

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

2010 Annual Report

Visiting Committee on Advanced
Technology
of the
National Institute of Standards and
Technology

U.S. Department of Commerce

March 2, 2011

The logo for the Visiting Committee on Advanced Advanced Technology (VCAAT) is displayed in a bold, blue, sans-serif font. The letters are thick and blocky, with a slight shadow effect. The 'V' and 'A' are particularly prominent, with the 'A' having a unique shape where the top bar is not connected to the vertical stem.

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

Preface

The Visiting Committee on Advanced Technology (VCAT) of the National Institute of Standards and Technology (NIST) was established in its present form by the Omnibus Trade and Competitiveness Act of 1988 and updated by the America COMPETES Act. The VCAT charter includes reviewing and making recommendations regarding general policy for NIST, its organization, budget and programs within the framework of applicable national policies as set forth by the president and the Congress. In addition, the America COMPETES Act calls for the VCAT to comment on NIST's three-year programmatic plan in its annual report to Congress. This 2010 annual report covers June 2010 through the February 2011 meeting.

The Committee reviews the Institute's strategic direction, performance and policies, and provides the Secretary of Commerce, Congress, and other stakeholders with information on the value and relevance of NIST to the U.S. science and technology base and to the economy. Over the past year, the Committee has been active in assessing NIST's progress in the following areas:

- Management and Operational Challenges
- The NIST Realignment and Reorganization
- The Development and Delivery of Measurement Services
- Strategic Planning and Performance

The Committee reviews a significant portion of NIST programs through direct discussion with NIST leaders, scientists, and engineers. Reactions and observations are presented candidly to the NIST senior management and other attendees at each meeting. This feedback encourages continuous improvement in key areas in the overall operation. The Committee also visits various NIST laboratories and satellite facilities to discuss the research projects directly with the technical staff. These laboratory tours help the committee assess the impact of NIST research, determine their progress towards meeting the goals of the strategic plan, quality of the staff, and the efficacy of the facility infrastructure.

The charter of the Committee provides that the Director of NIST shall appoint the members of the Committee. Members shall be selected on a clear, standardized basis, in accordance with applicable Department of Commerce guidance. Members shall be selected solely on the basis of established records of distinguished service; shall provide representation of a cross-section of traditional and emerging United States industries; and shall be eminent in fields such as business, research, new product development, engineering, labor, education, management consulting, environment, and international relations. No employee of the Federal Government shall serve as a member of the Committee. Members are appointed for staggered three-year terms.

Four new members were appointed during the period covered by this report: Dr. Sujeet Chand (Rockwell Automation), Dr. Uma Chowdhry (DuPont), Dr. Shaygan Kheradpir (then at Verizon Communications) and Dr. Michael McRobbie (Indiana University).

This report highlights the Committee's observations, findings and recommendations. Detailed meeting minutes and presentation materials are available on the NIST web site at www.nist.gov/director/vcat.

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

VCAT Members during the Period Covered by this Report

Dr. Vinton G. Cerf, Chair Google	Dr. Alan I. Taub, Vice Chair General Motors
Dr. Thomas M. Baer Stanford University	Dr. Ruzena Bajcsy University of California, Berkeley
Dr. Sujeet Chand Rockwell Automation	Dr. Uma Chowdhry DuPont
Dr. Paul A. Fleury Yale University	Dr. Peter Green University of Michigan
Dr. Tony Haymet Scripps Institution of Oceanography, UCSD	Dr. Shaygan Kheradpir Verizon Communications (2010) Barclays Bank (2011)
Dr. Pradeep Khosla Carnegie Mellon University	Dr. Michael A. McRobbie Indiana University
Dr. Alton (Al) D. Romig, Jr. Sandia National Laboratories (2010) Lockheed Martin (2011)	Dr. Darlene J.S. Solomon Agilent Technologies

Table of Contents

Preface ii

VCAT Members during the Period Covered by this Report iii

VCAT Focus in 2010 1

NIST Management and Operational Challenges 1

 Safety at NIST 1

 Foreign National Guest Researchers 2

NIST Role in Measurement Services 2

NIST Realignment and Reorganization 4

NIST Role in Forensic Science 5

NIST Strategic Planning and Performance 6

 NIST External Peer Review 7

 NIST Three-Year Programmatic Plan 7

NIST Budget 8

VCAT Focus in 2010

In 2008 and 2009, the VCAT explored in depth specific areas of NIST's mission including the role that the NIST laboratory and extramural programs play in stimulating innovation and competitiveness, and the role of NIST in the development and implementation of documentary standards. In 2010, the VCAT continued the in depth examination of NIST mission areas, this time focusing on the unique NIST role in the development and delivery of measurement services to support industrial competitiveness and innovation. The VCAT was asked to consider:

- How well does NIST identify its current customers and new customers and their needs, and define its role and approach in addressing those needs?
- How well does NIST position its long-term research portfolio to continuously evolve its capabilities to address changing measurement service needs?
- How well does NIST assess that the services it currently provides are best meeting the customer needs?
- How well does NIST assess the overall quality and relevance of its measurement service programs?

To address these questions, the VCAT received an overview of NIST measurement service programs, heard briefings from customers of NIST measurement services, and met with staff and leaders from three programs across the NIST laboratories in the areas of ionizing radiation, mechanical metrology, and analytical chemistry in order to understand how measurement service activities are currently managed and prioritized across NIST.

Our 2010 VCAT Annual Report addresses our observations, findings and recommendations relevant to NIST's measurement service activities as well as our comments and recommendations about the NIST realignment and reorganization, the NIST budget, NIST role in the Administration's innovation strategy, NIST role in forensic science, as well as management and operational challenges affecting NIST.

NIST Management and Operational Challenges

This past year the VCAT has worked with NIST on a number of operational and management challenges. Two of the highest-priority issues have been Safety at NIST and the Department of Commerce (DOC) policies affecting the access of foreign national guest researchers to NIST facilities.

Safety at NIST

Since the Safety Incident at the NIST Boulder laboratories in June of 2008, NIST has taken a number of concrete steps to strengthen and improve its safety practices, and is making progress as it works to develop a comprehensive and well integrated safety program and culture integral to everyday NIST operations. One of the major efforts undertaken by NIST this year was a complete reassessment of NIST's safety programs and culture by the same Blue Ribbon Commission (NIST Blue Ribbon Commission on Management and Safety II - BRCII) that provided the initial assessment of NIST's safety culture in order to benchmark progress to date. The VCAT followed the NIST Director's efforts to lead a "transformational safety initiative" at NIST, and has received updates from the Director and NIST staff throughout the year.

RECOMMENDATION:

- *The recommendations of the Blue Ribbon Commission II Report should be implemented.*

Foreign National Guest Researchers

The Committee recognizes the remarkable value to NIST and to the U.S. interests in having highly qualified foreign nationals working side-by-side with their American counterparts. American industry is increasingly globalized with many prominent members of its research community being foreign nationals. NIST is unique in that it engages with the private sector to collaborate on measurement methods and materials standards in support of American industry. The scientists and engineers who participate in these cooperative arrangements are literally among the best in the world and the beneficial transfer of technology and methods from NIST into the American private sector inescapably involves the participation of these valued participants. These efforts enhance the competitiveness of American industry and represent an important contribution by NIST in the fulfillment of the Department's goals.

In the face of potential changes to DOC policies that could affect the access of foreign nationals to NIST, the VCAT engaged DOC leadership to express its concerns. At issue is NIST's ability to take advantage of skilled foreign nationals and their expertise in the conduct of NIST's mission. The VCAT Chair sincerely appreciated the opportunity to learn more about this policy and discuss the Committee's concerns. We are pleased to learn that the Department is re-examining its policies and taking our concerns seriously. We commend DOC for engaging with the Bureaus and encourage the Department to finalize the revision as quickly as possible. The VCAT believes that any changes to security practices at NIST should be adopted in the context of the NIST mission and the realities of today's private sector workforce. *American enterprise has become a globalized activity and NIST standards, measurements and materials as well as research results should be broadly accessible.*

RECOMMENDATIONS:

- *VCAT strongly endorses efforts by NIST management to take advantage of the expertise of foreign visitors for the benefit of NIST programs.*
- *VCAT recognizes the need for special procedures for security sensitive activities, but strongly believes that the bulk of the activities undertaken in NIST laboratories can be conducted in an open manner.*

NIST Role in Measurement Services

The NIST mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life. A primary mechanism by which NIST fulfills this mission is through the development and delivery of measurement services. These measurement services include:

- The development and dissemination of validated measurement methods and protocols;
- The development and dissemination of new measurement instruments;
- The provision of Standard Reference Data, Standard Reference Materials (SRMs), and calibration services to ensure that industry-performed measurements are traceable to NIST standards; and
- The development of testing protocols and the support of laboratory accreditation programs that enable the NIST Laboratories to directly support U.S. innovation and industrial competitiveness.

NIST's ability to successfully deliver high-quality measurement services to the nation is fundamentally grounded in NIST's world-class measurement science expertise. The foundational core of basic scientific research at NIST in areas from DNA metrology to atomic, molecular, and optical physics is a fundamental component that NIST must

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

continue to support and encourage in order to ensure that it can continue to address the future needs of U.S. industry.

Impact of NIST Measurement Services

For over a century, the measurement services programs of NIST have ensured the accuracy and reliability of nearly all measurements in the United States. NIST measurement services directly impact U.S. industry. NIST distributes over 1200 different Standard Reference Materials (SRMs) that assure the accuracy of millions of measurements made daily in medical clinics, manufacturing plants and industrial labs throughout the United States. For example, NIST SRMs for sulfur in fossil fuels enable fuel producers to more efficiently formulate products that meet the varying regulatory requirements of different markets. NIST measurement programs provide critical federal agencies such as the Department of Defense, the Department of Energy (DOE), the Federal Aviation Administration, the Environmental Protection Agency, and NASA, with the measurement support necessary to carry out their respective missions. For example, in 2009 NIST performed 203 calibrations for DOE that supported over 70,000 subsequent calibrations in support of the reliability and performance of the entire U.S. nuclear arsenal. NIST calibrations are also critical for all state weights and measures agencies. In 2006 and 2007, 16 NIST calibrations for mass, volume, temperature, and length underpinned more than 360,000 calibrations done by state laboratories. Some examples that illustrate the importance of NIST measurement services include:

- For electric power measurements, NIST-traceable¹ calibrations ensure the accuracy of over 100 million electric power meters in the United States that measure the cost of over \$300 billion worth of electricity annually. Electric utilities are totally dependent upon NIST calibration services to prove the accuracy of all of these transactions.
- The pharmaceutical industry relies on NIST-traceable mass measurements to ensure accurate dosing of medicines at the sub-milligram level.
- For temperature, instrument vendors, as well as pharmaceutical, chemical, aerospace, microelectronic, and petroleum industries rely on NIST's thermometry and humidity measurement services to establish accuracy needed to enable the manufacturing and sale of their products in national and international markets.
- Basic length and weight measurement standards and tracing serve as the fundamental basis by which products can be used efficiently and often with greater interoperability throughout the entire supply chain to final Original Equipment Manufacturer (OEM) product in almost every U.S. industry.

Findings and Observations

Discussions with NIST staff responsible for measurement services development and delivery from across NIST revealed a number of common issues and challenges stemming from the current NIST management approach to its measurement services that if addressed could improve the efficacy and efficiency of NIST measurement service delivery. Key challenges identified include:

- Analysis and planning practices tend to be driven, currently, less by high level strategy than from bottom-up initiatives, leading to inconsistencies among various service groups:
 - Inconsistent level of analysis of how NIST programs can best fit into the measurement system;

¹ "traceable" means that a calibration can be traced back to standards maintained by NIST in the form of measurements or standard reference materials

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

- The methodology for pricing of NIST measurement services is inconsistently applied and can lead to unpredictable pricing and standards “shopping” by industry and government users;
- Lack of a comprehensive cross group staffing plan has led to a deteriorated staffing of critical measurement service programs and is jeopardizing NIST service delivery capabilities; in some cases key technical expertise is one-person deep;
- Current NIST research performance metrics do not address the linkage of NIST R&D efforts to the objectives of the measurement service programs; and
- The National Research Council (NRC)/ National Academy of Sciences (NAS) assessment process by itself is insufficient to fully evaluate the effectiveness of the NIST measurement services for lack of customer input.

The Committee recognizes a strong and vital link between NIST basic and applied measurement research and its ability to meet anticipated and unanticipated demands for new measurement services, materials and methods. NIST’s research program is not only essential to its mission but also a major draw to attract and keep top-level talent working in this vital area of NIST responsibility.

RECOMMENDATIONS:

- *NIST management should analyze current and anticipated measurement requirements against currently available technology to determine new technology development needs as part of a strategic planning effort. This will allow NIST to concentrate its resources on developing new tools and providing unique measurement services.*
- *NIST management should assess its measurement services and ensure that they optimize the integrity and traceability of the measurement system while promoting maximum third-party participation.*
- *NIST management should ensure that staffing levels are sufficient to create bench depth in critical measurement programs.*
- *Pricing for NIST measurement services should be rationalized; does the cost of billing and collection exceed revenue production?*
- *NIST management should expand assessment programs to include customers of NIST measurement services.*

NIST Realignment and Reorganization

As of October 1, 2010, NIST underwent its first major reorganization in over two decades. The primary objective of the reorganization was to sharpen the focus of the NIST’s programs on their respective missions and optimize their ability to deliver both cutting-edge research and the related services needed by manufacturers and other customers critical to the U.S. economy.

The VCAT considers the elevation of the NIST Director position to Under Secretary of Commerce for Standards and Technology as positive reinforcement of the role that NIST plays in the Department of Commerce. We are also strongly supportive of the new mission-oriented reorganization within NIST. An important component of the reorganization is the new management structure which establishes three new Associate Director positions. These positions are responsible for the three primary functional divisions of NIST -- one for its laboratories, one for external industry services (including the Baldrige Performance Excellence Program, the Technology Investment Program and the Manufacturing Extension Partnership), and another for management and administrative support.

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

We believe that this new management structure will help normalize management responsibilities and oversight and accountability of the NIST programs, and will put in place the senior career management structure needed to ensure that the agency stays on course. Earlier structures, especially during political transitions, have presented a significant challenge for the organization's continuity and effectiveness.

The most obvious impact of the NIST reorganization is on the NIST laboratory programs. The reorganization shifts the NIST laboratories from activity/discipline-based organizations to mission and outcome-oriented organizations. The reorganization reduced the number of NIST laboratories from ten to six while aligning the NIST laboratories with the distinct NIST mission lines of metrology, technology, and the provision of unique national user facilities.

The VCAT feels strongly that the new mission oriented focus of the NIST laboratories directly enables a more robust approach to addressing a number of the challenges identified earlier in this report regarding the development and delivery of measurement services. Specifically, the new mission oriented structure will improve accountability and strengthen the ability of the NIST laboratories to integrate cutting-edge measurement with the delivery of timely and high-impact services to industry. However, the VCAT also recognizes that the organizational restructuring at NIST represents a significant culture change that, like NIST's recent efforts to strengthen its safety practices and policies, will require continued review and assessment to ensure a successful transition. With that in mind, the VCAT makes the following recommendations regarding the NIST Realignment and Reorganization:

RECOMMENDATIONS:

- *NIST management should continue timely assessment of the effectiveness and efficiency of the organization. In the near term, this should include assessing improvements stemming from the recent reorganization.*
- *NIST management should continue to seek input from stakeholders and customers of its services to assess and possibly quantify the value and utility of these services.*

NIST Role in Forensic Science

There has been considerable interest on the issue of forensic science in the United States over the past year and a half since the National Academy of Sciences (NAS) released a study which was quite critical of the state of forensic science and its impact on the criminal justice system. NIST was directly cited in the NAS report, along with the Department of Justice (DOJ) and the National Science Foundation (NSF) as an agency that needs to be involved in addressing the challenges highlighted in the report.

NIST's involvement in forensic science can be traced back to 1932 during the Charles Lindbergh baby kidnapping when the Federal Bureau of Investigation (FBI) sought help from the National Bureau of Standards (NBS) due to its excellence in metrology, objective science, and integrity. Today NIST research programs continue to make significant contributions to the improvement and integrity of forensic science, touching on multiple forensic science disciplines including: computer forensics, fire investigations, drug detection, biometrics, firearms/ballistics, and genetics (DNA). With a number of the issues plaguing forensic science today revolving around testing, accreditation, and standards, the VCAT feels strongly that not only can NIST play a significant leadership role in strengthening the scientific underpinnings for forensic science, but it can also ensure the credibility of the field which is necessary for effective criminal justice.

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

RECOMMENDATIONS:

- *NIST management should incorporate forensic measurement and R&D into the NIST three-year programmatic plan for technology and service development, taking into account inputs from law enforcement agencies and other users of forensic technologies.*
- *NIST management should hold needs assessment workshops on forensic methods and technology, both to acquaint the user community with NIST capacity and to further refine and plan new capabilities.*

NIST Strategic Planning and Performance

NIST continues to improve its programmatic planning efforts, building on progress it has made over the last two years when it laid the framework by identifying a series of strategic priorities and investment priority areas against which future planning would be conducted.

As with last year, the programmatic planning efforts are directed toward a series of six investment priority areas (IPAs): Physical Infrastructure, Energy, Environment & Consumer Safety, Healthcare, Information Technology & Cybersecurity, and Manufacturing. These IPAs were selected by senior NIST management and technical staff, along with inputs from other stakeholders, based on the following criteria:

- Clearly matches NIST's mission and goals;
- Addresses urgent national needs and priorities, including Administration and Congressional priorities;
- Addresses a compelling innovation or competitiveness issue in areas of strategic importance to the nation (e.g., manufacturing, alternate energy, safety and security); and
- Represents previously identified NIST priorities that remain important.

The programmatic planning process is moving the agency away from single year initiative-based planning, and toward the creation of culture and infrastructure that enable the development and maintenance of multi-year program plans with discrete goals, objectives, and performance measures. Because strategic planning is a process and not a product, it needs to become a part of the normal management activity at NIST.

Another positive step was the creation of an external needs assessment workshop series. Initiated last year, the workshop series is intended to solicit stakeholder input on key trends, drivers, and opportunities across a broad array of technology focused topics. The output of the workshops will inform NIST's strategic decision making and programmatic planning activities. The VCAT received positive feedback from some attendees of the initial workshops conducted over the course of 2010 which addressed the following topics:

- **Advanced Solar Energy Technologies** -- <http://events.energetics.com/NISTGrandChallenges2010/>
- **Climate Change** -- <http://events.energetics.com/NISTScripps2010/>
- **Advanced Battery Manufacturing** -- <http://events.energetics.com/NISTAdvancedBatteries/>

RECOMMENDATIONS:

- *NIST management should focus strategic planning on maintaining existing and building new capabilities (i.e., equipment, staff, and expertise) in key priority areas.*

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

- *NIST management should carry out Operating Unit level exercises to identify strategic targets for research, development and measurement service evolution. It is especially important to identify entirely new areas of work such as has been done with bio-effects of nanomaterials.*
- *NIST should institute a strategic planning process from which programmatic planning can be derived.*

NIST External Peer Review

An essential element to any planning process is continual assessment, not only against identified milestones and metrics, but also independent assessment by one's peers. For decades, NIST has relied upon the National Research Council (NRC) to provide panels of experts to independently review the health and quality of the NIST laboratories. While of considerable value, the current NRC review process alone is not sufficient to provide a meaningful assessment of the overall value of the organization, especially as these reviews have not always had the requisite expertise to effectively and thoroughly evaluate the health and quality of the NIST measurement services programs. In order to obtain the most relevant external reviews possible, the Operating Units (OU) responsible for measurement services need to establish new targeted assessment processes that provide a tailored peer-evaluation of specific measurement service programs. Key to the success of these efforts will be ensuring that NIST maintains the input necessary to populate the review committees with the individuals having the most relevant expertise and professional backgrounds to conduct an in-depth and thorough assessment of the program in question.

RECOMMENDATIONS:

- *NIST management should use workshops and customer surveys to assess the effectiveness of NIST measurement and materials services, in addition to NRC panel reports.*
- *Following the reorganization of NIST into mission-focused laboratories, NIST should develop a comprehensive assessment program that includes effective peer review of scientific quality, customer satisfaction for measurement services and for effectiveness in meeting the needs of the particular measurement program. NIST should develop this assessment program before continuing with the existing Panel of Assessment program with the NRC.*

NIST Three-Year Programmatic Plan

The Committee has read and reviewed the latest draft NIST three-year programmatic plan as of February, 2011 and commends NIST management for its preparation and believes that it accurately portrays the near-term path of activity and development at NIST. While the Committee does not have specific recommendations stemming from the three-year programmatic plan, it does urge NIST management to develop a longer-term strategic perspective of evolving agency needs and challenges from which the programmatic plan may be derived.

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

NIST Budget

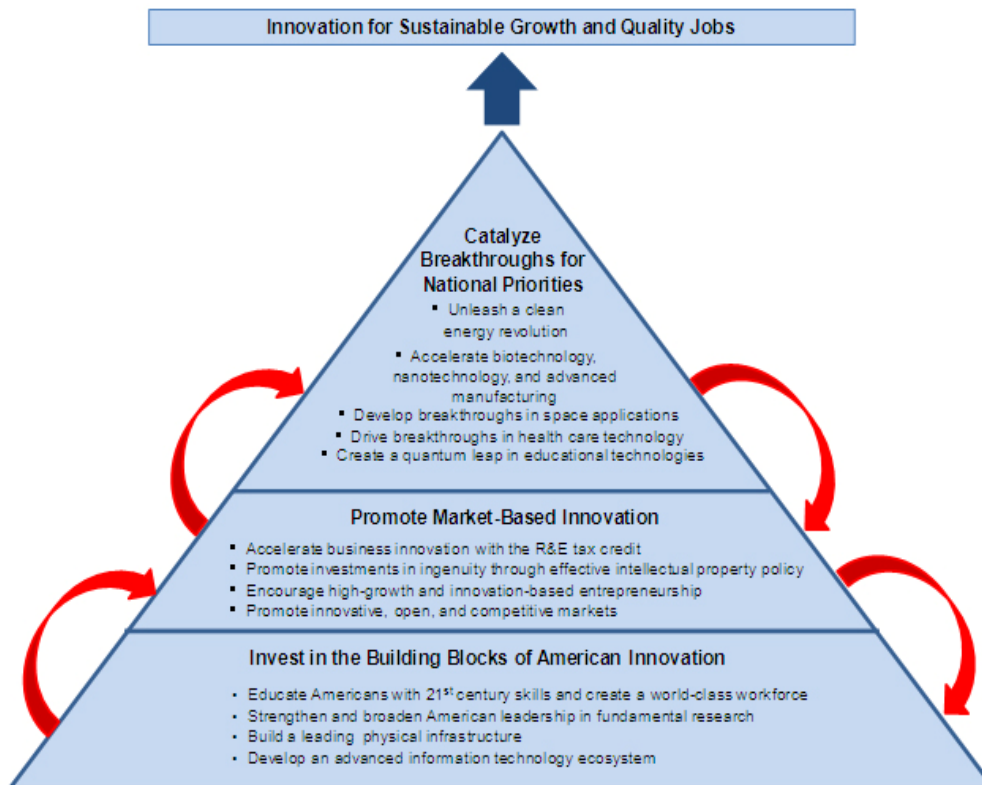
NIST Budget (Dollars in Millions)

	<u>FY 2009</u> <u>Enacted</u>	<u>FY 2010</u> <u>Enacted</u>	<u>FY 2011</u> <u>Request</u>	<u>FY 2011</u> <u>Change</u>
Scientific and Technical Research and Services (STRS)	\$472.0	\$515.0	\$584.5	\$69.5
Industrial Technology Services (ITS)	\$175.0	\$194.6	\$209.6	\$15.0
Technology Innovation Program	65.0	69.9	79.9	10.0
Hollings Manufacturing Extension Partnership	110.0	124.7	129.7	5.0
Construction of Research Facilities (CRF)	\$172.0	\$147.0	\$124.8	\$(22.2)
NIST Construction & Major Renovations	29.7	22.0	52.3	30.3
Safety, Capacity, Maintenance, and Major Repairs	68.3	58.0	72.5	14.5
Competitive Construction Grants Program	30.0	20.0	0.0	(20.0)
Congressionally Designated Projects	44.0	47.0	0.0	(47.0)
Total NIST	\$819.0	\$856.6	\$918.9	\$62.3

NIST remains well positioned in regards to Administration priorities and the President's *Strategy for American Innovation*. NIST efforts from fundamental research to laboratory accreditation programs are critical to the success of all three levels of the President's Innovation strategy [see Figure 1].

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

Figure 1:



It is because of this central role that NIST plays in the nation's innovation enterprise that the Administration remains committed to the doubling of NIST's budget for its laboratory programs.

As part of this doubling effort, the Administration's FY 2011 budget request contained a significant increase (\$69.4 million) for the NIST Laboratory programs. With these funds, NIST plans to continue to expand investments in the following National Priorities:

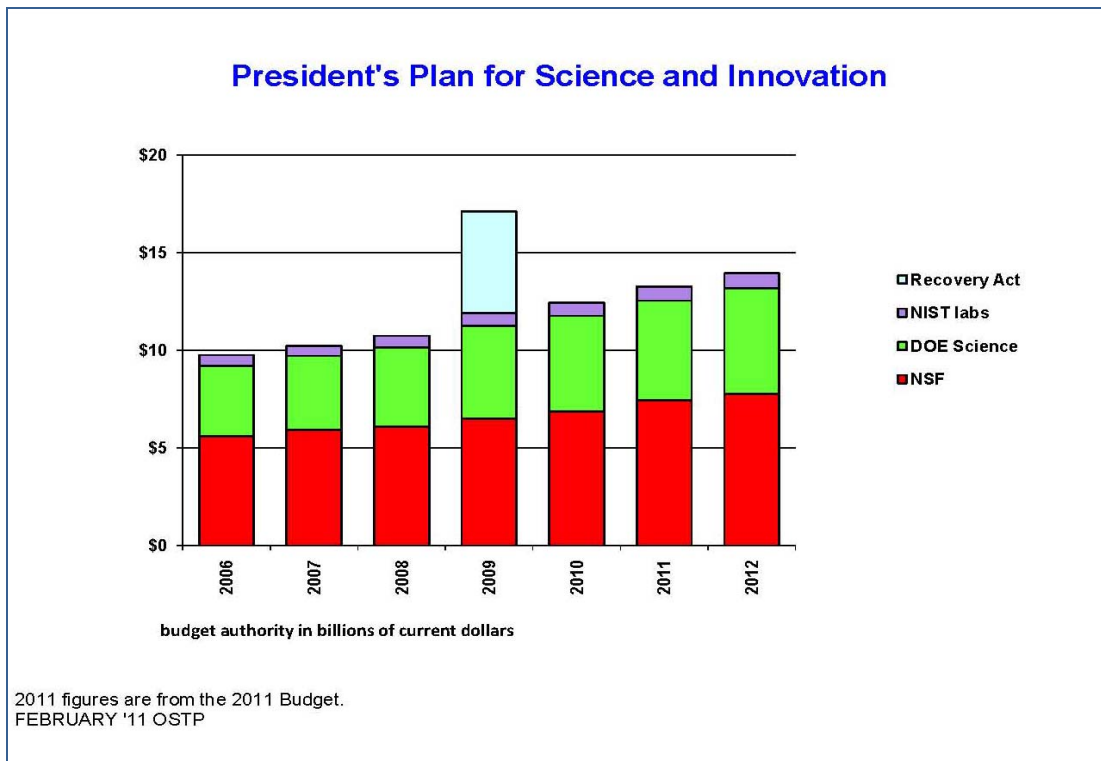
- *Competitive Manufacturing and Construction In a Clean-Energy Economy (+\$20million)*
 - Green Manufacturing and Construction
 - Innovations for 21st Century U.S. Manufacturing
- *Standards and Conformity Assessment for Interoperability in Emerging Technologies (\$10 million)*
- *Scalable Cybersecurity for Emerging Technologies and Threats (\$10 million)*
- *Innovations in Healthcare – Measurement Science and Standards to Support Manufacturing and Regulatory Approval of Biologic Drugs (\$10 million)*
- *Sustainable Energy Sources and Nanomaterials (\$9 million)*
 - Advanced Solar Technologies – 3rd Generation Photovoltaics
 - Nanomaterial Environmental, Health, and Safety
- *Disaster Resilient Buildings and Infrastructure (\$5 million)*
- *Enhancing Science, Technology, Engineering and Math Education (\$3.4 million)*
 - NIST NRC Postdoctoral Research Associateships
- *Strategic and Emerging Research Initiatives (\$2 million)*

VISITING COMMITTEE ON ADVANCED TECHNOLOGY
National Institute of Standards and Technology

The FY 2011 request for the Manufacturing Extension Partnership (MEP) program builds upon the foundation established by the America COMPETES Act. The proposed budget of \$129.7 million represents an increase of \$5 million over FY 2010 levels to support the Administration’s policy initiatives for reinventing domestic manufacturing. In addition, the President’s FY 2011 budget request recognizes the potential impact of the Technology Innovation Program (TIP), especially in the area of advanced manufacturing, and includes an increase of \$10 million for the program for a total of \$79.9 million. The request, if enacted, will expand the program to motivate and expedite high-risk, high-reward research focused on the development of advanced, disruptive technologies that enable accelerated development of next-generation, high-performance processes and materials in areas such as nanomanufacturing.

The VCAT strongly supports the Administration’s commitment and planned efforts to double funding for the NIST laboratories budget (see Figure 2). However, looking at past funding data the VCAT is concerned that appropriations have not kept up with the projected needs.

Figure 2:



These trends, combined with the tightening fiscal situation, multiple continuing resolutions, and the increasing demand for NIST programs to address challenges in everything from cloud computing to bio-specimen quality cause the VCAT serious concern that NIST may not be able to meet future demand for its services.

RECOMMENDATIONS:

- VCAT strongly endorses the Administration’s commitment to double the budget of the NIST laboratories.
- Manufacturing must be a key focus at NIST (and other government agencies) as part of the renovation of the American job market. Manufacturing is an essential element of a healthy American economy.