NIST Overview: Research, Standards and Policy

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NIST's mission



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Measurements
Standards

Technology Commerce

NIST's impact





NIST: Basic Stats and Facts

Major assets

- 3,000 employees
- 2,700 associates and facilities users
- 1,200 field staff in partner organizations
- FY 2014 Appropriations \$850 M
- Two main locations: Gaithersburg, Md., and Boulder, Colo.
- Six external collaborative institutes: JILA, JQI, IBBR, HML, CHiMaD, NCCoE





NIST Priority Research Areas



Advanced manufacturing

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IT and cybersecurity

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Healthcare

Yuri Arcurs/shutterstock



Forensic science

StillFX/shutterstoc



Disaster resilience





Cyberphysical systems

Ensuper/shutterstocl



Advanced communications



Advanced Manufacturing



Roboties

Dmitry_Kalinovsky/shutterstock



Yurchyks/shutterstock



Information Technology and Cybersecurity



Improving cybersecurity infrastructure and efficiency

Supporting national priorities and stakeholders



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Advancing cybersecurity research and standards

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Healthcare



Vaccines

Disease assays

Medical Technologies

Forensic Science



Disaster Resilience



G. Plafker/U.S. Geological Survey



Fire Protection Technologies

Disaster Resilient Structures and Communities Building and Fire Safety Investigations

Cyberphysical Systems

Internet of Things & Smart Grid



Advanced Communications



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Baxley/JILA

Pathways research takes to our users

Publishing

- High impact journals
- Technical conferences
- Topic area conferences
- Frameworks (disaster resilience, cyber security)
- Journal of Research of NIST
- NIST Handbooks
- Best practice guides (layout and design of unit price labels)
- Websites

Interactions

- Collaboration with non-NIST authors (4,141 in 2012)
- Collaborations with standards organizations
- NIST user facilities (NanoFab and NCNR)
- Manufacturing Extension Partnership (440 service locations)

Products

- Calibrations (58,000 pieces of Army equipment require NIST-traceable calibration)
- Standard Reference Materials (SRMs)
- Standard Reference Databases (SRDs)



Standards and Policy

- Standards are voluntarily used as policies in certain communities
- Some standards get incorporated into rules, codes and laws, thus becoming formal policies through:
 - Adoption
 - Strong deference
 - Basis of rulemaking
 - Regulatory guides
 - Guidelines
 - Deference in lieu of developing a mandatory standard





Questions?

NIST: non-regulatory federal agency

- Coordinates government standards activities
- Conducts pre-normative research
- Participates in standards development national and international
- Develops and maintains reference materials and data
- Provides calibration services
- Provides third-party accreditation to testing and calibration laboratories
- Provides technical advice to the private sector, academia and other federal agencies.