Open Standards as an Underpinning Component for Geospatial Information Management Law and Policy

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A Major Goal

National Spatial Information Architectures that are fit for purpose with National / Country geospatial information policy and law

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6 August 2019
Comprehensive global community-driven forward-looking expertise in location

- Hydrology
- Meteorology
- Oceanography
- Aviation
- Energy and Utilities
- Emergency & Disaster
- Defense & Intelligence
- Earth Systems Science
- Security
- Data Quality
- Big Data

- 3D Information Mgt
- Mass Market
- Public Safety & Law Enforcement
- Geosemantics
- Health
- Agriculture
- Urban Planning
- Land Administration
- Mobile Location Services
- Point Cloud
- Smart Cities

Positioning geospatial information to address global challenges
Emphasis on Rapid Prototyping and Engineering

OGC Innovation Program
User/Industry
Rapid Prototyping

Open standards
Reduce technology risks
Testing Acceptance

Bring Challenges
Requirements
Pull of sponsors
Funding

World experts
Agile prototyping
Help Mobilize / Track
New technologies
We drive our work based on key policy and operations issues to drive useful standards based outcomes.
Positioning geospatial information to address global challenges
EXECUTIVE OFFICE OF THE PRESIDENT
Office of Management and Budget

OMB Circular A-119: Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities

AGENCY: Office of Management and Budget, Executive Office of the President

ACTION: Final Revision of OMB Circular A-119

SUMMARY: The Office of Management and Budget (OMB) has revised Circular A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities" (hereinafter, Circular A-119, or, the Circular) in light of developments in regulation, standards, and conformity assessment since the Circular was last revised in 1998.

What is it?
The Geospatial Data Act of 2018 (GDA) became law on October 5, 2018. The GDA was included as a component of the FAA Reauthorization Act (P.L. 115-254, Subtitle F). The GDA codifies the committees, processes, and tools used to develop, drive, and manage the National Spatial Data Infrastructure (NSDI) and recognizes responsibilities beyond the Federal government for its development. The GDA reflects growing recognition of the essential role of geospatial data and technology in understanding and managing our world and highlights the need to support their continuing development as critical investments for the Nation.

Why does it do?
The GDA formalizes governance processes related to geospatial data, provides policy and guidance to ensure the use of geospatial data and technology, and facilitates broad cooperation between the public and private sector. Specifically, the GDA:

- Establishes the National Geospatial Advisory Committee (NGAC) as a statutory advisory committee
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- Establishes Federal agency responsibilities
- Recognizes the NSDI as the framework to ensure geospatial data from multiple sources are available, accessible, and easily integrated
- Recognizes the GeoPlatform (www.geoplatform.gov) as an important tool for accessing and managing geospatial data
- Establishes requirements for stewardship of geospatial assets
- Establishes budgeting and reporting requirements

Why is it important?
This legislation fosters efficient management of geospatial data, technologies, and infrastructure by enabling better coordination among Federal, state, local, tribal governments, the private sector, and institutions of higher education. The GDA reduces duplicative efforts and facilitates the efficient procurement of geospatial expertise, technology, services, and data from the rapidly growing geographic community in the United States. The GDA:

- Aligns business strategies and technology
- Ensures that resources are managed in accordance with the Nation’s needs and priorities
- Ensures that all technology resources and employees are utilized in a manner that provides the...
Positioning geospatial information to address global challenges

Geospatial Standards Policy Alignment

Defense and Intelligence
Innovation Approaches to Law and Policy
UN Law of the Sea Convention

United Nations Law of the Sea Convention (UNCLOS)

The United Nations has long been at the forefront of efforts to ensure the peaceful, cooperative, legally defined uses of the seas and oceans for the individual and common benefit of humankind. Urgent calls for an effective international regime over the seabed and the ocean floor beyond a clearly defined national jurisdiction set in motion a process that spanned 15 years and saw the creation of the United Nations Seabed Committee, the signing of a treaty banning nuclear weapons on the seabed, the adoption of the declaration by the General Assembly that all resources of the seabed beyond the limits of national jurisdiction are the common heritage of mankind and the convening of the Stockholm Conference on the Human Environment.

The UN's groundbreaking work in adopting the 1982 Law of the Sea Convention stands as a defining moment in the extension of international law to the vast, shared water resources of our planet. The convention has resolved a number of important issues related to ocean usage and sovereignty, such as:

- Established freedom-of-navigation rights
- Set territorial sea boundaries 12 miles offshore
- Set exclusive economic zones up to 200 miles offshore
- Set rules for extending continental shelf rights up to 350 miles offshore
- Created the International Seabed Authority
- Created other conflict-resolution mechanisms (e.g., the UN Commission on the Limits of the Continental Shelf)

A best practice example: S-121 Maritime Limits and Boundaries

S-121 absorbs all relevant geospatial and legal information enabling the UN Member States to fulfill their formal deposit obligations for maritime limits and boundaries according to UN Convention of the Law of the Seas.

Source: M. Jonas, International Hydrographic Organization
OGC Marine Limits & Boundaries Interoperability Pilot

The pilot advances the implementation of the IHO S-121 Maritime Limits and Boundaries Standard, which is an essential extension of the IHO S-100 Universal Hydrographic Data Model

- Develop supporting data model and architecture (OGC/ISO GML)
- Implement operational prototypes to support the creation, management, integration, dissemination and onward use of official data for maritime baselines, limits, zones and boundaries.
Focus on demonstrating the ability to support:

- **Country level publication**, as a national obligation, of their maritime baselines, limits and boundaries
- Standards-based geospatial **interoperability between suppliers, users and partners**, within and across governments, public and commercial users
- Facilitating **strategic awareness and operational decision making** in the maritime environment supporting good governance and effective and efficient operations
OGC Maritime Limits & Boundaries

Sponsors:
- Geoscience Australia
- Canadian Hydrographic Service
- Natural Resources Canada
- United Kingdom Hydrographic Office
Standards, Innovation and Policy

• Geospatial Information and technology challenges being addressed:
  – Digital Rights Management
  – Security
  – Uncertainty
  – Data Quality
  – Data Preservation

• Longer term -- Technical standards for legal and policy interoperability
  – Parsing law and policy into machine actionable components
Example Trustmark Concept – NIST USA

**Trustmark Framework for Public Safety**

What is the Trustmark Framework?
The Trustmark Framework, currently in use by many law enforcement organizations around the country, establishes a mechanism for codifying and reusing components of different identity, credential, and access management (ICAM) solutions.

What role does the Trustmark Framework play in ICAM?
The Trustmark Framework can help achieve interoperability between various communities of interest (COI) and identity federations without requiring explicit bilateral agreements. While different COIs often have their own specific rules to enable trust, there are also certain requirements that are consistent across communities. Trustmarks are a means to codify those rules in a machine-readable format.

What are the benefits of the Trustmark Framework?
A significant barrier to ICAM adoption is the difficulty in enabling trust and interoperability across multiple COIs and trust frameworks. By codifying and reusing components of different trust frameworks, the Trustmark Framework promotes mutual trust and interoperability in a manner that is scalable, standardized, reliable, modular, decentralized, secure, affordable, and sustainable.

**Trustmark Framework Terms**
- **Trust Framework** – any structure that builds trust among organizations or users for the purpose of sharing information and reusing identities.
- **Trustmark** – a set of machine-readable trust and/or interoperability criteria that can be used by one or more federations.
- **Trustmark Provider** – an organization authorized to develop and issue trustmarks.
- **Trustmark Relying Party** – a service, site or entity that relies on a third-party identity provider to authenticate users.

**Trustmark Framework Concept Map**
ICAM policies for the communities of interest are identified, defined, and used by the Framework, enabling organizations to act.

Source: [US Department of Homeland Security](http://www.dhs.gov)
Parting Thoughts

• We are making initial progress as a community in aligning policy based on non-binding, and increasingly binding policy and legal measures

• Continued involvement of the standards community ISO, IHO, OGC and our broader SDO partners will be useful to prototype, test, validate the agility of standards to support:
  – Changing policy and law
  – Emerging technologies and location information sources

• More engagement of lawyers, regulators and policymakers is essential to validation our concepts and recommendations
Thank you