

NIST and the Government Role in the U.S. Standards System

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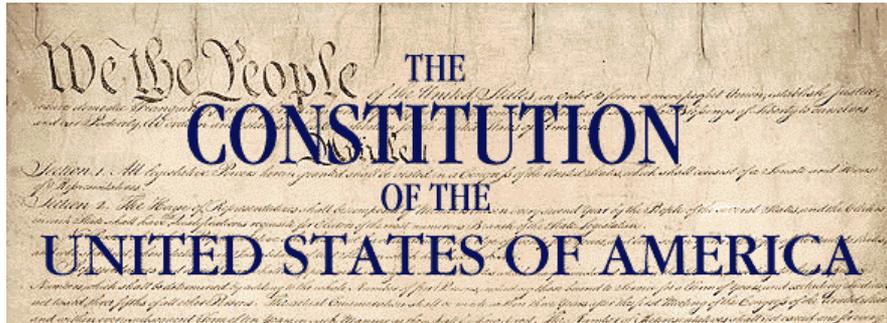
NIST
National Institute of
Standards and Technology
U.S. Department of Commerce



Discussion Outline

- ▶ NIST Overview
- ▶ U.S. Standards Landscape
- ▶ Government Role
- ▶ National Technology Transfer and Advancement Act (NTTAA)
- ▶ Government Participation
- ▶ Department of Transportation role
- ▶ Conclusions

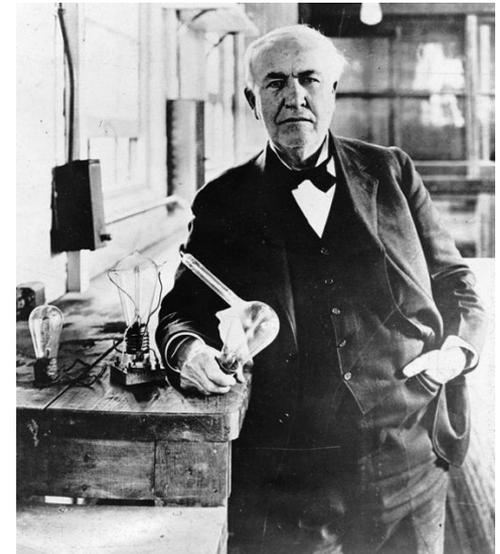
NIST – The Importance of Standards



Article I, Section 8: The Congress shall have the power to...*fix the standard of weights and measures*

National Bureau of Standards established by Congress in 1901

- Eight different “authoritative” values for the gallon
- Electrical industry needed standards
- American instruments sent abroad for calibration
- Consumer products and construction materials uneven in quality and unreliable



Estimated that 80% of global merchandise trade is influenced by testing and other measurement-related requirements of regulations and standards

NIST Today: Mission

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



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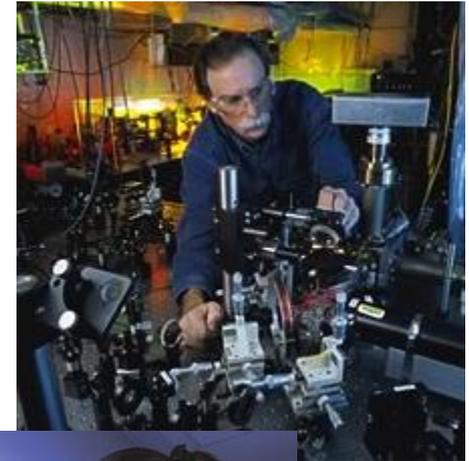
NIST at a Glance

Major Assets

- ~ 2,800 employees
- ~ 2,600 associates and facilities users
- ~ 1,600 field staff in partner organizations
- ~ 400 NIST staff serving on 1,000 national and international standards committees

Major Programs

- NIST Laboratories
- Baldrige National Quality Program
- Manufacturing Extension Partnership
- Technology Innovation Program



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NIST Products and Services

Measurement Research

~ 2,200 publications per year

Standard Reference Data

~ 100 different types

~ 6,000 units sold per year

~ 226 million data downloads per year



Standard Reference Materials

~ 1,300 products available

~ 33,000 units sold per year

Calibration Tests

~ 18,000 tests per year

Laboratory Accreditation

~ 800 accreditations of testing and calibrations laboratories per year



NIST Infrastructure ... Paving the Way to Innovation

The equivalent of research “roads and bridges” the industrial and scientific communities need to develop and commercialize new technologies

- Groundbreaking research tools that foster new fields—quantum information, nanotechnology, bioscience
- Better measurement methods to ensure quality
- Performance measures for accurate technology comparisons
- Standards to assure fairness in trade



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NIST Responds to Urgent National Needs



Comprehensive World Trade Center Investigation

Recommended 30 improvements in building standards and practices, many already being put in place by private sector

Standards for E-voting

Supporting an advisory committee to the Election Assistance Commission that produced a “complete rewrite” of standards to ensure accuracy, usability, and security of voting machines



The Result: A Broad Impact On Everyday Life

- Advancing manufacturing and services
- Helping ensure fair trade
- Improving public safety and security
- Improving quality of life



Quick Review: U.S. Standards Landscape

- ▶ Sector driven and decentralized
 - ▶ Private sector-led
- ▶ ANSI coordinates system stakeholders
- ▶ Users (government and private sector) consider and select standards from any source
 - ▶ National adoption is not a prerequisite for use
- ▶ Government is an active participant in the process
- ▶ NIST coordinates federal government activities in standardization; individual agencies determine requirements, standards used, and participation

Some numbers

In the U.S. there are:

- Over **450 standards developing organizations**, with the 10 largest SDO producing 90% of the standards
 - About 280 SDO are ANSI-accredited
- At least **150 consortia**
 - Countless hundreds of committees addressing the technical requirements of standards
- More than **95,000 standards**

U.S. Standards System: Public-Private Partnership

NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

Coordinates U.S. Federal
Government role in
standards



ANSI
American National Standards Institute

Coordinates the U.S.
private sector
standards system

National Technology Transfer and Advancement Act of 1995

Directs NIST to coordinate federal agencies to:

- Use voluntary consensus standards
- Participate in the development of voluntary consensus standards to meet agency needs
- Coordinate with the private sector

What is the U.S. Government's Role?

- ▶ Major standards user
- ▶ Participant in standards development - Contributes to the technical underpinning by providing technical expertise
- ▶ Uses standards to carry out policy objectives and activities as determined by the agency or directed by specific legislation
- ▶ Does NOT generally oversee or control the process but does define requirements to be met by standards

Goal: to protect health, safety and the environment as well as enable and accelerate deployment of technology while not creating unnecessary barriers to trade

National Technology Transfer and Advancement Act

NTTAA: Law directing Federal Agency use of standards in regulation and procurement

Passed in 1996, NTTAA directs federal agencies to:

- ▶ Use voluntary consensus standards where practicable
- ▶ Minimize development of agency-unique standards; report such instances
- ▶ Participate in the development of voluntary consensus standards to meet agency needs
- ▶ Reduce overlap and duplication, and increase efficiency, of conformity assessment activities
- ▶ Coordinate with private sector on both standards and conformity assessment activities

NIST Responsibilities under NTTAA

- ▶ Coordinate the use by Federal agencies of private sector standards, emphasizing where possible the use of standards developed by private, consensus organizations
 - ▶ Oversee federal implementation of the NTTAA and provide administrative guidance to federal agencies
 - ▶ Provide annual report to Congress
- ▶ Chair the Interagency Committee on Standards Policy (ICSP)
- ▶ Coordinate government conformity assessment activities with those of the private sector, to eliminate unnecessary duplication and complexity

Extent of Federal Use of Standards

In Regulation

- ▶ NIST has identified 9,100 citations of standards incorporated by reference; more than 7,000 are non-government standards

In Procurement

- ▶ DOD, NASA and GSA maintain lists of standards suitable for use in procurement actions
- ▶ More than 10,000 standards are incorporated by reference by agencies for procurement purposes

Top Sources of Standards used by Federal Government

- ▶ ASTM International
- ▶ American National Standards Institute
- ▶ American Society of Mechanical Engineers
- ▶ Society of Automotive Engineers
- ▶ National Fire Protection Association
- ▶ American Petroleum Institute
- ▶ International Maritime Organization
- ▶ AOAC International
- ▶ Insulated Cable Engineers Association
- ▶ Underwriters Laboratories, Inc.

updated 9/9/10

In Numbers...

Federal Participation in Private Standards Development

More than **3,300 federal government staff** participate in private sector standards development activities

355 NIST staff participate in

891 Committee Activities in

105 Standards Developing Organizations (SDOs)

Standards Information Source:

www.standards.gov

NIST created Standards.gov to be a federal standards resource

- ▶ Its database of standards incorporated by reference may be searched by agency, SDO and keyword
- ▶ It has the text of the NTTAA, OMB Circular A-119, the NIST Guidance on Federal Conformity Assessment Activities and more
- ▶ NIST has an electronic database for identifying NIST participants in voluntary standards
 - ▶ **Allows us to coordinate and report standards activities**

Department of Transportation

Uses standards to meet its regulatory safety mission across all modes of transportation,

- including supporting data collections and international harmonization (e.g., International Civil Aviation Organization, International Maritime Organization, UN Dangerous Goods Requirements,).

Funds development of standards to enable and even accelerate widespread deployment of interoperable technologies, worldwide

- Example: Intelligent Transportation Systems standards

Summary

- ▶ Under the NTTAA, NIST coordinates federal use of voluntary consensus standards and conformity assessment activities
- ▶ The U.S. Government is a strong participant in the standards process, but does not oversee the system
- ▶ At last count, more than 7,000 private sector standards were incorporated by reference into federal regulations with a similar number for procurement
- ▶ More than 3,300 federal government staff participate in private sector standards development activities
- ▶ Individual federal agencies, such as DOT, make effective use of private sector standards in applications ranging from protecting health and safety to spurring innovation

For more information:

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