NIST Director's Update

Visiting Committee on Advanced Technology
June 7-8, 2011

Dr. Patrick Gallagher

**Under Secretary of Commerce for Standards and Technology and
NIST Director**

Overview

- New VCAT members
- Context
  - Overview of current budget situation
  - Changes at Commerce
- Update on Key Programs and Activities
  - Documentary standards activities
  - Measurement services
  - Management and operational issues
- Updates on other NIST Activities
- Looking forward
  - Introduction of new subcommittees

New VCAT Member

Roberto Padovani

Executive Vice President and Chief Technology Officer

Qualcomm Incorporated

- Served as Executive Vice President in Corporate Research and Development in 2001

- Appointed Senior Vice President in 1996

- Joined Qualcomm Incorporated in 1986

- Elected to the National Academy of Engineering in 2006

- Elected Fellow of the Institute of Electrical and Electronics Engineers in 1999

New VCAT Member

Karen E. Kerr

Director of Business Development

Intellectual Ventures

- Founder, Agile Equities

- Managing Director, ARCH Venture Partners

- Director, National Association of Seed and Venture Funds

- Member, National Science Foundation SBIR/STTR Advisory Committee

- Member, Florida Technological Research and Development Authority Advisory Board

- Member, C200 Leading Business Women

- "40 under 40 Leading Business Professionals in Chicago" in 2000

INTELLECTUAL VENTURES

Current Budget Situation

FY2011 Budget

- Full Year CR passed on April 15
- Total appropriations for FY11 $750.1M ($106.1M less than FY2010)
- Labs largely flat, TIP cut by $25.1M

FY2012 Request

- President's Request in February significantly increased NIST budget ($1.1B request for NIST)
- Large focus on Manufacturing ($120.5M) and Cybersecurity ($43.4M)

FY2013 Request

- Planning for FY2013 has begun with development of new program plans by OUs

NIST FY2012 Scientific and Technical Research Services Program Changes (+$178.4M)

1. Tools for Manufacturing Competitiveness

    - Strengthening Measurement Science and Standards in Support of Industry Needs (+$20M)

    - Advanced Materials for Industry (+$14.2M)

    - Innovations for 21st Century U.S. Manufacturing: Faster, Smarter and Cleaner (+$13.3M)

    - Measurement Services and Standards to Support Biomanufacturing (+$9.5M)

    - Measurements to Support the Manufacture and Production of Nanotechnology-based Products (+$28.3M)

2. Ensure a Secure and Robust Cyber Infrastructure (+$43.4M)

3. Interoperability Standards for Emerging Technologies (+$22.8M)

4. Measurements and Standards to Support Increased Energy Efficiency and Reduced Environmental Impact (+$13.3M)

5. Measurements to Support Advanced Infrastructure Delivery and Resilience (+$10.6M)

6. Postdoctoral Research Associateships Program (+$3.0M)


Photo by Kathie Koenig Simon

Courtesy: Inhabitat.com

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NIST FY12 Industrial Technology Services Request (+$33M)

Targeted Investments to Drive Continued Innovation in Manufacturing and Industry

- Manufacturing Extension Partnership -- $142.6M (+$17.6M)
  - Expand delivery of services targeting technology innovation and commercialization, including sustainability

- Technology Innovation Program -- $75.0M (+ $5.2M)
  - Supporting high-risk R&D to address critical national needs

- Advanced Manufacturing Technology Consortia – $12.3M (+ $12.3M)
  - Collapsing the timescale of technological innovation through industry-led consortium based R&D

- Baldrige Performance Excellence Program -- $7.7M(-$2.1M)
  - Identify alternative funding options, generate efficiencies, and reduce program overhead

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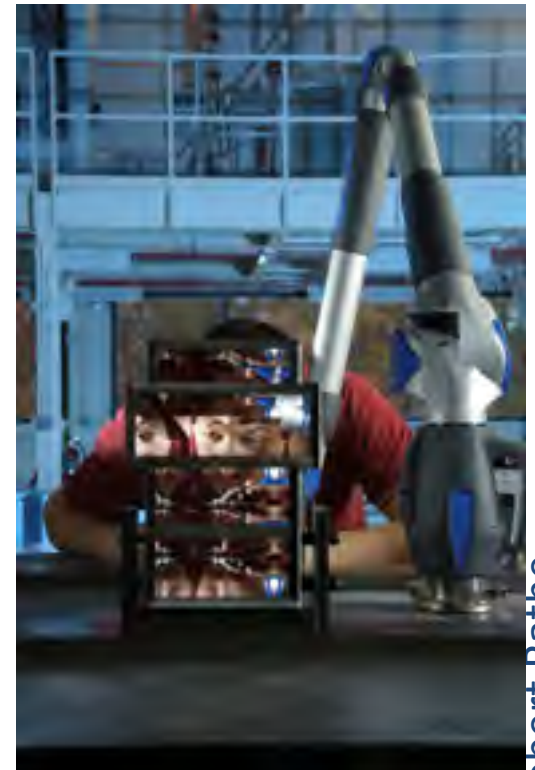
NIST and the Wireless Innovation Fund -- ($500M in mandatory funding)

Public Safety Innovation Fund ($100M/yr for 5 years)

This program (component of Wireless Innovation Fund) supports the Wireless Innovation Infrastructure Initiative and will address critical barriers to innovation, increase efficiency of domestic innovation, and accelerate delivery of new products and services for public safety communication technologies.

Public Safety Communication critical to U.S.

- 4 million first responders impacted by an end-to-end interoperable wireless network

- Unique public safety requirements and considerations – cover 95% of US population, minimum 90% system availability, etc.

- Enable data and video flows augmenting voice communication

NIST will work with industry and public safety organizations to:

- Conduct research and develop new technologies and applications to advance public safety communications

- Create 700 MHz Public Safety Broadband Demonstration Network

- Coordinate standards development and conformance testing
    - Identify and incorporate public-safety requirements into national and international standards
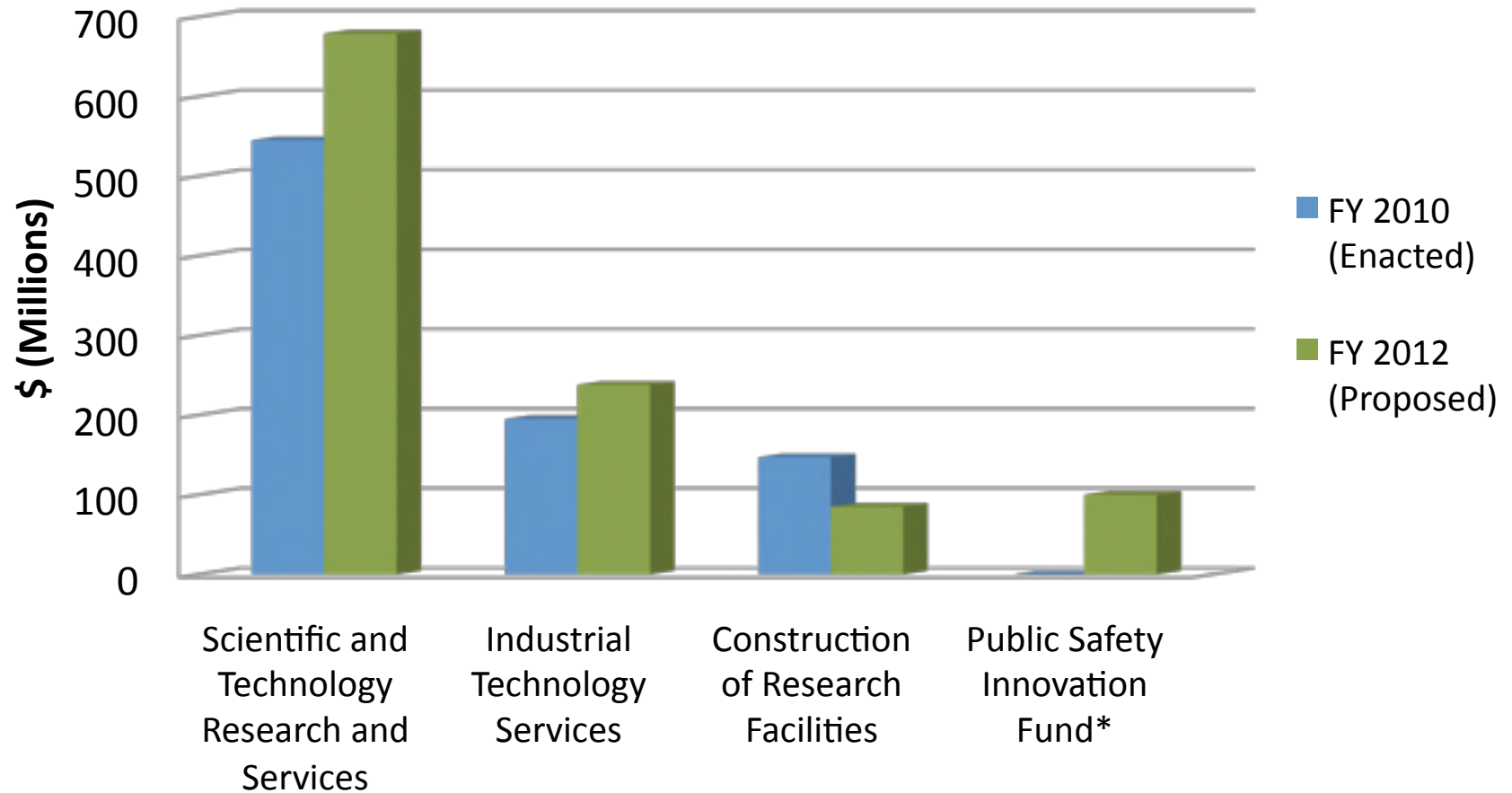

Courtesy: Integerwireless.com

Courtesy: Summit Towers

NIST budget comparison : 2010 vs 2012 Request

Changes at Commerce

Secretary Locke is leaving to become U. S. Ambassador to China

John Bryson has been nominated as new Secretary

– Chairman and CEO Edison International

– Co-founder, Natural Resources Defense Council

– Board Member Walt Disney, Boeing, other corporations

Terry Garcia has been nominated as Deputy Secretary for Commerce

– Executive Vice President for Mission Programs, National Geographic Society

– Deputy Administrator, NOAA

– Served on National Commission following the BP Deepwater Oil Spill

Update on Key Programs and Activities

- Documentary standards activities
- Measurement services
- Management and operational issues

NIST and Standards Policy – Interagency Leadership in Coordinating Standards

2009 VCAT Recommendation: Serve as the principal inter-agency convener for documentary standards affecting national, international, and/or inter-agency interests.....

Progress to-date:

- Establish and lead NSTC Subcommittee on Standards (SoS)

- Standards Coordination Office Director appointed

- NIST Leadership Roles in inter-agency coordination:

    - Smart Grid

    - Cloud Computing

    - Health Information Technology

    - NSTIC

    - Cybersecurity

    - Privacy

    - New Public Safety Communications Network

Pending:

- SoS White Paper on Federal Government Engagement in Standardization (aka standards playbook)

- Revitalizing Interagency Committee on Standards Policy (ICSP)

images: NIST;integerwireless.com/wilber; graham-taylor; zimmytwsk; stuyagin/shutterstock;techibuzz.com/GMAutos

NIST and Smart Grid

NIST Role: "…coordinate development of a framework that includes protocols and model standards for information management to achieve interoperability of smart grid devices and systems…"

Progress to-date:

- Smart Grid Interoperability Panel
  - 672 member organizations and growing
  - "Catalog of Standards" process established
  - Cybersecurity reviews of standards ongoing
  - Customer energy usage data standard completed
  - Initial Testing and Certification Framework released
- International Leadership
  - State Grid Corporation of China joined SGIP
  - USTR and NIST initiated APEC smart grid interoperability initiative
  - Engaging European standards bodies

Pending :

- Regulatory Engagement
  - FERC Docket considering what regulatory adoption is necessary
- National Science and Technology Council
  - Smart Grid policy framework will be released June 13

NIST and Cloud Computing

NIST Goal: Accelerate the federal government's secure adoption of cloud computing

Progress to-date

- Cloud Computing Workshop – April 7-8.   400-500 attendees with broad industry, SDO, government and international participation

- NIST Team working closely with GSA, OMB and other agencies to design the proposed FedRAMP system for conformity assessment of Cloud Service Providers' security controls (based on standards and guidelines issued by NIST)

- Voluntary Working Groups – interim work products publically reviewed and used:
  - USG Target Business Use Cases – email & desktop virtualization, NGA
  - Reference Architecture - includes a survey of external industry models
  - Standards Roadmap – inventory of Cloud-related standards, aligned to the reference architecture
  - SAJACC – low level technical use cases and test drivers, 7 of 24 complete
  - Cloud Security - most recent Special Publication: May10: NIST 800-146, synopsis of cloud computing public, private, community & hybrid service delivery models

Pending:

- NIST USG Cloud Computing Technology Roadmap to be released for public comment in November 2011
  - High level cloud computing conceptual model to provide context
  - List of prioritized security, interoperability, & portability requirements that need to be satisfied for USG agencies to securely and effectively adopt cloud computing
  - Recommended standards, guidance, & technology needed to satisfy these requirements

NIST and Healthcare Information Technology (IT)

NIST's efforts in health IT enable the establishment of an emerging health IT network that is correct, complete, secure, usable and testable. Recent activities include:

Progress to-date:

- Developing NVLAP health IT electronic health record (EHR) laboratory accreditation program for the ONC permanent certification program
- Performing foundational research to develop an objective, repeatable procedure for measuring the usability of health IT. Recent publications include:
  - *Customized Common Industry Format Template for Electronic Health Record Usability Testing*
  - *Human Factors Guidance to Prevent Healthcare Disparities with the Adoption of EHRs*

- Applying security automation specifications within the context of health information to develop baseline security configuration checklists and toolkits to aid organizations in implementing the HIPAA Security Rule standards

- Usability workshop: NIST June 7, 2011

National Strategy for Trusted Identities in Cyberspace

Progress to-date:

- Strategy Released

  – The strategy was signed by the President and released April 15th, 2011.

Pending:

- Implementation efforts:

  – Governance NOI scheduled for release by June

  – Governance Workshop scheduled for June 9th and 10th at the Grand Hyatt in Washington, DC

  – Privacy and Usability Workshop scheduled for June 27th and June 28th at MIT in Cambridge, MA

  – Future Standards Workshop will be scheduled.

NIST and Cybersecurity

Progress to-date:

- DoC Internet Policy Task Force *"Commercial Data Privacy and Innovation in the Internet Economy"* Green Paper (Dec 2010)

  - Provides policy recommendations for promoting consumer privacy while recognizing Internet as platform for spurring innovation and economic growth

- White House Cybersecurity Legislative Package

  - NIST and Commerce Department worked collaboratively to build a proposal that includes
    - National data breach notification
    - Raising Penalties for cybercrimes
    - Promotion of voluntary information sharing
    - Mandatory security frameworks for critical infrastructure
    - Fed Info Security Management Act (FISMA) reform

Pending:

- Expected June 8th Release of DOC Green Paper on *"Cybersecurity, Innovation, and the Internet Economy"*
  - Focused on the need for an Internet security framework for companies outside of covered critical infrastructure boundaries .

COMMERCIAL DATA PRIVACY
AND INNOVATION IN THE
INTERNET ECONOMY:
A DYNAMIC POLICY FRAMEWORK

THE DEPARTMENT OF COMMERCE
INTERNET POLICY TASK FORCE

Review of Current Year Focus – Measurement Services

VCAT Recommendation: Improve Planning process, Program design;   Strengthen & align research efforts with measurement service role;   Define effective assessment & metrics

Progress to-date:
- Implemented reorganization of laboratories to better align research and measurement services activities
- Calibrations
  - Evaluation criteria developed
- Standard Reference Materials
  - Designed a template for lab submissions of SRM priorities that reflects drivers, perpetuation plans, and business case
  - Assessing fee structure
  - Increasing customer interaction

Pending:
- Calibrations
  - Assessing fee structure
  - Increasing customer interaction
  - Improving calibration marketing
- Standard Reference Materials
  - Designing a prioritization and submission process that reflects NIST priorities and aligns with each laboratory's mission space
  - Harmonizing approaches to certification across NIST, involving cooperation with other NMIs
- Standard Reference Data
  - Defining a set of quality descriptors that reflect confidence levels in data accuracy

SRM

Safety

VCAT Recommendation: The recommendations of the Blue Ribbon Commission II Report should be implemented.

Progress-to-date:
- Safety Climate Assessment, Draft Report April 2011
  - High levels of personal commitment to safety
  - Uneven levels of management commitment
  - Safety communication: much improved, but further work needed
  - Safety rules, procedures, processes perceived as too complicated, bureaucratic and not uniformly implemented
- NIST Safety Leadership Summit, May 2-3, 2011
  - Leadership commitment to make safety a core value at NIST

Pending:
- Develop a robust emergency management system for senior leadership
- Develop and implement new roles, responsibilities, and authorities for laboratory operations within facilities
- Integrate a "peer review for safety" approach into the NIST assessment program
- Integrate safety management meaningfully into our leadership development strategies and programs.

Security – Foreign National Guest Researchers

VCAT Recommendation: the expertise of foreign visitors can benefit of NIST programs; with certain exceptions for sensitive activities, the bulk of laboratory activities should be conducted in an open manner
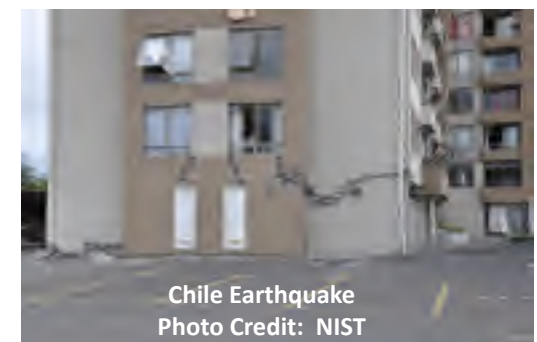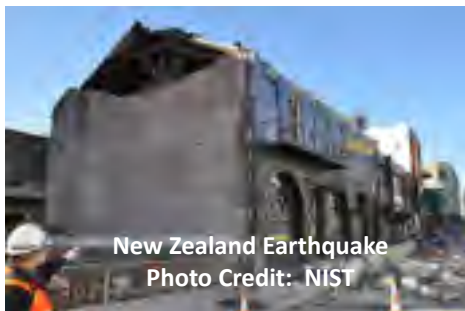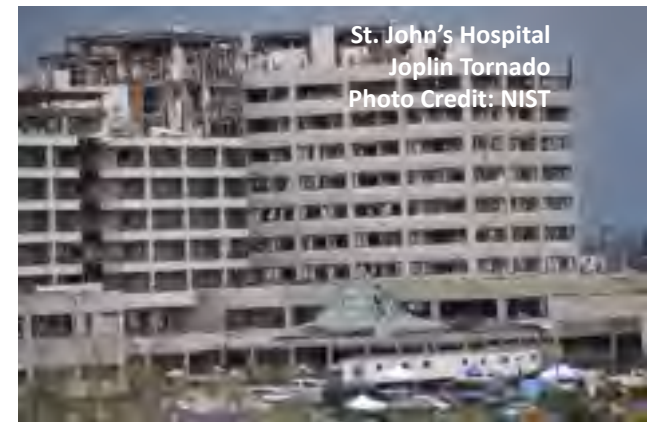
Progress-to-date:

- DOC Policy on Foreign National Guest Researchers
  - Final Department Administrative Order re-write for Foreign Guest Access nearing completion
  - Correctly places responsibility for implementing the Foreign National Guest program with each Bureau

Pending:

- Each Bureau will be responsible for developing their own implementation plan within 6 months of the DAO going into effect.
  - Risk-based determinations on work to be performed by FN's, FN access levels, and assets to be protected
  - Developing and implementing facility specific security control plans
  - Employee training
- Identify resources necessary for development, implementation, and management of this plan

Disaster Resilience

- NIST has specific statutory responsibilities for fire prevention and control, earthquake hazards reduction, windstorm impact reduction, and disaster and failure studies.

- NIST is statutory Lead of 4-agency National Earthquake Hazards Reduction Program (NEHRP) (FEMA, NIST, NSF, USGS)

St. John's Hospital
Joplin Tornado
Photo Credit: NIST

- Recent deployments to collect data and study disaster and failure events include:
  - 2010 Chile earthquake
  - 2011 New Zealand earthquake
  - 2011 Amarillo, TX, wildland-urban interface fire
  - 2011 Joplin, MO, tornado

- NIST disaster and failure studies aim to improve the nation's resilience to disasters through better codes, standards, and practices

New Zealand Earthquake
Photo Credit: NIST

Amarillo WUI fire
Photo Credit: Karen Slagle

Chile Earthquake
Photo Credit: NIST

Setting the Stage: VCAT Subcommittees

Explore key issues for NIST and the Administration:

- **NIST Role in Manufacturing**
- **NIST Role in the President's Wireless Innovation Initiative (WIN)**

- Develop specific recommendations for deliberation by full committee
- Kickoff today, can conduct their information gathering in-between VCAT meetings

Setting the Stage: Public Safety Networks Subcommittee

Vinton Cerf, Chair

Context

- Multi-agency initiative in President's FY 2012 budget request focused on the development of a next-generation wireless communication network for the United States
  - Part of Wireless Innovation and Infrastructure Initiative (WI3) to reallocate 500 MHz of spectrum bands. The auctions of reallocated spectrum licenses are expected to raise more than $27B.
- NIST role is to ensure that the needs of the Public Safety community are built into this network ($500M)

Subcommittee Role

1. Recommendations on key architectural elements of next-gen wireless communications network that take into account public safety sector needs
2. Comments and recommendations for establishing and structuring a NIST program in this area

Setting the Stage: VCAT Manufacturing Subcommittee

Alan Taub, Chair

Context

- Manufacturing is central to the economic well-being of our Nation. Examples of recent actions include:
  - FY 2012 budget request has strong focus on manufacturing at NIST
  - The Administration released a Framework for Revitalizing American Manufacturing in December 2009.
  - The PCAST Report to the President on Advanced Manufacturing
  - New NSTC Committee on Advanced Manufacturing R&D chartered to develop strategic plan by 1/4/12 to guide Federal programs and activities

Subcommittee Role

1. Make recommendations to position NIST to best respond to industry's needs and increase understanding of the important role NIST plays in manufacturing
2. Explore role of public-private partnerships in manufacturing and make recommendations on the structure and role of AMTech
3. Provide recommendations and input on Manufacturing Strategy for NIST

Agenda for this VCAT Meeting

- Introductions, NIST Update, and Operational and Management Issues

- Update on the Baldrige Performance Excellence Program and Proposed Changes
  - Harry Hertz, Director BPEP

- Progress Report on the NSTC Subcommittee on Standards
  - Mary Saunders, Director, SCO

- NIST Role in Advanced Manufacturing
  - *Key Elements for a Comprehensive Manufacturing Strategy*
    - Robert Atkinson, Information Technology and Innovation Foundation
  - *Overview of the Administration's Priorities in Advanced Manufacturing*
    - Jason S. Miller, Special Assistant to the President for Manufacturing Policy, The White House, National Economic Council

- NIST Role in the President's Wireless Innovation Initiative (WIN)
  - *Overview of the WIN*
    - Aneesh Chopra, U. S. CTO

- Concurrent Subcommittee Sessions

- Wrap Up Discussion and Plans for Future Activities