Approaches to the integration of statistical and geospatial information for the SDGs: Global and National cases

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Co-chair, EG-ISGI and WGGI/IAEG-SDGs

OUTLINE

- **The global infrastructure:**
  - UN Expert Group on Integration of Statistical and Geospatial Information (EG-ISGI)
  - UN Inter-Agency and Expert Group on Sustainable Development Goals Indicators (IAEG-SDG)
- **A national approach:**
  - Mexico’s model for integration of statistics and geography

The Challenge

"The work on global geospatial information management in recent years has confirmed that **one of the key challenges is better integration of geospatial and statistical information** as a basis for solid, evidence-based decision making."

UN Under Secretary-General
Wu Hongbo
Economic and Social Council of the United Nations, 2012

Inter-Agency and Expert Group on Sustainable Development Goals Indicators (IAEG-SDG)

- Created at the behest of the 46 UNStatCom in 2015
- Formed by 28 member States; co-chaired by Philippines and Mexico
- Agreed a proposed global indicator framework for the goals and targets of the 2030 Agenda for Sustainable Development;
- It includes a list of 232 indicators presented in annex IV of the report, subject to technical refinement;

Three tiers of indicators:

I) indicators for which methodology and data exist;

II) indicators for which methodology exists but data is not available; and

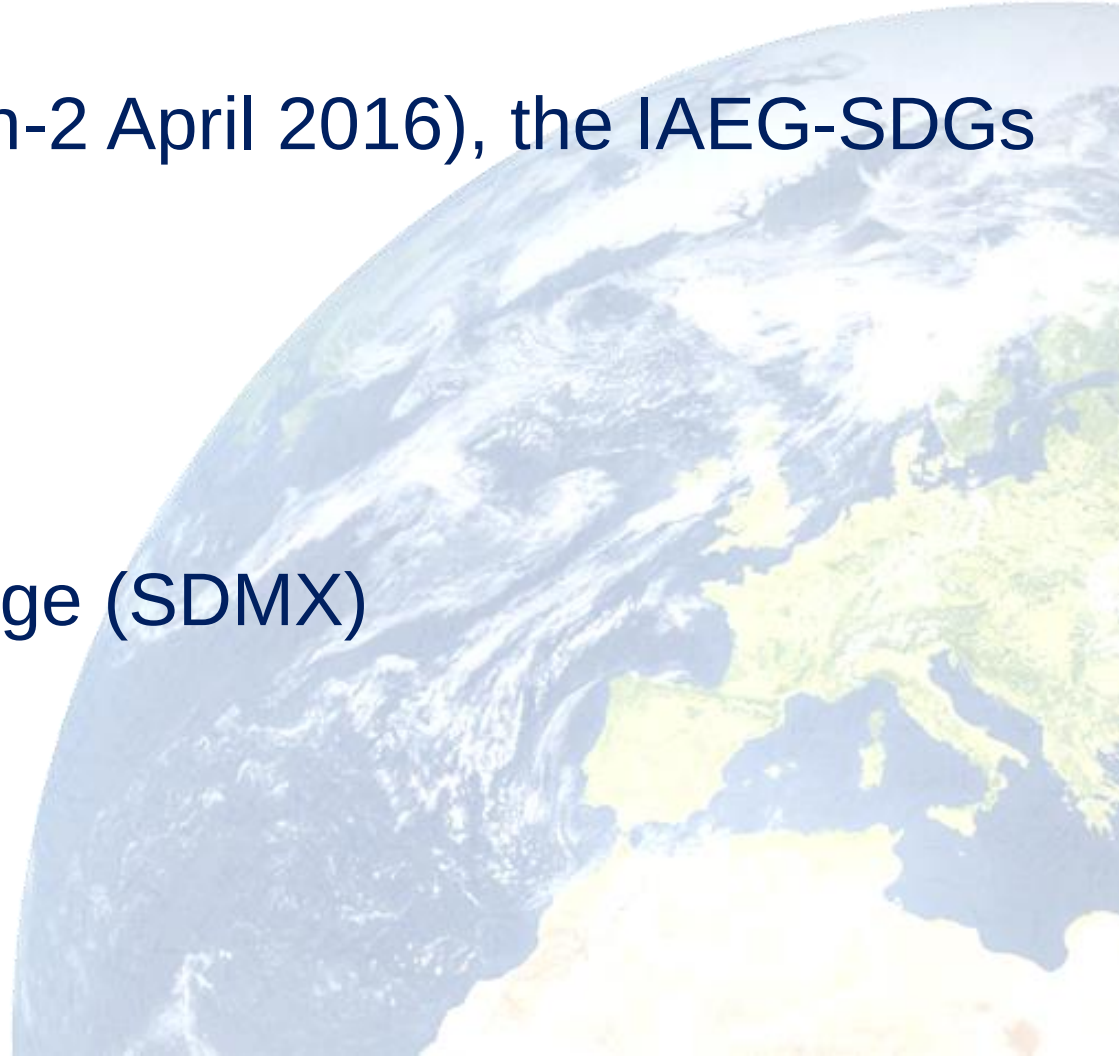
III) indicators for which methodology requires further work and no data is available.

Potential for geospatial and other data sources to address these gaps

Working Groups

At its 3rd Meeting in Mexico City (30 March-2 April 2016), the IAEG-SDGs decided to create three working groups:

- Interlinkages
- **Geospatial information (WGGI)**
- Statistical Data and Metadata Exchange (SDMX)



Composition of the WGGI

- 13 Countries in the IAEG-SDGs (NSOs): Bahrain, Brazil, Botswana, Cape Verde, Colombia, Denmark, Egypt, Ethiopia, France, Germany, Jamaica, Qatar, Mexico (*co-chair*), Sweden (*co-chair*).
- UN-GGIM (secretariat)
- UN-GGIM Regional Representatives
- **Group on Earth Observations (GEO)**
- European Commission (Eurostat)
- OECD
- Global Working Group on Big Data, EG-ISGI
- World Health Organization (WHO),

The **primary objective of the WGGI** is to ensure from both a statistical and geographical (geospatial) perspective that the key principle of the 2030 Sustainable Development Agenda, **to leave no one behind,** is reflected in the global SDG indicator framework.

Aims and activities (as per the WGGI Work Plan):

- The review of the global indicator framework and its compiled metadata through a geographic lens;
- Consideration on how geospatial information can contribute to the indicators and their metadata;
- Identifying existing geospatial data gaps, methodological and measurement issues; and
- Developing and proposing means of addressing these data gaps and issues.

Meetings of the WGGI

- Informal introductory meeting during UN-GGIM6 (New York, August 2016)
- Expert meeting in Mexico City, Mexico - INEGI (December 2016)
- Third meeting in Kunming, China - NASG (May 2017)
- Fourth meeting (New York, 6-8 December 2017)

Highlights from the Mexico City and Kunming Expert Group Meetings

- Reviewed global indicators through a 'geographic location' lens
- Agreement on short-list of 24 indicators to be examined at a national level (member countries), regionally (EC, OECD, others) and globally (GEO, WHO, UNGGIM)

15 indicators where geospatial information, together with statistical data, can contribute directly to their production

- *Tier I* 9.c.1 14.5.1 15.1.1 15.1.2
- *Tier II* 11.2.1 11.3.1 15.4.1
- *Tier II* 2.4.1 6.3.2 6.5.2 6.6.1 9.1.1 11.7.1 14.2.1 15.3.1

9 indicators where geospatial information can significantly support their production

- Tier I 1.1.1 (4.5.1)
- Tier II 5.2.2 5.4.1 15.4.2 (4.5.1)
- Tier III 1.4.2 5.a.1 5.a.2 11.7.2 (4.5.1)

Highlights from the Mexico City and Kunming Expert Group Meetings

- Agreed to the formation of 6 Task Teams, whose reports and conclusions were presented during the 5th meeting of the IAEG-SDGs in Ottawa, Canada (March 2017)

Aim: to ensure that the IAEG-SDGs can directly see the value of the WGGI, and can directly benefit from the WGGI's more in-depth analysis, recommendations and advice.

Three TTs on key Tier III indicators:

- 6.6.1 – *Change in the extent of water-related ecosystems over time*
- 9.1.1 – *Proportion of the rural population who live within 2 km of an all-season road ;*
- 15.3.1 – *Proportion of land that is degraded over total land area*

Three TTs on cross cutting issues:

- Geographic disaggregation
- Alternative data
- Global vs. local (national) data

Report

Issues and considerations

- Need for consideration on capacity development?
  - national statistical systems having the capability and capacity in the production and integration approaches for geo-statistical information
- Working with and contributing to the work of the Custodian agencies
  - address data sources and data availability
- Disaggregation according to geographic location
  - disaggregation of national statistical data is considerably strengthened through the lens of geospatial information
- ***These identified issues and gaps will be addressed at the 4th meeting of the Working Group***

Report

Issues and considerations

Data availability remains one of the primary challenge before the Working Group, the issue of availability of "Production ready" data, in particular –

a) What and where are the useable data, especially satellite imageries;
b) Demonstrating availability and useability of these data;
c) How to contribute and work with custodian agencies.

These issues, as well as results & agreements from WGGI meetings, were submitted in a report to the IAEG-SDG at its sixth meeting in Bahrein, 11-14 November 2017

Main agenda items: WGGI Fourth meeting

UNHQ – NY, 6-8 december 2017

- Review progress to date, including national, regional and global approaches to the indicator short-list;
- Review the outputs of the six task teams and determine any next steps;
- Consider modality and process to engage indicator custodian agencies to better understand and to support the process and progress in development of definition/classification, methodological approaches and data sources particularly for identified Tier III indicators within the shortlist;
- Consider modality and process to effectively, collaboratively and expertly work either as a work group or as task team to generate the desired outputs in between physical meetings; and
- Review work plans, set priorities and develop a mechanism, including milestones, to ensure completion of work.

Expert Group on Integration of Statistical and Geospatial Information (EG-ISGI)

Meet the challenges of managing and integrating geospatial and statistical information at the national, regional and global levels

Develop a Statistical-Spatial Framework as a global standard for the integration of statistical and geospatial information..

Chairs:

Martin Brady– Australia

Rolando Ocampo- Mexico

Meetings of the EG ISGI

- **First Meeting of the Expert Group. October 2013. New York, USA.**

a) International Workshop on Integrating Geospatial and Statistical Information, 9-12 June, 2014, Beijing, China.

b) Global Forum on the Integration of Statistical and Geospatial Information, 4-5 August 2014, UN Headquarters, New York

- **Second Meeting of the Expert Group. May 2015, Lisbon, Portugal**

a) Meeting of Integration of Statistical and Geospatial Information during the 47th Session of the Statistical Commission of the United Nations. March 2016, New York, USA.

- **Third Meeting of the Expert Group. April 2016. Paris, France**

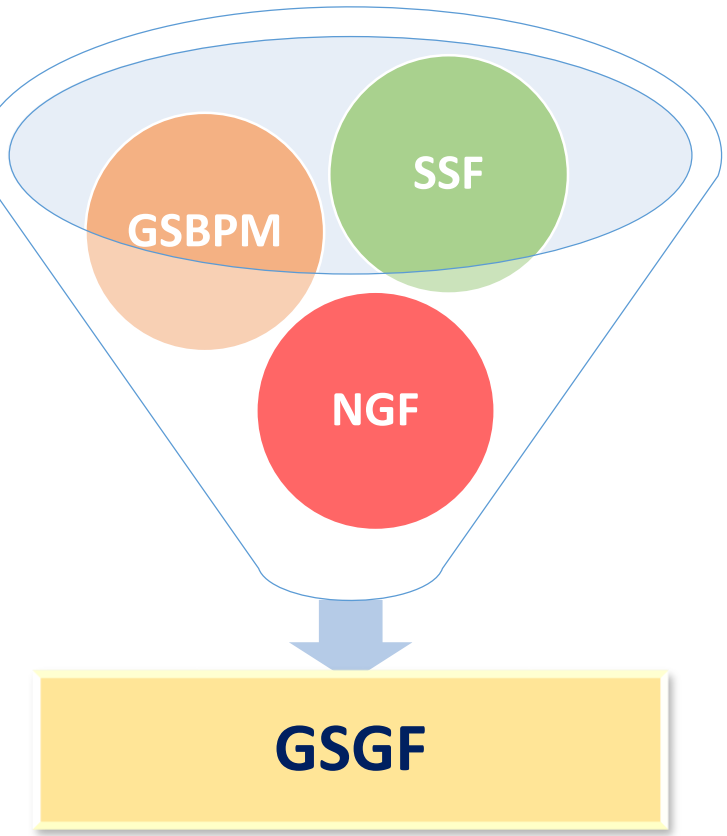
a) Meeting during the Sixth Session of UN GGIM. August 2016, UN Headquarters, New York, USA.

b) Forum for the Integration of Statistical and Geospatial Information during the 48th Session of the Statistical Commission of the United Nations. April 2017, New York, USA

- **Fourth Meeting of the Expert Group. November 2017 – Stockholm, Sweden**

Background of the Global Statistical and Geospatial Framework (GSGF)

Lisbon 2015



Paris 2016

- 2014 Global Forum on the Integration of Statistical and Geospatial Information (NY) confirms the **need to develop a global statistical and geospatial framework**

- 2015, Lisbon, the Expert Group analyzed options to prepare a global statistical and geospatial framework.

  - ✓ Australian Spatial Statistical framework (SSF)
  - ✓ European General Statistical Business Process Model (GSBPM)
  - ✓ National Geostatistical Framework Model of Mexico (NGF)

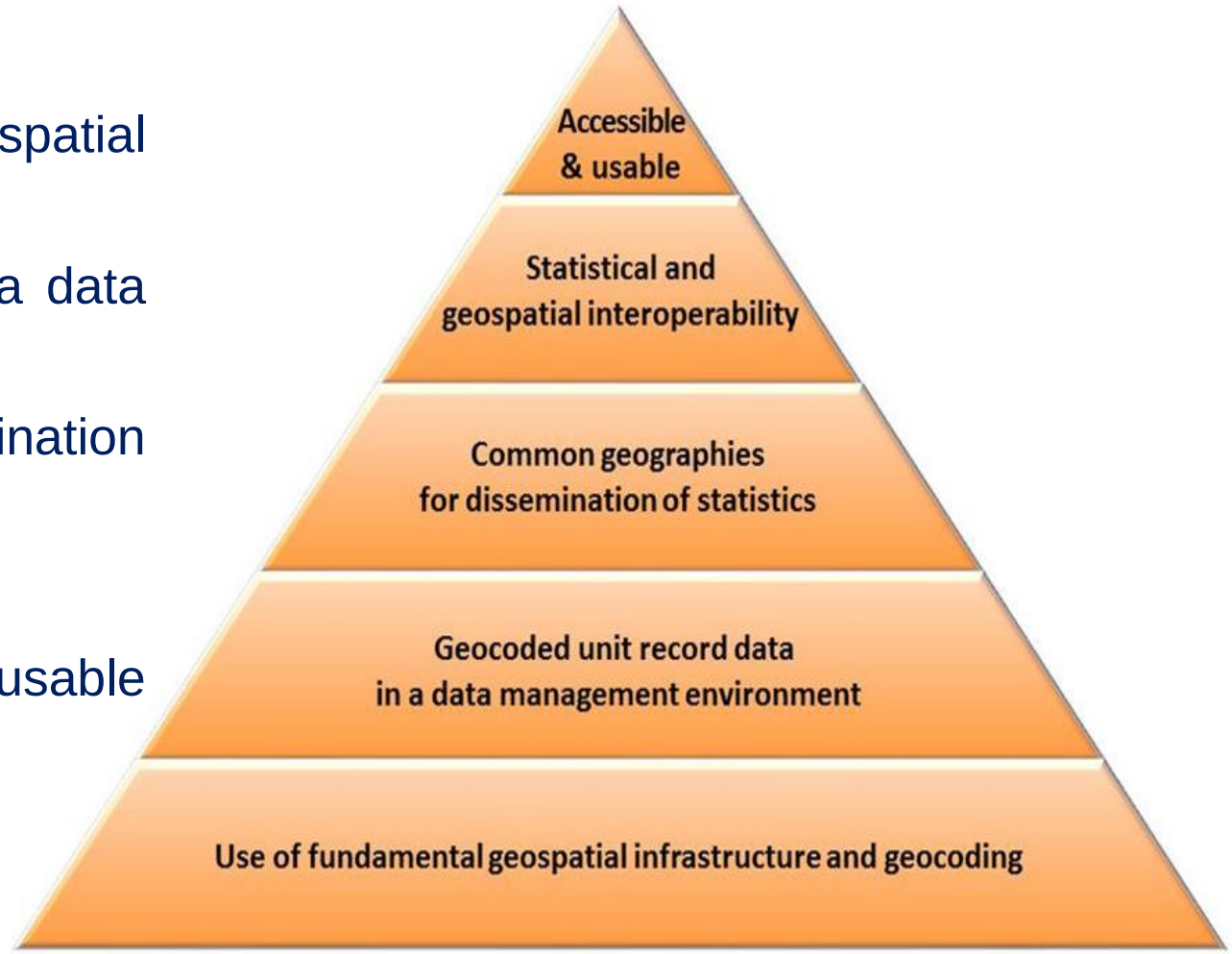
- Paris, the Expert Group examined the framework proposal in preparation to hold a global consultation in 2016 to enrich the GSGF and present it at the 6th Session of UN GGIM.

Global Statistical and Geospatial Framework

The Statistics Division conducted the global consultation on the Framework and was reviewed by the Expert Group.

More than 58 responses were received, having consensus on the five guiding principles underlying:

1. Use of geocoding and fundamental geospatial infrastructure
2. Data from individual geocoded records in a data management environment
3. Common geographical areas for the dissemination of statistics
4. Interoperable data and metadata standards
5. Statistics with accessible and usable geospatial data



Fourth Meeting of the EG-ISGI
November 2017— Stockholm, Sweden

Followed by the UNECE - UN-GGIM: Europe Joint Workshop on the Integration of Statistical and Geospatial Standards.

Meeting co-chaired by Australia and Mexico, attended by 29 experts from 15 countries, several UN organizations and industry observers

Objetive: Strengthening of the mandate of the Expert Group, to review and consider the recent decisions of UN-GGIM and UNSC related the Framework (GSGF), the 2030 Agenda for Sustainable Development, the 2020 round of Population Censuses, and to discuss and plan the future activities of the Expert Group.

Outcomes:

- ✓ Greater collaboration between the statistical and geospatial community members
- ✓ Actions agreed for addressing interoperability issues between both communities
- ✓ Prioritized Work Program for the UN EG-ISGI, now focusing strongly **to complete detailed definitions on the 5 principles of the GSGF and to provide guidance material of these principles**.

This material will enable other work occurring on the 2020 Round of Population Censuses, the Sustainable Development Goals indicators and on other topics where geospatial enabled data is critical.

Fourth Meeting of the Expert Group. November 2017, Stockholm, Sweden

PERMANENT MISSION OF DENMARK TO THE UNITED NATIONS

SRE
PERMANENT MISSION OF MEXICO TO THE UNITED NATIONS

UN-GGIM

GEO GROUP ON EARTH OBSERVATIONS

NACIONES UNIDAS
CEPAL

Conferencia Estadística de las Américas de la CEPAL

47th Session of the United Nations Statistical Commission

Statistical-Geospatial Integration Forum

Geospatial Information and Earth Observations: Supporting Official Statistics in Monitoring the SDGs

Monday 7 March 2016
10:00am – 1:00pm,
Conference Room 4 (CB), United Nations, New York

UN-GGIM
UNITED NATIONS INITIATIVE ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

Joint committee meeting – Santiago, Chile – April 2017

IX Statistical Conference of the Americas – Aguascalientes – Nov 2017

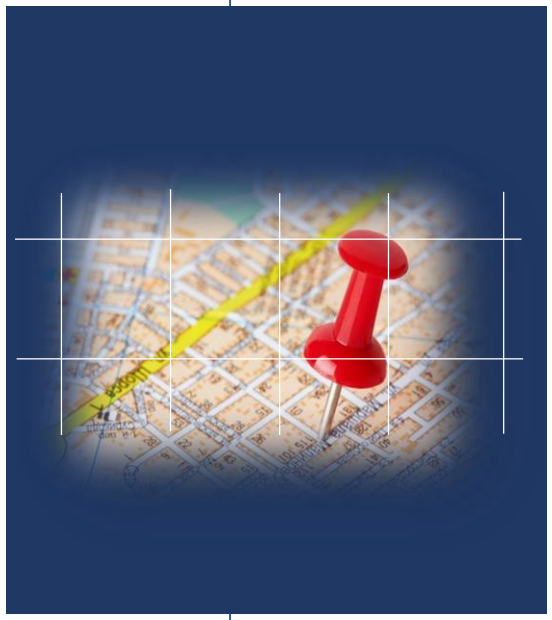
A National Approach:

Mexico's plan for a country-wide coordinated use of integrated Statistic and Geographic Information

Main objective

A conceptual model to integrate statistics and geographic information based on national and international models & standards

Specific aims



- Diagnose current status of geo/statistical integration
- Compile good practices at national, regional and global levels, with national applicability
- Identify data requirements and needs, from society & the State, for the design, implementation and monitoring of public policies
- Model a process to effectively link statistical and geospatial infotmation
- Design and develop conceptual model to sustain geo-tatistical integration at the institutional level

Working group

Coordinator/sponsor

- **Rolando Ocampo Alcántar**

Vice president - National Subsystem for Economic Information

Project Leader

- **Luis Gerardo Esparza Ríos**

  DGA for Integration of Geospatial Information, **DGGMA**

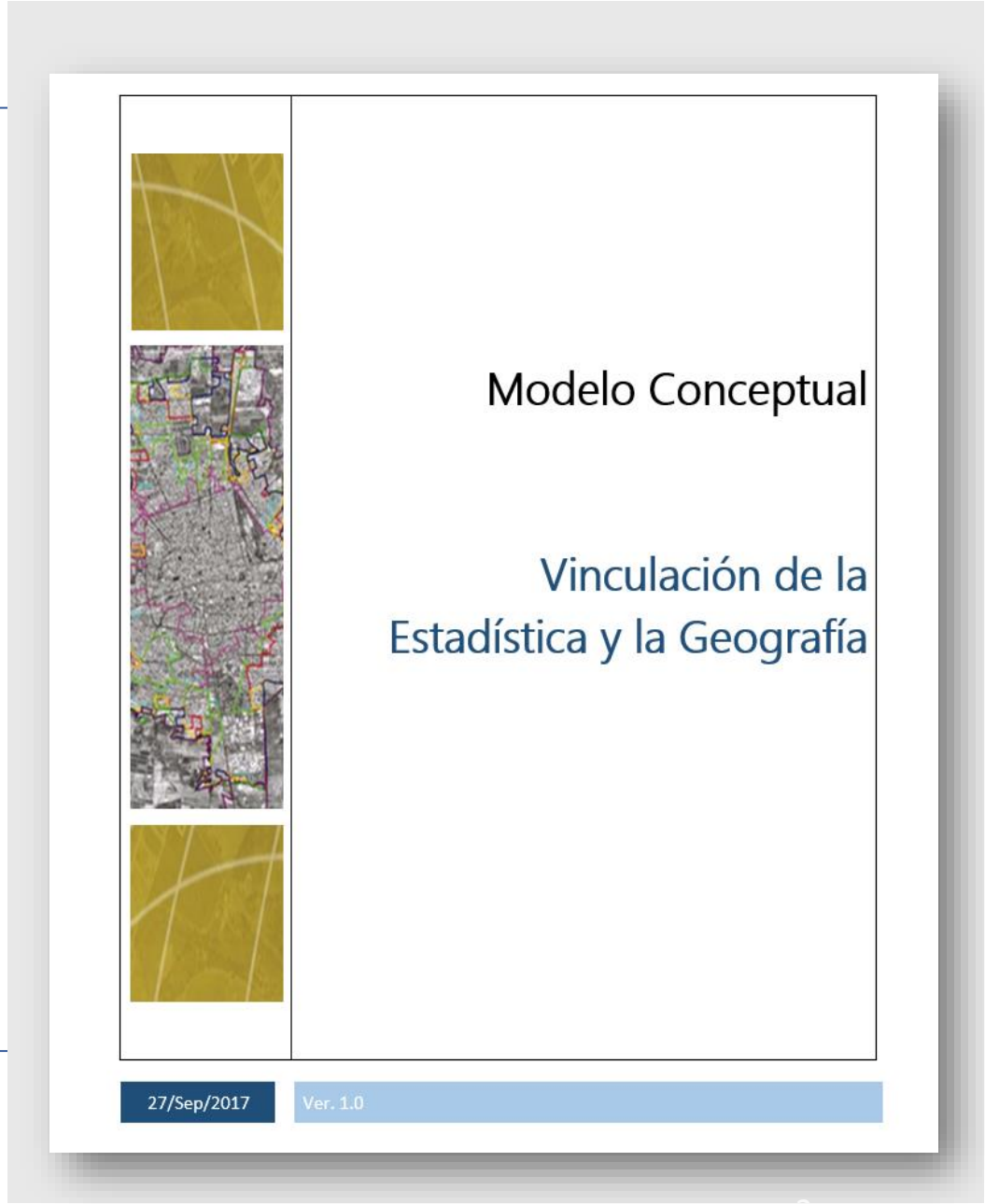
Members:

- Director of Technological Development, **DGGMA**
- General Director of Socio-demographic statistics, **DGESD**
- Director of Administrative Records, **DGESD**
- Director of Economic Units, **DGEE**
- Director of National Government Statistics, **DGEGSPJ**
- North-Central Regional Directorate, **DRCN**

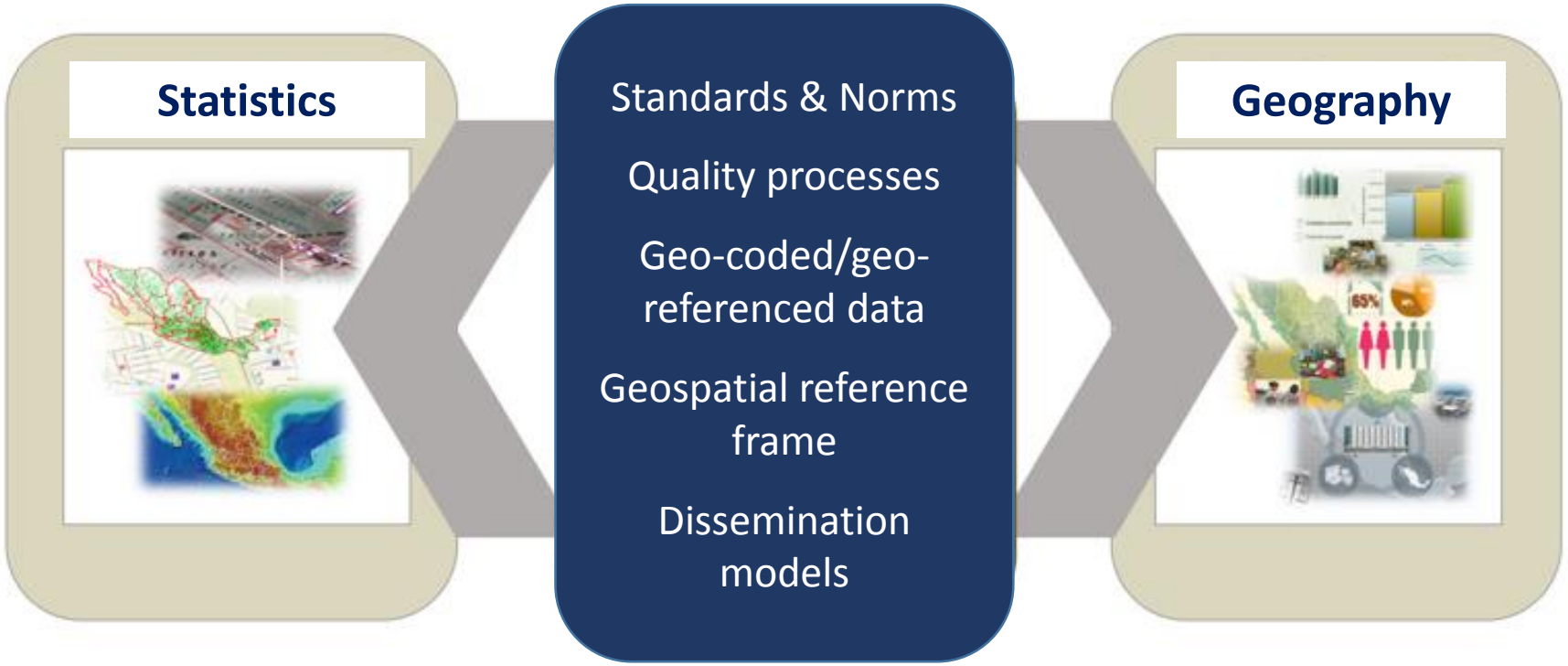
Main deliverable

A Conceptual Model to link Statistics and Geography

Provides a framework to aid State Units to plan, design and implement geo-referenced statistics from the origin



Integration linkage model– Level Zero

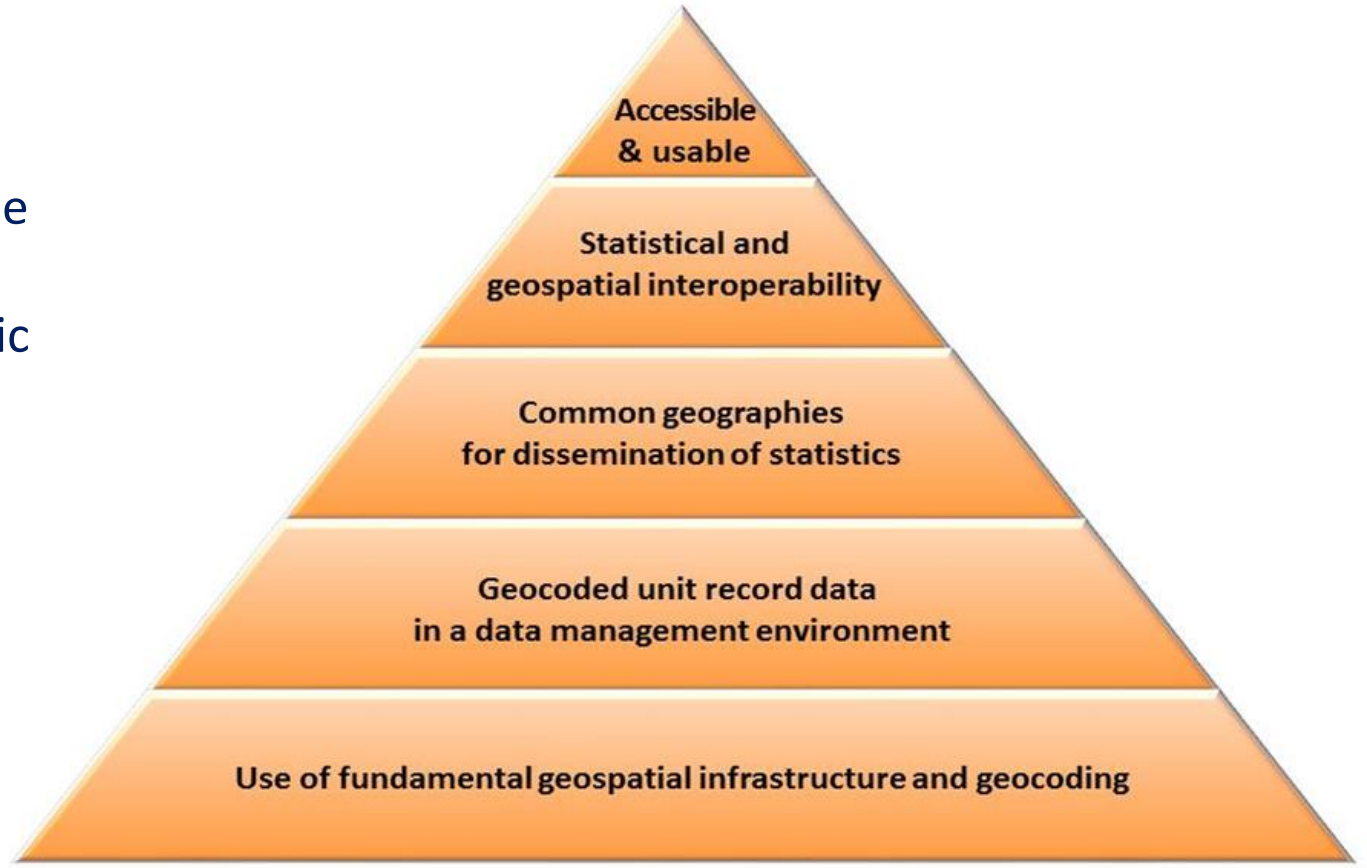


Alignment with international models: the Global Statistical and Geospatial Framework

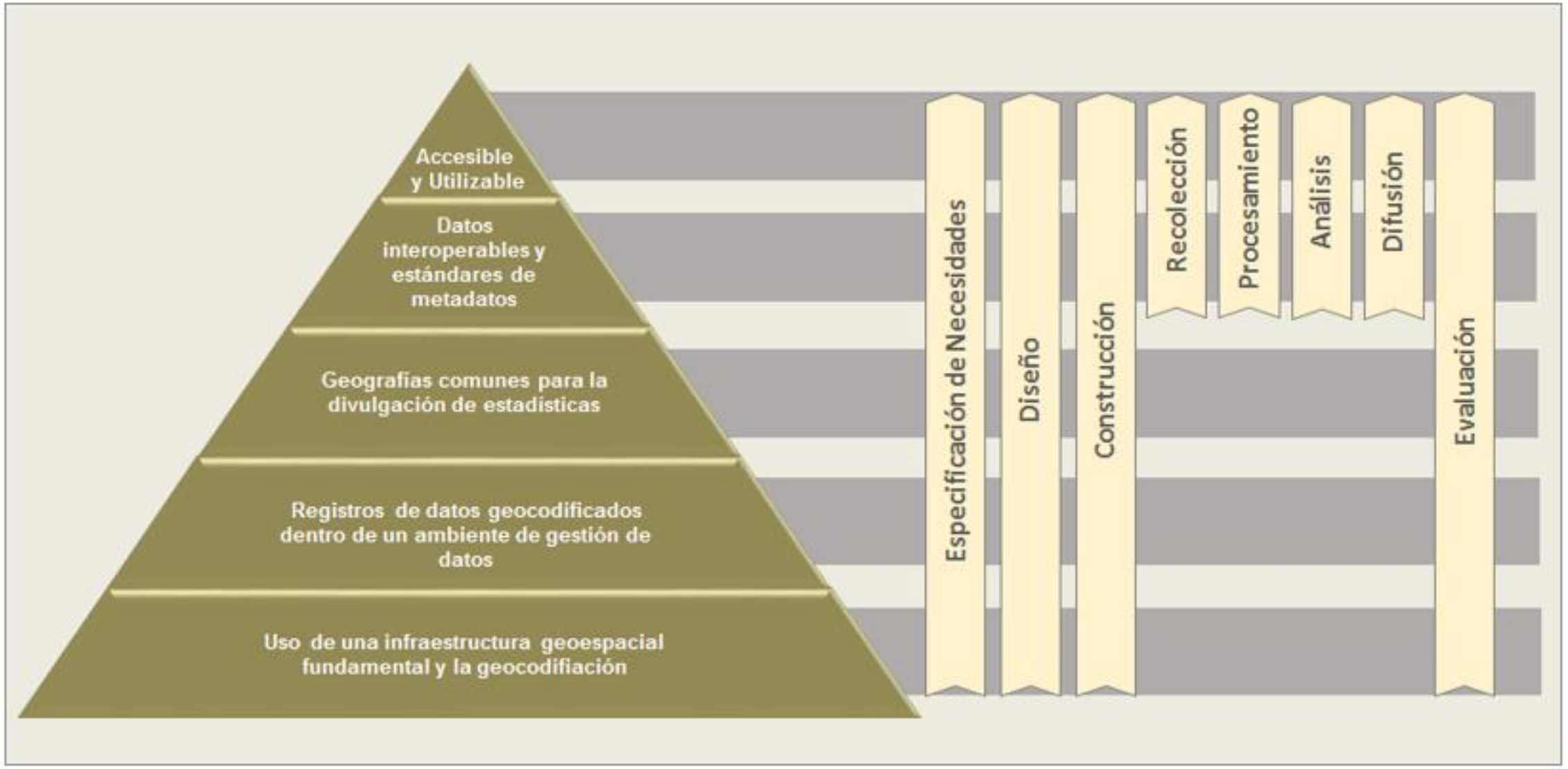
General Model for the Statistical Process (MPEG)

Determine needs → Design → Construction → Collection → Processing → Analysis → Dissemination → Evaluation

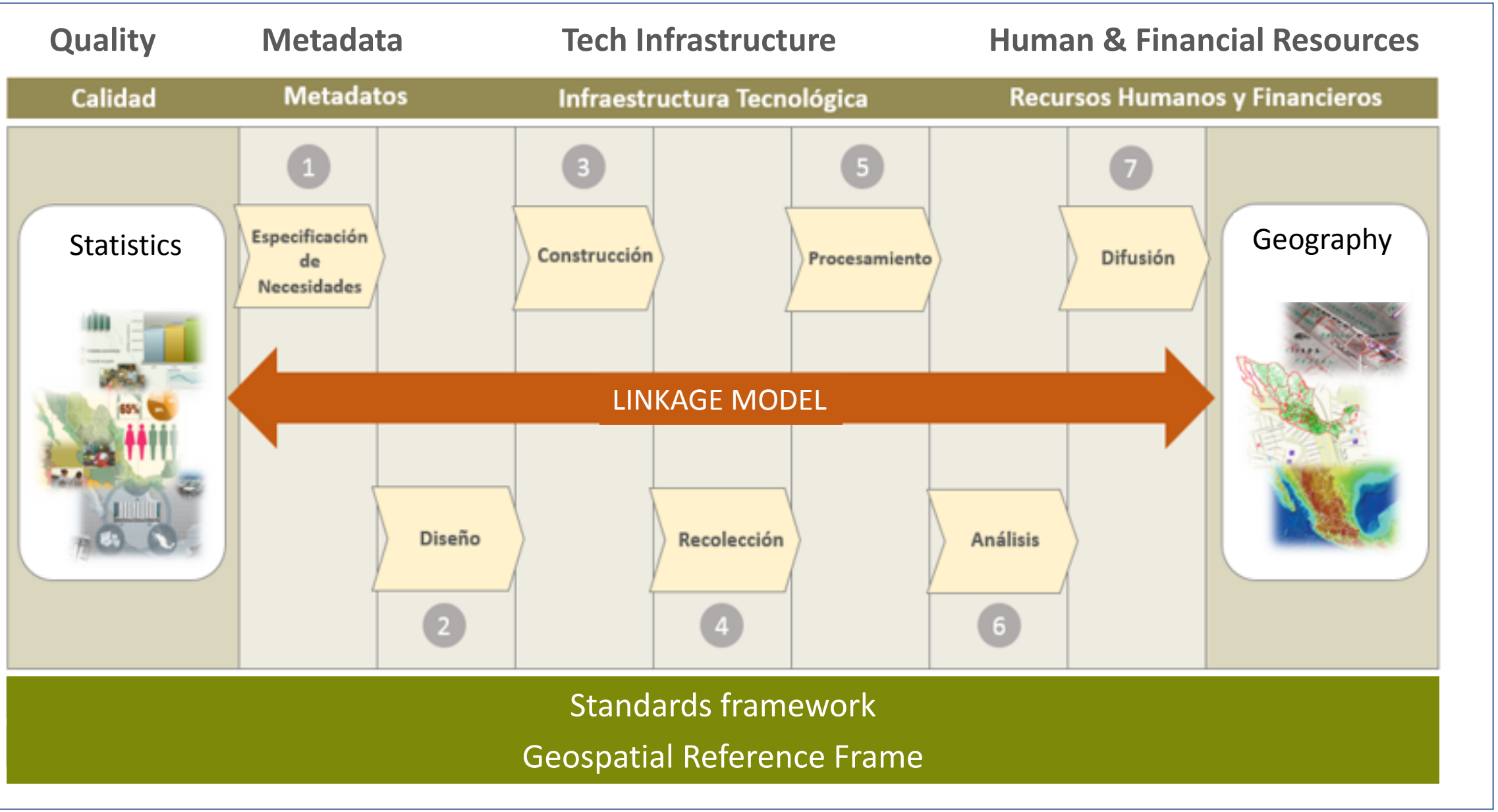
Global framework for the integration of statistical and geographic information



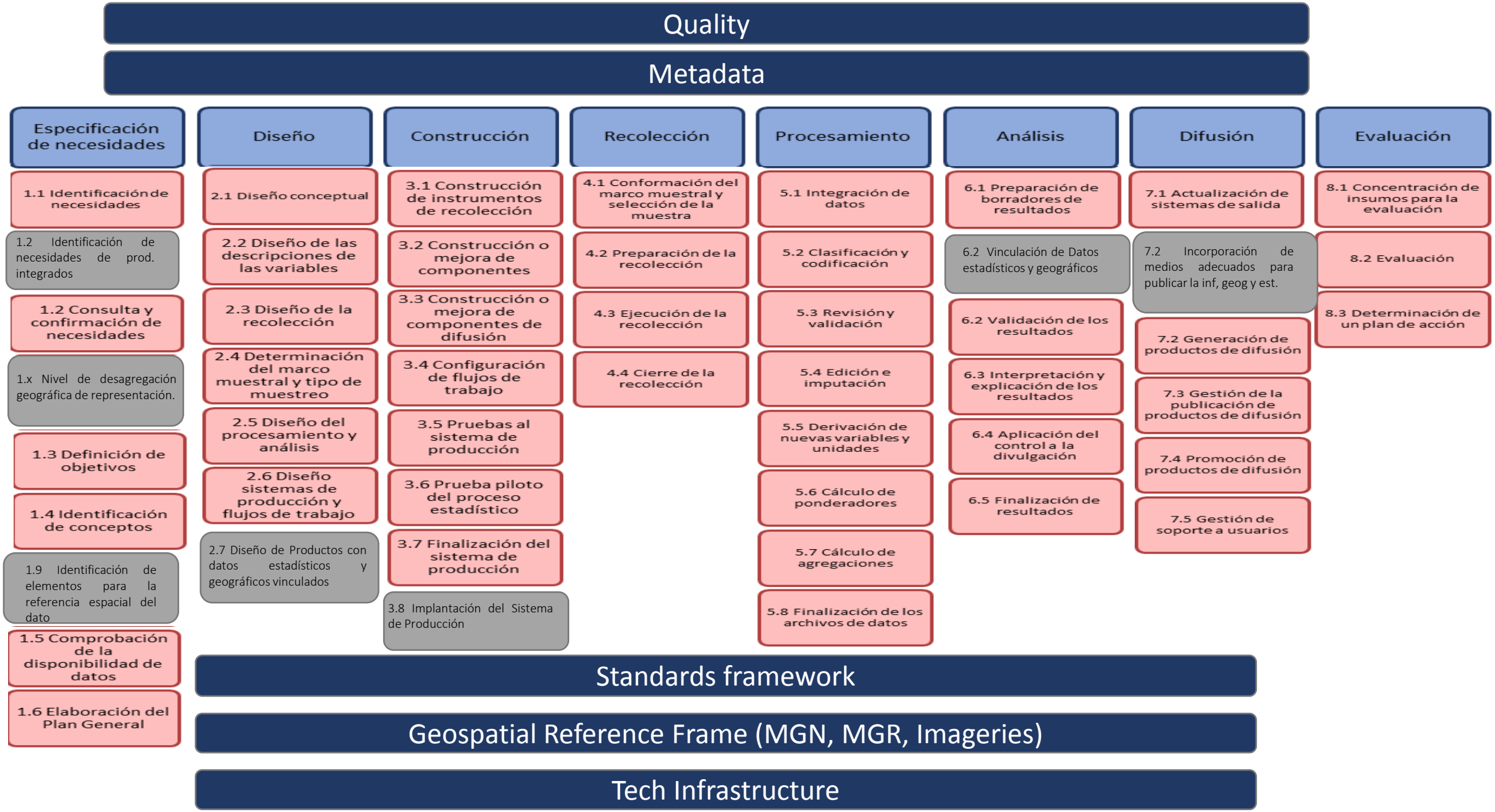
Alignment with international models: the Global Statistical and Geospatial Framework



Models to link Stastistic and Geospatial Information

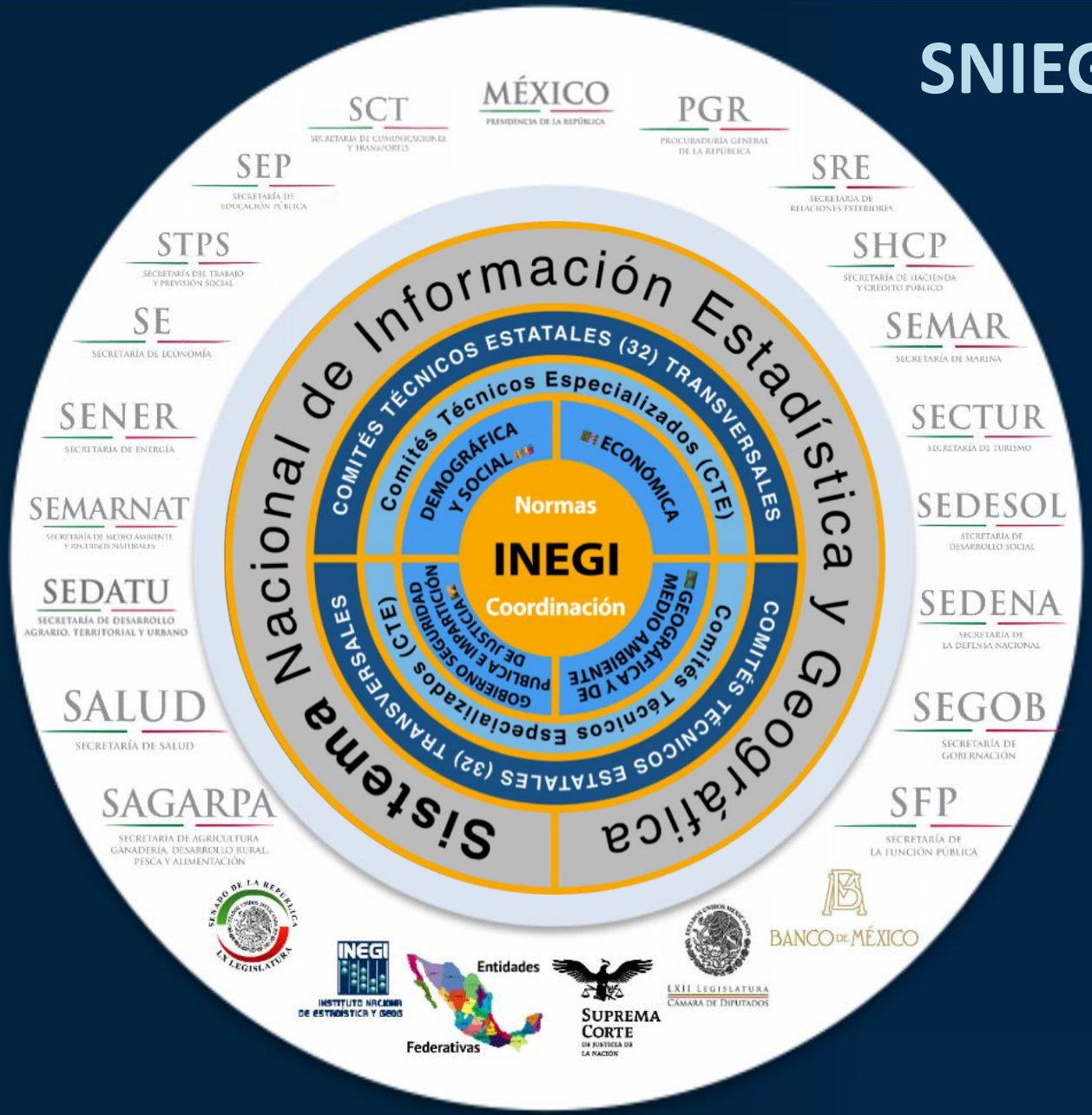


Model for the integration of geographic and statistical information (MIIGE)



National System of Statistical and Geographic Information

SNIEG



Information sub-systems

Demographic & Social

Economic

Geographic, Environmental & Land Use

Government, Public Security & Justice

The National Council for Sustainable Development and Agenda 2030

- Created by Executive Decree, and formally installed on April 26, 2017
- Conceived as a State-wide, **long-term commitment** at the highest level, transcending individual administrations
- It includes 18 line ministries, state and local governments, Congress, the private sector, academia and civil society;
- Decree includes modifications to the **National Development Planning Law**, as well as to the **2018 national budget**, in order to include provisions for SDG implementation.

Conclusions

- Geospatial Information, Earth Observations, Big Data and Statistics can and should be integrated in support of national priorities and global goals;
- Integration facilitates location & assessment of public policy and SDGs progress over time;
- No institutional model fits all but effective integration and coordination is key
    - *Single integrated institution:* Mexico, Brazil
    - *Bridging agreements:* Colombia, Ireland
    - *Fragmented, well-articulated model:* USA
- Institutional capacity and inter-institutional coordination matters;
- Participation from all stakeholders (Government, academia, private, civil is key);
- Interactions within the GIWG IAEG-SDG will contribute in improving geospatial data availability, as well as address information gaps.


Everything happens somewhere