

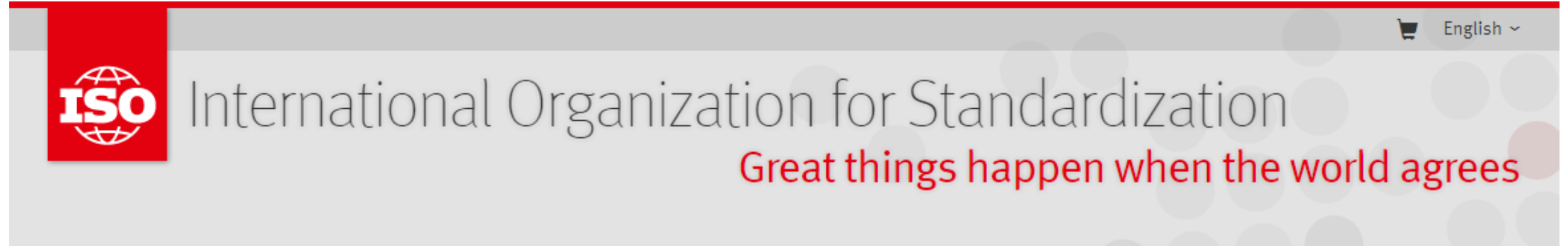


# Exchanging and Sharing Geodetic Data

## - A Standards Perspective -

Neil Ashcroft

Leica Geosystems APAC



<https://www.iso.org>

“...standards underpin the technology that we rely on and ensure the quality that we expect.”



## Guide to Role of Geospatial Standards



<http://www.opengeospatial.org/unggim>

1. Development of the global geodetic reference frame
2. Development of a global map for sustainable development
3. Geospatial information supporting Sustainable Development and the post 2015 development agenda
4. Adoption and **implementation of standards** by the global geospatial information community
5. Development of a knowledge base for geospatial information
6. Identification of trends in national institutional arrangements in geospatial information management
7. Integrating geospatial statistics and other information
8. Legal and policy frameworks, including critical issues related to authoritative data
9. Development of shared statement of principles on the management of geospatial information
10. Determining fundamental data sets



International Federation of Surveyors  
Fédération Internationale des Géomètres  
Internationale Vereinigung der Vermessungsingenieure

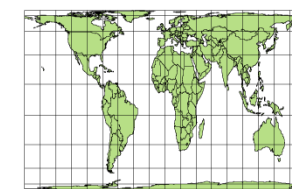
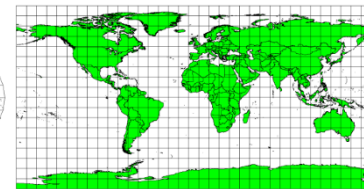
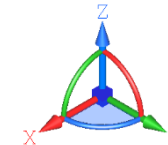
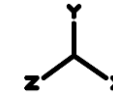
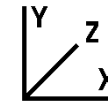
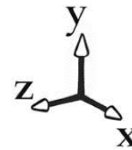
<http://www.fig.net>

- **ABOUT FIG**

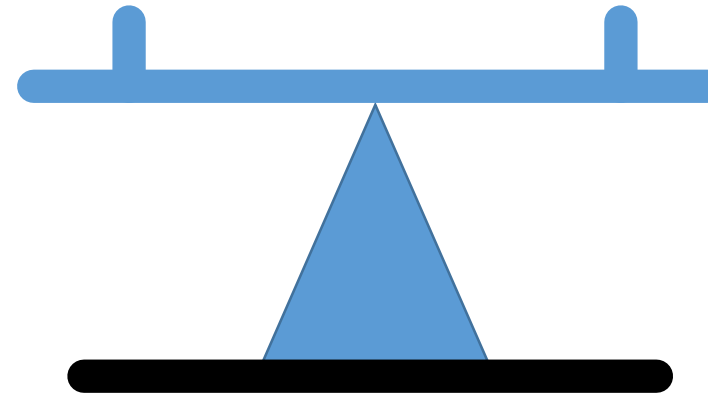
- International Federation of Surveyors, FIG, is a United Nations and World Bank recognized non-governmental organization of national member associations and covers the whole range of professional fields within the global surveying community. It provides an international forum for discussion and development aiming to promote professional practice and standards.

- Geodetic Data can be complex

- Measurement Units
- Coordinate Systems
- Observation types
- Monument definitions
- Parcel definitions
- Surfaces
- Alignments
- Etc...



Standards allow compatibility and interoperability between organisations



	Proprietary System	Open System
Data Content	<ul style="list-style-type: none"> <li>✓ Very Efficient</li> <li>✗ Not Published (Vendor controlled)</li> <li>✗ Less Interoperable</li> </ul>	<ul style="list-style-type: none"> <li>✗ Reduced efficiency, loss of information</li> <li>✓ Published (Vendor neutral)</li> <li>✓ Designed with interoperability in mind</li> </ul>
Data Formats	<ul style="list-style-type: none"> <li>✗ Not Published</li> <li>✗ Not Exchangeable</li> <li>✗ Compact size</li> </ul>	<ul style="list-style-type: none"> <li>✓ Published</li> <li>✓ Easily exchangeable</li> <li>✗ Potentially larger in size</li> </ul>

**Balanced** approach of enclosed Proprietary systems and Open systems for external interfacing

- Increased return on Geospatial Investment through wider distribution of Data (“Standards contribute to more economic growth than patents and licenses”)
- Re-use of Geospatial Data collected from different agencies

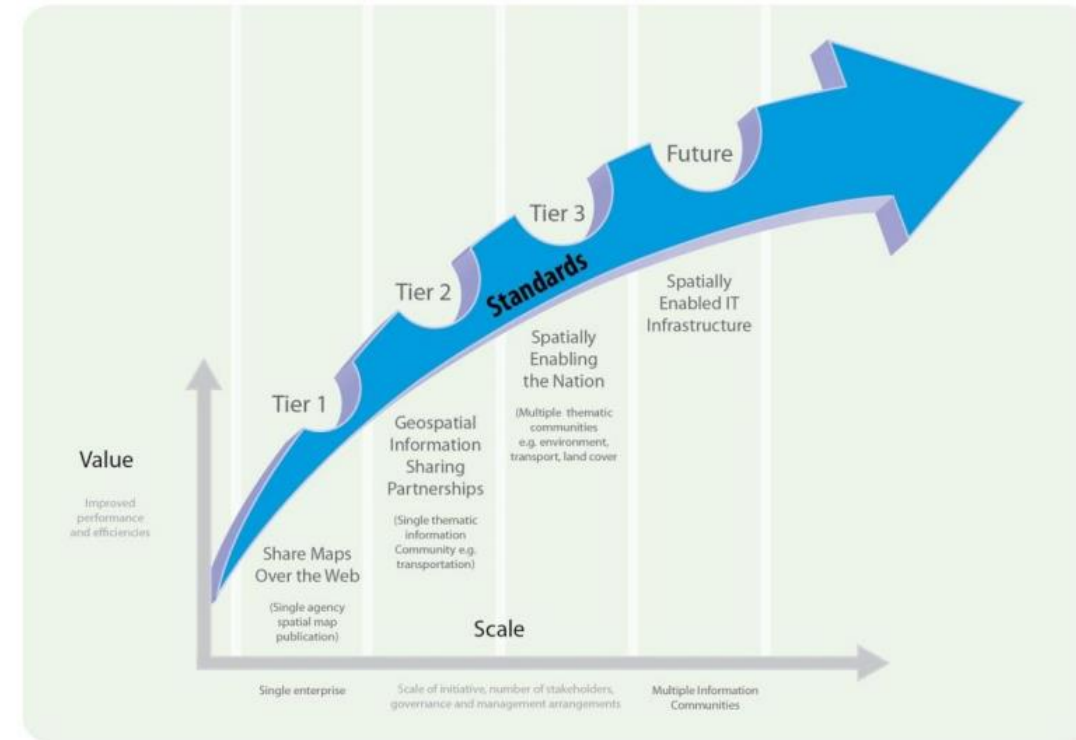
Working towards:

REGIONAL/NATIONAL/INTERNATIONAL

**INTEROPERABILITY**

Requirements

- **Data Policy** to allow Data Sharing
- Common Reference Frame



[Ref: ggim.un.org](http://ggim.un.org)



## Standard Naming Conventions

## Structured Information or Content

### FILES: Online (FTP or Web Access), Offline (USB Drives, CD's)

- GNSS Observations → RINEX (v3.x)
- GNSS Solutions → SINEX (v1.x)

### STREAMS: NTRIP Distribution (IP Ports 2101)

- GNSS Observations → RTCM (v2.x, v3.x)
- GNSS Positions → NMEA 0183 eg GGA, GGQ

## INTERFACING

- Public API's



## More Reading....



### A Guide to the Role of Standards in Geospatial Information Management

Prepared cooperatively by the  
Open Geospatial Consortium (OGC);  
The International Organization for Standards (ISO)  
Technical Committee 211 Geographic Information/Geomatics;  
and the  
International Hydrographic Organization (IHO).

August 2015

<http://ggim.un.org>

### FIG Guide on Standardisation

*How to enhance FIG's role in  
the process of creating and maintaining  
official standards*

**FIG Task Force on Standards**

Iain Greenway, United Kingdom  
International Federation of Surveyors, FIG

February 2002

<https://www.fig.net>