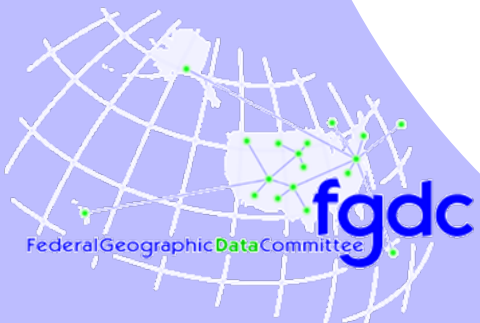


NSDI Standards

Introduction to NSDI Standards

An overview of the organizations and activities that drive the development of National Spatial Data Infrastructure standards





After completing this lesson, the student can:

- ▶ Explain the difference between a *de jure* standard and a *de facto* standard
- ▶ Discuss the benefits of implementing standards
- ▶ Identify key organizations that affect the development of NSDI standards
- ▶ Explain functional relationships among standards organizations
- ▶ Refer to the federal policies that affect geospatial standards development
- ▶ Describe the scope of FGDC standards program of work
- ▶ Identify the communities to which FGDC standards shall or may apply
- ▶ Participate in voluntary consensus standards bodies
- ▶ Access standards and information about standards organizations



What is a standard?

Definition of 'Standard'

- ▶ *[de jure]* Standards are documented *agreements* containing technical specifications or other precise criteria to be used *consistently* as rules, guidelines, or definitions of characteristics to ensure that materials, products, processes, or services are fit for their purposes - from ISO (International Organization for Standardization)
- ▶ Contrast with *de facto* standards, which have achieved recognition **not** through consensus, but through market dominance



What are the benefits of standards?

The use of standards

- ▶ facilitates the development, sharing, and use of geospatial data
- ▶ lowers technical barriers to trade and supports the missions of organizations including:
 - World Trade Organization (WTO)
 - North American Free Trade Agreement (NAFTA)



Technical Barriers to Trade

WTO Technical Barriers to Trade (TBT) Agreement

- ▶ Requires that technical regulations “are not prepared, adopted or applied with a view to, or with the effect of, creating unnecessary obstacles to trade”
- ▶ Encourages members to use international standards for national regulations, unless “their use would be ineffective or inappropriate” to fulfill a given policy objective
- ▶ Encourages members to participate in the work of international bodies for the preparation of standards and guides or recommendations for conformity assessment procedures



Technical Barriers to Trade

NAFTA TBT Language

- ▶ Prohibits standards-related measures that create an unnecessary obstacle to trade between the U.S., Canada, and Mexico.
- ▶ Directs the U.S., Canada, and Mexico to use international standards, except where these standards are ineffective or inappropriate for fulfilling *legitimate* objectives, due to particular climatic, geographical, technological or infrastructural factors, and scientific justification.
- ▶ Permits the U.S., Canada, and Mexico to adopt, maintain, or apply measures that result in a higher level of protection than with an international standard.



Standards Organizations

International Standards Organizations

► International Organisation for Standards (ISO)

ISO is a **network of national standards bodies** through which international voluntary consensus standards are developed. The national standards bodies may be either governmental or non-governmental organizations

■ ISO Technical Committee 211

supports standardization of *geographic information*

► Open Geospatial Consortium (OGC)

consortium of government, private, non-profit and academic organizations dedicated to the development of publicly available interface specifications that **'geo-enable' the Web, wireless and location-based services**



Standards Organizations

US National Standards Organizations (non-federal)

- ▶ American National Standards Institute (ANSI)
U.S. standards body that oversees the creation, promulgation and use of norms and guidelines that impact nearly every sector
- ▶ InterNational Committee for Information Technology Standards (INCITS)
a non-governmental organization sponsored by the Information Technology Industry Council (ITI) focused upon Information and Communications Technologies standards
 - INCITS Technical Committee L1
adopts or adapts information technology standards and developing standards used in creating, defining, describing, and processing digital geographic data



Standards Organizations

U.S. Federal Standards Organizations

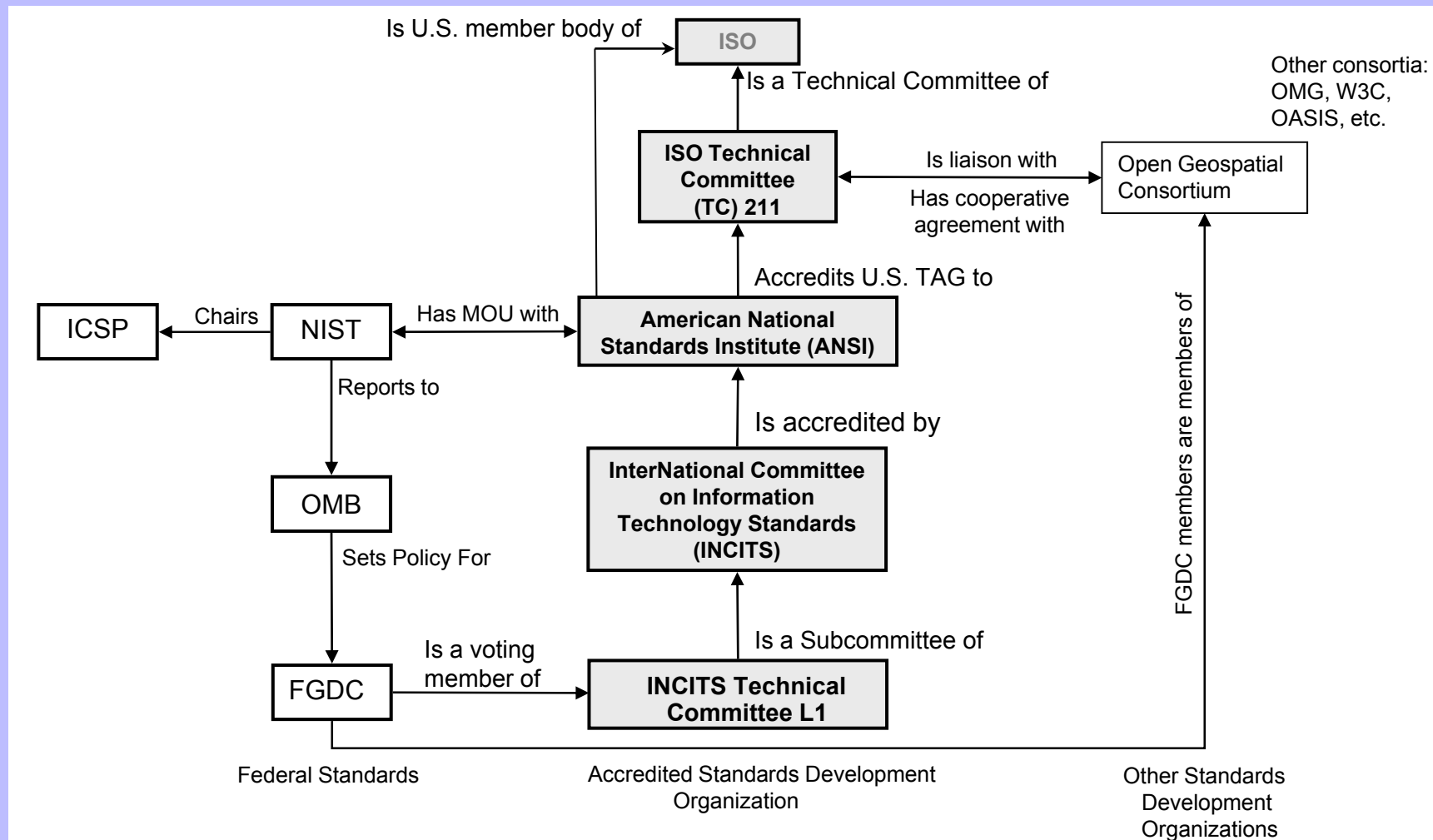
- ▶ Federal Geographic Data Committee (FGDC)

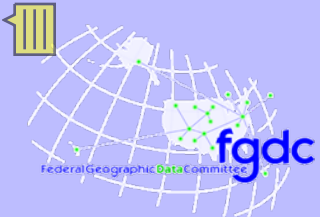
Federal interagency committee charged with the leadership, development, implementation, and review of spatial data standards

- ▶ National Institute for Standards and Technology (NIST)

Non-regulatory federal agency that coordinates standards activities with responsible government agencies to use voluntary standards to the extent practicable, to participate appropriately in their development, and to ensure that they meet Federal agency needs

Functional Relationships Among Standards Organizations





Functional relationships

- ▶ ISO TC 211 focuses on abstract specifications, design framework, and international political consensus
- ▶ The Open Geospatial Consortium specializes in extending the abstract model into implementation specifications
- ▶ FGDC and INCITS Technical Committee L1 support the development of thematic data content standards.
- ▶ Organizations such as the Internet Engineering Task Force (IETF) and World Wide Web Consortium (W3C) develop the Web infrastructure that support online geographic information applications



US Federal Standards Policy

OMB Circular A-119

- ▶ directs Federal agencies to:
 - use voluntary consensus standards in lieu of government-unique standards whenever possible
 - participate in voluntary consensus standards bodies
- ▶ defines a voluntary consensus standards body as abiding by the principles of:
 - openness
 - balance of interest
 - due process that gives fair consideration to all objections
 - consensus, that is, general agreement, but not necessarily *unanimity*



FGDC-related Federal Directives

OMB Circular A-16 Revised (August 19, 2002)

directs Federal agencies to:

- ▶ use FGDC data standards, FGDC Content Standard for Digital Geospatial Metadata, and other appropriate standards
- ▶ develop and implement relevant FGDC standards for NSDI data themes

EO 12906/13286

directs the FGDC to:

- ▶ develop standards for implementing the NSDI with non-Federal organizations, consistent with OMB Circular No. A-119 and other applicable law and policies



FGDC Standards Program of Work

Twenty-two endorsed standards including:

► Data Exchange and Integration

- Geospatial Metadata Spatial Data Transfer
- Positional Accuracy US National Grid

► Cartography and Classifications

- Vegetation Wetlands & Deep Water Habitats
- Geological Symbolization

► Thematic Content

- Cadastral Soil Utilities
- Remote Sensing Swath Orthoimagery



FGDC Standards Program of Work

Twenty-one standards in development including:

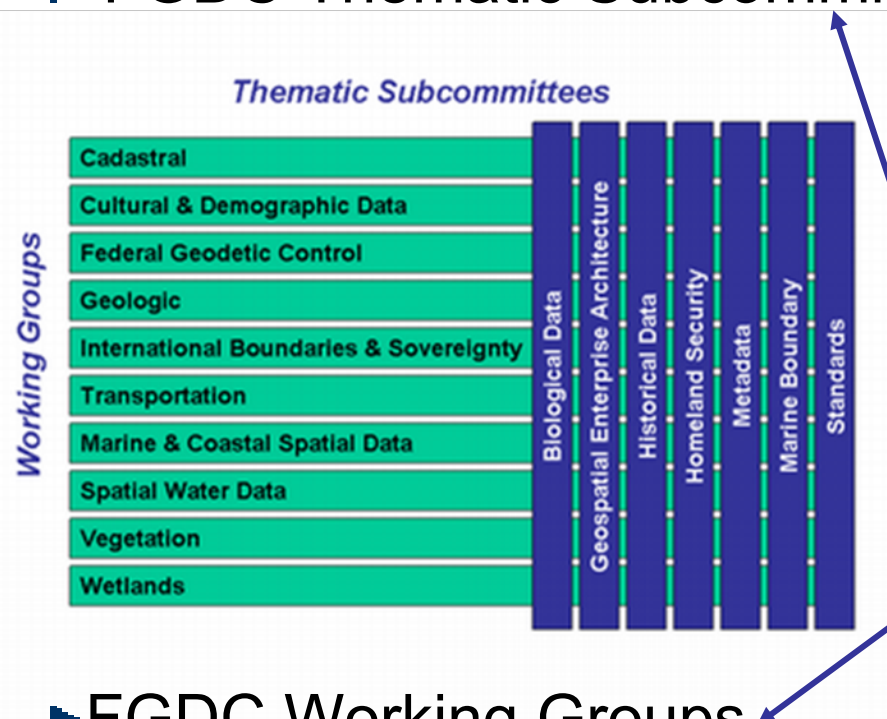
- ▶ Data Exchange and Integration
 - ISO 19115 Geospatial Metadata
- ▶ Cartography and Classifications
 - Biological Vegetation (rev) Riparian and Wetland
 - Geologic Model and Symbolization
- ▶ Thematic Content
 - Elevation Trails Hydrography
 - Earth cover Shoreline Gov't Boundary
 - Facilities Street Address



Who participates in the development of FGDC Standards?

Standards are developed by:

► FGDC Thematic Subcommittees



Comprised of representatives from Federal agencies and FGDC recognized stakeholder groups who share a common interest in

- specific types of geospatial data or
- cross-cut or affect several data theme-based subcommittees

► FGDC Working Groups



Who participates in the development of FGDC Standards?

Standards are reviewed by:

- ▶ **FGDC Standards Working Group**

Representatives from Federal agencies and FGDC recognized stakeholder groups with interest in the development of geospatial data standards

- ▶ **Public Review**

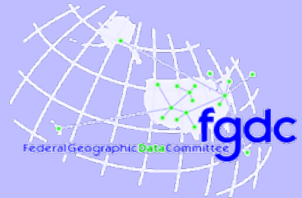
A formal, multistage process in which the draft standard is made available for review by the public and comments are submitted using a standardized, formatted table



Who uses FGDC standards?

Federal Agencies

- ▶ OMB Circular A-16 states, “Federal agencies collecting or producing geospatial data, either directly or indirectly (e.g. through grants, partnerships, or contracts with other entities), *shall* ensure, prior to funds for such activities, that data will be collected in a manner that meets all relevant standards adopted through the FGDC process.”



Who uses FGDC standards?

Non-federal Geospatial Data Developers

- ▶ Non-Federal agencies are encouraged, not required, to use FGDC standards to promote data sharing, except as noted above
- ▶ Many state, local, tribal and non-U.S government agencies have adopted and implemented FGDC standards



For more information

Related Websites:

- ▶ WTO - Technical barriers to trade,
http://www.wto.org/english/tratop_e/tbt_e/tbt_info_e.htm
- ▶ NAFTA Chapter Nine: Standards-Related Measures,
<http://www.mac.doc.gov/nafta/chapter9.html>
- ▶ EO 12906/13286 and OMB Circulars A-16 and A-119
<http://www.fgdc.gov/policyandplanning>
- ▶ FGDC Standards program of work
<http://www.fgdc.gov/standards/projects/FGDC-standards-projects/index.html>



For more information

Related Websites:

- ▶ Voluntary standards organizations

<http://www.fgdc.gov/standards/organization/external-standards-organizations>

- ▶ FGDC Standards publications

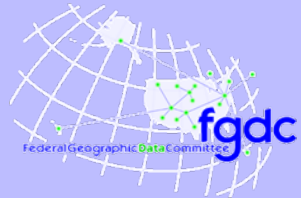
http://www.fgdc.gov/standards/standards_publications



This is the conclusion of: Introduction to NSDI Standards.

You should be able to:

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Additional Lessons

The FGDC invites you to visit

<http://www.fgdc.gov/training/nsdi-training-program/online-lessons>

for additional lessons.