

NIST

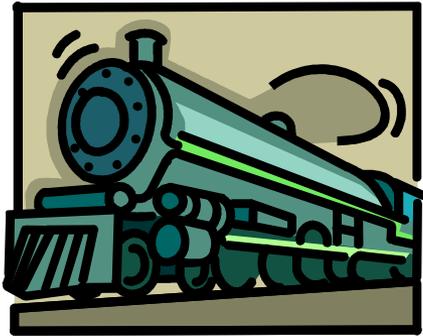
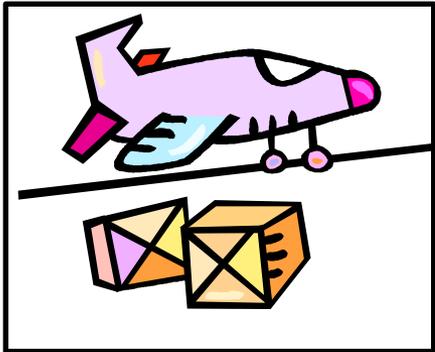
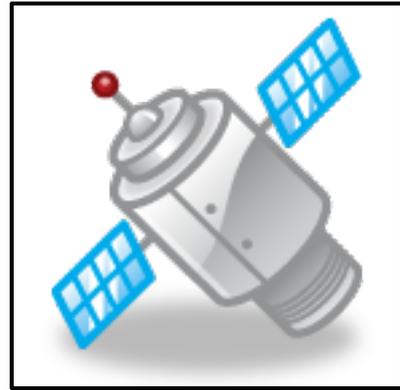
Standards Coordination Office



Fundamentals of Standards

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Standarddefined

Document, established by **consensus** and approved by a recognized body, that provides for common and repeated use, rules, guidelines or characteristics for **activities or their results**, aimed at the achievement of the optimum degree of order in a given context. Note. Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.

(ISO/IEC Guide 2:2004 Standardization and related activities—General vocabulary)

Today's Discussion

- Standards mandates
- NIST's role and responsibilities
- U.S. Standards Landscape
- Key Players and Organizations
- International standards
- Back to NIST

USG Standards Mandate

Law and policy require Federal agencies to use international voluntary consensus standards in procurement (buying stuff) and regulation, except where inconsistent with law or not practical:

- Trade Agreements Act of 1979, as amended
- National Technology Transfer and Advancement Act (NTTAA), March 7, 1996
- Office of Management and Budget (OMB) Circular A-119 Revised: Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities, February 10, 1998
- WTO TBT Agreement

NTTAA: National Technology Transfer and Advancement Act

Federal agencies are directed to adopt voluntary consensus standards, wherever possible, instead of creating proprietary, non-consensus standards.

Directs NIST to coordinate the standards and conformity assessment activities of federal agencies, as well as state and local governments with the private sector to reduce unnecessary duplication and complexity of conformity assessment schemes.

SOURCE: <http://www.nist.gov/standardsgov/nttaa.cfm>

(Google standards.gov)

OMB Circular A-119

All federal agencies must use voluntary consensus standards in lieu of government-unique standards in their procurement and regulatory activities, except where inconsistent with law or otherwise impractical.

Gives preference to performance standards when such standards may reasonably be used in lieu of prescriptive standards.

Agencies are encouraged to participate in and consult with voluntary consensus standards bodies, both domestic and international

SOURCE: <http://www.nist.gov/standardsgov/omba119.cfm>

WTO Technical Barriers to Trade Agreement

The US is a signatory to the WTO TBT Agreement – which requires all WTO members to subscribe to basic principles of standards setting and adoption so Standards are not used as Technical Barriers to Trade.

NIST 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.

Key Player – NIST



- Serves as the National Measurement Institute in the U.S.
- Approximately 1/3 of NIST technical staff participate in standards development activities
- Provides substantial technical contributions in thousands of standards committees and management committees
- A leader in the development and implementation of U.S. standards policy

U.S. Standards Landscape

1. American National Standards Institute (ANSI)
2. National Institute of Standards and Technology (NIST)
3. Standards Developing Organizations (SDO)
4. Consortia Standards Setting Organizations
5. International Players
6. Committee members who provide technical input

Key Player - ANSI



- Federation of about 1,000 members
- Founded in 1918 by five professional/technical societies and three federal government agencies
- Coordinates the U.S. standards system
- Does not write standards
- Accredits standards developers: 229 SDO's are ANSI-accredited
- Represents the United States in the ISO and IEC

Key Players – Standards Developers

- **Professional Societies** whose members seek to advance their professions, and also develop standards
- **Trade Associations** promote their industry's products, and also develop standards
- **Organizations that only develop standards**



Key Player - Consortia

Consortia are groups of companies or individuals that come together to create a standard

Characteristics:

- Arose in 1980s to meet changing technological needs
- Original advantage: Quick Turn around!
- In early days: it was “pay to play” game
- Consortia are now common in all sectors
- Enormous variation among consortia in terms of openness, transparency and consensus



Advancing Learning Impact by Enabling the Open Foundation for Seamless, Agile and Information-Rich Educational Technology Integration

Key Player - Committee Members

- Committee members create the standards by providing the technical input
- They are the heart and soul of standards

The U.S. Standardization Model – “One Approach Among Many”

The U.S. “standardization” model reflects;

- economic structure: sector-based and driven by market needs
- culture and traditions
- government/private sector dynamics

The U.S. Standards System

- Voluntary
- Decentralized
- Sector and market driven
- Competitive
- Duplicative (sometimes)

Standards development relies on cooperation and communication among many competing players:

- Industry
- Private sector standards organizations
- Stakeholders
- Government

Key Concepts in Standards Development

Openness

All stakeholders may participate; no single interest may dominate

Transparency

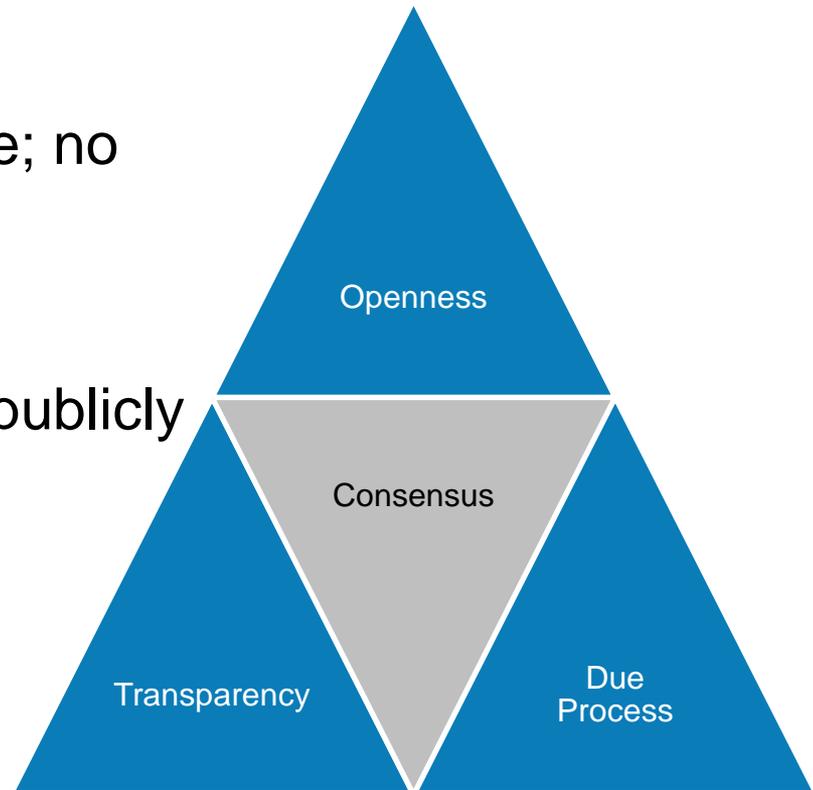
Records/ processes open and publicly available

Due Process

Appeals mechanism

Consensus

Decisions more than majority but not unanimity



What is Consensus?

General agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments.

NOTE: Consensus need not imply unanimity. (ISO/IEC GUIDE 2:2004)

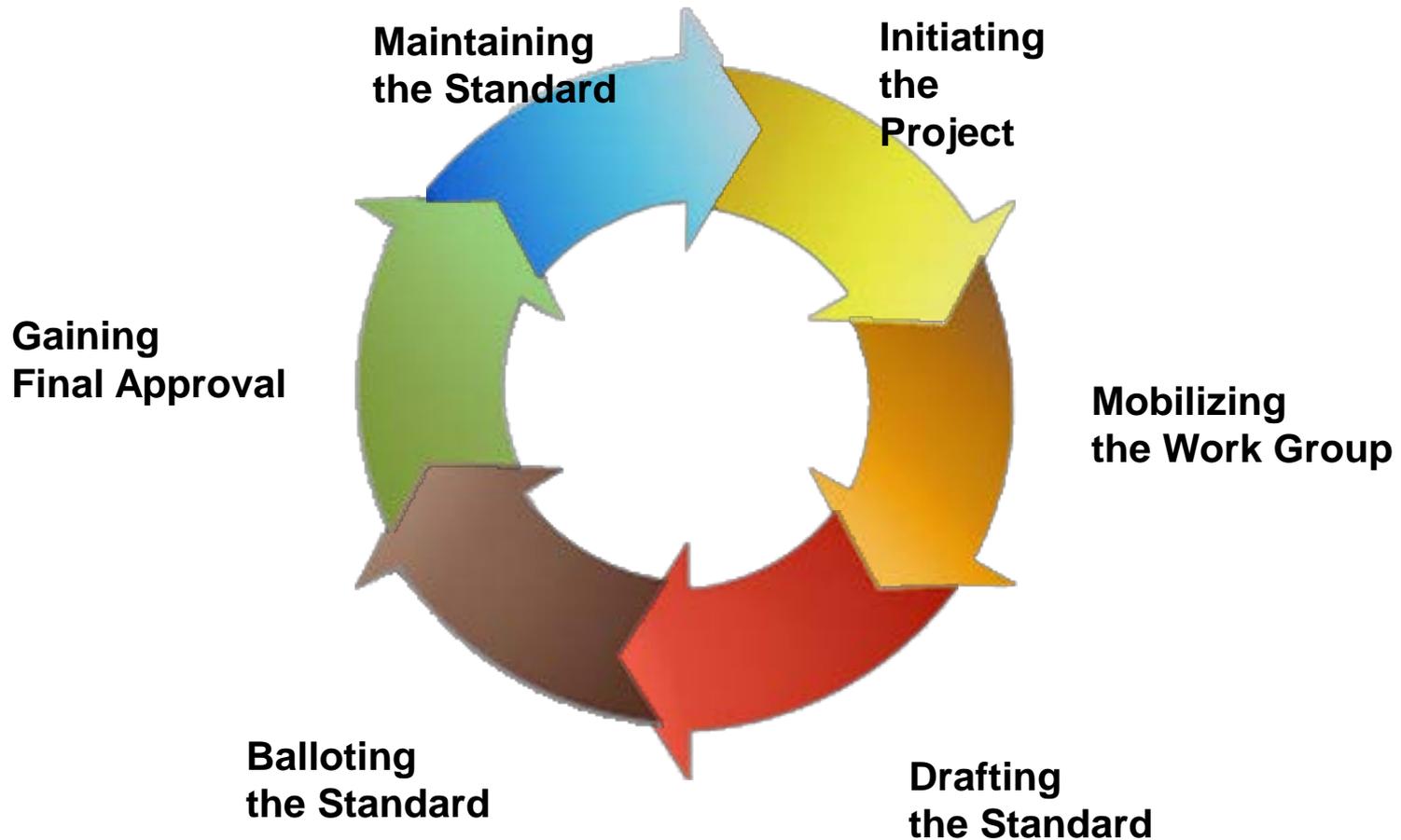
General agreement, but not necessarily unanimity, and includes a process for attempting to resolve objections by interested parties, as long as all comments have been fairly considered, each objector is advised of the disposition of his or her objection(s) and the reasons why, and the consensus body members are given an opportunity to change their votes after reviewing the comments.

(OMB Circular A-119)

Consensus

- The chair of the standards committee is responsible for determining if there is sufficient support and consensus to advance a standards draft standard to ballot
- Consensus is not equivalent to balloting.
- Consensus is a **process** and it needs to be achieved **in committee** at every stage of the process.

Standards Development Life Cycle



Consensus-Based Standards Development Process

- Standards are written in committee
- Stakeholders proposes subject matter
- Proposer usually present a first draft
- Discussed at length
- Incorporate changes
- Balloting process
- Consider comments
- Possible re-balloting
- Final approval and publication
- Review (typically, every 3-5 years)

How voluntary is a voluntary standard?

- The term voluntary creates confusion
- Voluntary because it is
 - developed the by private sector, for market needs
 - not legally binding (when referenced in Regulation it is mandatory)
 - created by participants who freely contribute and participate
 - When the standard is well recognized in the market, not abiding by its requirements is not a successful business strategy

International Dimension

What is an International Standard?

Key Players

Standards Organizations

World Trade Organization

Principles

Key Player - International Players

- International Organization for Standardization (ISO)
- International Electrotechnical Commission (IEC)
- International Telecommunication Union (ITU-T)
- U.S. domiciled standards developing organizations
- Treaty organizations (government based)
- Regional bodies

ISO (and IEC)



- Non-governmental
- Members are the national standards institutes of 164 countries; one per country
- Central Secretariat is in Geneva
- 224 technical committees in all fields except electrotechnical
- 19,573 standards published
- U.S. participates thru ANSI
- U.S. has a single voice in ISO committees

How the US is Organized for ISO Work

- U.S. participation in any ISO committee is decided by a consultative process managed by ANSI International Policy Committee (NIST is represented)
- ANSI usually appoints a willing U.S. SDO to manage U.S. representation in an ISO committee
- The SDO organizes a Technical Advisory Group, TAG (or mirror committee)
- TAG rules are published by ANSI but SDOs have some flexibility in the administration of TAGs
- Membership fees in TAGs vary
- In TAGs, USG agencies may have different positions

The WTO TBT Agreement



- Multilateral governmental agreement; all WTO members are bound by the Agreement
- Recognizes the right of countries to regulate at the level they consider appropriate
- Defines the legitimate objectives of technical regulations
- Aims to facilitate trade
- Focuses on technical regulations and related conformity assessment procedures
- Applies to the central and subcentral government bodies

What is an International Standard?

The WTO TBT Agreement states:

2.4 Where technical regulations are required and **relevant international standards** exist or their completion is imminent, **Members shall use them**, or the relevant parts of them, as a basis for their technical regulations **except** when such international standards or relevant parts would be an ineffective or inappropriate means for the fulfilment of the legitimate objectives pursued, for instance because of fundamental climatic or geographical factors or fundamental technological problems.

WTO TBT Decision on International Standards (2002)

The Decision established the following principles for the development of international standards.

- **Transparency**
- **Openness**
- **Impartiality and consensus**
- Effectiveness and relevance
- Coherence
- Development Dimension

The WTO TBT Agreement (2)

- Requires transparency – members are required “to notify” or announce proposed technical regulations so that other members can learn about the proposals and have an opportunity to comment
- Requires that products from any source be treated no less favorably than domestic and products
- Requires that technical regulations and conformity assessment procedures be no more trade restrictive than necessary
- Includes a Code of Good Practice for the Preparation, Adoption and Application of Standards

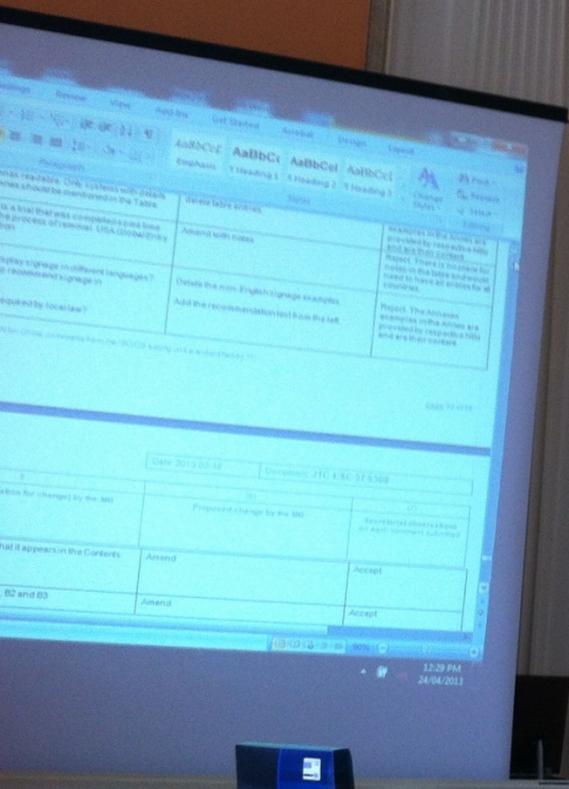
International Telecommunication Union



- ITU is the United Nations specialized agency for information and communication technologies (ICTs)
- Treaty-based organization
- Responsible for allocation of radio spectrum and satellite orbits, and for the standardization and development of ICTs worldwide
- Membership is comprised of 193 voting member states and 700+ non-voting private sector entities and academic institutions
- Secretary-General based in Geneva +12 offices around the world
- U.S. participates through State Department
- U.S. has a single voice in ITU committees

How it all relates

Two examples to illustrate NIST's roles in standards setting



Meet Mike Hogan in ITL

Mike started work at NIST in 1974 developing industry requested calibration services and NBS SRMs for magnetic computer storage media



Measurement Standards

Developed Voluntary consensus Standards, INCITS/American National Standards, ISO, ECMA for data interchange – these standards cite NBS measurement standards



Documentary standards

Vendors asserted their conformance to those standards



Conformity Assessment: First party testing, Suppliers Declaration of Conformance SDoC

And, GSA had the products tested at NIST for conformance, approved products for USG purchase

Setting standards to respond to Biothreats



- Jayne Morrow and Nancy Lin in MML
- Post 9/11 Bioterrorism: Hart Senate Office Building, ABC News Hqs
- DHS recognized a standards gap: No standards for biothreat detection or on-site response
- NIST worked with stakeholders and led the development of consensus standards ASTM E2458-10 and ASTM E2770-10

Setting standards to respond to Biothreats

The standards provide methods for collecting suspicious powders and guidelines for developing an initial response to a suspected biothreat

These Standards have led to confidence in suspicious powder collection and new training exercises to better coordinate among local, state, and federal responders.

- ASTM E2458-10 Standard practices for bulk sample collection and swab sample collection of visible powder. . . .
- **ASTM E2770-10 Standard Guide for Operational Guidelines for Initial Response to a Suspected Biothreat Agent**

Resources You Need to Know About

NIST's National Center for Standards Information – NCSI

Standards Services staff can find any standard you (or your boss) needs. **Call Anne Meininger, ext. 2921 or ext. 4040**

SCO's Standards Services

Untangling a standards mess, helping you understand and build a standards strategy, helping build a conformity assessment program, training, and more. **Call Gordon Gillerman, ext. 8406**

Standards.gov website – Information, documents, connections to keep you informed about the USG and standards setting and implementation.

Thank You

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