

## U.S. Industrial R&D: NSF Announces New Information Retrieval System and Historical Database

by George J. Nozicka\*

*The new database provides over 45 years of information on industrial R&D performance across a broad range of criteria.*

A new information system makes all of the National Science Foundation's (NSF) historical data on industrial research and development (R&D) funding easily available on-line. The Industrial Research and Development Information System (IRIS) can be found on the NSF website at <http://www.nsf.gov/sbe/srs/iris/start.htm>. The system provides access to information on industrial R&D performance across a broad range of years and criteria.

IRIS links an on-line interface to a historical database, the Survey of Industrial Research and Development Historical Database 1953–1998. The historical database contains more than 2,500 statistical tables, and contains all the industrial R&D data published by NSF since 1953. The data are drawn from NSF's annual Survey of Industrial Research and Development, the primary source for national-level data on U.S. industrial R&D.

The data can be used to assess trends in U.S. R&D performance from a variety of perspectives. For example, in the database, R&D expenditures are measured as a percentage of company sales and by:

- Industry,
- Size of company,
- Size of R&D program,
- Type of cost (e.g., wages or materials),
- State, and
- Source of funds.

\*IRIS was developed under contract for NSF by QRC Division of Macro International, Inc., with Raymond Wolfe as the NSF project officer. Responsible QRC staff included Sean Teehan, Jenifer Maroon, and Cindy Young-Turner, under the direction of George Nozicka.

The database contains breakdowns of R&D expenditures across a number of categories. For example:

- Federally-funded industry R&D, tabulated by industry and sponsoring agency;
- Separate estimates for basic research, applied research, and development;
- Energy R&D expenditures and pollution abatement R&D expenditures for certain years;
- Company-funded R&D, broken down by industry and size of company;
- Details on R&D contracted to outside organizations; and
- Details on R&D performed outside the United States.

The database also provides information on the number of scientists and engineers engaged in industrial R&D and the associated personnel costs.

### Access Options

In addition to information about the survey, detailed help files, a glossary of terms, and links to related NSF publications, the welcome screen offers three main access options. Each of these options provides a different view of the vast amount of R&D data contained in the database.

**Browse Tables by Survey Year** opens a list of the historical publications derived from the individual surveys, in descending order from the most recent (1998) to the earliest (1953–1954) years available (figure 1).

### Electronic Dissemination

SRS data are available through the World Wide Web (<http://www.nsf.gov/sbe/srs/>). For more information about obtaining reports, contact [paperpubs@nsf.gov](mailto:paperpubs@nsf.gov) or call 301-947-2722. For NSF's Telephonic Device for the Deaf, dial 703-292-5090.

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*In addition to R&D statistics, the historical database provides help files, a glossary of terms, and links to related NSF publications.*

- Selecting a publication year from the list displays a list of statistical tables available from that year’s survey (figure 2).
- Selecting a table title downloads that table in spreadsheet form. You may configure your browser to open your spreadsheet software automatically as a table is downloaded or you can download a free spreadsheet reader using the link provided.

**Browse Tables by Table Topic** opens a list of statistical tables that cover that topic across all available data years (figure 3). Clicking on an individual table in that list will download that table in spreadsheet form.

**Search for Data Tables** opens a list of all the measures available in the database (figure 4). Each of the statistical tables is categorized by its measures and dimensions. Measures are the numeric variables (e.g., total R&D funding, or number of full-time equivalent R&D scientists and engineers) for which statistics were

collected. Dimensions are the breakdowns (e.g., industry, company size class, or State) by which the collected statistics were categorized and tallied.

The measures on this list are organized by broad areas. For example:

- R&D performance,
- Geographical breakdowns of R&D performance,
- R&D related employment,
- Counts of companies,
- Industry-administered federally funded research and development centers (FFRDCs),
- Statistical survey metadata such as response rates, number of companies in the survey, imputation rates, and standard errors.

Also available is a time series option that will display estimates, in a continuous series, for selected survey items for all available years. Clicking on an individual table in that list will download that table in spreadsheet form.

Figure 1.

Year of Data	Table Qty	Publication Name
<a href="#">1998</a>	56	Research and Development in Industry: 1998 (NSF 01-305)
<a href="#">1997</a>	69	Research and Development in Industry: 1997 (NSF 99-358)
<a href="#">1995-96</a>	105	Research and Development in Industry: 1995-96 (NSF 99-312)

Figure 2.

Table No.	Table Title	Measures	Dimensions
A-1	<a href="#">Trends in industrial R&amp;D performance, by source of funds, in current and in constant dollars: 1953-98</a>	Total R&D - Funding	Source of Funds (Total, Federal, Company & Other)
A-2	<a href="#">Summary data for R&amp;D-performing companies, by detailed industry and by size of company: 1997-98</a>	Domestic Net Sales, Total R&D - Funding, Employment of R&D Scientists and Engineers, Total Employment (Domestic)	Industry/SIC Code, Size of Company (6 Classes), Source of Funds (Total, Federal, Company & Other)

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Figure 3.

Topic
<a href="#">Total R&amp;D by Industry [1953-98]</a>
<a href="#">Total R&amp;D by Size of R&amp;D Program [1962-98]</a>
<a href="#">Total R&amp;D by Type [1963-98]</a>
<a href="#">Total R&amp;D by State and Industry [1995-98]</a>

Figure 4.

<b>Set No Measures</b>	<input type="radio"/> Choose this if you do not wish to search by Measure.
<b>R&amp;D Performance</b>	<input type="radio"/> <a href="#">Applied Research</a> <input type="radio"/> <a href="#">Basic Research</a> <input type="radio"/> <a href="#">Company-Funded R&amp;D</a>

These are just some of the ways the IRIS and historical database may be used to view and display important information about industrial R&D activities. With improved access to this major body of statistical data, policymakers and researchers have a powerful tool to study the very significant industrial component of the research and development enterprise in the United States.

### Statistical Reports

Annual reports and the latest statistics from the Survey of Industrial Research and Development are available at <http://www.nsf.gov/sbe/>

[srs/indus/start.htm](http://www.nsf.gov/sbe/srs/indus/start.htm). Questions about this Data Brief, the Survey of Industrial Research and Development, the Industrial Research and Development Information System, and the Survey of Industrial Research and Development Historical Database 1953–1998 should be directed to:

**Raymond M. Wolfe**  
 Division of Science Resources Statistics  
 National Science Foundation  
 4201 Wilson Boulevard, Suite 965  
 Arlington, VA 22230

[rwolfe@nsf.gov](mailto:rwolfe@nsf.gov)  
 703-292-7789

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