paid vacations during the pay period that includes March 12, 2005

Question 4 What was the number of full-time equivalent (FTE) scientists and engineers employed by your company as of January 1, 2006 who worked on the following type of R&D during 2005?

Question 4 covers the scientists and engineers who are employees of your company and perform R&D activities. It asks for the number of full-time equivalent (FTE) scientists and engineers who work on your company's R&D **within** the 50 United States or D.C.

There are two steps to calculate the number of FTEs for R&D scientists and engineers:

1. For company employees performing only research and development, count the number of scientists and engineers employed in January 2006.
2. For employees whose activities are not solely devoted to R&D, use the proportion of their time that is devoted to R&D to compute the number of fulltime equivalent R&D scientists and engineers. For example, if a company had 60 scientists and engineers in January 2006 and one-fourth of their time was charged to R&D projects, then that company would have 15 full-time equivalent R&D scientists and engineers. Add these full-time equivalents to the count from the previous step.

INCLUDE:

- All persons engaged in scientific or engineering work at a level that requires knowledge of physical or life sciences or engineering or mathematics
- Persons with experience equivalent to completion of a 4-year college course with majors in these fields, regardless of whether they actually hold degrees in the fields

Question 5 What was the cost of R&D performed within your company in the 50 United States and D.C. from each of the sources of funding below during 2005?

Question 5 covers the R&D that is performed both (1) **within** your company and (2) **within** the 50 United States and D.C.

INCLUDE:	EXCLUDE:
<ul style="list-style-type: none"> • Wages, salaries, and related costs • Materials and supplies consumed • R&D depreciation • Cost of computer software used in R&D activities • Utilities, such as telephone, telex, electricity, water and gas • Travel costs and profession dues • Property taxes and other taxes (except income taxes) incurred on account of the R&D organization or the facilities they use • Insurance expenses • Maintenance and repair, including maintenance of buildings and grounds • Company overhead including: personnel, accounting, procurement and inventory, and salaries of research executives not on the payroll of the R&D organization 	<ul style="list-style-type: none"> • Expenses of acquired companies for R&D performed prior to acquisition (in-process R&D) • Capital expenditures • Testing and evaluation once a prototype becomes a production model • Patent expenses • Income taxes and interest

Instructions for Question 5

How to decide which category of R&D

1. Basic research	<p>Projects that pursue new scientific knowledge or understanding that does not have specific immediate commercial objectives, although it may be in fields of present or potential commercial interest</p> <p>Example: A project looks at the characteristics of silicon that has been impregnated with different elements. This project seeks to improve the company's understanding of semiconductors. Its results may or may not be applicable to the company's existing or planned product lines.</p>
2. Applied research	<p>Projects that apply the findings of basic research or other existing knowledge toward discovering new scientific knowledge that has specific commercial objectives with respect to new products, services, processes, or methods</p> <p>Example: A project seeks to discover ways to reduce the power requirements of microchips. Although the outcome of this project is uncertain, positive results would improve the energy efficiency for future products.</p>
3. Development	<p>Projects that are directed toward the systematic use of the knowledge or understanding gained from research or practical experience directed toward the production or significant improvement of useful products, services, processes, or methods, including the design and development of prototypes, materials, devices, and systems</p> <p>Example: A project designs and develops a microprocessor for cellular phones. The goal of this project is a new product that would generate revenue for the company.</p>
Development includes:	Development excludes:
<ul style="list-style-type: none"> • Expenditures for designing and conducting clinical trials of drugs, pharmaceuticals, or other products that have not been marketed • Software development <ul style="list-style-type: none"> – Designing and/or adapting software if the application has commercial value (exclude software development for internal use) – Beta version of software being developed that has potential commercial application • Design and operation of pilot plants and semiwork plants • Engineering activity required to advance the design of a product or process so it meets specific functional and economic requirements • Design, construction, and testing of prototypes and models including test models for defense contracts • Designs for special manufacturing equipment and tools • Preparation of reports, drawings, formulas, specifications, standards practice instructions, or operating manuals 	<ul style="list-style-type: none"> • Software development intended for within company use only • Routine technical services to customers • Tool making and tool tryout • Production of detailed construction drawings and manufacturing blueprints

Question 5 (continued)

How to decide which category to use for sources of R&D funding

Source of R&D	INCLUDE:	EXCLUDE:
Federal funds	<ul style="list-style-type: none">Federally funded R&D performed within the company. Include only the amount of work done on Federal R&D contracts or subcontracts in the current year.R&D portion of procurement contracts or subcontracts	<ul style="list-style-type: none">Federally funded R&D contracted or subcontracted to or otherwise by others outside of your company. (Report such funds in Question 7.)Expenditures for independent research and development (IR&D). (Report in column 2, Company and other nonfederal funds.)
Company and other nonfederal funds	<ul style="list-style-type: none">R&D from company and other nonfederal sources that is performed within the company NOTE that "company and other nonfederal funds" and "company funded" are used interchangeably in the Form RD-1.R&D your company performs under contracts you have with non-Federal sourcesCosts for independent research and development (IR&D). We define IR&D funds as R&D performed by the company for which you anticipate reimbursement by the government through indirect charges for the purchase of products or services. Qualified projects usually have potential interest to the Department of Defense. These IR&D funds are excluded from federal funds received for federally sponsored research and development contracts.	<ul style="list-style-type: none">R&D from nonfederal sources that is contracted to or otherwise performed by others outside of your company (Report such funds in Question 7.)

Question 6 If your company plans to perform R&D during 2006, what is the estimated projected cost?

Question 6 asks for an estimate or projection of the cost of R&D your company expects to perform in 2006 in the 50 United States and D.C.

Question 7 If others outside your company performed R&D funded by your company, what was the cost of the R&D performed in the 50 United States and D.C. during 2005?

Question 7 covers the R&D that was **both** performed for your company (1) by **others outside your company** such as contractors, and (2) **within** the 50 United States and D.C.

Include payments for R&D projects, contracts, or services performed for your company by contractors, suppliers, grantees, educational institutions, or other organizations.

Question 7 includes amounts for R&D performed by others for your company and does not include amounts for R&D performed by your company.

Question 8 What was the cost of the R&D reported in (7), column 2, performed by the following types of organizations?

Question 8 asks for the type of organizations that performed the portion of your answer to question 7 for company and other nonfederal sources of R&D funding.

Definitions for types of organizations	
For-profit companies	A company that is organized to pursue profit
Federal agencies or laboratories	Labs or other facilities owned by the United States government
State government agencies or laboratories	Labs or other facilities owned by any of the governments of the 50 United States or D.C.
Universities and colleges	A degree-granting institution of higher learning, having facilities for teaching and research
Other nonprofit organizations	An organization that is not organized to pursue profit. However, universities and colleges are reported in another category.

Question 9 What were your company's costs for R&D that your company performed within a joint venture, alliance, partnership, or other collaborative arrangement in the 50 United States and D.C. during 2005?

Question 9 covers your share of R&D expenditures funded by company and other nonfederal sources for R&D performed jointly by your company with organizations outside of your company. These joint activities may or may not have been organized as alliances, partnerships, or joint ventures. Only include amounts for R&D performed by your company in the 50 United States and D.C. Do not include amounts for R&D performed by the partner organization.

Do not include projects with other subsidiaries of your parent company. **Exception:** If you are a U.S. subsidiary of a foreign-owned company, you should include collaboration with foreign subsidiaries of your parent company if your company's portion of the R&D was performed in the 50 United States and D.C.

Include collaboration with entities such as Puerto Rico and governments in foreign jurisdictions if your company's portion of the R&D was performed in the 50 United States and D.C.

Question 10 If your company funded R&D performed outside the 50 United States and D.C. during 2005, what was the cost? (Please report costs of R&D performed by subsidiaries, affiliates, or others based on your company's percentage of ownership, if any, of the entity that conducted the R&D. Ownership can be based on voting stock or equivalent interest.)

Question 10 covers R&D performed **outside** the 50 United States and D.C. including R&D performed in Puerto Rico.

For Question 10, line D, report payments for R&D projects, contracts, or services performed for your company by contractors, suppliers, educational institutions, or other organizations.

Question 11 What was the cost of the R&D reported in (10), line A, in Puerto Rico and the following countries? (The total for this item should equal the amount reported in (10), line A.)

Question 11 provides more detail for your answer to Question 10, line A. If a country is not listed, please include the R&D in the "Other" category.

Question 12 If you reported Federally funded R&D in (5), line D, column 1, what were the costs funded by the following Federal agencies?

Question 12 covers federally funded R&D performed in the 50 United States and D.C. by agency.

Question 13 For the total R&D you reported in (5), line D, column 3, what were the costs for the following types of expenses?

Question 13 covers R&D by type of expense.

A. Wages and salaries of R&D personnel

INCLUDE:	EXCLUDE:
<ul style="list-style-type: none"> Gross earnings paid in calendar year 2005 to employees engaged in R&D (follow the definition of salaries and wages that is used for calculating withholding tax) Salaries of officers in the research establishment(s) of a corporation 	<ul style="list-style-type: none"> Payments to proprietor or partners if your company is an unincorporated concern Employee fringe benefits (Report under "B. Fringe benefits.")

B. Fringe benefits of R&D personnel

A **fringe benefit** is an employment benefit granted by an employer that has monetary value but does not affect basic wage rates. It includes any benefits given in addition to wages.

INCLUDE:
<ul style="list-style-type: none"> Disability benefits Life and medical insurance Paid holidays Retirement benefits, pension, and social security contributions Stock options Time-off benefits Vacation, annual, sick, and maternity leave

Question 13 (continued)

C. Materials and supplies consumed

Report the delivered cost for all purchased materials consumed.

INCLUDE:	EXCLUDE:
<ul style="list-style-type: none">• Materials and supplies that were:<ul style="list-style-type: none">– Received from other companies– Withdrawn from inventory– Received from other establishments of this company• All work done for your laboratories and other technical units by non-company organizations; for Example: Model construction by a non-company model shop	<ul style="list-style-type: none">• Purchases from other R&D organizations

D. Depreciation on R&D property and equipment

INCLUDE:
<ul style="list-style-type: none">• Depreciation and amortization charged during the year against property and equipment related to your R&D activities• Depreciation and amortization against property and equipment acquired since the beginning of the year that was <i>sold or retired</i> during the year and not in service at the end of the year• Depreciated amounts no higher than the actual cost of property and equipment

E. All other R&D expenses

INCLUDE:
<ul style="list-style-type: none">• Books and periodicals• Company overhead• Property and other taxes• Utilities

Question 14 For the total R&D you reported in (5), line D, column 3, what were the costs for the following areas?

Question 14 covers R&D by selected technology area.

A. Biotechnology

Definition of biotechnology for this survey:

Biotechnology is the application of science and technology to living organisms, as well as parts, products, and models thereof, to alter living or nonliving materials for the production of knowledge, goods, and services.

INCLUDE:	
<ul style="list-style-type: none">• DNA technologies such as:<ul style="list-style-type: none">– Genomics– Pharmacogenetics– Gene probes– DNA sequencing/synthesis/amplification– Genetic engineering• Protein and molecular technologies such as<ul style="list-style-type: none">– Protein/peptide sequencing/synthesis– Lipid/protein glycoengineering– Proteomics– Hormones– Growth factors– Cell receptors/signaling/pheromones• Cell and tissue culture and engineering including:<ul style="list-style-type: none">– Cell/tissue culture– Tissue engineering– Hybridization– Cellular fusion– Vaccine/immune stimulants– Embryo manipulation	<ul style="list-style-type: none">• Process biotechnologies such as:<ul style="list-style-type: none">– Bioreactors– Fermentation– Bioprocessing– Biobleaching– Biodesulphurization– Bioremediation– Biofiltration• Subcellular organism research including:<ul style="list-style-type: none">– Gene therapy– Viral vectors• Other biotechnology areas such as:<ul style="list-style-type: none">– Bioinformatics– Nanobiotechnologies

B. Software development

INCLUDE:	EXCLUDE:
<ul style="list-style-type: none">• Application development tools and environments• Applications software• Computer-aided design tools and methods• Computer systems software	<ul style="list-style-type: none">• Software programming or engineering used exclusively for internal company operations such as financial management or human resources

Question 14 (continued)

C. Materials synthesis and processing

Covers formulation and manipulation of new or improved materials using the data and techniques of science and engineering.

INCLUDE:
<ul style="list-style-type: none">• Advanced structural materials in the industrial machinery, medical, building, and construction industries• Higher performance semiconductors and photonic devices in the semiconductor industry• Ceramics and alloys designed to withstand extreme temperatures and stresses for use in engine and structural parts in the aerospace and automotive industries• Composite materials for use in sporting goods• New and significantly improved synthesis and production techniques for existing materials

D. All other R&D areas

Report the remainder of R&D costs so that the total for this question matches Question 5, line D, column 3.

Question 15 Did your company perform any R&D using nanotechnology during 2005?

Question 15 covers nanotechnology in R&D.

Nanotechnology is the creation and utilization of materials, devices, and systems sized at the level of atoms and molecules in the range of 1 to 100 nanometers.

If you answer "No" to Question 15, continue on to Question 17.

Question 16 For the R&D costs reported in 14, lines A through D, what percentage involved the use of nanotechnology for each of the following areas?

Question 16 asks for the nanotechnology proportion of the R&D expenditures provided in Question 14.

For example, if about a fourth of your biotechnology R&D expenditures was devoted to nanotechnology projects, report 25% in Question 16, line A.

INCLUDE:
<ul style="list-style-type: none">• Materials and systems that exhibit novel and significantly improved physical, chemical, and biological properties; phenomena; and processed because of their size

Question 17 For the Federal and total R&D you reported in (5), line D, columns 1 and 3, what was the costs for the R&D performed in each of the 50 United States and D.C.? (The totals for this item should equal the totals reported in (5), line D, columns 1 and 3.)

Question 17 covers R&D for each state location where your company has research and development laboratories or facilities.

It is not necessary to calculate separately individual assignments made outside the home state of a particular research staff.

Question 18 If your company performed energy-related R&D during 2005, what was the costs of the R&D performed in the 50 United States and D.C. for the following sources of energy?

Question 18 covers R&D by type of energy source.

INCLUDE:

- R&D to increase energy resources or capabilities
- Development of energy equipment
- Products and processes for exploration, extraction, transportation, processing, storage, generation (including conversion), distribution, conservation
- Present, new, or improved forms of energy

How to estimate if the project is for joint or multiple purposes

Estimate the portion of the cost incurred for energy purposes.

Include the total cost of the R&D energy spending if the primary purpose of the project is energy R&D and costs cannot be apportioned.

Exclude costs if the project is not primarily for energy research and development and the costs cannot be apportioned.

Question 18 (continued)**What is included for each type of energy:**

Type of energy	INCLUDE:
Fossil fuels	<ul style="list-style-type: none">• Oil• Gas• Shale• Coal<ul style="list-style-type: none">– Including synthetic fuels designed to convert coal to gaseous and liquid products– Including equipment and techniques to improve the productivity and recovery rates of coal mining
Geothermal and solar	<ul style="list-style-type: none">• Geothermal heat pumps• Geothermal power plant generators• Photovoltaic technology• Solar water-heating systems
Nuclear	<ul style="list-style-type: none">• Fission and fusion
	<ul style="list-style-type: none">• Conservation and utilization R&D to reduce consumption either at the point of energy use or in the transmission, transportation, storage, and conversion of energy including such activities as:<ul style="list-style-type: none">– Reduce fuel consumption in manufacturing– Improve the efficiency of transportation of energy products– Produce an end product that is more efficient in energy consumption• Wind, waste, hydroelectric• Other energy R&D that cannot be classified above

Question 19 Company organization and ownership

Question 19 asks for information on your company's ownership and your company's ownership of other entities.

Question 20 Reporting period, location of records, and contact information.

Question 20 covers the reporting period, some reporting characteristics, and provides space for your contact information. Please give the name and telephone number of the person in your company to contact regarding this report.

Question 21 Remarks

The Remarks section provides space for your comments and explanations.



U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

FORM

RD-1A (02-10-2006)

2005 SURVEY OF INDUSTRIAL RESEARCH AND DEVELOPMENT

OMB No. 0607-0912: Approval Expires 12/31/2007

Mail your completed form to:

U.S. CENSUS BUREAU
1201 East 10th Street
Jeffersonville, IN 47132-0001

Please **read** the accompanying instructions before answering the questions.

Need help or have questions about filling out this form?

Visit our Web site at www.census.gov/econhelp/rd

To **speak** with an analyst, call 1-800-851-2014, option "0" between 8:00 a.m. and 5:00 p.m., Eastern time, Monday through Friday.

- OR -

Write to the address above, include your 11-digit Identification Number (ID) printed in the mailing address.

Option to file electronically is located at www.census.gov/econhelp/rd

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(Please correct any errors in this mailing address.)

YOUR RESPONSE IS REQUIRED BY LAW. Title 13, United States Code, requires businesses and other organizations that receive this questionnaire to answer the questions and return the report to the U.S. Census Bureau. By the same law, **YOUR CENSUS REPORT IS CONFIDENTIAL.** It may be seen only by persons sworn to uphold the confidentiality of Census Bureau information and may be used only for statistical purposes. Further, copies retained in respondents' files are immune from legal process. You will satisfy the mandatory requirements for this survey if you answer **2**, **3**, and **5**, line D, columns 1 and 3. Except as noted in specific questions, this report should cover your entire consolidated domestic enterprise, **including all subsidiaries** in the 50 United States and D.C. Reasonable estimates are acceptable.

This survey is conducted jointly with the National Science Foundation.

RESEARCH AND DEVELOPMENT (R&D)

R&D includes basic and applied research in the sciences and engineering. It also includes design and development of new products and processes and enhancement of existing products and processes.

R&D includes activities carried on by persons trained, either formally or by experience, in the physical sciences such as chemistry and physics, the biological sciences such as medicine, and engineering and computer science. R&D includes these activities if the purpose is to do one or more of the following things:

1. Pursue a planned search for **new scientific knowledge** or understanding that does not have specific immediate commercial objectives, although it may be in fields of present or potential commercial interest. (Basic research)
2. Apply the findings of basic research or other **existing knowledge** toward discovering **new scientific knowledge** that has specific commercial objectives, including work required to evaluate possible uses, with respect to new products, services, processes, or methods. (Applied research)

3. Systematically use the knowledge or understanding gained from research and **practical experience** in the production or **significant improvement** of products, services, processes, or methods, including the design and development of prototypes, materials, devices, and systems. (Development)

Research and development includes the activities described above whether assigned to separate R&D organizational units of the company or carried out by company laboratories and technical groups not part of an R&D organization. Reporting the R&D activities of such latter groups may require the use of estimates for some of your responses.

Activities to be **excluded** from R&D are as follows: research in social sciences or psychology, routine product testing, geological and geophysical exploration activities and technical services.

See instructions for more detail.

1 Did your company conduct R&D in 2005? (Mark "X" only ONE box.)

201 ☐ Yes - Complete form, enter zeros where applicable, and return this form.

203 ☐ No - Either call TDE to report (1-800-851-2014) OR mark the 203 box and mail the form.

NOTE - After reviewing **1** if you need further assistance please call 1-800-851-2014, option "0".

Dollar figures should be rounded to thousands of dollars.

If a figure is **\$1,025,628.79: Report** →**2005**

\$ Billions	Millions	Thousands
	1	0 2 6

- 2** What was the amount of your company's **sales, shipments, operating receipts, or revenues**, net of returns and allowances attributable to domestic operations in the 50 United States or D.C. during 2005? (EXCLUDE domestic intracompany transfers and sales by foreign subsidiaries. INCLUDE receipts for sales of products and services provided to other companies, individuals, U.S. Government agencies, and foreign countries.)

Mark "X" if None 0130 ☐

2005		
\$ Billions	Millions	Thousands
102		

- 3** How many **employees** worked in the 50 United States or D.C. for your company on March 12, 2005? (INCLUDE number of full- and part-time employees whose payroll was reported on Internal Revenue Service Form 941, Employer's Quarterly Federal Tax Return.)

Mark "X" if None 0131 ☐

Number
112

- 4** What was the number of full-time equivalent (FTE) **scientists and engineers** employed by your company in the 50 United States and D.C. as of January 1, 2006?

(See Instructions for the definition of FTE scientists and engineers.)

Mark "X" if None 0134 ☐

January 1, 2006	
Number of FTEs	
206	

- 5** What was the cost of R&D performed within your company in the 50 United States and D.C. from each of the sources of funding below during 2005?

A. Basic research (Activity toward the advancement of scientific knowledge without specific immediate commercial objectives.)

Mark "X" if no basic research 0135 ☐

B. Applied research (Activity directed primarily towards a specific commercial or practical objective.)

Mark "X" if no applied research. . . . 0136 ☐

C. Development (Activity translating research into new or improved products, services, or processes.)

Mark "X" if no development 0137 ☐

D. TOTAL (Add lines A through C.)

Mark "X" if no R&D 0138 ☐

2005								
(1) Federal funds			(2) Company and other nonfederal funds			(3) Total funds Columns 1 + 2		
\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
304			305			306		
314			315			316		
324			325			326		
344			345			346		

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- 6** If your company plans to perform R&D during 2006, what is the estimated projected cost?

(Comparable to the 2005 figure reported in 5, line D.)

Mark "X" if no R&D is planned for next year . . . 0139 ☐

2006								
(1) Federal funds			(2) Company and other nonfederal funds			(3) Total funds Columns 1 + 2		
\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
403			402			401		

If not shown, please enter your 11-digit Identification Number (ID) from the mailing address.

- 7** If **others outside your company performed R&D** funded by your company, what was the cost of the R&D performed in the 50 United States and D.C. during 2005?

(Include payments made via contracts, grants, or other agreements under which your company pays for **but does not perform** any of the R&D.)

Mark "X" if no R&D was performed by others

0140

☐

2005								
(1) Federal funds			(2) Company and other nonfederal funds			(3) Total funds Columns 1 + 2		
\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands	\$ Billions	Millions	Thousands
354			355			356		

- 8-9** Not Applicable.

- 10** If your company funded R&D performed **outside the 50 United States and D.C.** during 2005, what was the cost? (Please report costs of R&D performed by subsidiaries, affiliates, or others based on your company's percentage of ownership, if any, of the entity that conducted the R&D. Ownership can be based on voting stock or equivalent interest.)

Mark "X" if None 0147 ☐

A. More than 50% ownership (This category includes wholly owned subsidiaries and locations.)

B. 10% to 50% ownership

C. More than 0% but less than 10% ownership

D. 0% - No company ownership

E. TOTAL (Add lines A through D.)

2005		
Company and other nonfederal funds		
\$ Billions	Millions	Thousands
366		
365		
364		
363		
369		

- 11-13** Not Applicable.

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11001039

- 14** For the total R&D you reported in **5**, line D, column 3, what were the costs for the following areas?

A. Biotechnology (The use of scientific and engineering data and techniques for the study and solution of problems concerning living organisms.) Mark "X" if None 0172 ☐

B. Software development (The formulation of programs, applications, routines, etc., for computers, excluding those used exclusively for internal company operations.) Mark "X" if None 0173 ☐

C. Materials synthesis and processing (The use of scientific and engineering data and techniques for the formulation and manipulation of new materials.) Mark "X" if None 0174 ☐

D. All other R&D areas Mark "X" if None 0175 ☐

E. TOTAL (Add lines A through D. The sum should equal the total reported in **5**, line D, column 3.) Mark "X" if None 0176 ☐

2005		
Total funds		
\$ Billions	Millions	Thousands
7111		
7211		
7311		
7411		
7511		

- 15** Did your company perform any R&D using **nanotechnology** during 2005? (Nanotechnology is the creation and utilization of materials, devices, and systems sized at the level of atoms and molecules. This includes R&D in the range of 1 to 100 nanometers.)

7001 ☐ Yes - Go to **16**.

7002 ☐ No - Go to **19**.

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- 16** For the R&D costs reported in **14**, lines A through D, what percentage involved the use of **nanotechnology** for each of the following areas?

A. Biotechnology Mark "X" if None 0177 ☐

B. Software development Mark "X" if None 0178 ☐

C. Materials synthesis and processing Mark "X" if None 0179 ☐

D. All other R&D areas Mark "X" if None 0180 ☐

2005	
Whole percents	
7112	
	%
7212	
	%
7312	
	%
7412	
	%

- 17-18** Not Applicable.

11001047

If not shown, please enter your 11-digit Identification Number (ID) from the mailing address.

19 A. Does this report cover your entire consolidated domestic enterprise, including all U.S. subsidiaries? (Mark "X" only ONE box.)

1301 ☐ Yes

1330 ☐ No - Please explain in 21.

B. Was this company owned or controlled by another company on December 31, 2005?

001 ☐ Yes - Give date acquired at right AND enter new owner name and mailing address below 7

0018

Month	Year

6030 Name of new owner or operator

6031 Mailing address (Number and street, P.O. box, etc.)

6032 City, town, village, etc.

6033 State 6034 ZIP Code

☐ No

CHECK ITEM - Please complete the check list below BEFORE returning this form. By checking these items you will reduce the likelihood of our calling you to resolve an error or inconsistency.

In 2: Are sales reported in **thousands** of dollars?

☐ Yes

☐ No

In 3: Does your answer describe the number of **employees**, NOT company payroll?

☐ Yes

☐ No

In 5: Does the **Federal funds** (column 1) plus **Company funds** (column 2) equal **Total funds** (column 3) for each of the following rows?

Basic research (5A), applied research (5B), development (5C), total research and development (5D).

☐ Yes

☐ No

If the answer to any of the above checks is "No," please make the necessary corrections in the appropriate item(s) or provide an explanation in 21.

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11001054

20 Reporting period, location of records, and contact information**A.** Is the time period covered by this report a calendar year?0078 ☐ Yes0079 ☐ No - Enter time period covered → FROM

Month	Year
0070	

TO

Month	Year
0071	

B. Are all of your company's R&D records and data in a central location?0080 ☐ Yes0081 ☐ No - How many locations? →

0086

--

0085 ☐ Other - Please describe →

0087

--

0084

--

C. How many people were involved in the preparation of this report (for example, providing, collecting, or reviewing information)?

0072 Name of person to contact regarding this report

0073 Title

Area code	Number			Extension	Area code	Number		
Telephone 0074			-		Fax 0075			-
					Date completed 0069		Month	Day
0076 Internet e-mail address								Year

21 REMARKS (Please use this space for any explanations that may help us in understanding your reported data.)

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Thank you for completing your 2005 SURVEY OF INDUSTRIAL RESEARCH AND DEVELOPMENT form.

PLEASE PHOTOCOPY THIS FORM FOR YOUR RECORDS AND RETURN THE ORIGINAL.

2005 Survey of Industrial Research and Development

Form RD-1A

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2005 Survey of Industrial Research and Development
Form RD-1A
General Instructions

Changes from 2004 to 2005 R&D survey year

- 1) The wording of some items has been changed for clarification.
- 2) Some item headings and numbers have changed. The five mandatory items are now as follows:
 - Question 2
 - Question 3
 - Question 5D, column 1
 - Question 5D, column 3
- 3) Question 15 has been added.

How this information is used

Information about corporate research and development (R&D) activities is important in assessing our nation's scientific and technological resources. Your survey answers help us to provide national data on industrial R&D. This information is not available from any other source. Your participation is appreciated so that we can produce timely and comprehensive data.

Who fills out this survey?

U.S. publicly traded and privately owned, nonfarm business firms

This survey does **not** include:

- Operations owned by Federal, state, or local governments
- Nonprofit organizations
- Trust or pension plans performing only investments

If you received this form in error, please explain in the Remarks section on page 6 of the survey form and return the form.

AUTHORITY AND CONFIDENTIALITY – Your response is required by law (Title 13, United States Code). By section 9 of the same law, your report is confidential. It may be seen only by persons sworn to uphold the confidentiality of Census Bureau information, and may be used only for statistical purposes. The law also provides that copies of your report retained in your files are immune from legal process. Response is not required to any information collection form unless it displays a valid approval number from the Office of Management and Budget. This 8-digit number appears in the upper right corner of the form.

Which company operations should you include in your survey answers?

Report all domestic operations of your **entire consolidated domestic enterprise**, including all U.S. subsidiaries.

Report all parts of the company located in the 50 United States and the District of Columbia (D.C.), except where indicated differently.

For holding companies, report for all U.S. subsidiaries under the ownership and control of the holding company.

EXCEPTION: If you report separately for a component of this company based upon an arrangement with the Census Bureau, please continue to do so.

Reporting period for your survey answers

Please provide calendar year 2005 information, if possible. If not, please use your fiscal year ending between September 2005 and March 2006

How to report tax incentives for R&D

The Federal government and many states offer incentives for research and development activity. For purposes of this survey, please report your total R&D expenditures regardless of any tax incentives.

For further information on the Federal research tax credit please go to:

<http://www.irs.gov/businesses/>

For further information on state tax incentives, please contact the Comptroller of the Treasury in your state.

To request more time to complete your form or additional copies of the form

Please provide your 11-digit identification number (ID) as printed on the form above your address when you contact us.

For more time, call the Census Touchtone Data Entry System: 1-800-851-2014.

For official copies of the form, call (812) 218-3331.

OR

Write: U.S. Census Bureau
1201 East 10th Street
Jeffersonville, IN 47132-0001

To obtain a sample copy of the form, please visit the following web site. However, that sample copy **cannot** be used to submit your survey response because it lacks the appropriate labeling.

<http://help.econ.census.gov/econhelp/rd/>

For answers to your questions regarding this form

Write:

U.S. Census Bureau, Manufacturing and Construction Division
ATTN: Special Studies Branch
Room 2135/4
Washington, DC 20233-6900

Phone:

1-800-851-2014 (option "0")

Use our web site at **<http://help.econ.census.gov/econhelp/rd/>**

- Submit e-mail via our secure server to encrypt your message and to keep your survey participation confidential
- See answers to frequently asked questions

Electronic alternative for reporting

An electronic questionnaire may be used to report your responses. This electronic alternative potentially saves time for you and helps us to reduce processing costs. If you use the electronic alternative, please do **not** mail in the paper form. For questions about installing or using the electronic questionnaire, please call the Electronic Reporting Staff at 800-838-2640.

The system requirements for the electronic questionnaire are:

1. Microsoft Windows 98 or higher
2. Microsoft Internet Explorer or Netscape Navigator 4.0 or above (128-bit encryption)
3. If you set your screen display for the 16-bit color or higher, the forms will be easier to read. The forms are harder to read with 256-color display.

Have your username (UID) and password (PW) handy. **The username and password are case sensitive.**

1. Go to the Business Help Site at: www.census.gov/econhelp/rd
2. Click on Electronic Reporting
3. Follow the instructions for downloading software.

Transmitting your data

You may transmit you completed data to the Census Bureau electronically via Internet, or by mail.

WARNING CONCERNING ELECTRONIC MAIL: The Internet is not a secure means of transmitting information unless it is encrypted. If you choose to communicate with the Census Bureau via electronic mail, the Census Bureau cannot guarantee the privacy of the information while transmitted, but will safeguard it in accordance with Title 13. Be advised that making inquiries regarding this survey via electronic mail may divulge your participation in this survey.

Burden hour estimate

Public reporting burden for this collection of information is estimated to average 1 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspects of this collection of information, including suggestions for reducing this burden to:

Paperwork Project 0607-0912
U.S. Census Bureau
4700 Silver Hill Road, Stop 1500,
Washington, DC 20233-1500

You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0912" as the subject.

Survey Definitions of R&D

R&D includes the following:

- the planned, systematic pursuit of new knowledge or understanding toward general application (basic research);
- the acquisition of knowledge or understanding to meet a specific, recognized need (applied research); and
- the application of knowledge or understanding toward the production or improvement of a product, service, process, or method (development).

This survey covers industrial R&D performed by people who are

- 1) trained—either formally or by experience—in engineering or in the physical, biological, mathematical, statistical, or computer sciences, and
- 2) employed by a publicly or privately owned firm engaged in for-profit activity in the 50 United States and D.C. (This also includes R&D they may perform **outside** of the 50 United States and D.C.)

This survey specifically **excludes** quality control, routine product testing, market research, sales promotion, sales service, and other nontechnological activities; routine technical services; and research in the social sciences or psychology.

This survey defines basic research, applied research, and development as follows:

Basic research is the pursuit of new scientific knowledge or understanding that does not have specific immediate commercial objectives, although it may be in fields of present or potential commercial interest.

Applied research applies the findings of basic research or other existing knowledge toward discovering new scientific knowledge that has specific commercial objectives with respect to new products, services, processes, or methods.

Development is the systematic use of the knowledge or understanding gained from research or practical experience directed toward the production or significant improvement of useful products, services, processes, or methods, including the design and development of prototypes, materials, devices, and systems.

Types of R&D activities to consider for this survey

INCLUDE:	EXCLUDE:
<ul style="list-style-type: none"> • Activities that incorporate: <ul style="list-style-type: none"> – Basic and applied research in the sciences and engineering – Design and development of new products and processes – Enhancement of existing products and processes • Activities carried on by persons trained, either formally or by experience, in: <ul style="list-style-type: none"> – Biological sciences (e.g., medicine) – Computer science – Engineering – Mathematical and statistical sciences – Physical sciences (e.g., chemistry and physics) • Activities that take place in: <ul style="list-style-type: none"> – Separate R&D organizational units of the company – Company laboratories – Technical groups not part of an R&D organization 	<ul style="list-style-type: none"> • R&D from acquired companies prior to acquisition (in-process R&D) • Amortization above the actual cost of property and equipment related to your R&D activities • Testing and evaluation once a prototype becomes a production model • Routine product testing • Geological and geophysical exploration activities • Technical services such as: <ul style="list-style-type: none"> – Quality and quantity control – Technical plant sanitation control – Troubleshooting in connection with breakdowns in full-scale production • Advertising programs to promote or demonstrate new products or processes • Assistance in preparation of speeches and publications for persons not engaged in R&D • Social science R&D including: <ul style="list-style-type: none"> – Personnel R&D – Economic R&D – Artificial intelligence and expert systems R&D – Consumer, market, and opinion R&D – Engineering psychology R&D – Management and organization R&D – Actuarial and demographic R&D – Educational processes and applications R&D – R&D in law

Question-by-Question Instructions

Question 1 Did your company conduct R&D in 2005?

Question 1 asks if your company performed R&D in 2005.

If "Yes," your company conducted R&D in 2005, continue to fill out the rest of the form.

If "No," your company did not conduct R&D in 2005, either call our touchtone service to report this (1-800-851-2014) or mark "No" and mail the form.

If you have questions, please call the R&D Survey staff at 1-800-851-2014 (option "0") to determine whether you are required to complete the form.

Question 2 What was the amount of your company's sales, shipments, operating receipts, or revenues, net of returns and allowances attributable to domestic operations in the 50 United States or D.C. during 2005?

Question 2 covers domestic company sales. Report only the parts of your company located **within** the 50 United States or D.C.

INCLUDE:	EXCLUDE:
<ul style="list-style-type: none">• Sales, operating receipts, and revenues from all domestic operations of the company, net of returns and allowances• Receipts from sales of products and services provided to other companies, individuals, U.S. Government agencies, and foreign countries• Net selling value of shipments, f.o.b. (freight on board) plant, after discounts and allowances minus freight charges and excise taxes• Revenue from investments, rents, and royalties only if it is the principal business of the company• Interest, dividends, commissions, and rental income as part of revenues only if you are a finance, insurance, or real estate company• Value of assets sold under a capital lease agreement• Export transfers to your foreign subsidiaries and affiliates	<ul style="list-style-type: none">• Sales and other taxes collected and paid directly to government taxing agencies• Domestic intracompany transfers• Receipts from sale of products and services provided by your foreign subsidiaries and affiliates• Receipts from sale of products and services provided by your subsidiaries and affiliates in Puerto Rico and other U.S. territories outside the 50 United States and D.C.• Income from interest, dividends, and commissions (Exception: Companies in the finance, insurance, and real estate industries)• Other nonoperating income (e.g., royalties)

Question 3 How many employees worked in the 50 United States or D.C. for your company on March 12, 2005?

Question 3 covers domestic company employment. Report only the parts of your company located **within** the 50 United States or D.C.

INCLUDE:
<ul style="list-style-type: none">• Full- and part-time employees of the company as defined on Treasury Form 941, Employer's Quarterly Federal Tax Return, and Circular E, Employer's Tax Guide, if filed for the entire company• Number of employees in all activities within the 50 United States or D.C. during the pay period that includes March 12, 2005• Persons on paid sick leave, paid holidays, and paid vacations during the pay period that includes March 12, 2005

Question 4 What was the number of full-time equivalent (FTE) scientists and engineers employed by your company as of January 1, 2006?

Question 4 covers the scientists and engineers who are employees of your company and perform R&D activities. It asks for the number of full-time equivalent (FTE) scientists and engineers who work on your company's R&D **within** the 50 United States or D.C.

There are two steps to calculate the number of FTEs for R&D scientists and engineers:

1. For company employees performing only research and development, count the number of scientists and engineers employed in January 2006.
2. For employees whose activities are not solely devoted to R&D, use the proportion of their time that is devoted to R&D to compute the number of fulltime equivalent R&D scientists and engineers. For example, if a company had 60 scientists and engineers in January 2006 and one-fourth of their time was charged to R&D projects, then that company would have 15 full-time equivalent R&D scientists and engineers. Add these full-time equivalents to the count from the previous step.

INCLUDE:
<ul style="list-style-type: none">• All persons engaged in scientific or engineering work at a level that requires knowledge of physical or life sciences or engineering or mathematics• Persons with experience equivalent to completion of a 4-year college course with majors in these fields, regardless of whether they actually hold degrees in the fields

Question 5 What was the cost of R&D performed within your company in the 50 United States and D.C. from each of the sources of funding below during 2005?

Question 5 covers the R&D that is performed both (1) **within** your company and (2) **within** the 50 United States and D.C.

How to decide which expenditures to include as R&D costs

INCLUDE:	EXCLUDE:
<ul style="list-style-type: none">• Wages, salaries, and related costs• Materials and supplies consumed• R&D depreciation• Cost of computer software used in R&D activities• Utilities, such as telephone, telex, electricity, water and gas• Travel costs and profession dues• Property taxes and other taxes (except income taxes) incurred on account of the R&D organization or the facilities they use• Insurance expenses• Maintenance and repair, including maintenance of buildings and grounds• Company overhead including: personnel, accounting, procurement and inventory, and salaries of research executives not on the payroll of the R&D organization	<ul style="list-style-type: none">• Expenses of acquired companies for R&D performed prior to acquisition (in-process R&D)• Capital expenditures• Testing and evaluation once a prototype becomes a production model• Patent expenses• Income taxes and interest

Instructions for Question 5

How to decide which category of R&D

1. Basic research	<p>Projects that pursue new scientific knowledge or understanding that does not have specific immediate commercial objectives, although it may be in fields of present or potential commercial interest</p> <p>Example: A project looks at the characteristics of silicon that has been impregnated with different elements. This project seeks to improve the company's understanding of semiconductors. Its results may or may not be applicable to the company's existing or planned product lines.</p>
2. Applied research	<p>Projects that apply the findings of basic research or other existing knowledge toward discovering new scientific knowledge that has specific commercial objectives with respect to new products, services, processes, or methods</p> <p>Example: A project seeks to discover ways to reduce the power requirements of microchips. Although the outcome of this project is uncertain, positive results would improve the energy efficiency for future products.</p>
3. Development	<p>Projects that are directed toward the systematic use of the knowledge or understanding gained from research or practical experience directed toward the production or significant improvement of useful products, services, processes, or methods, including the design and development of prototypes, materials, devices, and systems</p> <p>Example: A project designs and develops a microprocessor for cellular phones. The goal of this project is a new product that would generate revenue for the company.</p>
Development includes:	Development excludes:
<ul style="list-style-type: none"> • Expenditures for designing and conducting clinical trials of drugs, pharmaceuticals, or other products that have not been marketed • Software development <ul style="list-style-type: none"> – Designing and/or adapting software if the application has commercial value (exclude software development for internal use) – Beta version of software being developed that has potential commercial application • Design and operation of pilot plants and semiwork plants • Engineering activity required to advance the design of a product or process so it meets specific functional and economic requirements • Design, construction, and testing of prototypes and models including test models for defense contracts • Designs for special manufacturing equipment and tools • Preparation of reports, drawings, formulas, specifications, standards practice instructions, or operating manuals 	<ul style="list-style-type: none"> • Software development intended for within company use only • Routine technical services to customers • Tool making and tool tryout • Production of detailed construction drawings and manufacturing blueprints

Question 5 (continued)

How to decide which category to use for sources of R&D funding

Source of R&D	INCLUDE:	EXCLUDE:
Federal funds	<ul style="list-style-type: none">Federally funded R&D performed within the company. Include only the amount of work done on Federal R&D contracts or subcontracts in the current year.R&D portion of procurement contracts or subcontracts	<ul style="list-style-type: none">Federally funded R&D contracted or subcontracted to or otherwise by others outside of your company. (Report such funds in Question 7.)Expenditures for independent research and development (IR&D). (Report in column 2, Company and other nonfederal funds.)
Company and other nonfederal funds	<ul style="list-style-type: none">R&D from company and other nonfederal sources that is performed within the company NOTE that "company and other nonfederal funds" and "company funded" are used interchangeably in the Form RD-1A.R&D your company performs under contracts you have with non-Federal sourcesCosts for independent research and development (IR&D). We define IR&D funds as R&D performed by the company for which you anticipate reimbursement by the government through indirect charges for the purchase of products or services. Qualified projects usually have potential interest to the Department of Defense. These IR&D funds are excluded from federal funds received for federally sponsored research and development contracts.	<ul style="list-style-type: none">R&D from nonfederal sources that is contracted to or otherwise performed by others outside of your company (Report such funds in Question 7.)

Question 6 If your company plans to perform R&D during 2006, what is the estimated projected cost?

Question 6 asks for an estimate or projection of the cost of R&D your company expects to perform in 2006 in the 50 United States and D.C.

Question 7 If others outside your company performed R&D funded by your company, what was the cost of the R&D performed in the 50 United States and D.C. during 2005?

Question 7 covers the R&D that was **both** performed for your company (1) by **others outside your company** such as contractors, and (2) **within** the 50 United States and D.C.

Include payments for R&D projects, contracts, or services performed for your company by contractors, suppliers, grantees, educational institutions, or other organizations.

Question 7 includes amounts for R&D performed by others for your company and does not include amounts for R&D performed by your company.

Question 8 What was the cost of the R&D reported in (7), column 2, performed by the following types of organizations?

Question 8 is not applicable to this form.

Question 9 What were your company's costs for R&D that your company performed within a joint venture, alliance, partnership, or other collaborative arrangement in the 50 United States and D.C. during 2005?

Question 9 is not applicable to this form.

Question 10 If your company funded R&D performed outside the 50 United States and D.C. during 2005, what was the cost? *(Please report costs of R&D performed by subsidiaries, affiliates, or others based on your company's percentage of ownership, if any, of the entity that conducted the R&D. Ownership can be based on voting stock or equivalent interest.)*

Question 10 covers R&D performed **outside** the 50 United States and D.C. including R&D performed in Puerto Rico.

For Question 10, line D, report payments for R&D projects, contracts, or services performed for your company by contractors, suppliers, educational institutions, or other organizations.

Question 11 What was the cost of the R&D reported in (10), line A, in Puerto Rico and the following countries?

Question 11 is not applicable to this form.

Question 12 If you reported Federally funded R&D in (5), line D, column 1, what were the costs funded by the following Federal agencies?

Question 12 is not applicable to this form

Question 13 For the total R&D you reported in (5), line D, column 3, what were the costs for the following types of expenses?

Question 13 is not applicable to this form.

Question 14 For the total R&D you reported in (5), line D, column 3, what were the costs for the following areas?

Question 14 covers R&D by selected technology area.

A. Biotechnology

Definition of biotechnology for this survey:

Biotechnology is the application of science and technology to living organisms, as well as parts, products, and models thereof, to alter living or nonliving materials for the production of knowledge, goods, and services.

INCLUDE:

- | | |
|---|---|
| <ul style="list-style-type: none">• DNA technologies such as:<ul style="list-style-type: none">– Genomics– Pharmacogenetics– Gene probes– DNA sequencing/synthesis/amplification– Genetic engineering• Protein and molecular technologies such as<ul style="list-style-type: none">– Protein/peptide sequencing/synthesis– Lipid/protein glycoengineering– Proteomics– Hormones– Growth factors– Cell receptors/signaling/pheromones• Cell and tissue culture and engineering including:<ul style="list-style-type: none">– Cell/tissue culture– Tissue engineering– Hybridization– Cellular fusion– Vaccine/immune stimulants– Embryo manipulation | <ul style="list-style-type: none">• Process biotechnologies such as:<ul style="list-style-type: none">– Bioreactors– Fermentation– Bioprocessing– Bioleaching– Biopulping– Biobleaching– Biodesulphurization– Bioremediation– Biofiltration• Subcellular organism research including:<ul style="list-style-type: none">– Gene therapy– Viral vectors• Other biotechnology areas such as:<ul style="list-style-type: none">– Bioinformatics– Nanobiotechnologies |
|---|---|

B. Software development

INCLUDE:	EXCLUDE:
<ul style="list-style-type: none">• Application development tools and environments• Applications software• Computer-aided design tools and methods• Computer systems software	<ul style="list-style-type: none">• Software programming or engineering used exclusively for internal company operations such as financial management or human resources

Question 14 (continued)

C. Materials synthesis and processing

Covers formulation and manipulation of new or improved materials using the data and techniques of science and engineering.

INCLUDE:
<ul style="list-style-type: none">• Advanced structural materials in the industrial machinery, medical, building, and construction industries• Higher performance semiconductors and photonic devices in the semiconductor industry• Ceramics and alloys designed to withstand extreme temperatures and stresses for use in engine and structural parts in the aerospace and automotive industries• Composite materials for use in sporting goods• New and significantly improved synthesis and production techniques for existing materials

D. All other R&D areas

Report the remainder of R&D costs so that the total for this question matches Question 5, line D, column 3.

Question 15 Did your company perform any R&D using nanotechnology during 2005?

Question 15 covers nanotechnology in R&D.

Nanotechnology is the creation and utilization of materials, devices, and systems sized at the level of atoms and molecules in the range of 1 to 100 nanometers.

If you answer "No" to Question 15, continue on to Question 19.

Question 16 For the R&D costs reported in 14, lines A through D, what percentage involved the use of nanotechnology for each of the following areas?

Question 16 asks for the nanotechnology proportion of the R&D expenditures provided in Question 14.

For example, if about a fourth of your biotechnology R&D expenditures was devoted to nanotechnology projects, report 25% in Question 16, line A.

INCLUDE:
<ul style="list-style-type: none">• Materials and systems that exhibit novel and significantly improved physical, chemical, and biological properties; phenomena; and processed because of their size

Question 17 For the Federal and total R&D you reported in (5), line D, columns 1 and 3, what was the costs for the R&D performed in each of the 50 United States and D.C.?

Question 17 is not applicable to this form.

Question 18 If your company performed energy-related R&D during 2005, what was the costs of the R&D performed in the 50 United States and D.C. for the following sources of energy?

Question 18 is not applicable to this form.

Question 19 Company organization and ownership

Question 19 asks for information on your company's ownership and your company's ownership of other entities.

Question 20 Reporting period, location of records and contact information

Question 20 covers the reporting period, some reporting characteristics, and provides space for your contact information. Please give the name and telephone number of the person in your company to contact this report.

Question 21 Remarks

The Remarks section provides space for your comments and explanations.



OFFICE OF THE
DIRECTOR

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

FROM THE DIRECTOR
NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) requests your company's participation in the 2005 Survey of Industrial Research and Development that we conduct jointly with the U.S. Census Bureau. This annual survey is the only source of detailed information on U.S. industry's research and development (R&D) performance.

Your company's participation is vital to the accuracy of the resulting information. Because R&D expenditures are concentrated in relatively few companies, a completed response is needed from each surveyed firm—*there is no substitute for the information that you can provide*. Your company can be assured of complete confidentiality. Survey data will be released only in aggregate form so that responses of individual companies cannot be identified.

If you have questions concerning the operation of this survey, please direct them to the Census Bureau at (301) 763-5162. Survey results are made available in an annual report entitled *Research and Development in Industry*. The most recent report, historical reports, and descriptive information about the survey are available on the NSF website at <http://www.nsf.gov/sbe/srs/sird/start.htm>.

Thank you for your assistance in this important effort.

Sincerely,

Arden L. Bement, Jr.
Acting Director



FROM THE DIRECTOR
U.S. CENSUS BUREAU

The U.S. Census Bureau is conducting a survey of industrial research and development (R&D). The information developed from the survey can serve a number of useful purposes. For example, the survey provides information that can be used to study the effectiveness of tax credits. The data also assist public officials in allocating research funding by state, which may benefit companies like yours.

We have enclosed your company's report form and instructions for the 2005 Survey of Industrial Research and Development. We have also included instructions for completing an electronic questionnaire that you may use in lieu of the paper form. **Please read all instructions before answering the questions.** If you have any questions about installing or using the electronic format, please contact the Electronic Reporting Staff on 1-800-838-2640.

The electronic format and Form RD-1 contain information from the previous report for your company. **Please complete the paper or electronic form, and return it within 60 days.** For this survey year, federal law (Title 13, Sections 182 and 225) requires your response to items 2, 3, 5, (line D, columns 1 and 3), and 17. Responses to all other questions on the survey are voluntary. Response is not required to any information collection form unless it displays a valid approval number from the Office of Management and Budget. This 8-digit number appears in the upper right corner of the form.

Information you report should cover the **domestic** operations of your consolidated enterprise for the calendar year 2005. If you do not have book figures for any item, **you may provide carefully prepared estimates.** The same law that authorizes the survey (Title 13, United States Code) requires that we keep your report confidential. It may be seen by only persons sworn to uphold the confidentiality of Census Bureau information and may be used only for statistical purposes. Copies of your responses that are retained in your files are immune from legal process.

This survey is a joint project between the U.S. Census Bureau and the National Science Foundation (NSF). We have enclosed a letter from the Director of the NSF encouraging your response to the survey. If you have any questions, please call my staff on 1-800-851-2014, option (0).

Thank you in advance for your cooperation.

Sincerely,

Charles Louis Kincannon
Director

Enclosures

Suggested Citation, Acknowledgments

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