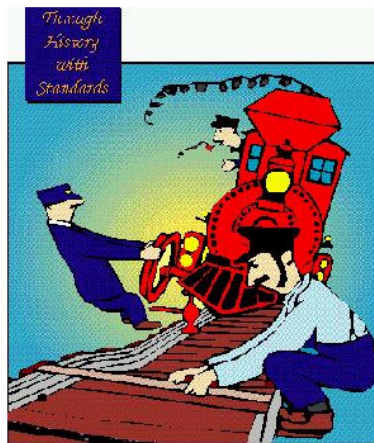
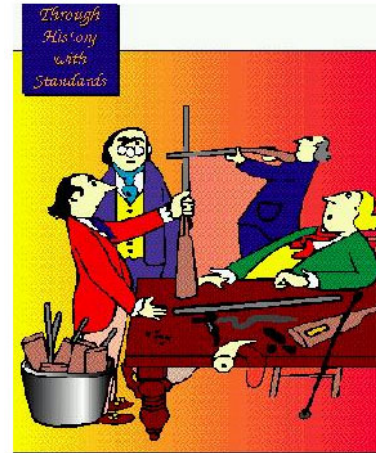
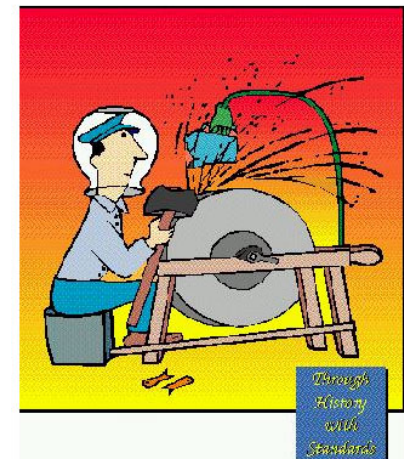




Nanotechnology Standardization Activities – Domestic and Global –



A quick trip through history



Impact of Standardization

*Roughly **80 percent** of global merchandise trade is affected by standards and by regulations that embody standards.*

Source:

National Institute of Standards and Technology

Testimony before the U.S. House of Representatives

*Committee on Science, Subcommittee on
Technology*

September 13, 2000

Key Terms

Standards

Market-driven product and service specifications (e.g., technical requirements, management systems, etc.)

Regulations

Mandatory technical specifications, which may include particular standards or conformity assessment procedures

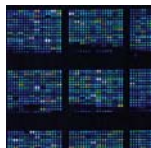
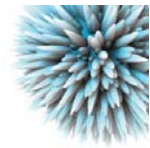
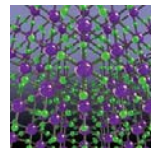
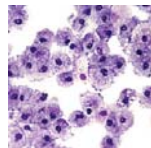
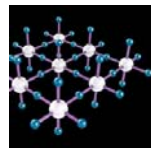
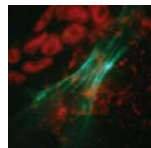
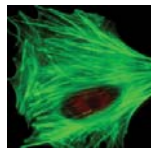
Conformity Assessment

Processes and systems used to verify the compliance of a product to either a standard or a regulation (e.g., testing, certification)



Why Nanotechnology Standards Are Important

- Encourage the development and commercialization of new technologies
 - ◆ Improve communication among stakeholders
 - ◆ Foster innovation – encourage diffusion of new technologies
 - ◆ Lower barriers to market entry
 - ◆ Promote market efficiency
- Protect public health and environment
 - ◆ Serve as one of the bases for regulations





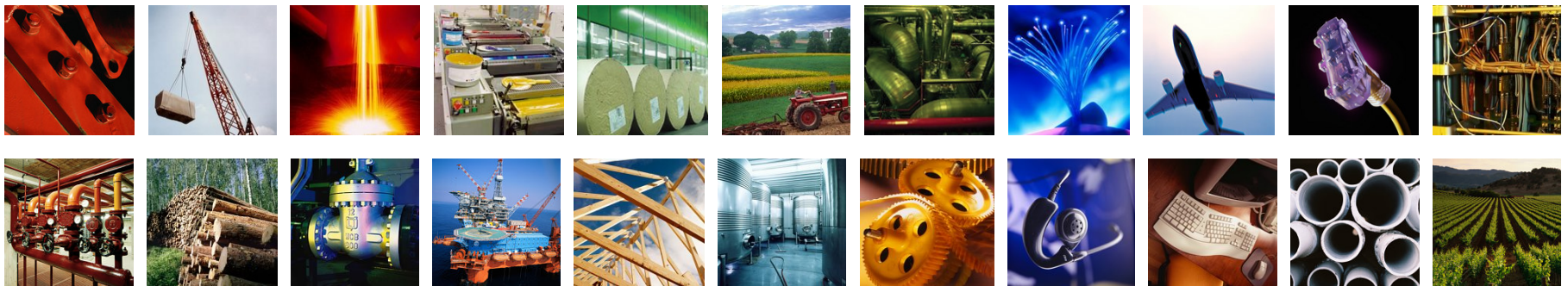
ANSI leads the U.S. private-sector led standards and conformity assessment systems

- Advances the national economy
- Benefits the public health, safety, welfare and environment
- Facilitates domestic and international trade, commerce, communications and understanding



The ANSI Federation represents more than **125,000 companies and organizations** and **3.5 million professionals** worldwide

The **ANSI mission** is to enhance the global competitiveness of U.S. business and the American quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems and ensuring their integrity



ANSI's Representation of U.S. Interests

- U.S. member of ISO
- U.S. member of the IEC, via ANSI's U.S. National Committee
- member of regional forums in the Pacific Rim and the Americas
- liaison with groups in Europe, Africa and the Middle East
- bilateral agreements with other national standards bodies

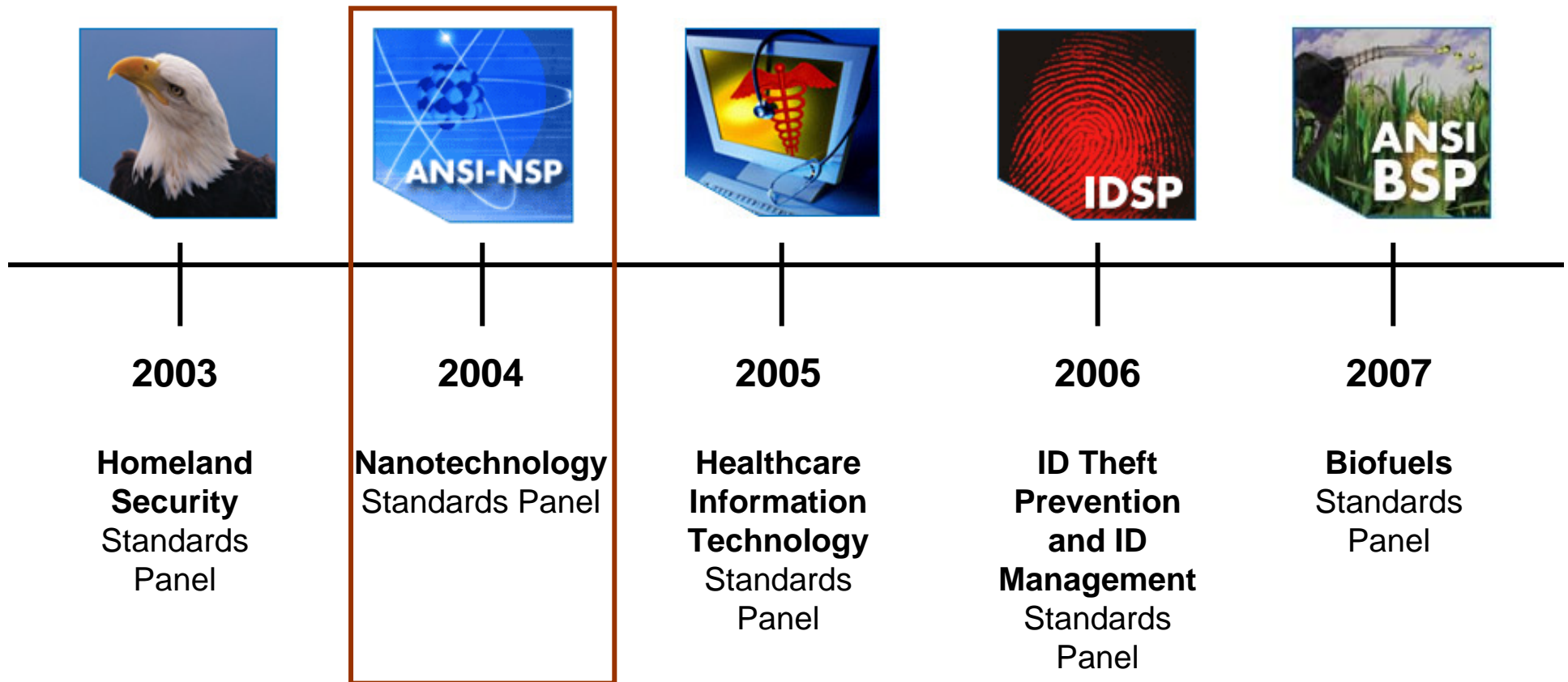


Facilitation, Coordination and Harmonization

■ ANSI's Standards Panels

- ◆ Cross-sector coordinating bodies established to promote the development and compatibility of voluntary consensus standards and conformity assessment programs necessary to support national and global priorities
 - ☞ Coordinate the efforts of the private and public sectors
 - ☞ Identify existing standards and compliance programs
 - ☞ Define where gaps exist
 - ☞ Recommend where additional work is needed

Standards and compliance solutions for domestic and global priorities



ANSI Nanotechnology Standards Panel (NSP) Formation



... I am writing to inquire whether the ANSI would consider coordinating the development of standards, including nomenclature, in the area of nanotechnology ...

— Dr. John Marburger, Director
Office of Science and Technology

Policy

Executive Office of the President
June 15, 2004



ANSI Nanotechnology Standards Panel

www.ansi.org/nsp

- A cross-sector coordinating body responsible for facilitating the development of standards supporting nomenclature/ terminology; materials properties; and testing, measurement and characterization procedures
- Chair
 - ◆ Dr. Clayton Teague, Director
National Nanotechnology Coordination Office
- Membership
 - ◆ Nearly 70 members representing academia, government, industry, standards developing organizations, and legal entities



U.S. Interface to ISO via Technical Advisory Groups

U.S. Leadership in ISO/TC 229



Algeria (IANOR)	Danemark (DS)	Luxembourg (SEE)	South Africa (SABS)
Argentina (IRAM)	Ecuador (INEN)	Malaysia (DSM)	Spain (AENOR)
Armenia (SARM)	Egypt (EOS)	Malta (MSA)	Sri Lanka (SLSI)
Australia (SA)	Ethiopia (QSAE)	Mauritius (MSB)	Sweden (SIS)
Austria (ON)	Finland (SFS)	Mexico (DGN)	Switzerland (SNV)
Azerbaijan (AZSTAND)	France (AFNOR)	Mongolia (MASM)	Syrian Arab Republic (SASMO)
Bahrain (BSMD)	Germany (DIN)	Morocco (SNIMA)	Tanzania, United Republic of (TBS)
Bangladesh (BSTI)	Ghana (GSB)	Netherlands (NEN)	Thailand (TISI)
Barbados (BNSI)	Greece (ELOT)	New Zealand (SNZ)	The former Yugoslav Republic of Macedonia (ISRM)
Belarus (BELST)	Hungary (MSZT)	Nigeria (SON)	Trinidad and Tobago (TTBS)
Belgium (IBN)	Iceland (IST)	Norway (SN)	Tunisia (INORPI)
Bosnia and Herzegovina (BASMP)	India (BIS)	Oman (DGSM)	Turkey (TSE)
Botswana (BOBS)	Indonesia (BSN)	Pakistan (PSQCA)	USA (ANSI) ←
Brazil (ABNT)	Iran, Islamic Republic of (ISIRI)	Panama (COPANIT)	Ukraine (DSSU)
Bulgaria (BDS)	Iraq (COSQC)	Philippines (BPS)	United Arab Emirates (ESMA)
Canada (SCC)	Ireland (NSAI)	Poland (PKN)	United Kingdom (BSI)
Chile (INN)	Israel (SII)	Portugal (IPQ)	Uruguay (UNIT)
China (SAC)	Italy (UNI)	Qatar (QS)	Uzbekistan (UZSTANDARD)
Colombia (ICONTEC)	Jamaica (JBS)	Romania (ASRO)	Venezuela (FONDONORMA)
Costa Rica (INTECO)	Japan (JISC)	Russian Federation (GOST R)	Viet Nam (TCVN)
Croatia (DZNM)	Jordan (JISM)	Saint Lucia (SLBS)	Zimbabwe (SAZ)
Cuba (NC)	Kazakhstan (KAZMEMST)	Saudi Arabia (SASO)	
Cyprus (CYS)	Kenya (KEBS)	Serbia and Montenegro (ISSM)	
Czech Republic (CSNI)	Korea, Democratic People's Republic (CSK)	Singapore (SPRING SG)	
Côte-d'Ivoire (CODINORM)	Korea, Republic of (KATS)	Slovakia (SUTN)	
	Kuwait (KOWSMD)	Slovenia (SIST)	
	Libyan Arab Jamahiriya (LNCSM)		



International Organization for Standardization (ISO)

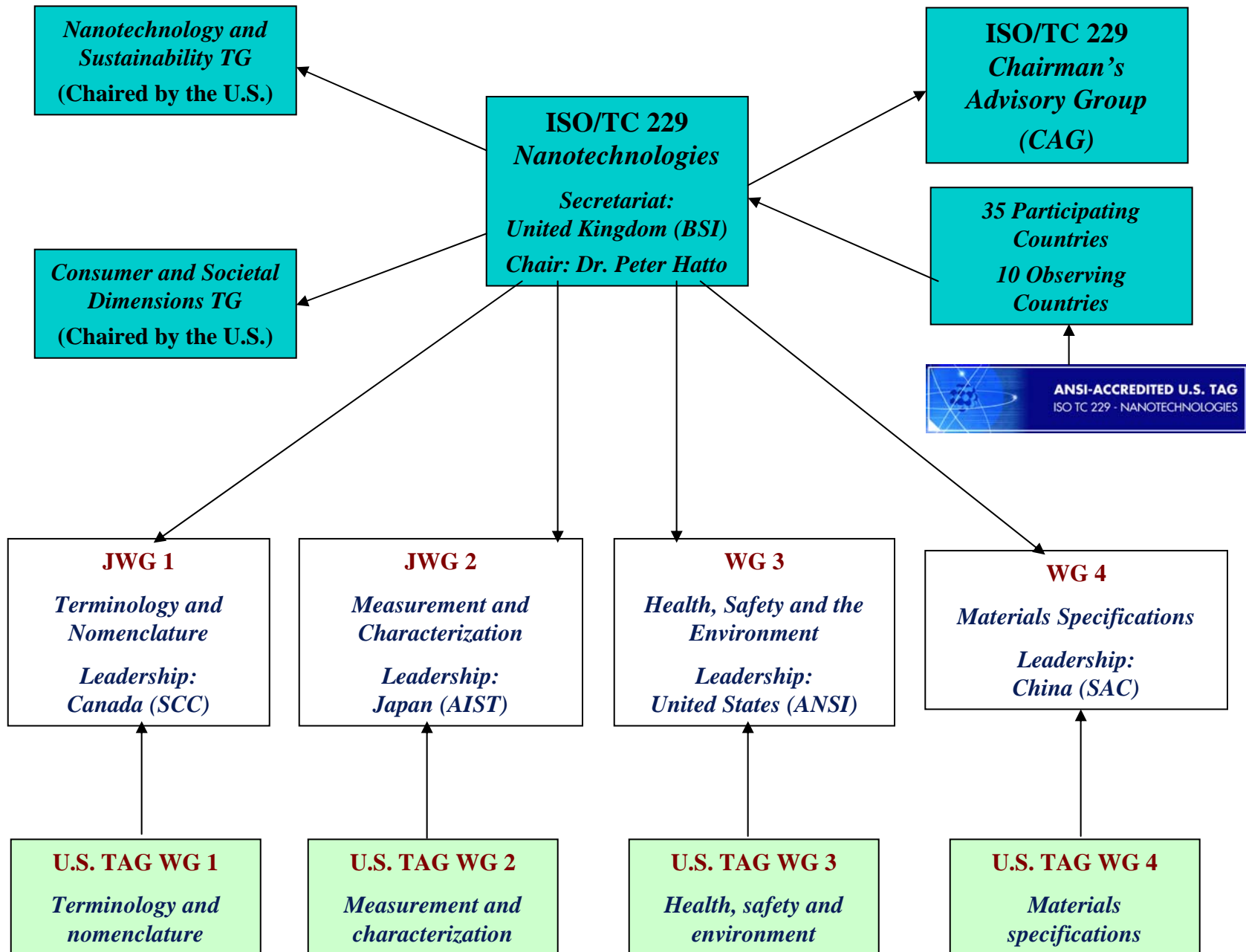
Between 1947 and the present day, ISO published more than 15,000 International Standards. ISO's work program ranges from standards for traditional activities, such as agriculture and construction, through mechanical engineering, to medical devices, to the newest information technology developments, such as the digital coding of audio-visual signals for multimedia applications.

ISO/TC 229, *Nanotechnologies*

- Established in June 2005
 - ◆ Led by the United Kingdom
 - ◆ Currently 35 Participating member bodies and 10 Observer member bodies
 - ◆ Works in cooperation (i.e., liaison) with organizations such as OECD, VAMAS, Asia Nano Forum and others



Specific tasks include developing standards for: terminology and nomenclature; metrology and instrumentation, including specifications for reference materials; test methodologies; modeling and simulations; and science-based health, safety, and environmental practices.



ISO/TC 229 *Working Groups*

Working Group 1

Terminology and Nomenclature

Define and develop unambiguous and uniform terminology and nomenclature in the field of nanotechnologies to facilitate communication and to promote common understanding.

Working Group 2

Metrology and Characterization

The development of standards for measurement, characterization and test methods for nanotechnologies, taking into consideration needs for metrology and reference materials.

Working Group 3

Health, Safety and Environment

The development of science-based standards in the areas of health, safety, and environmental aspects of nanotechnologies.

Working Group 4

Materials Specification

Scope still under development

ISO/TC 229 Programme of Work

http://www.iso.org/iso/standards_development/technical_committees/list_of_iso_technical_committees/iso_technical_committee.htm?commid=381983

A Mirror Image: The ISO/TC – U.S. TAG Relationship

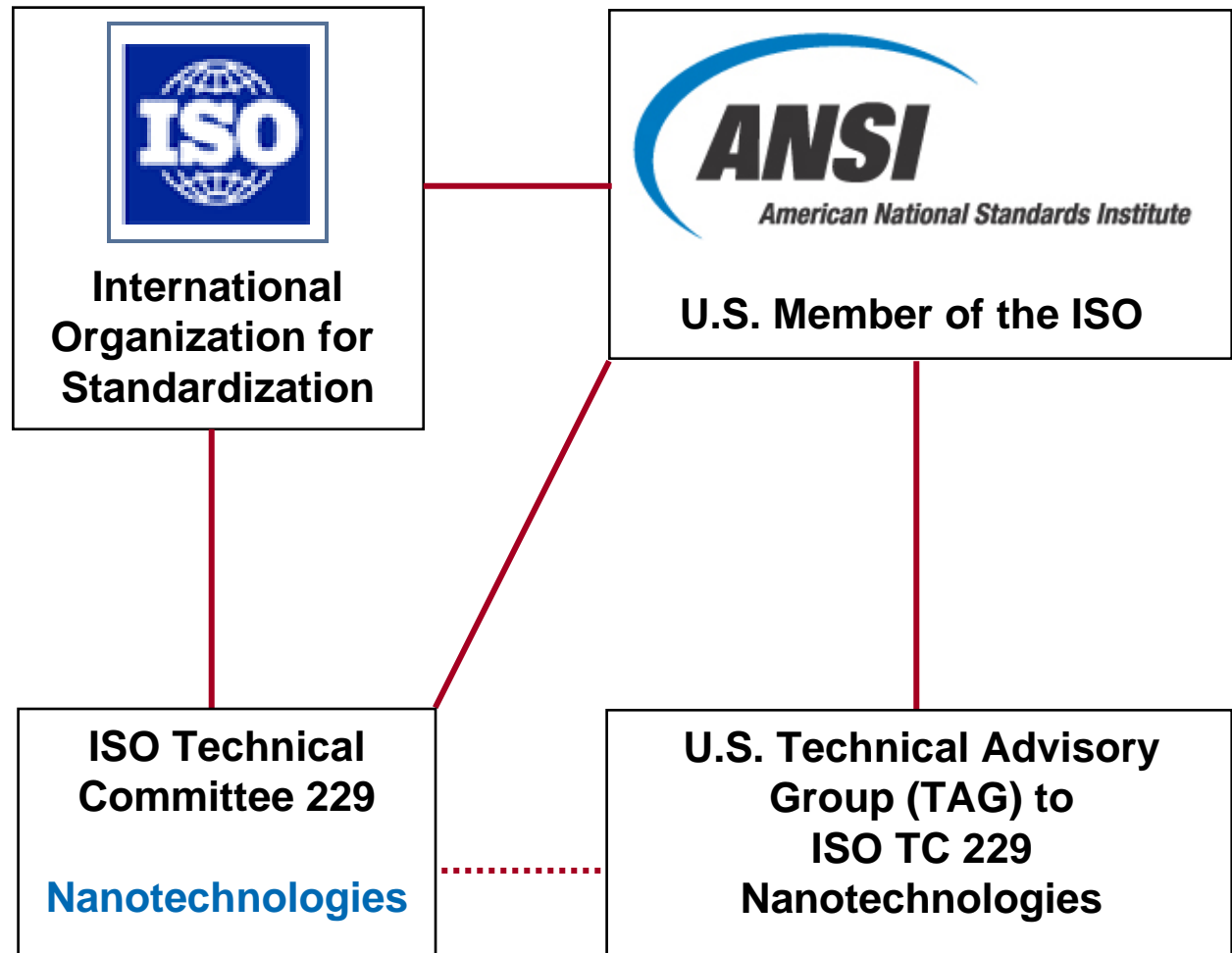
ISO Technical Committee

ANSI-Accredited
U.S. Technical Advisory Group



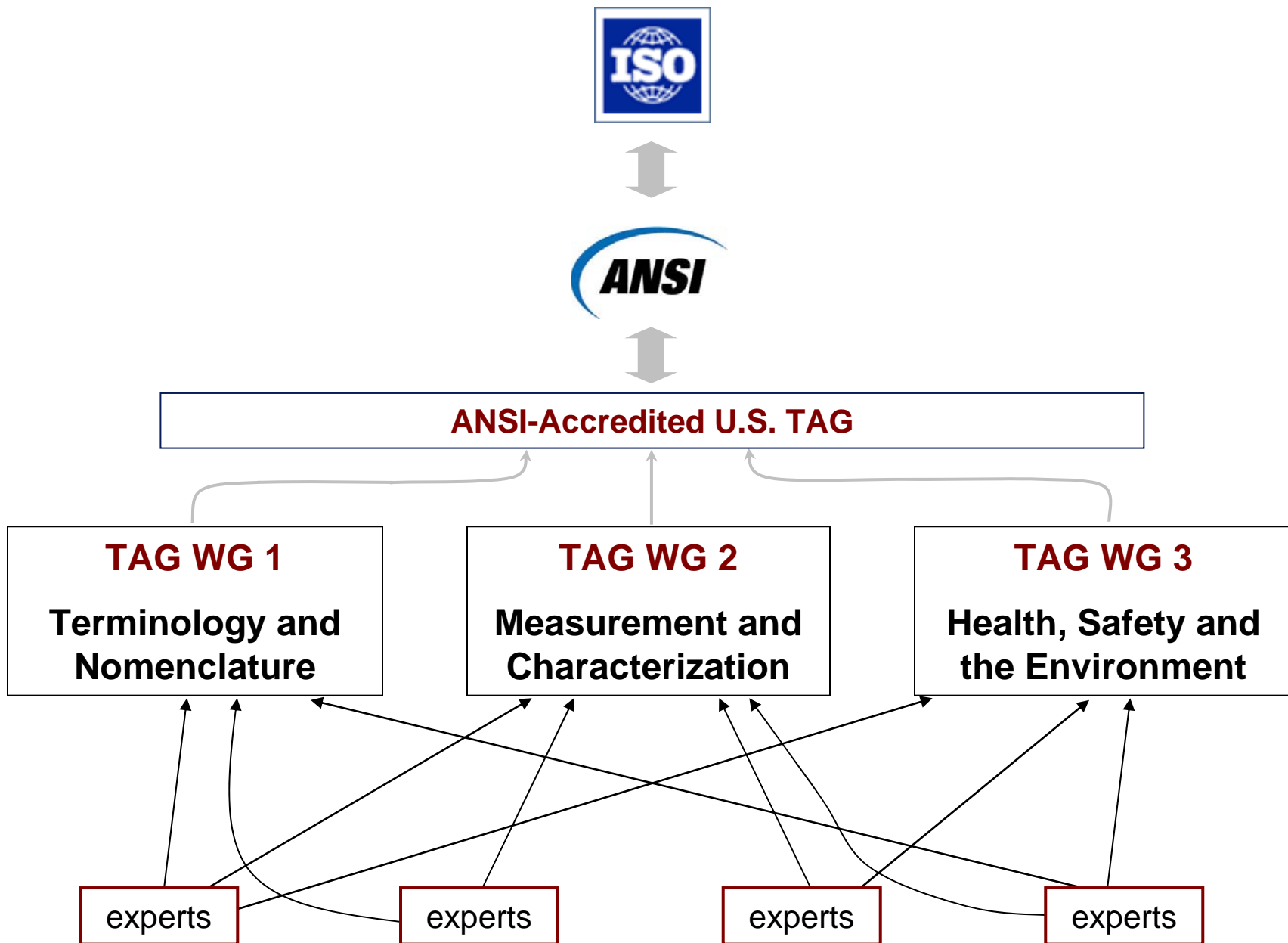
There is a **direct relationship** between the scope of an ISO TC and a corresponding U.S. Technical Advisory Group (TAGs)

Summary: Organizational Relationships



U.S. TAG to ISO/TC 229

- Over 55 members from various stakeholder organizations
 - ◆ Government, NGOs, SDOs, Industry, Academia
- Responsible for formulation of U.S. positions on technical and administrative issues brought before ISO/TC 229, including
 - ◆ Nominates and approves accredited experts to participate ISO/TC 229 Working Groups and Project Group activities
 - ◆ Nominates and approves delegates to attend ISO/TC 229 meetings
 - ◆ Develops and submits NWIP to ISO/TC 229 for standardization
- Within the United States, the U.S. TAG to ISO/TC 229 works cooperatively with the USNC TAG to IEC TC 113



Engage and Influence



Working Group experts

U.S. delegates

Project leaders

Committee officers

For more information



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