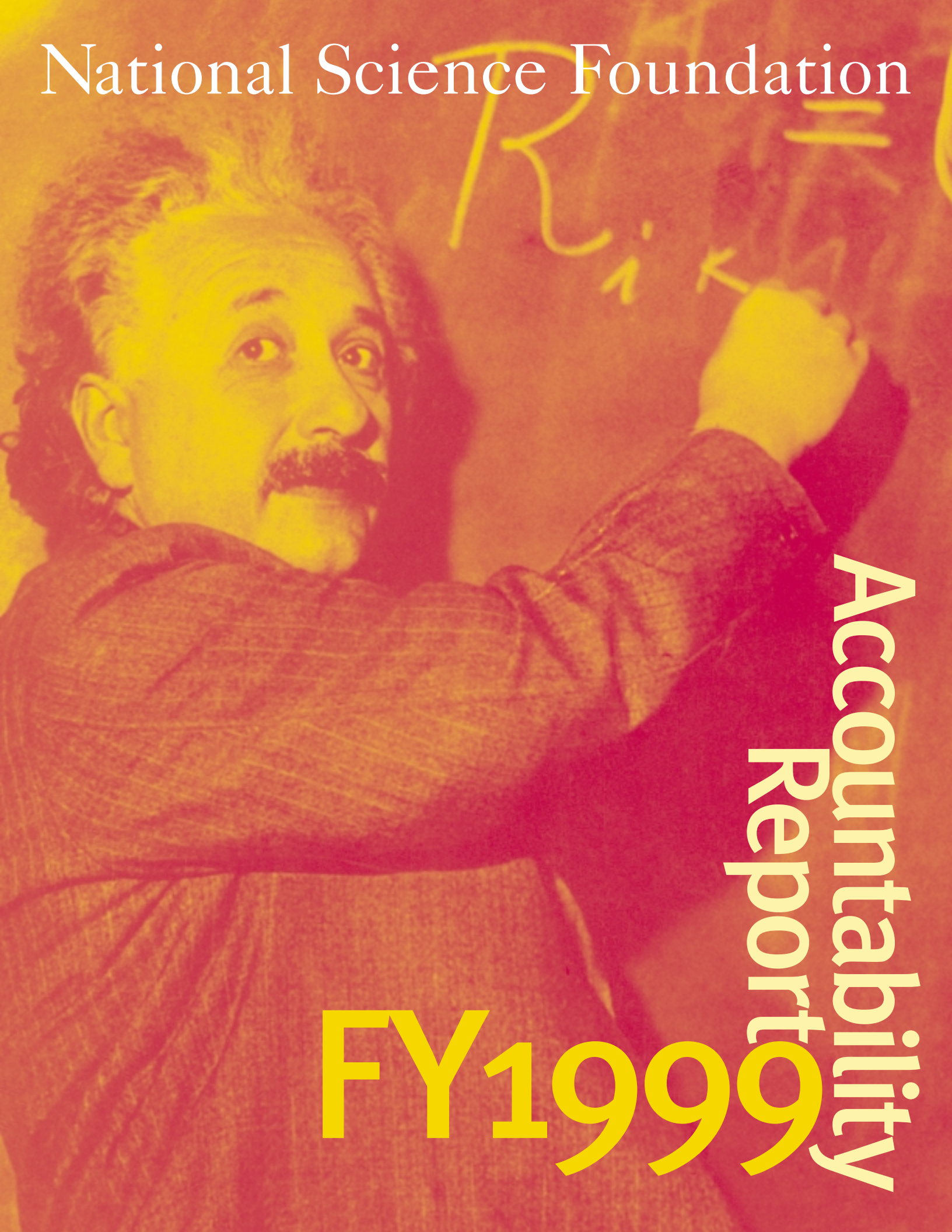


National Science Foundation



Accountability  
Report

FY1999



# National Science Foundation

# Accountability Report FY 1999

◀ **On the cover:** For more than three decades, the National Science Foundation has provided funding for the Institute for Advanced Study at Princeton University. The Institute was the last workplace of Albert Einstein and has been described as one of his most important legacies.

*Albert Einstein™ represented by the Roger Richman Agency, Inc.  
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“The recently-retired hockey great, Wayne Gretzky, used to say, ‘I skate to where the puck is going, not to where it’s been!’ At NSF, we try to find where the fields are going, not where they’ve been.”

**Dr. Rita Colwell**  
NSF Director

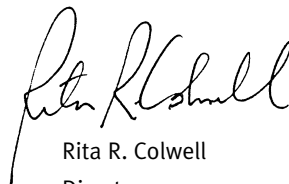
It is with great pleasure that I present the National Science Foundation's (NSF) second Accountability Report. As is discussed in the report, the Foundation is currently celebrating its 50th anniversary. Over its 50 year history, NSF's investments in creative people, in innovative scientific and technological ideas, and in cutting-edge research and education tools have fostered a world-leading capability in science and engineering for the nation.

The returns on NSF's investments have been enormous. NSF-supported researchers have been awarded over 100 Nobel prizes in the sciences. Entire new industries have emerged in computer communications, biotechnology, agriculture and other sectors. With these new industries have come greater employment opportunities, increased economic prospects, and a quality of life beyond anything imagined 50 years ago.

This historical milestone carries great significance, and it is only one of a number of accomplishments that the report highlights and celebrates:

- ▶ This year, for the first time, this Accountability Report will also serve as the NSF Annual Report—in keeping with the fact that programmatic achievements and effective stewardship are inseparable at NSF.
- ▶ The report also provides a more comprehensive discussion of performance outcomes and goals than previous reports. This information will form the basis for the agency's first ever performance report required by the GPRA—the Government Performance and Results Act.
- ▶ Finally, for the second consecutive year, the audit results confirmed that NSF has financial management systems and administrative operations of the highest quality and integrity—as demonstrated by the “clean opinion” received by the agency.

Looking ahead, NSF remains committed to investing in the most promising areas of science and engineering research and education. We can be certain that the results will enhance the nation's future in profound and extraordinary ways.



Rita R. Colwell  
Director



## **The NSF Statutory Mission**

To promote the progress of science;  
to advance the national health, prosperity, and welfare;  
and to secure the national defense.

Thanks for your interest in the National Science Foundation's FY 1999 Accountability Report. This report is a summary of the Foundation's major program and financial accomplishments for the year, and consolidates various financial management and performance information requirements. It is designed to provide you with an integrated source of information about the National Science Foundation's mission, operations, performance, budgetary resources, and financial management. This year, the Accountability Report also serves as the Foundation's Annual Report.



I am delighted to report that in FY 1999, NSF had a successful year of accomplishments:

- ▶ NSF received another unqualified “clean” opinion from independent auditors.
- ▶ There were no material weaknesses based on a review of all program and management controls, and the Inspector General finds us making credible progress on the reportable condition found in 1998 related to property, plant, and equipment.
- ▶ NSF continued its commitment to better, more efficient ways of doing business—from simplifying processes to utilizing the Internet—as we move toward a paperless work environment.
- ▶ NSF made significant progress toward achieving its annual performance goals.

NSF is about learning and discovery and, as you read through our report, I hope that you, too, learn and discover about NSF. More information about the Foundation is available from our website ([www.nsf.gov](http://www.nsf.gov)). As always, I welcome your comments on how we can improve this report, and how we at NSF can better serve you.



Joseph L. Kull  
Chief Financial Officer





# NSF FY1999 Accountability Report

[www.nsf.gov/bfa/dfm/stmt/pg.htm](http://www.nsf.gov/bfa/dfm/stmt/pg.htm)

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◀ The golden age of astronomy, astrophysics, and cosmology is upon us. The opening of all wavebands of electromagnetic spectrum for astronomy, the development of new technologies and the application of new concepts in physics have led to a deeper understanding of the physical processes responsible for all aspects of the origin and evolution of our universe. Central to the achievements of the past 30 years has been the availability of large optical-infrared telescopes. Primary among these new and more powerful tools are the NSF-funded Gemini 8-meter telescopes in Mauna Kea, Hawaii, and Cerro Pachón, Chile. The Gemini telescopes are not only twice as large as most existing telescopes, but they also have superb imaging.

*Photo courtesy of Gemini Observatory, National Science Foundation and University of Hawaii, Institute for Astronomy*

# Executive Summary

## Executive Summary

**A**s the world marks the closing of the 20th century and the beginning of a new millennium, the National Science Foundation (NSF) celebrates its 50th year as the only federal agency to support basic scientific and engineering research, and science and education programs at all levels and in all fields of science and engineering.

NSF does not conduct research or operate laboratories. Instead, NSF's role is to seek out and fund the best ideas and most capable people to pursue new knowledge, discoveries and innovation. In FY 1999:

- ▶ From Congressional appropriations, NSF invested \$2.8 billion in research and \$614.7 million in education activities. Given the integrative nature of research—with students at all levels directly participating in the process—research activities often include a strong educational component.
- ▶ NSF received over 28,000 proposals and funded about one in three. Awards were selected through a rigorous external peer evaluation and merit review process.
- ▶ There were nearly 200,000 people directly engaged in NSF-supported activities, with millions more indirectly involved through NSF-supported activities such as science museums and television programs.

## Performance Goals and Results

FY 1999 was NSF's first year to report on its achievements under the Government Performance and Results Act (GPRA). The Foundation developed performance goals and measures for research and education outcomes, investment processes and management.

It is difficult to link research outcomes, that may take years to achieve, to a specific fiscal year. Also, research outcomes do not lend themselves to quantitative reporting; therefore, NSF developed an alternative approach. External expert review panels assessed research results and reported research outcomes using a qualitative scale. In FY1999:

- ▶ External reviews found that NSF's Outcome Goals were achieved.
  - Discoveries were made at and across the frontier of science and engineering, and connections were made between discoveries and their use in service to society.
  - NSF activities helped develop a diverse, globally oriented workforce of scientists and engineers, and enabled improvement of mathematics and science skills for all Americans.
- ▶ A more quantitative review of NSF's investment process looked at various aspects of awards policies and procedures.
  - 7 of 10 Investment Process Goals were achieved, addressing such areas as use of merit review, identifying emerging opportunities, and increasing award duration.
  - Timeliness of proposal solicitations and proposal processing, and increasing the percentage of awards going to new investigators were identified as areas for increased attention in the coming year.
- ▶ NSF's Management Goals addressed administrative, operations and policy issues:
  - 3 of 5 Management Goals were achieved, addressing Y2K compliance, electronic receipt of proposals, and staff diversity.
  - Electronic receipt of project reports and staff training in the Foundation's electronic FastLane systems were identified as areas for improvement in FY 2000.

## Operating Highlights

NSF is committed to pursuing quality financial management, and is a strong proponent of streamlined business and management practices. NSF, with about four percent of its budget used for administration and management, is one of the federal government's most cost-effective agencies. In FY 1999:

- ▶ NSF received another unqualified "clean" financial opinion from independent auditors on the consolidated financial statements.

- ▶ NSF management took additional steps to correct one reportable condition, repeated from last year's audit, related to equipment records in the NSF's U.S. Antarctic Program .
- ▶ There were no material weaknesses as defined by OMB guidance.
- ▶ NSF made significant progress toward its goal of achieving a paperless environment by the end of FY 2001. In FY 1999, more than 90 percent of NSF's grantees used NSF's electronic systems to conduct business and exchange information via the Internet.
- ▶ FinanceNet ([www.financenet.gov](http://www.financenet.gov)), the federal government's website for public financial management information, received nearly 30 million hits—an increase of 45 percent over the prior year. NSF operates FinanceNet under the sponsorship of the U.S. Chief Financial Officers Council.

## NSF's Investments: Results and Their Impact

In the last 50 years, we have seen significant returns on NSF investments. Grantees and their students have made major contributions not only to the creation of new science and engineering disciplines, but of new tools and industries as well – including Doppler radar, Magnetic Resonance Imaging (MRI), the Internet, biotechnology, agriculture, and information technology. New areas of research have been fostered, such as plant genomics; nanoscale science and engineering; and biocomplexity. In FY 1999:

- ▶ **Antarctic Research.** Fossil bones of hadrosaur and mosasaur dinosaurs were discovered on the Antarctic Peninsula. This finding was awarded “Discovery of the Year” by the Royal Geographic Society of London. The findings are important because the presence of these animals implies a robust and productive vegetation component of the ecosystem.
- ▶ **Math Abilities of Young Children.** NSF-supported research is making discoveries in the foundations of algebraic reasoning among young children. Findings suggest that youngsters are capable of mathematics and science learning that greatly exceeds traditional expectations.
- ▶ **Practical Application of Digital Library.** Research in digital libraries led to practical technology exploited in many different areas. The FBI applied digital library technology to establish an “electronic reading room” to comply with the Freedom of Information Act. The California Department of Transportation applied it to roadside vegetation, quasi-real-time tracking of road conditions, and flood-related emergency services.

These brief examples are just a hint of the vast array of outstanding research results and education efforts reported as a result of recent NSF support. But if the past is prologue, look for more exciting breakthroughs from NSF-sponsored activities.

