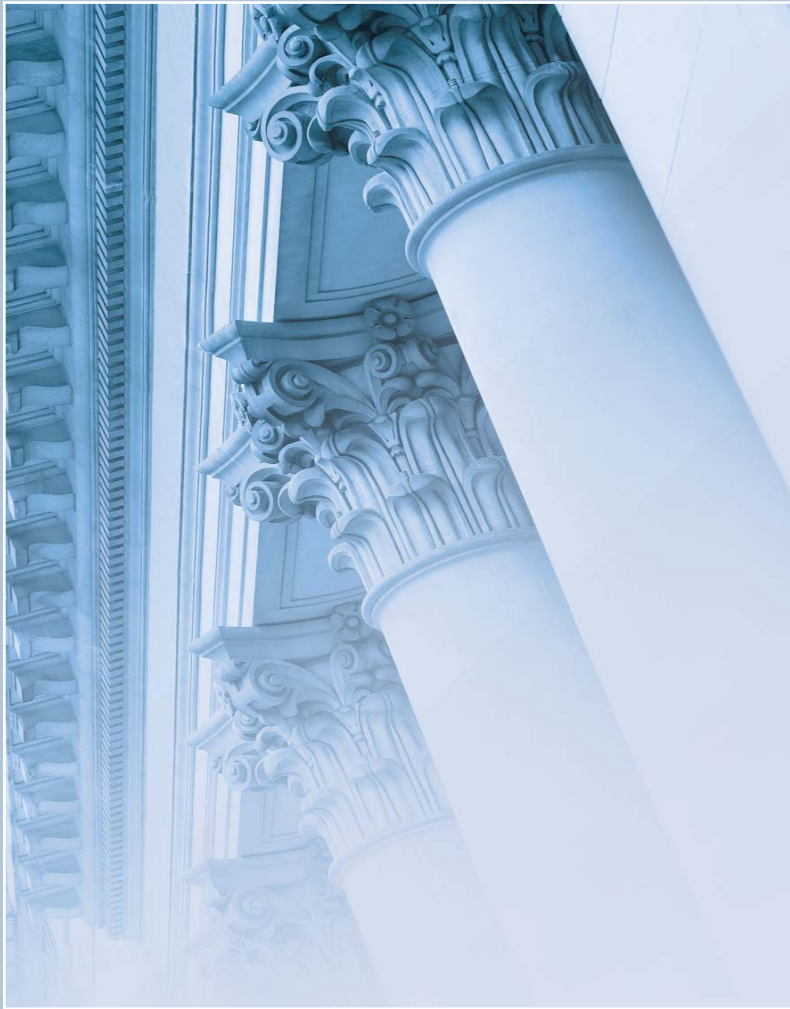


STRATEGIC GOAL 2

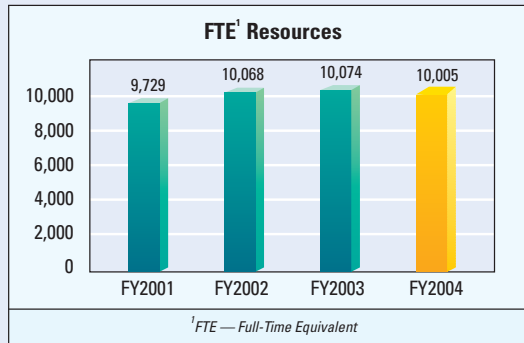
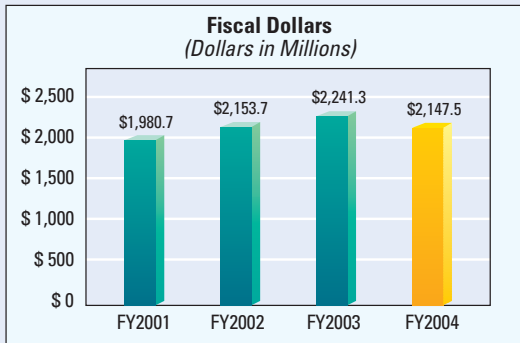




STRATEGIC GOAL 2

Foster science and technological leadership by protecting intellectual property, enhancing technical standards, and advancing measurement science

STRATEGIC GOAL 2 TOTAL RESOURCES

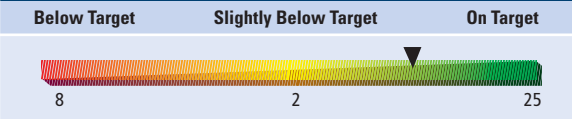


Working with U.S. industry to develop and apply technology, measurements, and standards, Commerce is focused on providing the infrastructure necessary to develop innovative breakthroughs and new technologies vital to the nation's long-term economic growth.

Commerce's laboratories provide the measurement capabilities needed by industry to continually improve products and services. The Department's measurement and standards work addresses a significant portion of the nation's modern technology-based economy, from the automotive to the biotechnology sector, from basic materials and manufacturing to information technology (IT), and from companies with a handful of employees to the largest multi-national firms.

Intellectual property (IP) is a potent force in, and a fundamental component of, the global economy. Commerce strives to preserve the nation's competitive edge by protecting IP and encouraging technological innovation. In market-driven economic systems, innovation provides a catalyst for economic prosperity through the accumulation of scientific knowledge, introduction of new products and services, and improvements in the productivity levels of land, labor, and capital resources.

Average Performance Rating and Number of Reported Results



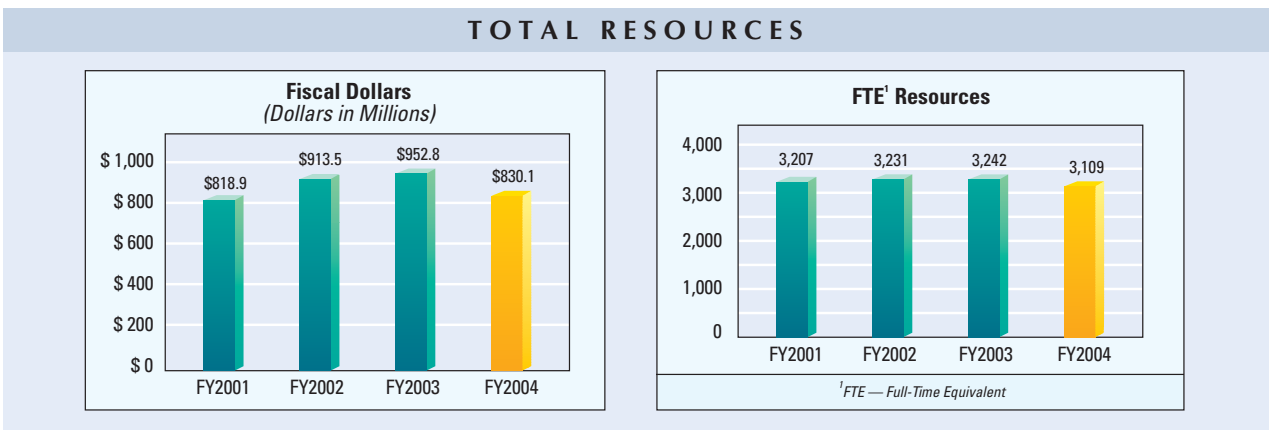
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If in the yellow to red area then considered not met.

See Appendix A: Performance and Resource Tables for individual reported results.

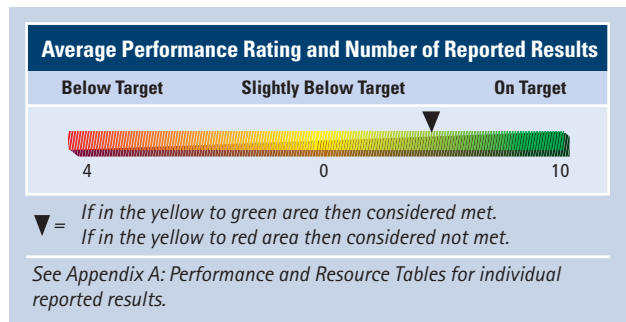
The Department has demonstrated successful progress under this strategic goal. Bureaus with programs supporting this strategic goal include the Technology Administration (TA), consisting of the Office of Technology Policy (OTP), National Institute of Standards and Technology (NIST), and the National Technical Information Service (NTIS); the United States Patent and Trademark Office (USPTO); and the National Telecommunications and Information Administration (NTIA).

STRATEGIC OBJECTIVE 2.1

Develop tools and capabilities that improve the productivity, quality, dissemination, and efficiency of research



The Department works with U.S. industry and other stakeholders to maximize technology's contribution to U.S. economic growth. The Department fulfills its broad responsibilities and works to foster science and technological leadership by promoting new models of technology transfer and research and development (R&D) collaboration, identifying problems and barriers to innovation, enhancing technical standards, advancing measurement science, and making scientific and technical information available to other agencies and the public.



IMPORTANT HIGHLIGHTS FOR STRATEGIC OBJECTIVE 2.1



DEVELOPING TOOLS AND CAPABILITIES UNDERPINNING TECHNOLOGICAL INNOVATION.

- ◆ The development of a new reference material that will help manufacturers develop and calibrate assays that measure specific protein concentrations in patient blood samples to determine whether a heart attack has occurred.
- ◆ The development of software to help manufacturers reduce errors and improve accuracy in measuring the critical dimensions of a microchip which reflect the smallest size that can be etched into a computer chip uniformly.
- ◆ Advances in the cooling performance of a material—a gadolinium-germanium-silicon alloy—considered key to the development of magnetic refrigerators that has the potential for use in household appliances and possible energy and cost savings.
- ◆ The selection of 59 new Advanced Technology Program awardees with technical projects focused on innovative technologies, including a new platform for the development of monoclonal antibody treatments for cancer and infectious diseases, and improved facial recognition for ID checkpoints.
- ◆ The improved competitiveness of the nation's small and medium sized manufacturers through leveraging the services of the Manufacturing Extension Partnership (MEP).
- ◆ The selection of seven 2003 Malcolm Baldrige National Quality Award winners, marking the first time that recipients were named in all five Baldrige Award categories (manufacturing, service, small business, education, and health care).

Performance Goal: Provide leadership in promoting national technology policies that facilitate U.S. preeminence in key areas of science and technology (TA/OTP)

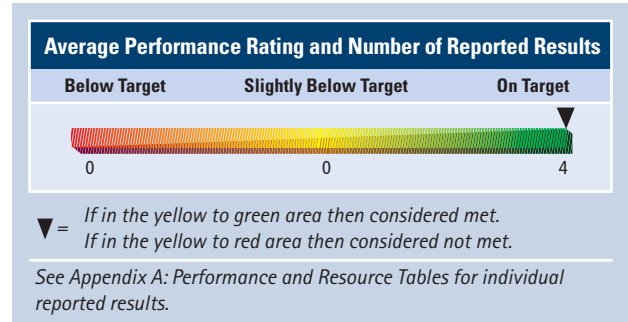
The Office of the Under Secretary/Office of Technology Policy's (US/OTP) efforts are directed at supporting and improving the U.S. innovation system, advancing the role that technology plays in U.S. economic growth and homeland security, and strengthening the competitive position of the nation's technology industries.

US/OTP conducts analyses on a wide range of factors that affect technological innovation, proposes and supports policy experiments, develops dialogue with the private sector, and considers policy options.

US/OTP completed its activities in support of technological innovation for FY 2004, including those focused on Technology Transfer, Globalization and Competitiveness, Education Technology, Biotechnology, Nanotechnology, and initiatives such as U.S. Investment in Assistive Technology and the Digital Freedom Initiative.

Noteworthy activities included:

- ◆ Completion of a ground-breaking biotechnology effort that OTP jointly conducted with BEA and Census. The effort resulted in the first-ever biotechnology survey to determine the current state of biotechnology efforts in the United States. This culminated in the publication of "Survey of the Use of Biotechnology in U.S. Industry."
- ◆ Completion of a number of activities in support of the National Nanotechnology initiative, including the Under Secretary's leadership and OTP's participation in domestic and international fora on responsible nanotechnology development and roundtable discussions on export controls and their impact on nanotechnology development and commercialization. TA held a conference on Regional-State-Local Nanotechnology development and provided guidance and assistance to state and regional organizations developing initiatives focused on nanotechnology for economic development and job creation, including the Colorado Nanotechnology Initiative, the Northern Virginia Technology Council, Chicago Micro-NanoCommunity, Atom Works, and the California Business, Transportation and Housing Agency.
- ◆ Initiation of new efforts in the area of telehealth, including holding roundtable discussions and conducting research resulting in the publication of a report: "Innovation, Demand, and Investment in Telehealth."
- ◆ Launch of an effort to evaluate the status of Assistive Technology, including a roundtable, "Innovation, Demand and Investment in Assistive Technology Policy" and Secretarial events designed to highlight technological progress in the development and application of advanced technology for physically challenged individuals.
- ◆ Establishment of an Education Technology initiative. US/OTP sought and received White House approval for an Interagency Working Group on Advanced Technologies for Education and Training, formed under the aegis of the White House National Science and Technology Council. The effort included the appointment of working group members from 17 federal departments and agencies. The Under Secretary for Technology serves as the Working Group co-chair, and



convened four town-hall listening sessions to gain input from the education community and industry for the working group's deliberations. Town halls were held with the National School Boards Association, Consortium for School Networking, Software and Information Industry Association, and the Los Angeles County Office of Education. In addition, US/OTP briefed a group of 50 Washington-based education technology policy professionals, and a dozen foreign governments' learning technology officials, most of whom lead their government's educational technology initiatives. This effort has led to the creation and development by OTP of the group's plan for the policy agenda priority on "Building Capacity for Organizational and Systems Change in Education and Training Institutions." The Under Secretary and OTP briefed this and many other efforts for staff for 25 Members of Congress and U.S. Senators to highlight the policy and legislative needs to support the advancement of technology and its contribution to education and training.

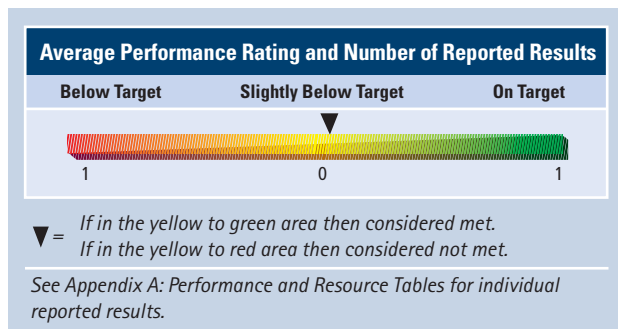
- ◆ Development of a Guidelines and Reference Manual for establishing an S&T policy framework that stimulates commercial S&T growth in developing countries.

Performance Goal: Provide technical leadership for the nation's measurement and standards infrastructure (TA/NIST)

The nation's ability to innovate, grow, and create high value jobs relies on a robust scientific and technical infrastructure—including research, measurement tools, standards, data, and models. As the National Measurement Institute for the United States, NIST is uniquely responsible for establishing and maintaining an efficient system that links the fundamental units of measurement to the measurement methods used by industry, universities, and other government agencies.

From quantum computing to detecting biological and chemical weapons, the NIST Laboratories perform research to develop state-of-the-art measurement tools, data, and models for advanced science and technology to support the nation's technical infrastructure that fosters economic growth and quality of life improvements.

The research and measurement standards work of the NIST Laboratory Programs is evaluated by the National Research Council (NRC). The external and independent evaluation combined with an assessment of NIST's citation impact and the number of peer-reviewed technical publications demonstrate the laboratories' contribution to the nation's measurement and standards infrastructure.



Annually, the NRC Board on Assessment (BOA) conducts a series of laboratory reviews focused on:

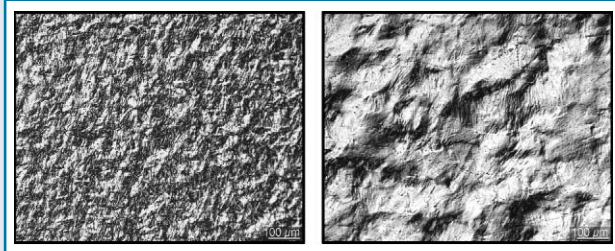
- ◆ The technical quality and merit of the laboratory programs relative to the state-of-the-art worldwide.
- ◆ The effectiveness with which the laboratory programs are carried out and the results disseminated to their customers.
- ◆ The relevance of the laboratory programs to the needs of their customers.
- ◆ The ability of the laboratories' facilities, equipment, and human resources to enable the laboratories to fulfill their mission and meet their customers' needs.

Beginning this year, the reporting process was modified to allow additional focus on the technical exchange between NIST staff and the reviewers, as well as increased interactions among external reviewers. While the NRC BOA will continue to conduct on-site annual reviews, they will produce a biennial report that includes findings over the two-year evaluation period. The 2004–2005 report will be available in the fall of 2005.

Within the scientific community, citation rates are often used to measure the demand for or relevance of published research. Citation analysis also provides an independent and objective validation of peer review findings as research has shown that high citation rates—the cumulative number of citations per publication—correlate with peer review judgment in terms of scientific quality and relevance. NIST assesses its citation impact with data collected by the Institute for Scientific Information (ISI). Overall, the ISI data demonstrate that NIST's "relative citation impact"—that is, the average citation rate per NIST publication relative to ISI's baseline citation rate for all scientific and technical organizations for the past 22 years (1981–2002), has been consistently above average.

Using rigorous statistical analysis, NIST researchers identified a potential source of error in the surface roughness data used in the automotive industry to predict how friction affects production of metal parts during forming. With this improved analysis, automakers should be able to more easily incorporate lighter weight materials in their products and improve fuel efficiency.

NIST researchers demonstrated that the current industrial practice for interpreting surface roughness may lead to inaccurate predictions of friction. Friction is key in auto part production. Too little friction during manufacturing leads to parts wrinkling and buckling. Too much friction can cause parts to tear. The optical micrographs below show two surfaces with the same average roughness values but dramatically different surface topographies.



Technical publications represent one of the major mechanisms NIST uses to transfer the results of its research to support the technical infrastructure and provide measurements and standards—vital components of leading-edge research and innovation—to those in industry, academia, and other government agencies. Each year NIST technical staff authors a total of 2,000–2,200 publications with most appearing in prestigious scientific peer-reviewed journals. One recent publication highlighted a prototype microscope that uses neutrons instead of light to "see" magnified images. Findings were published in the July 19, 2004 issue of *Applied Physics Letters*. Neutron microscopes may eventually offer certain advantages over optical, x-ray, and electron techniques, including better contrast for biological samples.

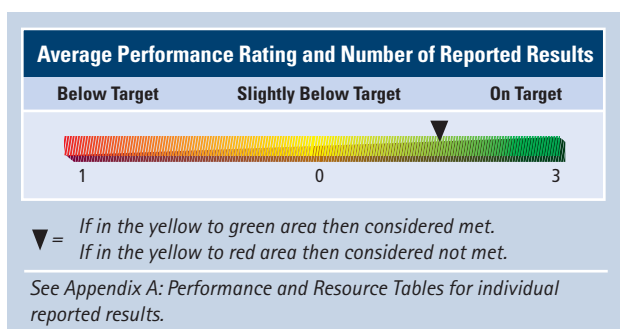
NIST uses a comprehensive evaluation system to assess programmatic performance, and two recent external program evaluations are highlighted below. Additional information on these and all NIST's evaluation methods are available at <http://www.nist.gov/director/planning/strategicplanning.htm>.

VISITING COMMITTEE ON ADVANCED TECHNOLOGY (VCAT)

The programmatic goals, strategic direction, and management policies of NIST as a whole, including each of its major programs, are reviewed regularly by the VCAT. The VCAT is a legislatively mandated panel of external advisors that meets quarterly to review NIST's general policy, organization, budget, and programs. See <http://www.nist.gov/director/vcat/index.htm> for additional information on the VCAT, including its most recent annual report.

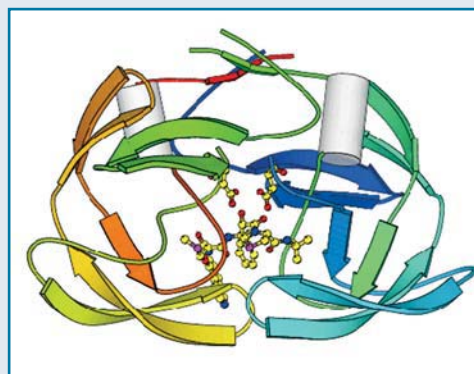
Performance Goal: Assure the availability and efficient transfer of measurement and standards capabilities essential to established industries (TA/NIST)

From automotive to biotechnology to information technology, measurements and standards are critical to the success of U.S. industry and provide the infrastructure necessary to enhance productivity, drive economic growth, and improve the quality of life. The NIST Laboratories develop and disseminate measurement techniques, reference data and materials, test methods, standards, and other infrastructural technologies and services required by U.S. industry to compete in the 21st century.



Today's global marketplace demands rapidly conducted, highly accurate, and efficiently delivered measurements. NIST measurement services—reference materials, data, calibrations, measurement methods, and others—are critical for ensuring product performance and quality, improving production processes, making marketplace transactions fair and efficient, and leveling the playing field for international trade.

Standard Reference Materials (SRM) are the definitive source of measurement traceability in the United States; all measurements using SRMs can be traced to a common and recognized set of basic standards that provides the basis for compatibility of measurements among different laboratories. SRMs certified by the NIST Laboratories are used by customers to achieve measurement quality and conformance to process requirements that address both national and international needs for commerce, trade, public safety, and health. For example, a recently issued SRM will help the food industry and environmental researchers. SRM 1946 is a set of five bottles of homogenized trout from Lake Superior that will assure the accurate measurement of both healthful ingredients and contaminants in fish and similar foods.



A new online database of AIDS-related protein structures that should be useful to researchers developing drug treatments for AIDS or studying the virus that causes the disease has been released by NIST. Developed in collaboration with the National Cancer Institute, the HIV Structural Reference Database will receive, annotate, archive, and distribute structural data for proteins involved in making HIV, the virus that causes AIDS, as well as molecules that inhibit these activities. Until now, much of this information was not widely available because it was unpublished. The new database contains data from both published literature and from direct contributions by industrial and other laboratories. The database will be especially useful in developing strategies for inhibiting the activities of the HIV protease that is essential for maturation of HIV. In addition, the database is expected to help scientists understand and circumvent the problem of mutations that make HIV resistant to certain drugs. When an inhibitor drug (small multicolored molecule in center) binds to the active site of the HIV protease (space right below the small round, yellow and red fragments), the enzyme does not function and the HIV virus cannot grow.

Online data represent another method NIST uses to deliver measurement and standards tools, data, and information. NIST provides online access to over 70 scientific and technical databases covering a broad range of substances and properties from a variety of scientific disciplines. These technical databases are heavily used by industry, academia, other government agencies, and the general public with data involving areas such as liquid molding in manufacturing processes and the development of new drugs for the AIDS virus.

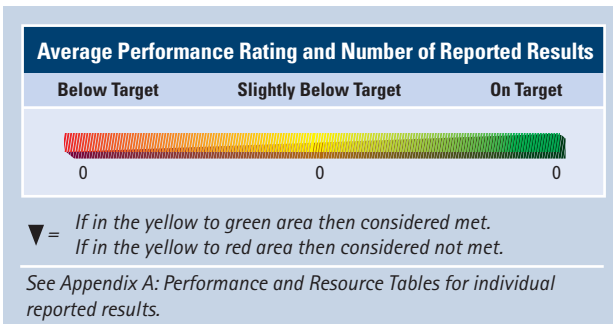
NIST calibration services and special tests are characterizations of particular instruments, devices, and sets of standards with respect to international and national standards. NIST calibration services provide the customer with direct traceability to national and international primary standards, and NIST offers more than 500 different types of physical calibrations in areas as diverse as radiance temperature, surface finish characterization, and impedance. Recently, researchers developed a "rainbow source" for calibrating color measurement instruments. NIST's traditional light sources, such as incandescent lamps, are thermal, and a blue thermal source would need to function at such a high temperature that components would melt. Lack of blue light sources introduces uncertainty when calibrating instruments that measure the color of things like bright stars or the open ocean. Knowing the exact color is important because it allows scientists, for example, to use remote satellites to judge the concentration of plant life in the ocean, which in turn affects global climate. NIST's portable light source could also simplify color calibrations in industrial and other research applications.

Retrospective microeconomic studies conducted by NIST complement its quantitative output measures and assess the long-term impacts that derive from specific NIST Laboratories' programs or projects. The impact assessments of NIST's R&D in specific technical areas are conducted by external economic and technical experts contracted by NIST. These studies provide both quantitative estimates and qualitative assessments of the economic impacts resulting from the different types of technology infrastructure that NIST provides to U.S. industry. Quantitative estimates compare project costs with quantitative impact evidence in such areas as productivity, quality, time-to-market, transaction costs, sales, market share, and profits. Unfortunately, due to significant budget constraints, NIST was unable to conduct any new assessment studies. NIST values the data these assessments provide and is committed to conducting additional studies once funds become available. Additional information, including a summary of past retrospective studies, is available at: http://www.nist.gov/director/planning/impact_assessment.htm.

Performance Goal: Accelerate private investment in and development of high-risk, broad-impact technologies (TA/NIST)

Technological innovation in U.S. industry is critical to sustaining U.S. economic growth and competitiveness, and this growth depends upon investment in long-term, high-risk research. Through the Advanced Technology Program (ATP), the federal government provides the initial investments necessary to promote the development of risky, early-stage technologies that are critical to technological innovation and widespread economic benefit.

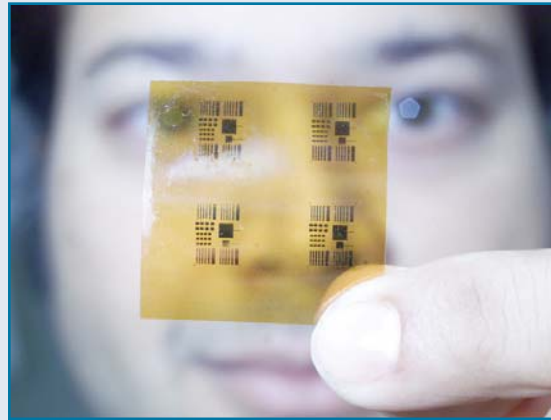
ATP plays a unique role in the nation's R&D infrastructure: it encourages industry to identify and invest resources in high-risk, broad impact technologies—technologies with significant economic and societal promise, but with inadequate levels of private investment. The program generates broad-based economic benefits by stimulating industry-led partnerships to develop new technologies.



Publications and patents represent major channels for the diffusion of technical knowledge that results from ATP investment in the development of new technologies. With over 1,200 cumulative publications and more than 1,100 cumulative patents (through FY 2003), ATP-funded research continues to generate technical knowledge and disseminated research results that contribute to the nation's technical knowledge base.

The number of ATP-funded projects with technologies under commercialization provides an indicator of the extent to which ATP-funded research has either leveraged or catalyzed new products and services, which in turn improve the prospects for technology-led economic growth. Commercialization is broadly defined as any group of activities undertaken to bring products, services, and processes into commercial applications, including development of commercial prototypes, adoption of processes for in-house production, development of spin-off products and processes, and the sale and licensing of products and services derived from the technology base created by the ATP-funded project. With more than 270 ATP projects with technologies under commercialization (through FY 2003), ATP-funded projects are diffusing new technology across multiple product lines, industries, and technology areas.

From the beginning, evaluation has been a central part of the ATP. The Program uses a variety of methods, including economic impact studies, internal assessments, and external program reviews to assess and evaluate the program. Additional information on the ATP's evaluation methods is available at: http://www.atp.nist.gov/eao/eao_main.htm.



Researchers at Palo Alto Research Center (PARC), a Xerox subsidiary, have successfully created a transistor array of the type used to control a flat-panel display using a modified ink-jet printer and semiconductor "ink." The technique is expected to dramatically lower the cost of the popular displays by replacing more expensive photolithography techniques that dominate display manufacturing. The new technology, co-funded by NIST's ATP is expected to work on either rigid or flexible substrates, and could create whole new opportunities for wall-sized TV's, unbreakable cell phone displays, computer displays that could roll up like a window shade and electronic paper.

The PARC research is part of a joint R&D partnership with Xerox, Motorola Inc., and Dow Chemical.

The ability to print the PARC plastic transistors on flexible substrates may allow manufacturers to produce electronic "paper" and computer displays that roll up like a window shade.

VCAT/ATP ADVISORY COMMITTEE

The programmatic objectives and management of ATP are reviewed regularly by VCAT and by the ATP Advisory Committee. The ATP Advisory Committee is charged with (1) providing advice on ATP programs, plans, and policies; (2) reviewing ATP's efforts to assess the economic impact of the program; (3) reporting on the general health of the program and its effectiveness in achieving its legislatively mandated mission; and (4) functioning solely as an advisory body, in accordance with the provisions of the Federal Advisory Committee Act. Additional information on the ATP Advisory Committee, including recent annual reports, is available at http://www.atp.nist.gov/atp/adv_com/ac_menu.htm.

NATIONAL RESEARCH COUNCIL

ATP has been the subject of several external reviews focused on program performance. The NRC Board on Science, Technology, and Economic Policy (STEP) conducted two such reviews. In general, the NRC found "...the Advanced Technology Program is an effective federal partnership program... Its cost-shared, industry-driven approach to funding promising new technological opportunities has shown considerable success in advancing technologies that can contribute to important societal goals such as improved health diagnosis (e.g., breast cancer detection), developing tools to exploit the human genome (e.g., colon cancer protection), and improving the efficiency and competitiveness of U.S. manufacturing" (Summary of Findings, p. 87). Copies of the reports are available at: <http://www.nap.edu/books/0309067758/html/> and <http://www.nap.edu/books/030907410X/html/>.

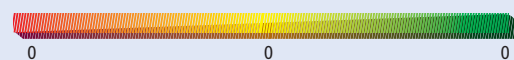
Performance Goal: Raise the productivity and competitiveness of small manufacturers (TA/NIST)

The most significant challenge facing U.S. manufacturers continues to be coping with accelerating technological change and global competition. The firms that succeed will be those best able to manage the complexity and rapid change affecting all aspects of the manufacturing enterprise. Through the MEP program, the federal government is supplying high-quality, unbiased information, advice, and assistance to the nation's small- and medium-sized manufacturers.

The MEP program consists of a nationwide network of manufacturing extension centers which are linked to state, university, community college, and private sources of technology and expertise to assist small manufacturers in adopting new and advanced manufacturing technologies, techniques, and business practices. The nation's small manufacturers produce intermediate parts and equipment that contribute more than half of the value of U.S. manufacturing production. Their role in manufacturing supply chains means that future manufacturing productivity and competitiveness will rest largely on the ability of these small establishments to improve their quality, raise their efficiency, and lower their costs. The national MEP network helps small companies transform themselves into high performance enterprises—productive, innovative, customer-driven, and competitive—by efficiently providing high value technical and advisory services, including access to industry best practices.

Average Performance Rating and Number of Reported Results

Below Target	Slightly Below Target	On Target
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▼ = If in the yellow to green area then considered met.
 If in the yellow to red area then considered not met.

See Appendix A: Performance and Resource Tables for individual reported results.

MEP clients receive training, technical, and business assistance through interactions ranging from informational seminars and training classes to in-depth technical assistance in areas such as lean implementation, ISO 9000, quality improvement practices, human resources and organizational development, and industrial marketing. MEP centers focus on measurably improving the performance of their clients. For example, the Alabama Technology Network (ATN, a MEP affiliate center) introduced lean manufacturing principles to Available Plastics, Inc., resulting in increased throughput of 58 percent, a 60 percent reduction in floor space, and decreased production time.

Through a suite of three quantitative business indicators—increased sales, increased capital investment, and cost savings all attributed to MEP assistance—the program demonstrates the impact of its services on the client's bottom-line. As a set, these indicators suggest the presence of business changes that are positively associated with productivity and revenue growth and overall improved competitiveness. Recent surveys demonstrate the impact of MEP services with clients reporting sales increases of \$1,200 million, increases in capital investment of \$900 million, and overall cost savings of \$691 million.¹

MEP uses a variety of methods, including internal assessments and external program reviews, to assess and evaluate the program. Several recent assessments are highlighted below.

TechSolve, a MEP affiliate center, worked with Ransohoff, an Ohio-based manufacturer, to run a Value Stream Mapping of the entire plant linking the already lean plant floor with the "front office" or non-manufacturing areas of the facility. This project resulted in reduction of lead time by over 50 percent within the first six months. "Our work with TechSolve has eliminated thousands of instances of waste over the last three years and has created tens of thousands of dollars worth of gross margin contribution. The planned approach to continuous improvement and the integration of continuous improvement throughout the organization has created the momentum for improvement. TechSolve definitely provided the right tools to our people to make it happen." - Jim McEachen, President, Ransohoff



Founded in 1916, the Cincinnati, Ohio-based Ransohoff manufactures aqueous cleaning machinery and is a leading supplier of high production, automated cleaning, environmental, and deburring systems.

NATIONAL ACADEMY OF PUBLIC ADMINISTRATION (NAPA)

NAPA, an independent, nonpartisan organization chartered by Congress to improve government performance, recently completed the second part of a two-phase review of the MEP program. The first phase focused on re-examining MEP's core premise and NAPA found "...barriers to improving the productivity of small manufacturers identified by earlier studies remain, although they have changed in their relative impacts.... The Panel finds that the core premise of the Program remains viable as it is fulfilling its mission by leveraging both public and private resources to assist the nation's small

¹ MEP's data collection process is designed to obtain actual client impacts and, as a result, client survey data lag by approximately one year. The survey process, coupled with the new time line for producing the Performance and Accountability Report (PAR), precludes the reporting of actual FY 2003 or FY 2004 data. The FY 2003 data reported represents a combination of three quarters of actual client reported impacts and one quarter of estimated client impacts. The estimate is based on the final quarter of FY 2002 survey data and has been adjusted to reflect the number of clients anticipated in the final FY 2003 survey quarter. Final FY 2003 data will be available in December 2004.

manufacturers." The second phase evaluated alternative business models for the program. NAPA provided several recommendations, including:

- ◆ Emphasize technology diffusion, product development, and supply chain integration services
- ◆ Build an integrated national network
- ◆ Improve the national coordination of state level organization partnering
- ◆ Review and adopt business best practices used by other federal/state programs
- ◆ Improve the system-wide sharing of knowledge and information and the systems for measuring performance
- ◆ Coordinate with other Department manufacturing-related programs.
- ◆ Include structural and operational changes in the strategic planning processes.

Full text versions of the reports are available at <http://www.napawash.org/Pubs/NIST0903.pdf> and <http://www.napawash.org/Pubs/NIST6-2-04.pdf>.

VCAT/MEP NATIONAL ADVISORY BOARD (MEPNAB)

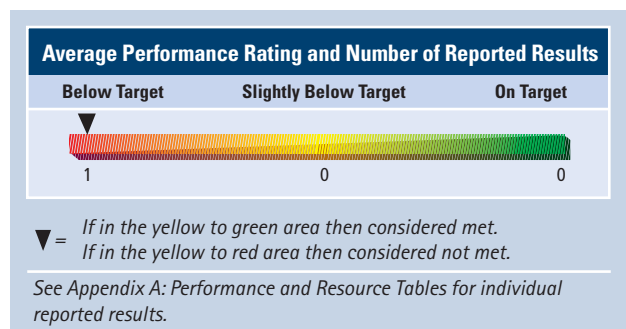
As with other NIST programs, the programmatic objectives and management of MEP are reviewed regularly by VCAT and its MEPNAB, which was established by the Secretary of Commerce in October 1996. The Board meets three times a year to (1) provide advice on MEP programs, plans, and policies; (2) assess the soundness of MEP plans and strategies; (3) assess current performance against MEP program plans; and (4) function solely in an advisory capacity, and in accordance with the provisions of the Federal Advisory Committee Act. Additional information on MEPNAB, including its most recent annual report, is available at <http://www.mep.nist.gov/about-mep/advisory-board.html#annualreport>.

Performance Goal: Catalyze, reward, and recognize quality and performance improvement practices in U.S. business and other organizations (TA/NIST)

Quality and performance improvement have become requirements, not options, for competitive businesses and high-performance organizations of all types. The Baldrige National Quality Program (BNQP) provides a systematic and well-tested set of business values, performance criteria, and assessment methods that all organizations can use to improve their productivity and effectiveness.

BNQP leverages a modest federal investment with foundation funding, partner organizations, and thousands of hours of time donated by volunteer judges and reviewers to promote and reward the quality and performance improvement efforts of business, health care, and educational organizations in the United States.

BNQP has demonstrated progress on its three core objectives: improving applicant satisfaction, increasing participation in the Malcolm Baldrige National Quality Awards (MBNQA), and



promoting the growth of quality awareness and performance excellence throughout the United States.

Every organization submitting an application to the MBNQA receives an in-depth review by a team of Baldrige-trained reviewers. The results of this review are communicated back to the organization in the form of a written feedback report that highlights the organization's strengths and opportunities for improvement based on the organization's responses to the seven Baldrige categories included in the *Criteria for Performance Excellence*. The feedback report encapsulates the entire review process, and BNQP is committed to ensuring applicant satisfaction with the usefulness and relevance of the feedback report. BNQP is committed to promoting the growth of quality awareness and performance excellence throughout the United States and increasing participation in the MBNQA. Sixty organizations applied for the 2004 MBNQA Award. The applicants include eight large manufacturers, five service companies, eight small businesses, 17 education organizations, and 22 health care companies.

BNQP uses the dissemination of the *Criteria for Performance Excellence* as one method to promote performance concepts. Recently, over 795,000 copies of the Criteria were disseminated via online downloads and hard copy distributions. This is only a partial representation as this indicator does not capture additional dissemination channels such as reproduction of the Baldrige Criteria in textbooks, articles, and other documents. In addition, BNQP develops other tools and questionnaires that allow organizations to assess how they are performing and help focus improvement and communication efforts on key areas, including strategic planning and leadership development.

The overall programmatic objectives and management of the BNQP are reviewed by VCAT. In addition, the performance of BNQP is evaluated by its Board of Overseers, a federal panel of national quality experts from business and academia that advises the Secretary of Commerce. An important part of the board's responsibility is to assess how well BNQP is serving the national interest. The board reviews all aspects of BNQP, including the adequacy of the Baldrige Criteria and processes for making Baldrige Awards, and reports its recommendations to the Secretary. Additional information about BNQP's Board of Overseers is available at <http://www.quality.nist.gov/Overseers.htm>.



On March 9, 2004, President George W. Bush and Commerce Secretary Don Evans honored Medrad, Inc.; Boeing Aerospace Support; Caterpillar Financial Services Corp. U.S.; Stoner, Inc.; Community Consolidated School District 15; Baptist Hospital, Inc.; and Saint Luke's Hospital of Kansas City with the 2003 MBNQA in recognition of their performance excellence and quality achievements. "The

Baldrige Award honors the outstanding performances and accomplishments of American businesses, schools, and health care organizations. ...These organizations embody the values of excellence, principled leadership, and a commitment to employees, partners and community," said President Bush in a message to the 2003 Baldrige Award recipients.

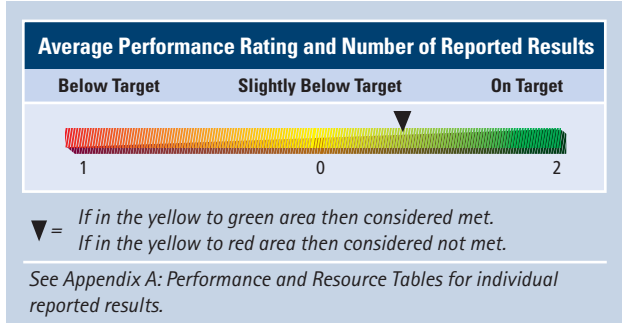


The 2003 Malcolm Baldrige National Quality Award Winners (from left to right): John P.Friel, President and Chief Executive Officer, Medrad, Inc., E. David Spong, President, Boeing Aerospace Support, James S. Beard, President, Caterpillar Financial Services Corporation (U.S.), Rob Marchalonis, General Manager, Stoner, Inc., Robert A. McKanna, Superintendent of Schools, Community Consolidated School District 15, John Heer, President, Baptist Hospital, Inc., G. Richard Hastings, Chief Executive Officer, Saint Luke's Hospital of Kansas City.

Performance Goal: Enhance public access to worldwide scientific and technical information through improved acquisition and dissemination activities (TA/NTIS)

Bringing scientific and technical information to U.S. business and industry.

NTIS, a component of TA, seeks to promote innovation and economic growth for U.S. business by (1) collecting, classifying, coordinating, integrating, recording, and cataloging scientific and technical information from whatever sources, foreign and domestic; (2) disseminating this information to the public; and (3) providing information management services to other federal agencies that help them interact with and better serve the information needs of their own constituents, and to do all without appropriated funds.



A recent communication from one of NTIS's customers commended the outstanding service received and added; "I think it is so important to provide access to the research work the U.S. government has done over the years (and spent millions on)! Your recent NTIS initiatives to improve access to this invaluable information by establishing downloadable and CD-ROM access are excellent and should be considered a model for other agencies to follow." This customer's comments are a prime example of NTIS's success in achieving its goal.

The Office of Inspector General (OIG) audited NTIS's FY 2003 Financial Statements, and released a report (FSD-16073-4-0001) on December 12, 2003, indicating that NTIS had established an internal control structure that facilitated the preparation of reliable financial and performance information, and issued an unqualified opinion.

OBJECTIVE STRATEGIES AND FUTURE PLANS

NIST uses a variety of methods, including hosting conferences and workshops, participating on standards committees, and ongoing interactions with trade organizations to interact with and assess the needs of its diverse customers. For example, in January 2004 NIST hosted a "Grand Challenge" Nanotechnology workshop with more than 200 participants from government, academia, and industry. The workshop focused on developing a roadmap for metrology and instrumentation needs for the emerging field of nanotechnology. Through these types of engagements, NIST, working with its customers, assesses next-generation infrastructural needs.

The ATP assesses how well the Program is responding to the needs of its award recipients and non-awarded applicants through various surveys, outreach efforts, workshops, and mailings of the ATP Proposal Preparation Kit, and interactions with award recipients throughout the life of their ATP-funded projects. For example, results from recent customer satisfaction surveys have been used to make significant improvements in the proposal submission process and provided valuable data on the amount of time and the cost companies expend

to prepare an ATP proposal. Through these surveys, project management practices, and outreach efforts, ATP strives to provide the highest quality service for award recipients and applicants while ensuring continual improvement in Program performance.

MEP's nationwide network of manufacturing assistance centers work at the grassroots level with each MEP center providing their local manufacturers with expertise and services tailored to their most critical needs. The MEP centers continually assess the needs of their area manufacturers and adjust service offerings in order to provide services using a combination of direct assistance from center staff and expertise from outside consultants.

The BNQP continues to promote quality and performance improvements through outreach efforts, criteria dissemination, and online assessment tools. The BNQP has made large strides in helping U.S. businesses, schools, and health care organizations improve their performance, and recent legislation signed into law by President Bush will expand the scope of the program to include nonprofits, a large and vital sector of the U.S. economy. With authorization now granted, funding could be available in 2006 to allow federal, state, and local government agencies; independent nonprofits; and quasi-public organizations, such as public utilities and credit unions to apply for the Malcolm Baldrige National Quality Award.

NTIS continues to reevaluate and develop new plans in an effort to meet the challenge of permanent preservation of and ready access to the taxpayers' investment in R&D through the acquisition, organization, and preservation of the titles added annually to the permanent collection. Initiatives to use technologically advanced global e-commerce channels for dissemination have been a major success, thus providing the American public with increased access to government information. Specific objectives accomplished recently are the NTIS bibliographic database (from 1990 to the present), which became available via the Internet free of charge; users can now download any item in the NTIS collection that is in electronic format for a single low fee or at no charge if it is less than 20 pages.

The U.S. technology sector faces a number of challenges, from the development of emerging technologies—such as biotechnology, nanotechnology, advances in computing and telecommunications, and the convergence of these technologies. Additionally, the global marketplace for existing and new technologies is changing, as well as competition for the jobs created. Because the technological and competitive landscape is being radically altered, it has highlighted the need for effective intervention in the form of education, outreach, and policy advocacy. OTP's strategic priorities are achieved through its examination and response to the implications of globalization for U.S. technological leadership involving the globalization of technological innovation and the technical sophistication of other countries, as well as its work to identify barriers to and foster the U.S. technological innovation process for rapid development, deployment, and commercialization of new and emerging technologies with broad economic and social potential.

To address these priorities and fulfill its duties, OTP analyzes a challenge, issue, or opportunity, including seeking the views of key stakeholders such as industry leaders, entrepreneurs, state and regional officials, educators, high-technology workers, and other government agencies. Analytical findings are disseminated through a wide range of channels, including reports, briefings, and congressional testimony; advocacy in the federal interagency policy process and international fora; and other information mechanisms. Such dissemination provides U.S. public and private sector policymakers, leaders, and decisionmakers with information and a deeper understanding of trends and policy implications brought about by rapid advancement of new and emerging technologies, and the globalization of technological innovation. Policy options may be developed and promoted in the form of new policy or program proposals, draft legislation, or a catalytic role urging others to take action. OTP's portfolio of policy work evolves and changes in alignment with the dynamic, rapidly changing technology-driven global economy.

In a policy organization, it is difficult to predict what form an outcome will take, whether it will be a proposed law, proposed policy change, a policy demonstration effort, advocacy/leadership, an information product, urging/catalyzing the action of others, or an international agreement. In assessing progress toward achievement of its performance goal and general objectives, OTP will continue to review progress made in the policy process activities, identifying its progress toward and attainment of achievements as demonstrated by outcomes such as those described above.

Consistent with its statutory mandate to develop new methods for disseminating information and to focus on electronic means, NTIS will continue to look for opportunities to develop electronic subscription products and harness the Internet as a means of providing information dissemination services to other agencies, such as providing a platform to meet their e-learning needs.

CHALLENGES FOR THE FUTURE

As the United States moves into the 21st century, it is confronted with a global economy that has undergone significant change, as well as the large and growing role of technological change in generating economic growth, wealth, and jobs. The United States must adapt to this new environment and effectively harness the economic potential of new and emerging technologies.

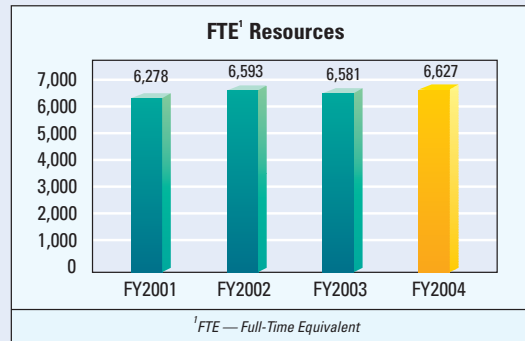
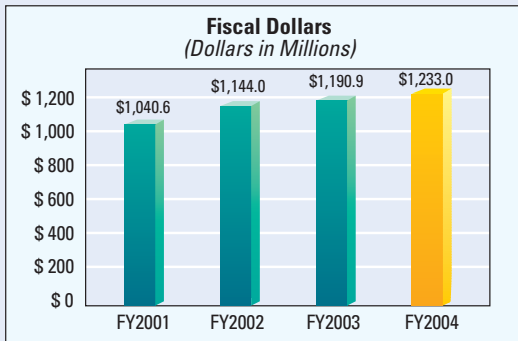
Underpinned by advancements in communications and transportation, liberalization of commercial policy, and free trade agreements, globalization and the integration of the world's national economies has accelerated. For example, membership in free trade organizations has increased from 23 countries in 1948 (General Agreement on Tariffs and Trade (GATT)) to 147 today (World Trade Organization (WTO)), significantly expanding the world's competitive arena. In an unprecedented situation, governments of nations that represent more than half of the world's population (China, India, Russia, and Eastern Europe) have moved to join the free market system. These countries recognize the link between technology, economic growth, and job creation and are increasing their R&D investments, establishing the infrastructure to support technological innovation and modern business enterprise, training workers in technical skills, and working to attract global investment in technology-related industries. As a result, R&D and technological innovation are becoming globalized, and there is rising technical sophistication among U.S. overseas competitors. This growing globalization and increasingly crowded competitive playing field have significant implications for U.S. technological leadership (and the economic growth and jobs it generates), the location of R&D and high-tech manufacturing, competition for high-skilled work, and the climate for attracting global investment.

At the same time, new and emerging technologies—such as biotechnology, nanotechnology, and more powerful and faster computing and telecommunications—and the convergence of these technologies promise to radically alter products, manufacturing processes, and business models. Competition may favor those who take advantage of these discontinuities. Those countries and companies that quickly exploit the advancements that flow from these technology fields are expected to enjoy substantial opportunities for growth, job creation, formation of new industries, and wealth.

STRATEGIC OBJECTIVE 2.2

Protect intellectual property and improve the patent and trademark system

TOTAL RESOURCES



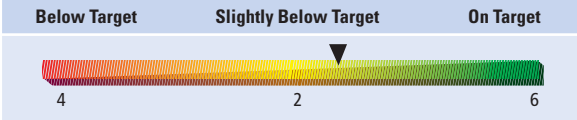
This objective is important to the nation as it serves to ensure that the intellectual property (IP) system contributes to a strong global economy, encourages investment in innovation, and fosters entrepreneurial spirit.

Achievement of this objective will protect individual rights and innovation in a timely, efficient manner.

The Department promotes the progress of science and the useful arts by securing, for limited times to inventors, the exclusive rights to their respective discoveries. U.S. industry has flourished under this system of protection as new products have been invented, new uses for inventions have been discovered; and employment opportunities have been created for millions of Americans. The strength and vitality of the economy depends directly on effective mechanisms that protect new ideas and investments in innovation and creativity.

The primary services provided by the Department are examining patent and trademark applications and disseminating patent and trademark information. Through issuing patents, the Department encourages technological advancement by providing incentives to invent, invest in, and disclose new technology. Through registering trademarks, the Department assists businesses in protecting their investments, promoting quality goods and services, and safeguarding consumers against confusion and deception in the marketplace by providing notice of marks in use. By disseminating both patent and trademark information, Commerce promotes a global understanding of IP protection and facilitates developing and sharing new technologies worldwide.

Average Performance Rating and Number of Reported Results




▼ = If in the yellow to green area then considered met.
If in the yellow to red area then considered not met.

See Appendix A: Performance and Resource Tables for individual reported results.

IMPORTANT HIGHLIGHTS FOR
STRATEGIC OBJECTIVE 2.2



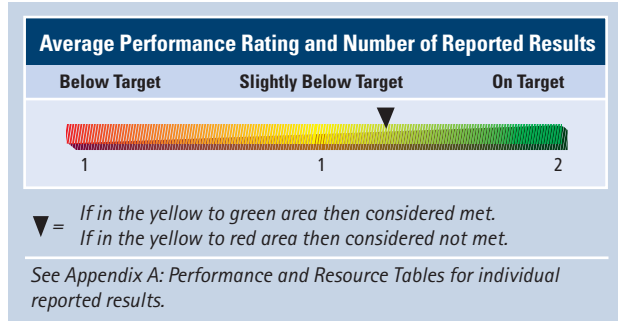
 SPTO received 353,342 Utility, Plant, and Reissue (UPR) patent applications for the fiscal year just ended. This represents a 6 percent increase over FY 2003 filings. Additionally, the USPTO published 248,561 pending applications and issued 187,170 patent grants. USPTO received 244,848 trademark applications containing 298,489 classes for registration, an increase of 9.7 percent from FY 2003. The Office registered 120,056 marks including 590,155 classes. Total Trademark Office disposals were 211,062 including 265,922 classes. The Trademark Office's inventory of total applications under examination increased by 4.3 percent to 450,294 files including 590,155 classes at year-end.



Performance Goal: Improve the quality of patent products and services and optimize patent processing time (USPTO)

A more efficient and streamlined patent process resulting in high quality products and services.

The core activity under this goal is the examination of an inventor's application for a patent by comparing the claimed subject matter of the application to a large body of technological information to determine whether the claimed invention is new, useful, and non-obvious to someone knowledgeable in that subject matter. A random sample of both in-process and allowed applications is reviewed for quality. The patent process also includes deciding appeals regarding issues of patentability and preparing interference proceedings.



QUALITY

Quality is the most important component of *The 21st Century Strategic Plan*. As set forth in the Plan, USPTO began implementing several quality initiatives, including an enhanced Quality Assurance Program that includes end product reviews, in-process reviews, and enhanced "second pair of eyes" reviews. The feedback from these reviews is used to identify and develop training modules and other quality enhancements. Additionally, to ensure that the Department's primary patent examiners maintain the knowledge, skills, and abilities (KSAs) necessary to perform a high-quality examination, the USPTO implemented a recertification program, with primary examiners being recertified once every three years. A certification program was also implemented for junior examiners to ensure that they had the required KSAs prior to promotion to the level where they are given legal and negotiation authority.

PENDENCY

The office achieved both its patent first action pendency and patent total pendency goals for FY 2004. Under *The 21st Century Strategic Plan* the USPTO will reduce patent pendency and substantially cut the size of the work backlog. This will be accomplished through a radical redesign of the entire patent search and examination system based upon multiple examination tracks, competitively sourcing the search function, hiring sufficient numbers of new patent examiners, and variable, incentive-driven fees.

EFFICIENCY

Patent efficiency measures the degree to which the program can operate within planned costs relative to patent examiner outputs.

GAO is currently evaluating the implementation of *The 21st Century Strategic Plan*.

Performance Goal: Improve the quality of trademark products and services and optimize trademark processing time (USPTO)

A more efficient and streamlined trademark process resulting in high-quality products and services.

The core process under this goal is the examination of applications for trademark registration. As part of that examination, trademark examining attorneys make determinations of registrability under the provisions of the Trademark Act of 1946, as amended, including searching the electronic databases for any pending or registered marks that are confusingly similar to the mark in a subject application; preparing letters informing applicants of the attorney's findings; approving applications to be published for opposition; and examining Statements of Use in applications filed under the Intent to Use provisions of the Trademark Act.

QUALITY

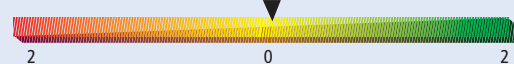
Customers are concerned with the quality of the products and services they receive in exchange for the fees they pay. USPTO has created a new "in-process review" standard for assessing work to create a more comprehensive and meaningful and rigorous review of what constitutes quality of examination. The results of a trademark examiner's first and final office action are reviewed for the quality of the substantive basis for decision-making, search strategy, evidence, and writing. The new measure considers more elements for review and evaluation with training targeted to topics that warrant improvement. Examiners are given specific feedback about their work to further improve quality. Trademark quality results achieved were within 1 percent of the target (margin of error) but were not met.

PENDENCY

The Office achieved its target for disposal/registration pendency but did not achieve the targeted level for first action pendency. New application filings were more than 8.5 percent above the prior year and 6 percent above the planned amount. Process changes in the fourth quarter created a short-term negative impact by increasing first action pendency. Production and office disposals were higher than planned contributing to a reduction in disposal/registration pendency.

Average Performance Rating and Number of Reported Results

Below Target	Slightly Below Target	On Target
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▼ = If in the yellow to green area then considered met.
 If in the yellow to red area then considered not met.

See Appendix A: Performance and Resource Tables for individual reported results.



A few of the items displayed before the Agriculture Committee during hearings on the use of geographical indications for food and drinks.¹

¹ Geographical Indications (GIs) are indications that identify a good as originating in a particular region or locality where a given quality, reputation, or other characteristic of the good is essentially attributable to its geographic origin.

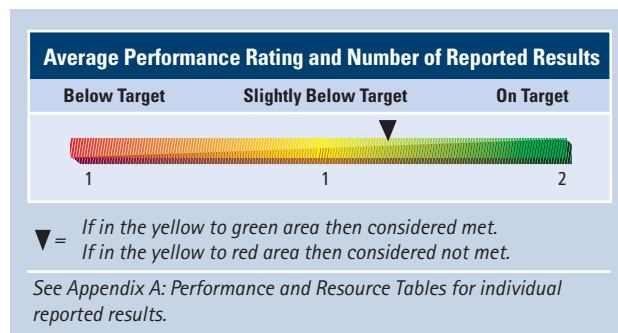
EFFICIENCY

Trademark efficiency measures the degree to which the program can operate within planned costs relative to outputs produced.

Performance Goal: Create a more flexible organization through transitioning patent and trademark applications to e-government operations and participating in intellectual property development worldwide (USPTO)

Making patent and trademark applications information readily available.

Under *The 21st Century Strategic Plan*, the USPTO will work with its IP partners to improve the efficiency of the Department's processing systems. Increasing the number of applications and communications received and processed electronically, and creating more coordinated and streamlined work processes will position USPTO for the globalization that characterizes the 21st century economy. Both the patent and trademark programs support this goal, which will increase the efficiency of their operations.



Transitioning both patent and trademark operations to an e-government environment is quite an undertaking especially considering the realities of increasing work loads and the shift of applications from traditional arts to more complex technologies. As USPTO continues to make progress in this transition, Americans will more easily be able to apply for patents and trademark registration as well as obtain information about the status of their applications.

USPTO successfully deployed the patent Image File Wrapper (IFW) system by October 1, 2004, enabling it to easily exceed the goal to electronically manage 70 percent of patent applications. All incoming and outgoing paper documents are captured electronically in the system and the remaining pending paper applications will be scanned into the system by the end of the first quarter of FY 2005, with the electronic version of an application now considered the official file. In addition to IFW, this fiscal year the patent organization stopped mailing paper U.S. references to applicants, instead making the information available to applicants via the Internet. Additionally, for the first time, anyone with Internet access anywhere in the world can now use USPTO's Web site (www.uspto.gov) to track the status of a public patent application as it moves from pre-grant publication to final disposition, and review documents in the official application file, including all decisions made by patent examiners and their reasons for making them. The system, known as Public PAIR (Patent Application and Information Retrieval), offers the public an advanced electronic portal for PDF viewing, downloading and printing an array of information and documents for patent applications not covered by confidentiality laws. Public PAIR also offers a quick-click feature for ordering certified copies of patent applications and application files.



Deputy Under Secretary Dudas and Supervisory Patent Examiner Gary Kunz inspect a model of DNA strand on the 50th anniversary of its discovery.

The office is on target for meeting the goal of receiving 2 percent of patent applications electronically. There is some reluctance on the part of the patent applicants to file electronically, because (1) applicants are familiar with the paper-based systems already in place, (2) they have not invested the time and resources necessary to upgrade their internal processes to enable them to file electronically, and (3) they may like to receive some incentive (in the form of a fee reduction) for filing electronically. USPTO is instituting an aggressive outreach program to hopefully see significant growth in the number of patent applications filed electronically over the next two years.

More than 70 percent of the initial applications for registration of a trademark were filed electronically, an increase of more than 20 percent over FY 2003 results. Enhancements were made and the number of forms

available was increased to make electronic filing more attractive, which encouraged greater use and acceptance among those who had not yet adopted electronic communications as their preferred way to transact business with the office.

The office completed a major milestone by capturing 100 percent of the pending application inventory. USPTO has a complete electronic text and image file record that includes the initial application and applicant and office correspondence for 500,000 pending trademark applications. Examining attorneys have been using the electronic record of the initial application to conduct their first office action since July 2003. In July 2004 second and subsequent actions were added eliminating the need to use paper files to process and examine applications.

The Government Accountability Office (GAO) (formerly the General Accounting Office) is currently evaluating the implementation of the *21st Century Strategic Plan*. The Department's Inspector General (IG) began an audit of the trademark program in June 2003. At the time of publication, the final report had not been released.

STRATEGIES AND FUTURE PLANS

USPTO's patent and trademark operations are rapidly moving to eliminate paper documents from their processes. As the reliance on paper disappears from internal processes, the costs for handling applications and related materials will be substantially reduced. Electronic communications will be improved, encouraging more applicants to do business electronically with the delivery of Web-based text and image systems. Patent and trademark operations have made significant progress in achieving the long-term goal to create an e-government operation, and trademarks now relies exclusively on trademark data submitted or captured electronically to support examination, publish documents, and, print registrations.

USPTO will continue to work towards completing implementation of the *21st Century Strategic Plan*. The USPTO now relies on electronic communications to improve the availability of patent and trademark information to more effectively serve an increasingly larger, global client base. Internet access has provided advantages that were not possible in a paper environment: customers may conduct an electronic search to determine the status of pending and registered trademarks and view public patent applications; conduct a preliminary search prior to filing an application; access general information, examination manuals, treaties, laws and regulations; obtain weekly information on marks published,

registered, and renewed, and patents issued and patent applications published; and file patent and trademark applications. Electronic filing and access increases the opportunity for filing for patent protection and for federal registration.

The 21st Century Strategic Plan's long-term patent pendency goal remains 18 months; however, the USPTO plans to produce, on average, a first office action for first-filed U.S. non-provisional applications at the time of 18-month publication, and a patent search report for other patent applications will be issued in the same time frame.

The agency has proposed legislation that will change its current fee schedule and streamline the patent system. The agency plans to control patent pendency and reduce the time to first office action by changing its process and by hiring additional patent examiners to address the growing backlog of pending applications.

In FY 2005, the Department will continue the quality efforts currently implemented, including the certification of patent examiners before the delegation of legal competency, recertification of primary examiners once every three years, and review of work product throughout prosecution to ensure compliance with examination practice and procedures standards. Quality will be assured throughout the process by hiring the people who make the best patent examiners, certifying their knowledge and competencies throughout their careers, and focusing on quality throughout the patent examination process. By bolstering confidence in the quality of U.S. patents, USPTO will enhance the reliability in the quality of products and services resulting in improved efficiencies and better services for applicants. Additionally, the Department will explore ways of automating the pre-employment assessment of patent and trademark examiner applicants to make sure they possess the competencies required for the position. In combination, these quality initiatives will provide improved patent and trademark quality by providing review of work product, feedback to examiners on areas for improvement, targeted training, and safeguards to ensure competencies.

CHALLENGES FOR THE FUTURE

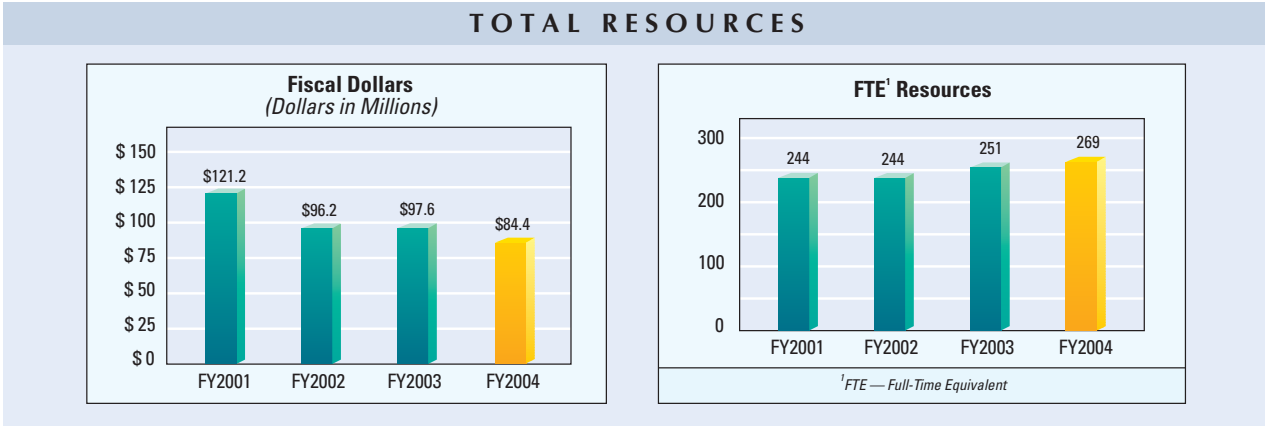
The Department must address the challenges of rising workloads and the shift of applications from traditional arts to more complex technologies.

Technology has become increasingly complex, and demands from the public for higher quality products and services have grown in importance. In the United States, demands for products and services have created substantial workload challenges in the processing of patents. The Congress, the owners of IP, the patent bar, and the public-at-large have all told the Department that it must address these challenges aggressively and promptly.

Implementation of the Department's *21st Century Strategic Plan* initiatives should address these challenges and transform the Department into a quality-driven, highly-productive, and efficient organization that will promote expansion of business opportunities, stimulate research and development, and expand U.S. businesses globally.

STRATEGIC OBJECTIVE 2.3

Advance the development of global e-commerce and enhanced telecommunications and information services

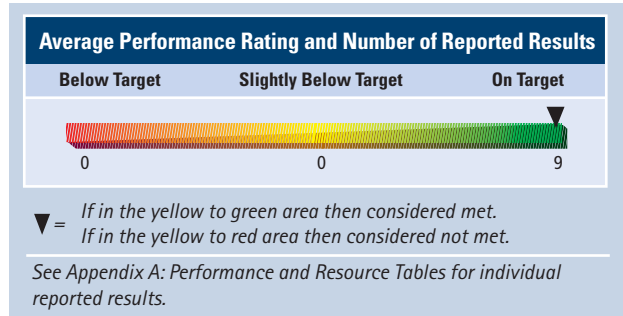


This objective is important to not only the nation, but the international community as it has a role in the radio frequency (RF) spectrum management and communications on a national level, to the President as an advisor on communications policy matters, on Internet domain names, and for cellular phones and dial-up and high-speed Internet services.


Achievement of this objective will continue to further the technological advances for cellular, Internet services, domain name issues, and other advances in technology. A discussion of each performance goal supporting this objective will further describe the outcomes of this objective.

The Department:


- ◆ serves as the principal adviser to the President on domestic and international communications and information policy-making.
- ◆ promotes access to telecommunications services for all Americans, and competition in domestic and international markets.
- ◆ manages all federal use of the electromagnetic spectrum and generally promotes efficient use of spectrum.
- ◆ in partnership with business and other federal agencies, conducts telecommunications technology research, including standards-setting.
- ◆ awards grants through the Technology Opportunities Program and Public Telecommunications Facilities Program.



IMPORTANT HIGHLIGHTS FOR STRATEGIC OBJECTIVE 2.3

 The NTIA released two reports proposing innovative ways to better manage the nation's airwaves for the 21st century, including the establishment of an innovation test-bed for increased sharing between federal and non-federal spectrum users. Launched in June 2003, the President's spectrum initiative required the Commerce Department to lead the effort to develop a U.S. spectrum policy for the 21st century that will foster economic growth, ensure national and homeland security, maintain U.S. global leadership in communications technology, and satisfy other vital U.S. needs. Among its broadband-related activities, the NTIA provided technical filings to the Federal Communications Commission (FCC) for the responsible deployment of broadband over power line (BPL) systems, contributing significantly toward fulfillment of the President's vision for universal affordable broadband Internet access for all Americans by 2007. Broadband technology opens up new opportunities for telemedicine, long distance education, and countless other services that will foster investment, improve productivity, and promote job-producing economic growth. NTIA also is leading Commerce activities in the areas of next-generation Internet Protocols, ultrawideband (UWB) technology, wireless broadband applications, wireless sensor technologies, and child-friendly Internet content.



 TIA's Institute for Telecommunication Sciences (ITS) named a 2004 Outstanding Laboratory by the Federal Laboratory Consortium for Technology Transfer (FLC). The award was the result of work done by ITS on video quality measurements.

The Department's expertise encompasses every aspect of telecommunications, including domestic policy, international policy, spectrum management, and technical telecommunications research and engineering. These activities directly benefit the American public through the universal, affordable availability of advanced telecommunications, such as broadband and wireless services. Telecommunications and information technologies support productivity, growth, and job creation in most industrial sectors.

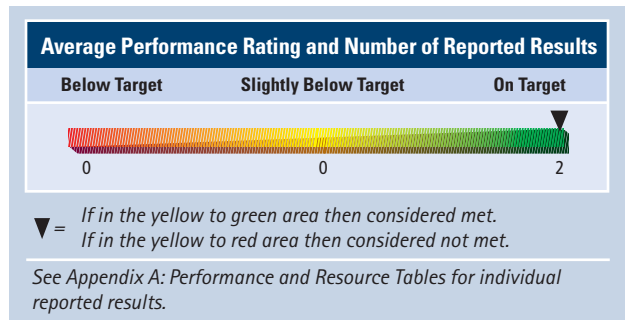
The Department released two reports proposing innovative ways to better manage the nation's crowded airwaves for the 21st Century. These reports establish the agenda for spectrum management reform for the next decade. Among its broadband-related activities, the Department provided technical filings to the FCC for the responsible deployment of BPL systems, contributing significantly toward fulfillment of the President's vision for universal affordable broadband Internet access for all Americans by 2007. The Department is leading activities in the areas of next-generation Internet Protocols, UWB, wireless broadband applications, wireless sensor technologies, and child-friendly Internet content.

Performance Goal: Increase competition within the telecommunications sector and universal access to telecommunication services for all Americans (NTIA)

Advising the President on telecommunications and information issues.

NTIA serves as the President's principal policy advisor on telecommunications and information issues, and is the Administration's primary voice on them. NTIA does not have direct responsibility for implementing solutions to telecommunications issues.

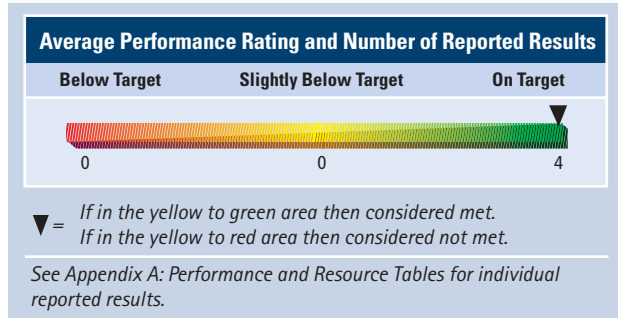
NTIA successfully examined an array of spectrum management policy issues dealing with innovative approaches to spectrum management and the effectiveness of current processes. NTIA also actively participated on behalf of the Administration in FCC and congressional proceedings on telecommunications policies, including the development of appropriate regulatory treatment for broadband services deployment. A number of Internet related policy issues required NTIA action, including Internet Corporation for Assigned Names and Numbers (ICANN) reform and continuing Internet privatization, domain name management both domestically and internationally, proposals to regulate Internet services and content, and the combination of Internet and telecommunications addressing (ENUM). NTIA pursued policies promoting international trade in telecommunications products and services, promoting consistent international approaches to telecommunications policies, and improving relations with Western Hemisphere neighbors. All of these activities required substantial coordination among NTIA's program offices, as well as interagency coordination to develop the Administration's positions.



Performance Goal: Efficient and effective allocation of radio spectrum (NTIA)

Advancing broadband and third generation (3G) wireless services.

The availability of the RF spectrum is key to the development and implementation of innovative telecommunications technologies such as UWB and 3G wireless services. NTIA's spectrum management activities are intertwined with its policy activities in that existing uses of spectrum by both the private and federal sectors must be examined to determine where spectrum will be made available for new and innovative spectrum-using services that provide benefits to all consumers.



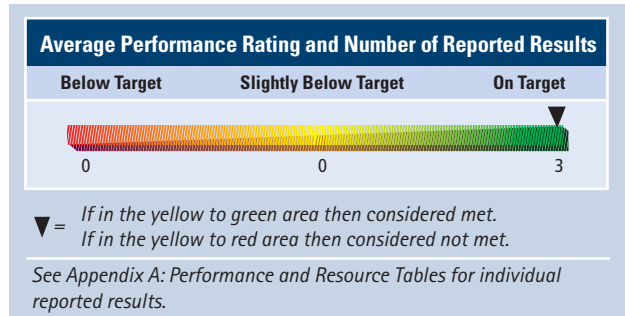
NTIA is engaged in a long-term process to reduce processing time for frequency assignment actions from 15 days to less than three. NTIA initiated a business process re-engineering and enterprise architecture activities to support this goal. NTIA has reduced processing time from an average 15 days to an average of less than 12 days. NTIA further expanded its automating frequency band assignments through Internet requests by 5 percent over FY 2003 (at 55 percent). This year NTIA achieved 90 percent on its customer satisfaction survey on the training course it offers.

The President signed an Executive Memorandum on June 5, 2003, directing the Department of Commerce to gather information to assist the Department in developing a detailed set of recommendations both for (1) improving the spectrum management process as a whole, as well as (2) improving policies for use of the spectrum by state and local governments and the private sector. A task force led by Secretary Evans issued two reports to the President in FY 2004 containing recommendations for improvements to spectrum management policy pursuant to the President's Executive Memorandum. The first report contains recommendations for the federal government spectrum management reforms, while the second report contains recommendations regarding private sector and state and local government use of the spectrum. In FY 2004 and continuing through FY 2005, NTIA is developing action plans to support the overall program of spectrum policy reform, including implementation of the recommendations presented in both reports to the President.

Performance Goal: Ensure broader availability, and support new sources, of advanced telecommunications and information services (NTIA)

Performing research to improve both the performance of telecommunications networks and the availability of digital content on the Internet.

NTIA supports innovative telecommunications and information technologies through basic research performed at its laboratory, ITS. ITS performs extensive basic research on quality of digital speech, audio and video compression, and transmission characteristics. This research has the potential to improve both the performance of telecommunications networks and the availability of digital content on the Internet. Basic research at ITS also supports U.S. positions in international standard-setting bodies and NTIA's development of Administration policies related to the introduction of new technologies, such as UWB and 3G wireless services.



NTIA also published six peer-reviewed articles. Other publications by ITS include reports on potential interference from BPL systems, impact of monitor resolution and type on subjective video quality testing, assessment of compatibility between UWB systems and public safety communication receivers, gain characterization of the RF measurement path, and examination of the bandwidth correction factors used to assess the interference impact of impulse and pulsed signals on radio receivers. NTIA also initiated four Cooperative Research and Development Agreements (CRADA) with private sector companies, which indicates the utility of these activities to the private sector. NTIA successfully awarded \$23.1 million in funding to assist public radio, public television, and nonbroadcast (distance learning) projects across the country. \$9.0 million went to grantees to assist in the digital conversion of public television stations. Other grant awards also included \$4.4 million for 74 radio grants, \$3.8 million for 20 television equipment replacement grants, \$2.2 million for 17 nonbroadcast (distance learning) grants, and three grants to New York stations for \$2.3 million to restore broadcast services after the 9/11 attacks.

ITS uses a variety of methods, including hosting conferences and workshops, participating on standards committees, CRADAs with private sector entities, and interactions with trade organizations to interact with and assess the needs of its private sector customers. ITS sponsors with NIST the annual International Symposium on Advanced Radio Technologies (ISART) with participants from government, academia, and industry. The Symposium brings together technical researchers, business leaders, government policymakers, and regulators for the purpose of forecasting the development and application of RF technologies into the next decade. ITS also holds annual reviews with the federal agencies sponsoring research at the laboratories on progress and direction for that research. These ongoing assessments provide ITS with a better understanding of the needs for its research.

STRATEGIES AND FUTURE PLANS

NTIA's policy-related activities support the advancement of information technologies and help to create an economic and regulatory environment in which information and communications technologies can flourish. The President signed an Executive Memorandum in 2003, directing the Department to gather information that will assist the Department in developing a detailed set of recommendations both for (1) improving the spectrum management process as a whole, as well as (2) improving policies for use of the spectrum by state and local governments and the private sector. NTIA, working with the FCC, the Department of State, and other federal partners, is a vital component in this Presidential initiative to develop a "Spectrum Policy for the 21st Century." Given the scope of this initiative and the opportunities it presents, it is the top priority for NTIA and supports the Administration's overall goals. Implementing the specific recommendations that are developed for spectrum management policy reforms will continue to be priorities for NTIA. In addition, NTIA will participate in the President's goal of promoting universal, affordable access to broadband technology by the year 2007. Other policy areas NTIA plans to be involved in include ENUM, other Internet issues, and FCC and congressional proceedings on telecommunications regulation.

NTIA will develop policy proposals and promote opportunities to provide these high-speed information services to all Americans. The challenge for NTIA's management will be to accomplish these priorities when implementation requires action by other partners, including the Congress, FCC, and international bodies. NTIA management will meet this challenge by involving all interested parties in the development and implementation of policy recommendations.

NTIA's activities include (1) identifying and supporting new wireless technologies that promise innovative applications for the federal and private sectors; (2) providing federal agencies with the spectrum needed to support their missions for national defense, law enforcement and security, air traffic control, national resource management, and other public safety services; (3) developing plans and policies to use the spectrum effectively; (4) satisfying the United States' future spectrum needs globally through participation with the State Department in the International Telecommunication Union by establishing binding treaty agreements through world radio-communication conferences; and (5) improving through telecommunications research and engineering the understanding of radio-wave transmission, and thereby improving spectrum utilization and the performance of radio-communications systems.

As a result of recommendations made in the President's Spectrum Policy Initiative Report, NTIA plans to evaluate all federal government spectrum in five years to determine spectrum efficiency and effectiveness. NTIA's methodology will be able to determine how federal agencies can improve spectrum efficiency by comparing radio communication technologies. Improvements in efficiency benefit the American public by allowing NTIA's federal agency customers to more effectively accomplish their missions in ensuring our homeland security, maintaining public safety and the federal transportation infrastructure, and supporting law enforcement. Spectrum efficiencies gained in federal government usage can provide benefits to the public as a whole.

The Federal Technology Transfer Act of 1986 (FTTA) allows federal laboratories to enter into cooperative research agreements with private industry, universities, and other interested parties. The law was passed in order to provide laboratories with clear legal authority to enter into these arrangements and thus encourage technology transfer from federal laboratories to the private sector. Under this Act, CRADA can be implemented that protects proprietary information, grants patent rights, and provides for user licenses to corporations, while allowing government expertise and facilities to be applied to interests in the private sector. CRADAs are the principal means of aiding the private sector through ITS's spectrum research and engineering activities and provide an indication of the utility of these activities to the private sector.

ITS supports NTIA's policy-related activities by providing empirical analysis. ITS also supports NTIA's spectrum management activities through spectrum occupancy measurements and other technical support activities. ITS research will focus on supporting those spectrum management reform activities and assessments undertaken in NTIA's policy development.

CHALLENGES FOR THE FUTURE

Radio frequency spectrum is critical to modern communications. Current spectrum management policies are under increasing strain as the demand for existing spectrum-dependent services grows and new spectrum-related technologies and applications emerge. Working with all affected parties in the federal government and the private sector, NTIA and the Department of Commerce must find ways to implement the recommendations developed through the President's Spectrum Policy Initiative to foster economic growth; ensure our national security; maintain U.S. global leadership in communications technology development and services; and satisfy other vital U.S. needs in areas such as public safety, scientific research, federal transportation infrastructure, and law enforcement. Also, NTIA and the FCC must coordinate the development of a National Strategic Spectrum plan.

NTIA and the Department of Commerce must also respond to the President's call to clear the regulatory hurdles that stand in the way of broadband deployment and create the regulatory certainty necessary to meet the President's goal of universal and affordable broadband access by 2007. Rapid growth in new technologies and applications for mobile wireless, high-speed fiber optics, and broadband-over-powerlines offer potential for consumer choices but require a supportive regulatory framework. Regulatory certainty in the telecommunications sector will promote both competition and investment. Developing the policy framework to support these goals under rapidly changing technology is the challenge facing NTIA and the Department.