



# TASK FORCE ON THE FUTURE OF AMERICAN INNOVATION

1634 I Street, NW • Washington, DC 20006 • 202.626.4385 • [www.futureofinnovation.org](http://www.futureofinnovation.org)

## National Institute of Standards and Technology

### The Commerce Department's Vital Contribution to the Nation's Federal Research Infrastructure

*The Department of Commerce's National Institute of Standards and Technology (NIST) performs high-impact basic research and supports the technical translation to everyday use of economically significant innovations such as new materials and processes; electronics, information technologies, and advanced computing processes; advanced manufacturing integration, biotechnologies, and new energy sources such as hydrogen; and nanotechnology. Founded in 1901 as the nation's first federal physical science research laboratory, NIST also plays a critical role in supporting standards development activities used by the private sector and government agencies.*

- **NIST R&D Has Played, and Continues to Play, an Important Role in Major Scientific and Technological Advances.**
  - NIST's R&D investments have enabled major advances in lighting and electric power, materials testing, and temperature measurement.
  - NIST and the scientists it has supported have made significant contributions to the development of image processing, DNA diagnostic "chips," smoke detectors, automated error-correcting software for machine tools, atomic clocks, X-ray standards for mammography, scanning tunneling microscopy, pollution-control technology, and high-speed dental drills.
  - Closed-captioning for people with impaired hearing was co-invented at NIST.
  - NIST scientists have earned three Nobel Prizes over the last eight years.
  - Current NIST research helps support development of hydrogen energy technologies by providing measurements, data, and technologies needed to develop and test the performance of hydrogen-based power sources and to improve the efficiency of hydrogen production methods.
  
- **The NIST Laboratories Play an Important Role in Today's Technology-Driven Economy.**
  - Industry relies on the NIST labs for measurements and standards that no other agency can provide. Some 3-6 percent of the U.S. economy is attributed to measurements and measurement-related operations that rely on NIST for accuracy, reliability, and international recognition.
  - Standards and measurement work is critical in developing new and secure information and communications technologies that work together easily; improving the efficiency and quality of U.S. manufacturing; analyzing and manufacturing nano-sized scale materials and devices; and enhancing homeland security.
  - In the Army alone, 58,000 different types of equipment require regular "NIST traceable" calibration, ensuring that measurements made during development, testing, maintenance, and operation are valid; that systems will perform as designed; and that they will be interoperable with other systems on the battlefield.
  
- **The President's American Competitiveness Initiative Would Double Total Funding for the NIST Core Activities and Other Key Research Agencies Over the Next Decade.**
  - The President's FY2007 budget would increase NIST Core Activities (NIST lab research and construction accounts, minus earmarks), by 24 percent, to \$540 million. (If FY2006 earmarks are included in calculations, the FY2007 proposal represents a reduction from \$570 million.)
  - In FY 2007, NIST would focus 3,900 scientists and engineers from government, industry, and universities—an increase of 600 researchers over FY 2006—on meeting the Nation's most urgent measurement science and standards needs to speed innovation and improve U.S. competitiveness.