Overview of National Spatial Data Infrastructure (NSDI) Framework and National Geospatial Data Assets (NGDA) GeoGov 2024

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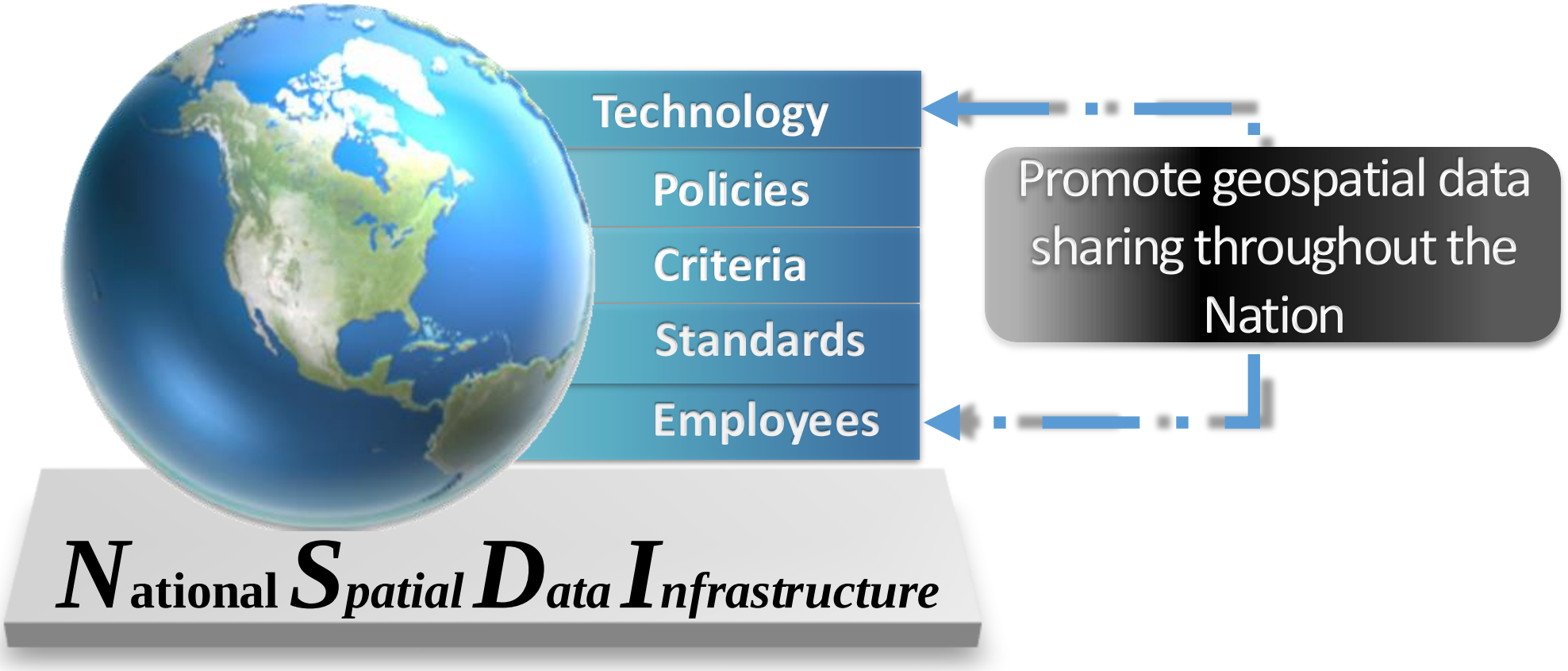
National Spatial Data Infrastructure (NSDI)

Data Conditions:

- Partnerships
- Leadership
- Resourcing
- Program / Mission / Business driver
- Planning
- Data content
- Use requirements
- Goals / metrics

…



The NSDI "shall ensure that **geospatial data from multiple sources** (including the covered agencies, State, local and Tribal governments, the private sector and institutions of higher education) **is available and easily integrated** to enhance the understanding of the physical and cultural world".

Geospatial Data Act of 2018

Data in Geospatial Policy, Planning, and National Priorities

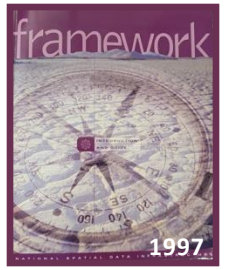
Policy

- **OMB A-16 Revised 1990** — FGDC / 13 Agencies
- **Executive Order 12906 FGDC / NSDI 1994 / 2003** — FGDC / NSDI
- **OMB A-16 Revised 2002** — FGDC / NSDI / Framework 19 to 32 Agencies
- **OMB A-16 Supplemental Guidance 2010** (E-GOV) — Federal Geospatial Portfolio Management
- **CONGRESS: Geospatial Data Act of 2018** — NSDI / NGDAs
- **OMB A-16 Revised 202-**

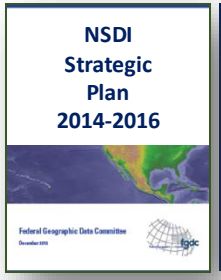
1990 | 1995 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035

Planning

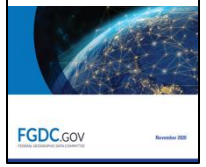
NSDI Cooperative Agreements Program (CAP) 1994-2012 (Framework Category)



- National Geospatial Advisory Committee Established 2008
- NSDI Strategic Plan 2014-2016



- FGDC.GOV NSDI Strategic Framework 2016
- FGDC.GOV NSDI Strategic Plan 2019-2022
- NSDI Strategic Plan 2021-2024



- NSDI Strategic Plan 2025 – 2035

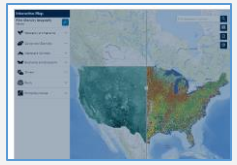
Shared data for National Priorities

GeoPlatform.gov — Gulf Oil Spill 2010

Recovery.gov - Shovel-ready projects

CMRA — Climate Mapping for Resilience and Adaptation

Hurricane Data Viewers



American Conservation and Stewardship Atlas

Climate and Economic Justice Screening Tool

Broadband Data Act
FLAIR Act (Federal lands inventory)
MapLand Act (Public land access)

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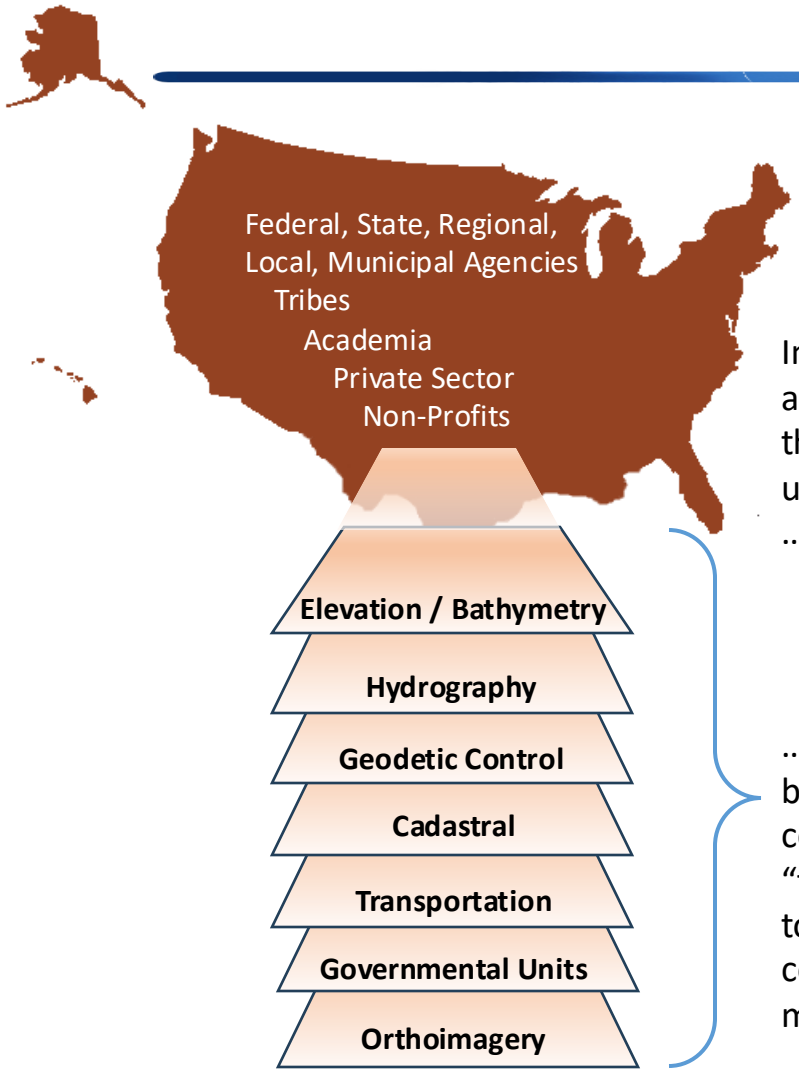
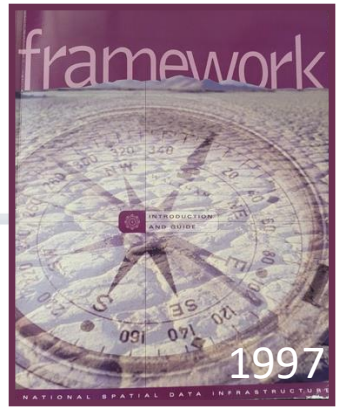
NSDI Framework – 1997



In a geographic area, organizations that produce and use geospatial data …

… collaboratively build and maintain commonly used "framework" data to provide a common base for many uses.



- 7 Themes of digital geographic data that are commonly used
- Procedures, technology, and guidelines that provide for integration, sharing, and data use
- Institutional relationships and business practices that encourage the maintenance and use of data
- "Data you can trust" – the best available data for an area, certified, standardized, and described to a common standard
- **Provides a foundation on which organizations can build by adding their own detail and compiling other data sets**

FGDC – NSDI Framework

OMB A-16, 2002 – Appendix E: NSDI Themes, Definitions, Lead Agencies

- Baseline (Maritime)
- Biological Resources
- Cadastral
- Cadastral (Offshore)
- Climate
- Cultural and Demographic Statistics
- Cultural Resources
- Digital Ortho Imagery
- Earth Cover
- Elevation Bathymetric
- Elevation Terrestrial
- Buildings and Facilities
- Federal Land Ownership Status
- Flood Hazards
- Geodetic Control
- Geographic Names
- Geologic
- Governmental Units
- Housing
- Hydrography
- International Boundaries
- Law Enforcement Statistics
- Marine Boundaries
- Offshore Minerals
- Outer Continental Shelf Submerged Lands
- Public Health
- Public Land Conveyance (patent) Records
- Shoreline
- Soils
- Transportation
- Transportation (Marine)
- Vegetation
- Watershed Boundaries
- Wetlands

Total: 34

Framework Themes

- Themes of national significance, providing the core, most commonly used base data, are framework data
- Specifically – the 7 listed in the framework (divided into 9 by Circular A-16)
- Other **themes of national significance** are also an important part of the NSDI and must be available to share

National Geospatial Data Assets (NGDAs)

"In 2010 and 2011, Federal data managers for geospatial data will move to a **portfolio management approach …** *President's Budget, Fiscal Year 2011*

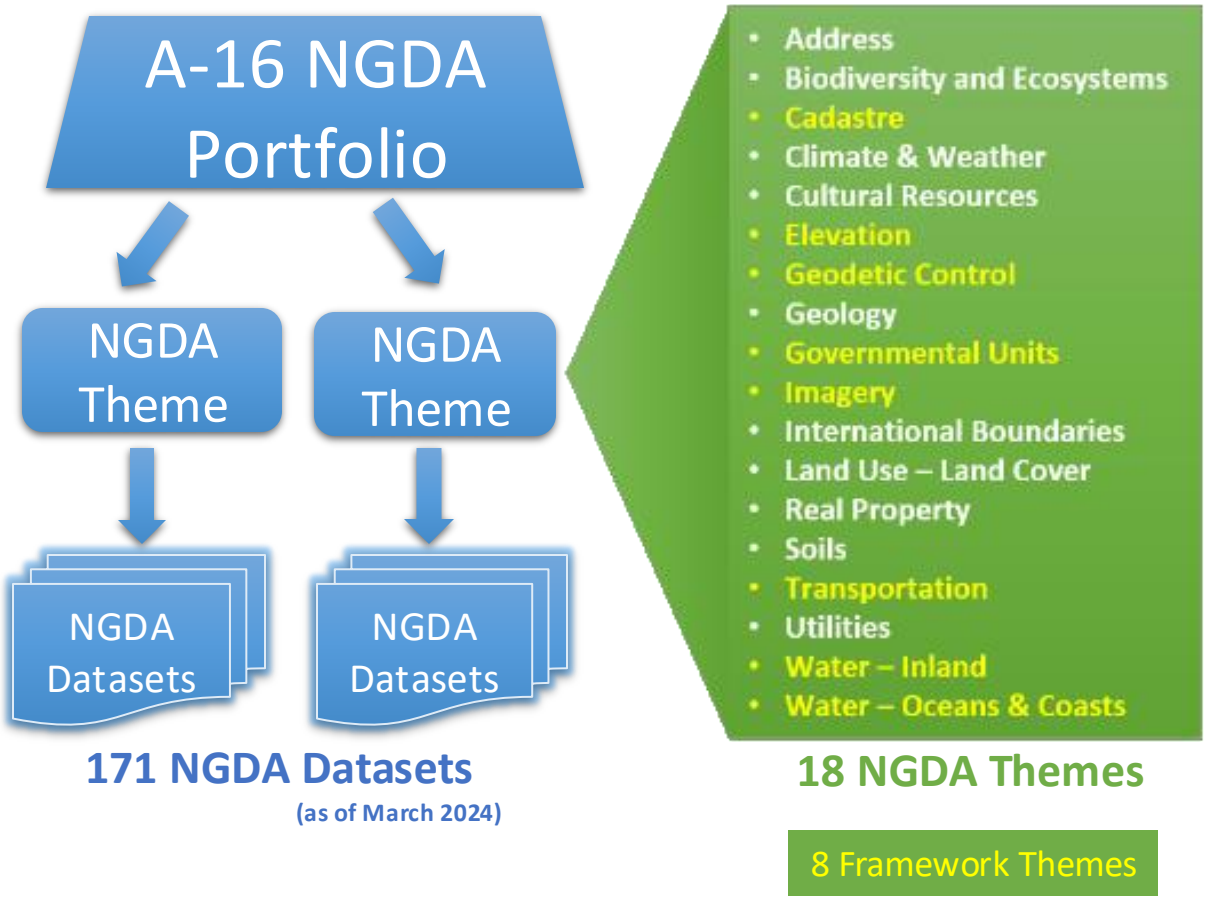
- Federal agencies directed to shift focus from geospatial data lifecycle management to Federal geospatial portfolio management.
  - Intended to break down agency data silos by creating a single, Federal Geospatial portfolio of data available for addressing any priority or issue
- Circular A-16 Appendix E, Data Themes, was updated to:
  - Make the list of data more relevant and current
  - Normalize the list for management purposes
  - Align it into a dataset to theme portfolio management structure
  - In some cases, to align with agency oversight and mission responsibilities

NGDA Themes and Dataset Structure – Established 2011

NGDA Selection criteria

(one or more)

- Used by multiple agencies or with agency partners such as State, Tribal and local governments
- Needed for Presidential priorities as expressed by OMB
- Required to meet shared mission goals of multiple Federal agencies
- Expressly required by statutory mandate



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http://www.fgdc.gov/ngda-reports/NGDA_Datasets.html

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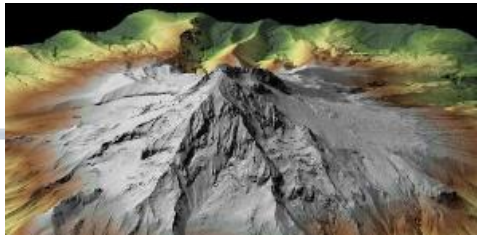
Framework Themes, Data Constructs, Metrics

- National interest in developing the NSDI and Framework
- GDA directs plans for national development of NGDAs and meeting the needs of users, and developing partnerships
- Coalition of Geospatial Organizations (COGO) assessments of the NSDI and the framework data, 2015, 2018 (2024 coming soon)
  - 2018, Addresses was added to the 7 original Framework layers
- The content of the datasets making-up the NGDA Framework Themes and the COGO Theme assessments - differ
- Need to identify and define the Themes and their data content
  - Common requirements for availability, access, use
  - Common metrics for measuring Framework and NSDI progress

National Dataset Successes

Lidar

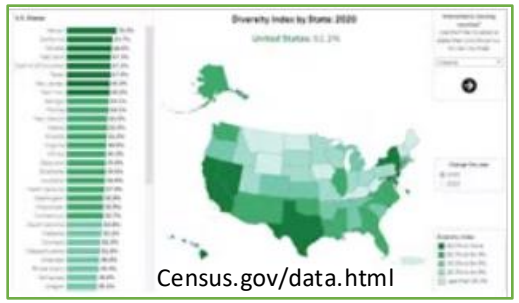


Usgs.gov/special-topics/earth-mri/science/topographic-lidar-surveys

- 3D Elevation Data – Lidar and IfSAR, elevation products
  - National Digital Elevation Program, USGS leadership, in A-16 policy, detailed needs and ROI assessment, almost a 5:1 ROI, utilized the private sector, partnerships with cost share, well defined data requirements, 2015-2023: Total $984.5 mil, with 62% partner cost share, and 94.7% area acquisition, plan for National coverage by 2026 (budget dependent)

3D Elevation Program Fiscal Year 2015 - 2023 Expenditures | U.S. Geological Survey (usgs.gov)

U.S. Census Data

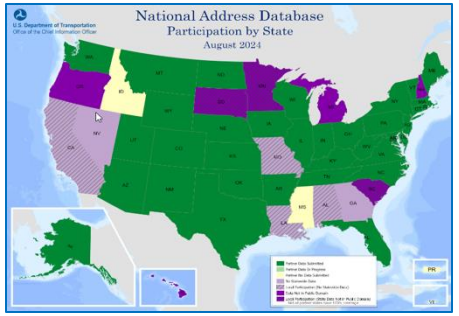


Census.gov/data.html

Landsat satellite imagery

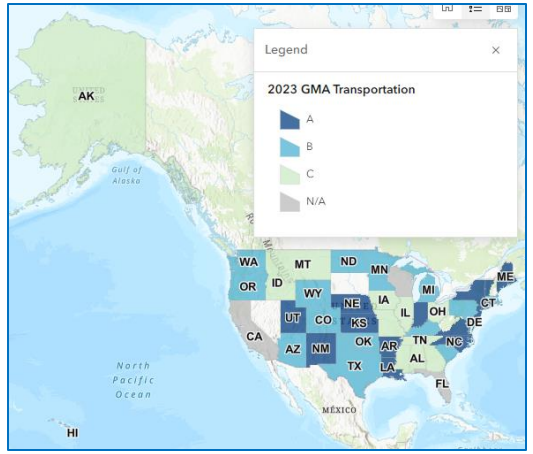
Landsat.gsfc.nasa.gov/data

National Address Database



transportation.gov/gis/national-address-database

NSGIC Geospatial Maturity Assessment Transportation



nsgic.org/initiatives/geospatial-maturity-assessment/

Challenge

"When conditions are sufficient things manifest." *Budda*

For the NSDI national data layers, what are those conditions?

What makes them sufficient?

How might new approaches, innovations, collaboration, new technologies help?

Questions?

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