

**First Forum  
Seoul, Republic of Korea, 24-26 October 2011**

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**Challenges in Geospatial Policy Formulation and  
Institutional Arrangements \***

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# **Challenges in Geospatial Policy Formulation and Institutional Arrangements**



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**High Level Forum on Global Geospatial Information Management  
Seoul, October 24, 2011**



# Contents

- Introduction
- Relevant issues in policy formulation
  - Data policies
  - Institutional aspects
- Relevant issues in institutional arrangements
  - National Geospatial Information Authority
- Situation in the Americas
  - Some results of the questionnaire applied in 2011
- Conclusions

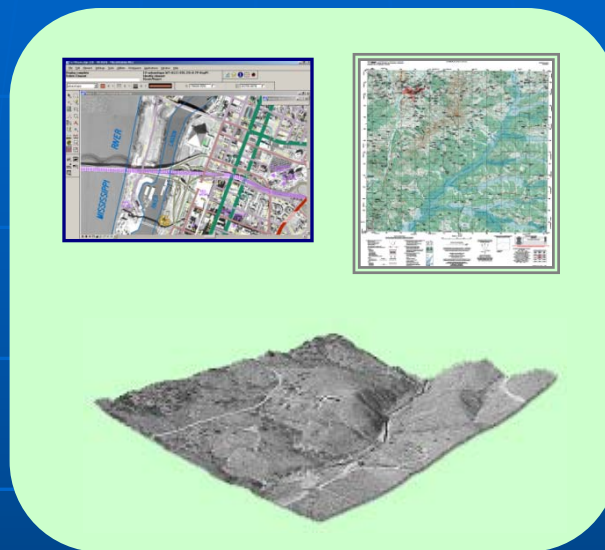


# The fast development of geospatial technologies

## GNSS/PDA devices



## GIS/Web



## Imagery



Broader availability and use of location-based Information

**Geospatial information is more easily collected, disseminated and handled by producers and users**



# High Demand for Geospatial Information (GI)



**Environment Monitoring**



**Government Planning**



**Land Management**



**Climate Change**



**Emergencies Response**



**Warning Services**



**Forest Protection**



**Weather Forecast**



# Global Collaboration

## Why do we need a forum ?

- To coordinate and dialogue among nations and between nations and relevant international organizations to propose work-plans and guidelines
- To promote common principles, policies, methods, mechanisms and standards for the proper management of geospatial data and services

July 2011

ECOSOC established the UNCE-GGIM as the official UN consultative mechanism on GGIM

Nations of the world are invited to reflect on the need of establishing/updating institutional arrangements and geospatial policies to spread the proper use of geospatial technologies, data and services

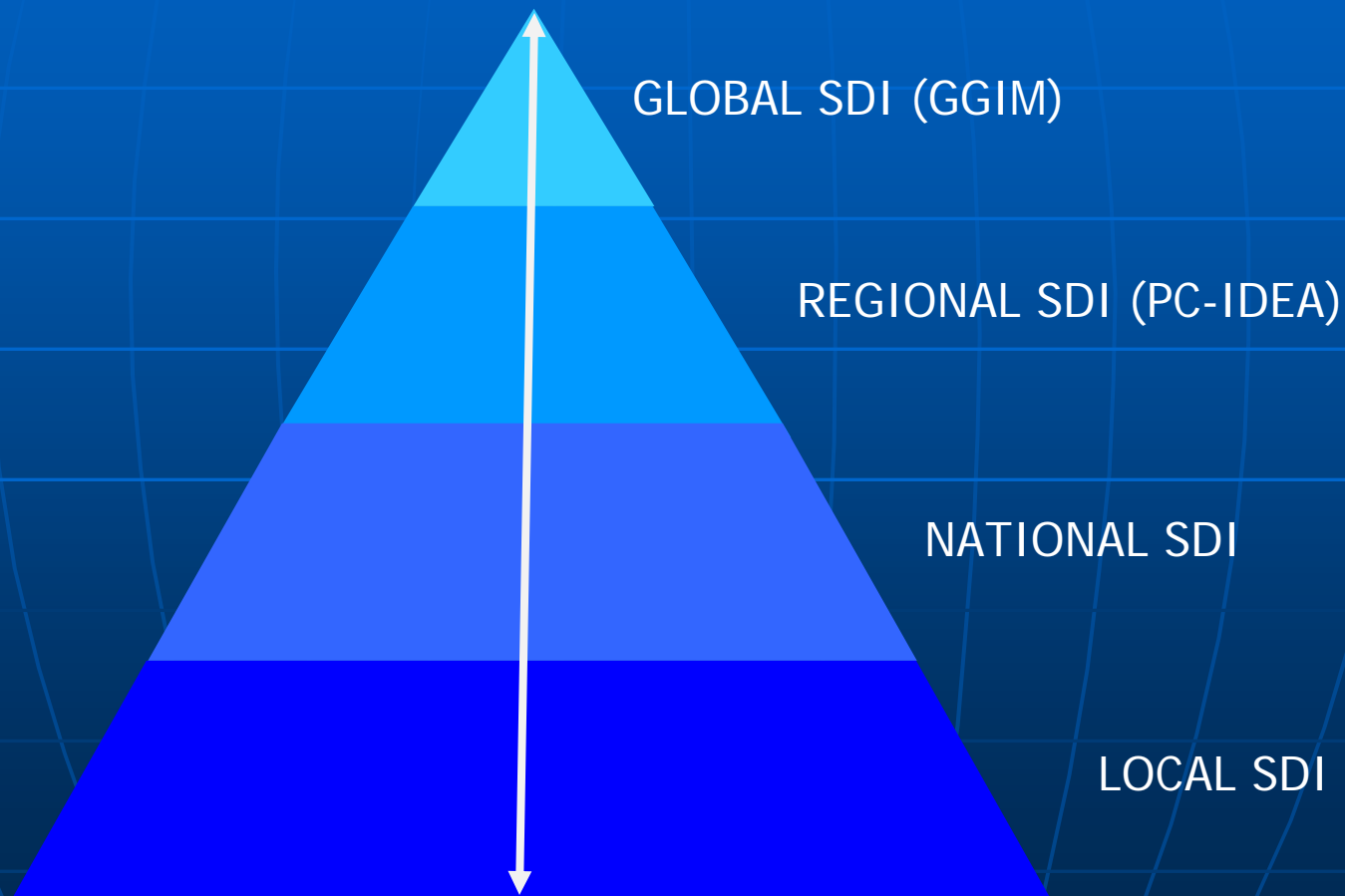
**We are faced with global issues that require global collaboration**





## Relevant issues in geospatial policy formulation

The term may cover policies at the intra-agency, local, national, regional or global levels





## Relevant issues in geospatial policy formulation

**Strategic, tactical or operational aspects**

**Policies on data/metadata, institutional arrangements, and standards frameworks**

- UNCE-GGIM - top-down approach at the global level, creating a geospatial framework to be adhered to by governments of member countries
- Policies should cover issues at high (i.e., strategic) level, promoting the availability of geospatial data, metadata, and services at global level





## Relevant issues in geospatial policy formulation - Data policies -

One of the most demanded geospatial policies at global (and other) level: open data (and, consequently, metadata)

Data sharing not possible without making a set of reference and thematic data freely available

Possible scenario: open data freely released **at least** at a medium/small scale ( $\leq 1:25,000$ )

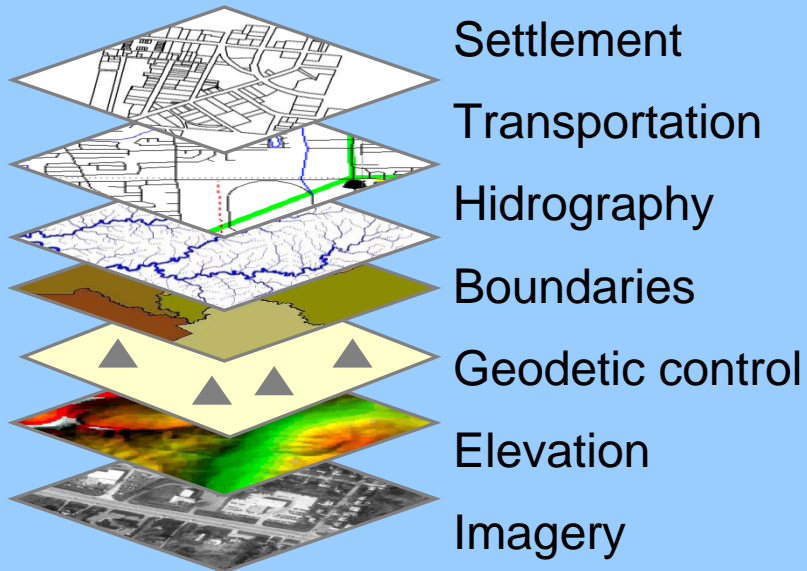
Data production financing may be a critical issue to make open data policy a reality  $\Rightarrow$  UNCE-GGIM should include this topic in its agenda, especially in the case of developing countries

A clear message should be sent to UN member states fostering them to share, at global level, the aforementioned data

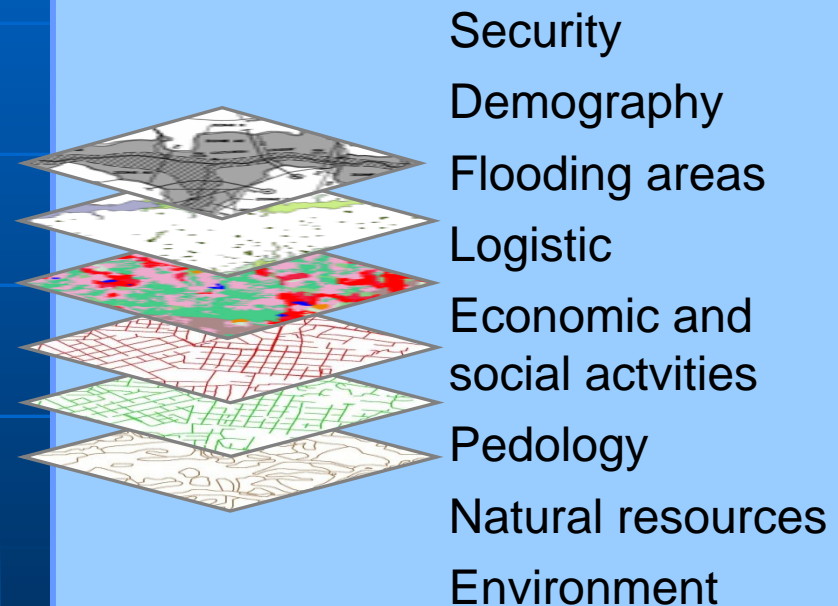


# Relevant issues in geospatial policy formulation - Data policies -

## Reference data



## Thematic data



Reference and thematic data freely released  
at least at a medium/small scale ( $\leq 1:25,000$ )



# Relevant issues in geospatial policy formulation - Data policies -



international

im



# Relevant issues in geospatial policy formulation - Data policies -

## Solution





## Relevant issues in geospatial policy formulation - Institutional aspects -

Countries have established legal mapping frameworks, in some cases a long time ago before the geotechnologies boom

These legal frameworks generally established institutional responsibilities: production of national geodetic and topographic mapping information, and, in some cases, thematic information

Mandates for the development of standards and specifications may be part of that legal framework as well



UNCE-GGIM to issue recommendations and directions towards the modernization of this legal framework

Countries which have not updated these legal instruments after the emergence of the new digital geotechnologies urgently need to do so in order to make the framework compatible with the current best practices



## Relevant issues in institutional arrangements

Massive demand for geospatial data  $\Rightarrow$  necessity of reviewing institutional arrangements to support the timely production, dissemination and sharing of geospatial data

### Much reflection in the scope of NSDI - Legal Framework

Exist (like in Brazil)

Not exist (like in Canada)

Intrinsic collaborative nature requires the proper assignment of responsibilities to institutions involved  $\Rightarrow$  apply to GI sector

The establishment of a National Authority on this field is seen as extremely necessary  $\Rightarrow$  example of GSI in Japan





## Relevant issues in institutional arrangements - Roles of the National Geospatial Data Authority -

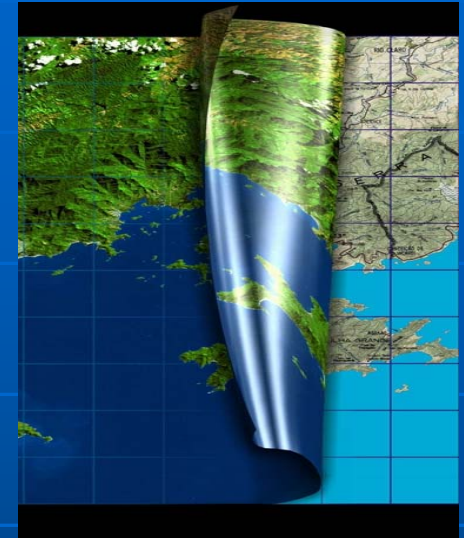
- ✓ Coordinate:
  - the acquisition and production of geospatial data and information
  - the establishment of the National Spatial Data Infrastructure (NSDI)
  - the establishment of standards and specifications to support the production, dissemination, sharing and access of geospatial data and information
  - the development of a National Geospatial Information Plan (NGIP) to produce, maintain, disseminate and share geospatial data and metadata, including the specification of human, technological and budgetary resources
- ✓ Propose mechanisms for certifying geospatial information
- ✓ Play the role of the National Authority in geographic names
- ✓ Propose corrective measures for the handling of information which is not adherent to the adopted standards and specifications
- ✓ Report directly to the cabinet of the highest Government authority (President, Prime Minister, or equivalent)





## Relevant issues in institutional arrangements - Roles of the National Geospatial Data Authority -

- Promote the availability of a complete coverage of the country territory by certified georeferenced orthorectified medium-to-high resolution imagery mosaic, updated at least once every two years, to provide the necessary view of the territory and its continuous changes. The access to this imagery should be given to all government institutions and society, at all levels and no charge, ideally through the NSDI, and, as long as confidentiality and security requirements are not violated, to other countries as well
- Manage budgetary resources to implement the NGIP
- Identify in all existing government programs those actions which depend on the production and/or availability of geospatial information, in order to guarantee the allocation of the corresponding necessary resources
- Promote capacity building and training, at all levels, to government institutions which are potential users of GI







## Relevant issues in institutional arrangements - Roles of the National Geospatial Data Authority -

Urgent to promote a closer relationship between government institutions of all levels, to have producers and users sitting together to discuss the priorities of geospatial information production. In special, taking into account the applicability of statistical data to the establishment of socio-economic public policies, a close proximity between the NGIA and the National Statistics Office (NSO) is seen as very beneficial



This could lead to, for instance, an active participation of NSOs in the NSDI initiative in each country, paving the way to make geospatial statistical data broadly accessible and correlated to other geospatial information layers. As a result, one may expect an integration of geospatial/geographic institutes and statistical offices in some countries of the world, following the track left by Brazil and Mexico



## Permanent Committee for Geospatial Data Infrastructure of the Americas – PC-IDEA

Established on February 29, 2000, based on a recommendation of the 6<sup>th</sup> United Nations Cartographic Conference for the Americas – UNRCC-A (1997)



For PC-IDEA, policy formulation and implementation of institutional arrangements represent key challenges to be faced in response to the knowledge of the current status of SDI development in the region



# PC-IDEA Member countries



Argentina



Belize



Bolivia



Brasil



Canada



Chile



Colombia



Costa Rica



Cuba



Dominican  
Republic



Ecuador



El Salvador



Guatemala



Guyana



Honduras



Jamaica



Mexico



Nicaragua



Panama



Paraguay



Peru



United States



Uruguay



Venezuela



2009 – 2013: Presidency and Executive-Secretariat



## PC-IDEA Membership per region

Region	Number of countries	Number fo PC-IDEA Member countries	%
North America	3	3	100
Central America	7	7	100
South America	12	11	92
Caribbean	13	3	23

Source: ECLAC



## PC-IDEA Working Group on Planning (GTplan)

- Established during the 5<sup>th</sup> Executive Board meeting held in May 2010 in New York
- Composed by 7 countries representatives: Brazil, Canada, Chile, Colombia, Cuba, Guatemala and Mexico, under the leadership of Chile and the co-leadership of Canada
- Working on the implementation plan of seven resolutions issued by the 9<sup>th</sup> UNRCC-A, held in August 2009 in New York
- 3 meetings held so far:
  - December 2010, in Rio de Janeiro
  - May 2011, in New York
  - August 2011, in Rio de Janeiro





## PC-IDEA Working Group on Planning (GTplan)

Working plan covering 7 themes, each one under the responsibility of a country representative

1. Institutional capacity building (Colombia)
2. Standards and technical specifications (Mexico)
3. Best practices and guidelines for the development of SDI (Canada)
4. Innovations in National Mapping Organizations (Brazil)
5. Knowledge gathering on topics relevant to the SDI for the region (observatory on SDI) (Guatemala)
6. Assessment of the status of SDI development in the Americas (Cuba)
7. Technological means for discussions related to SDI (Chile)

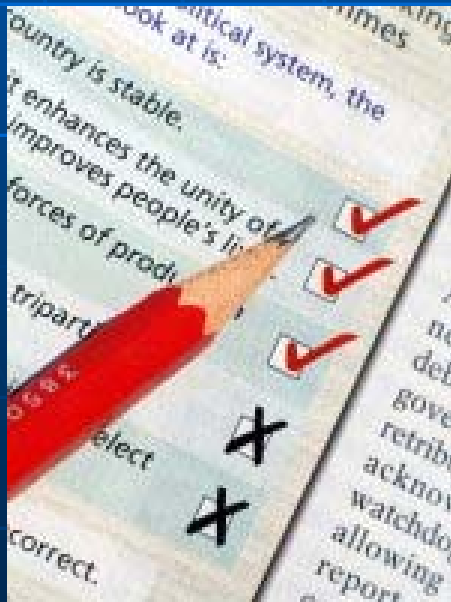


Source: O Estadão Newspaper



# PC-IDEA Working Group on Planning (GTplan)

- To support the activities on themes:
- Institutional capacity building
- Standards and technical specifications
- Best practices and guidelines for the development of SDI
- Innovations in National Mapping Organizations
- Assessment of the status of SDI development in the Americas



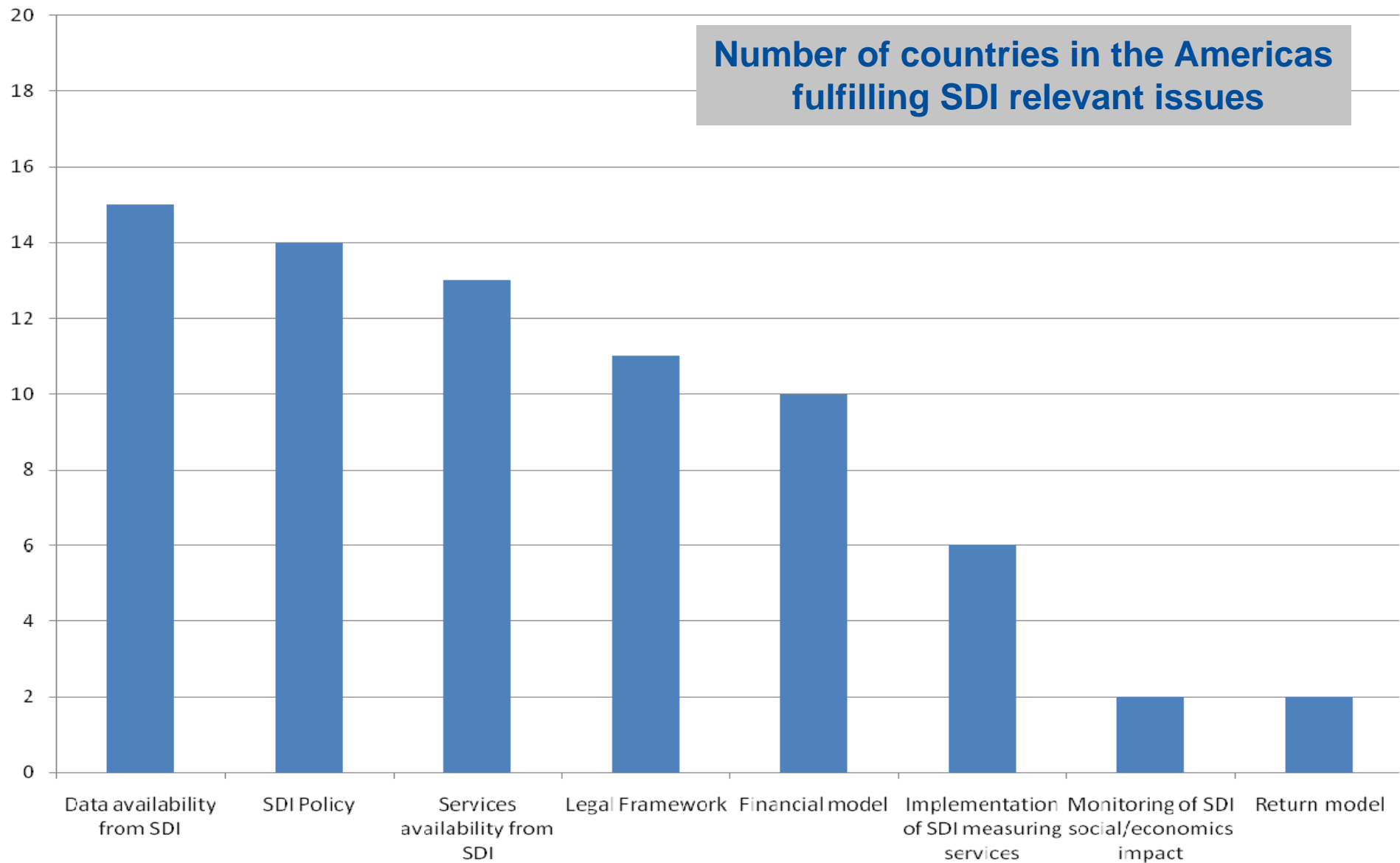
a questionnaire with 76 questions in total was designed by GTplan and applied to PC-IDEA member countries this year

- 20 out of the 24 members replied to the questionnaire (responses from Cuba, Dominican Republic, Guyana and USA were missing)
- Detailed analysis of the questionnaire results to be released by GTplan by the end of this year



# PC-IDEA Questionnaire Results

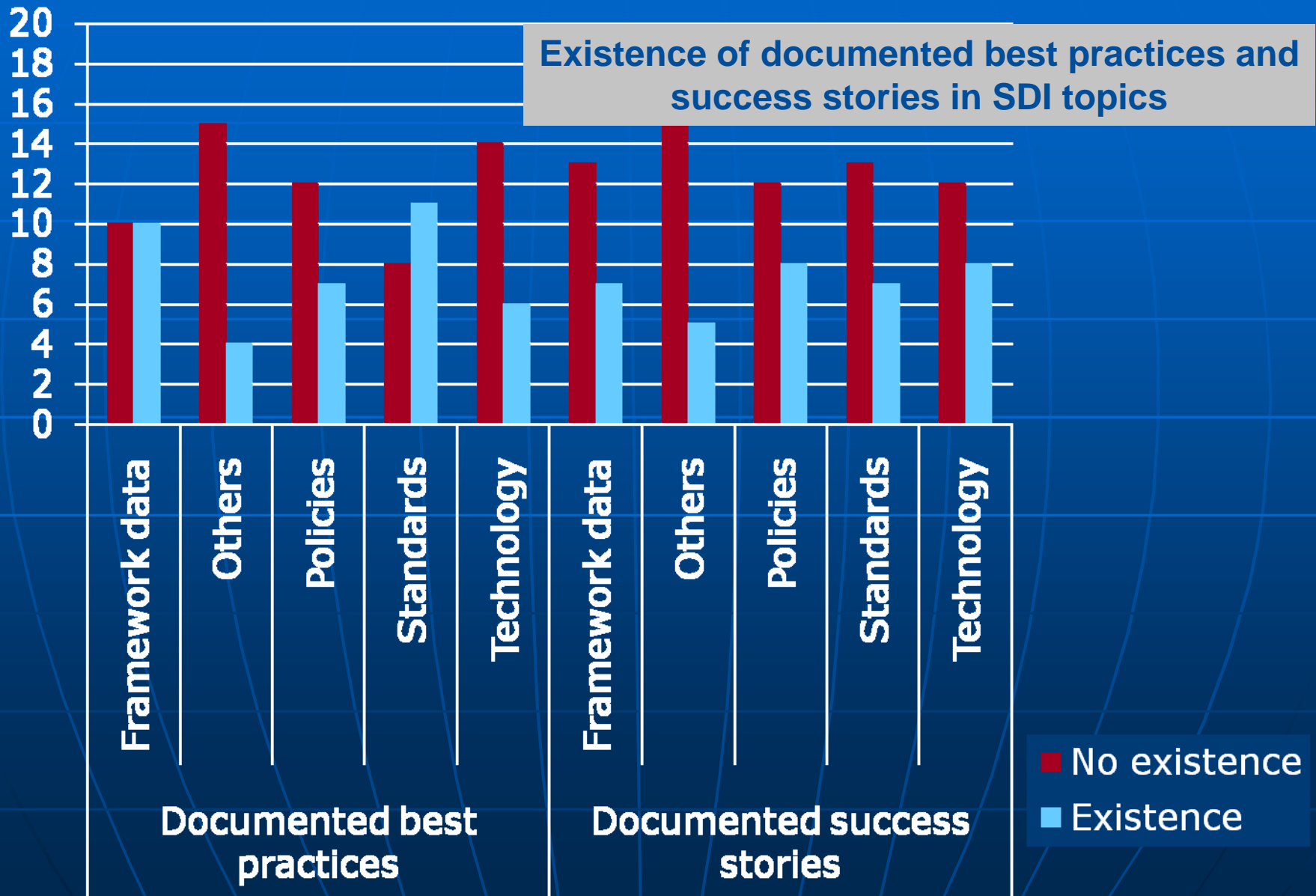
Number of countries in the Americas fulfilling SDI relevant issues







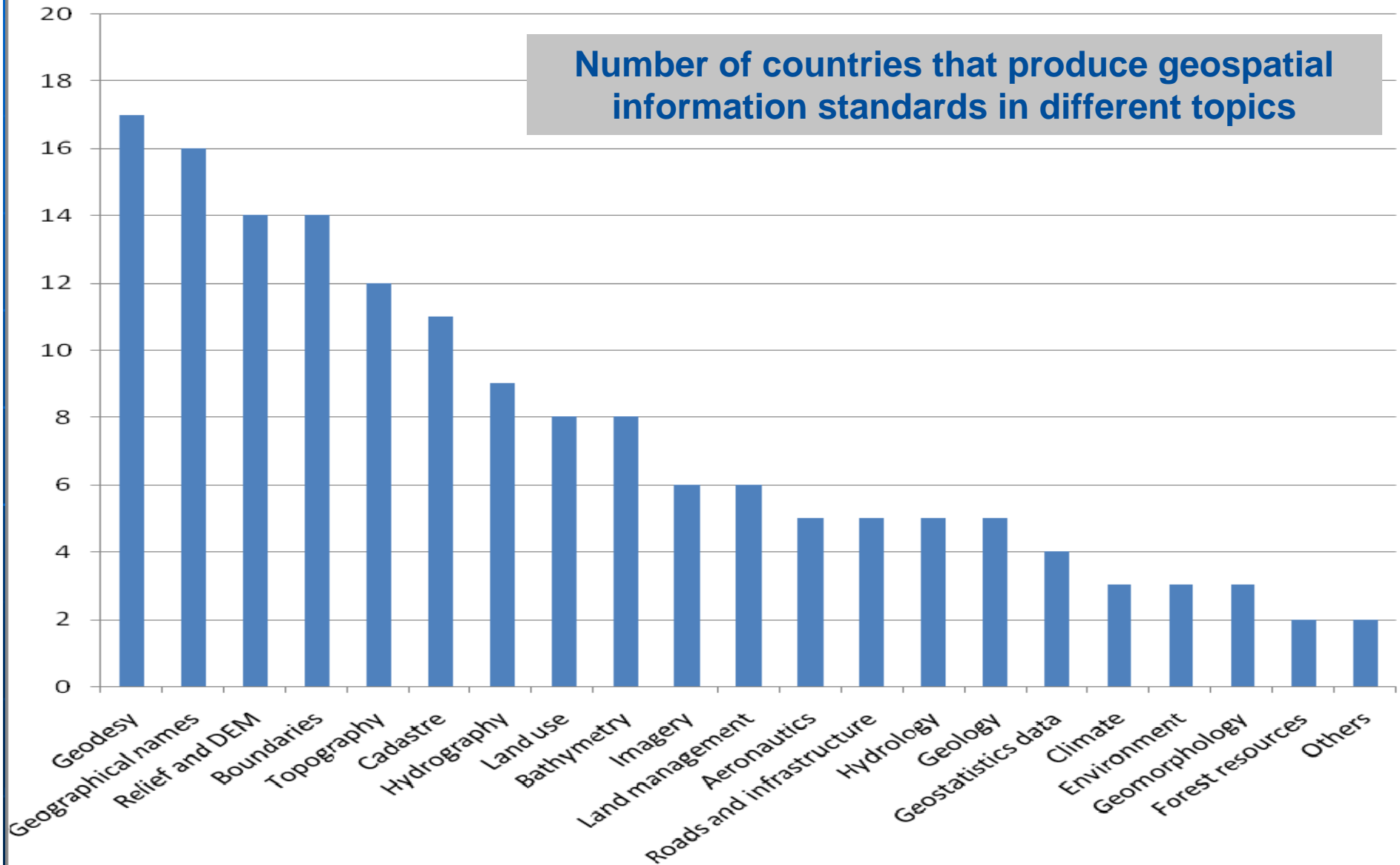
# PC-IDEA Questionnaire Results





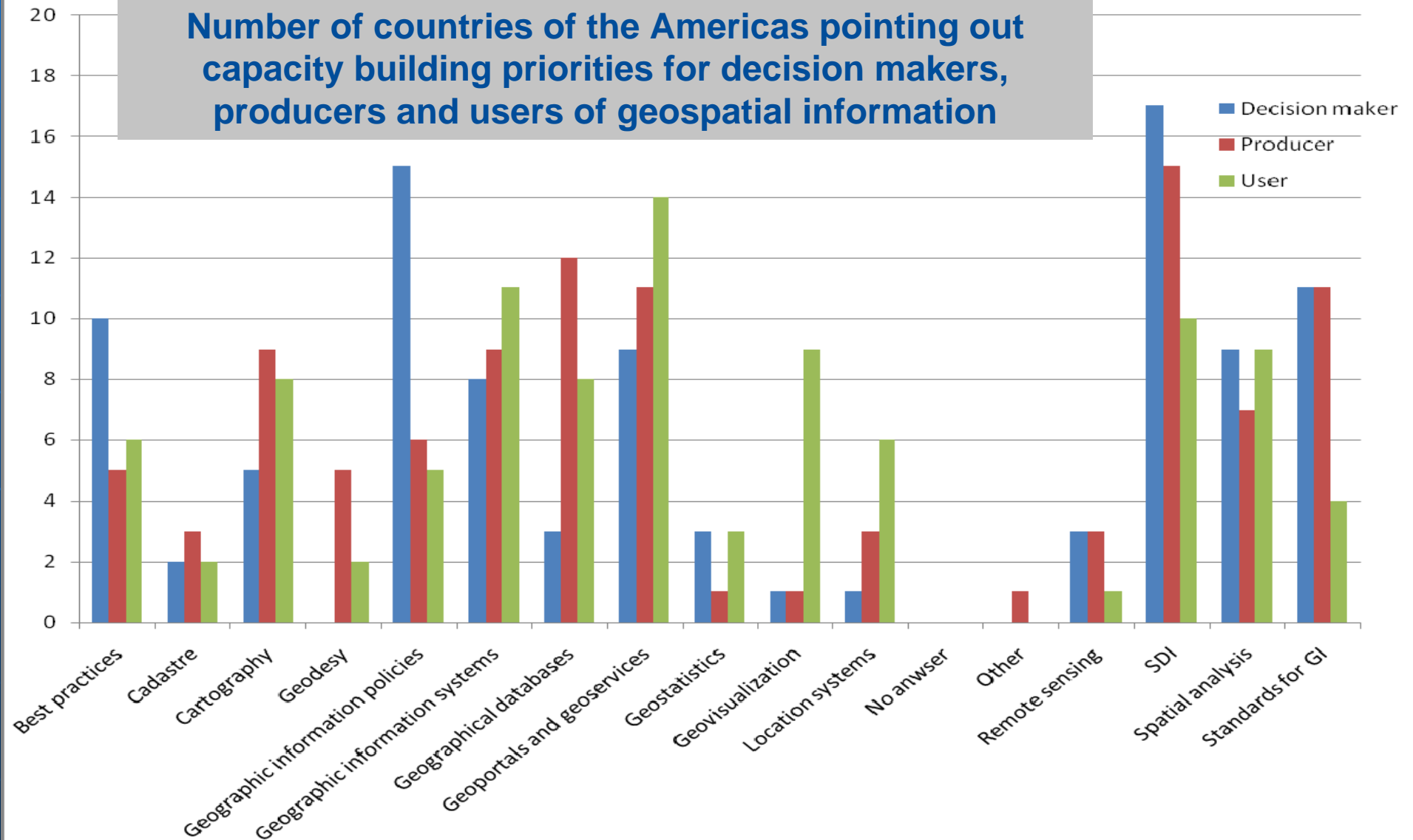
# PC-IDEA Questionnaire Results

Number of countries that produce geospatial information standards in different topics





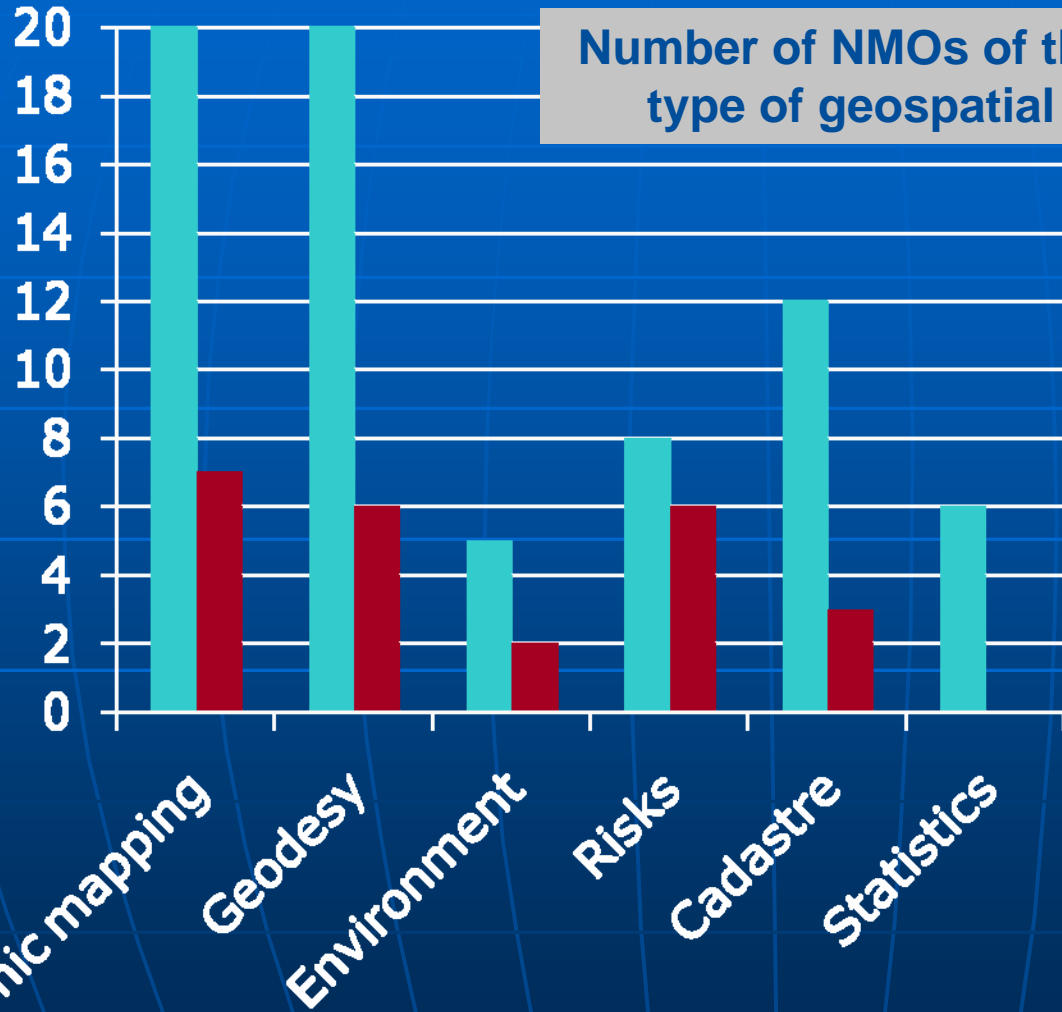
# PC-IDEA Questionnaire Results





# PC-IDEA Questionnaire Results

Number of NMOs of the Americas versus each type of geospatial information produced

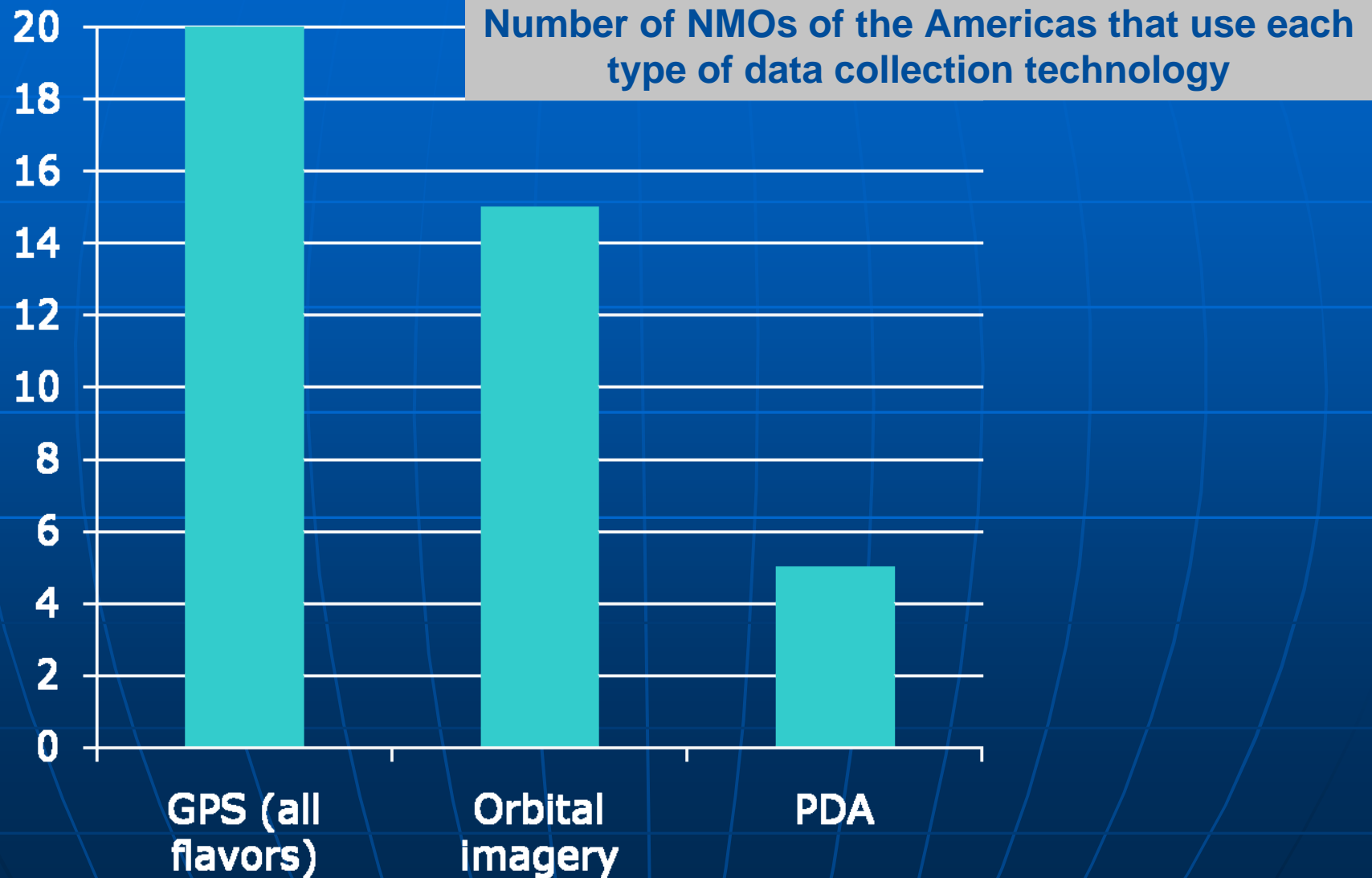


■ Number of NMOs of the Americas versus each type of GI produced

■ Number of NMOs of the Americas versus each type of GI starting to be produced in the last 2 years

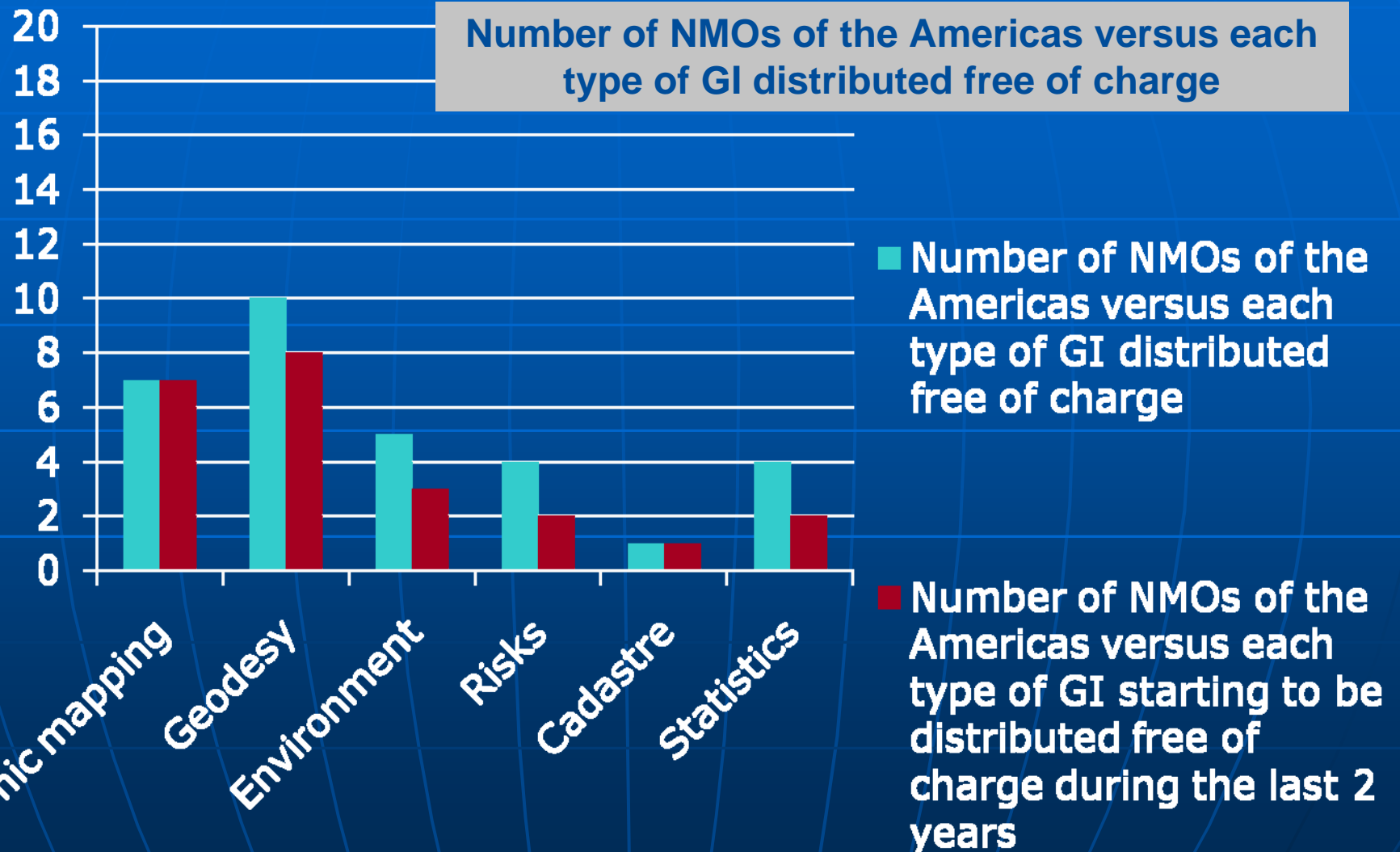


# PC-IDEA Questionnaire Results



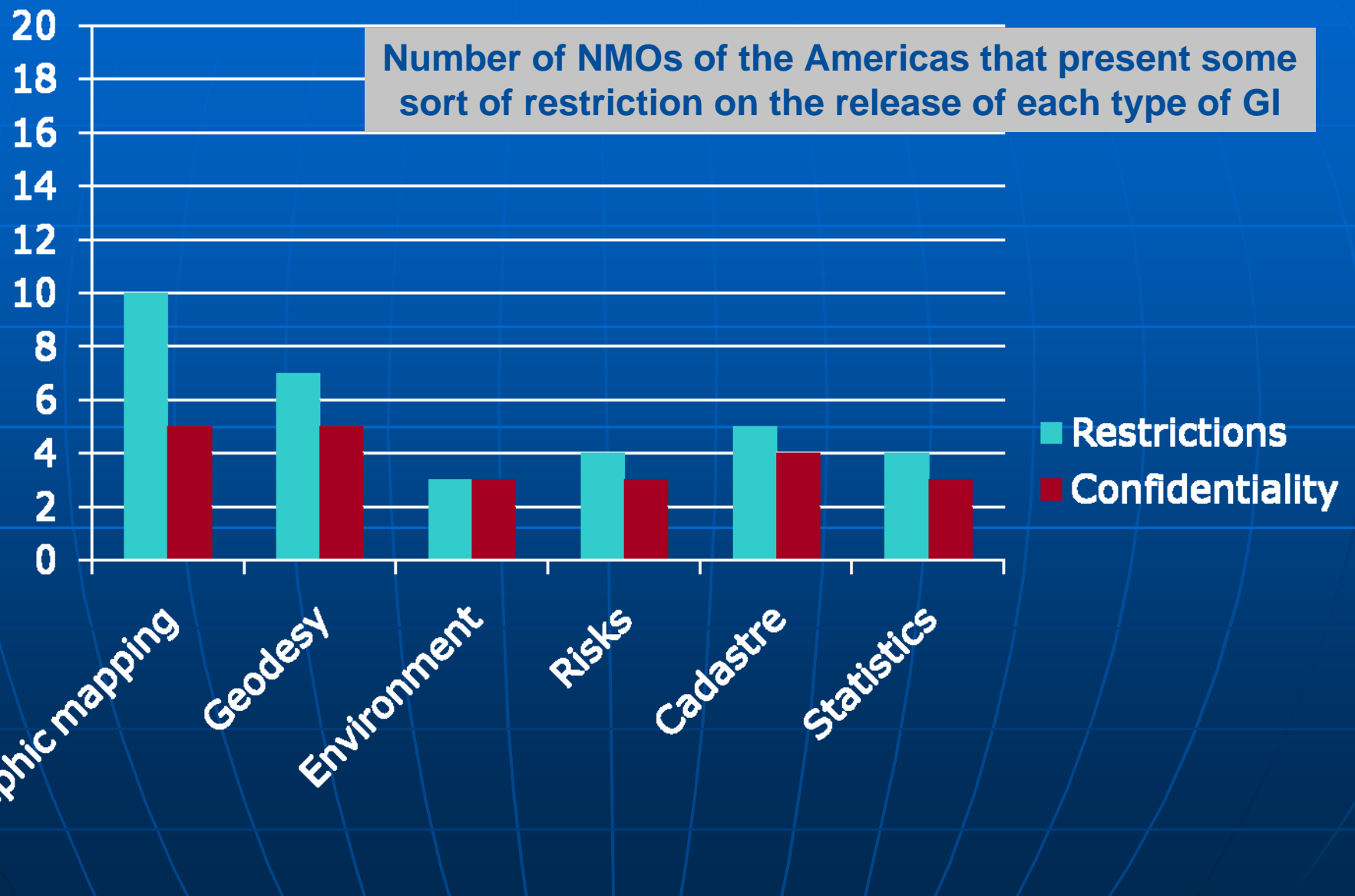


# PC-IDEA Questionnaire Results





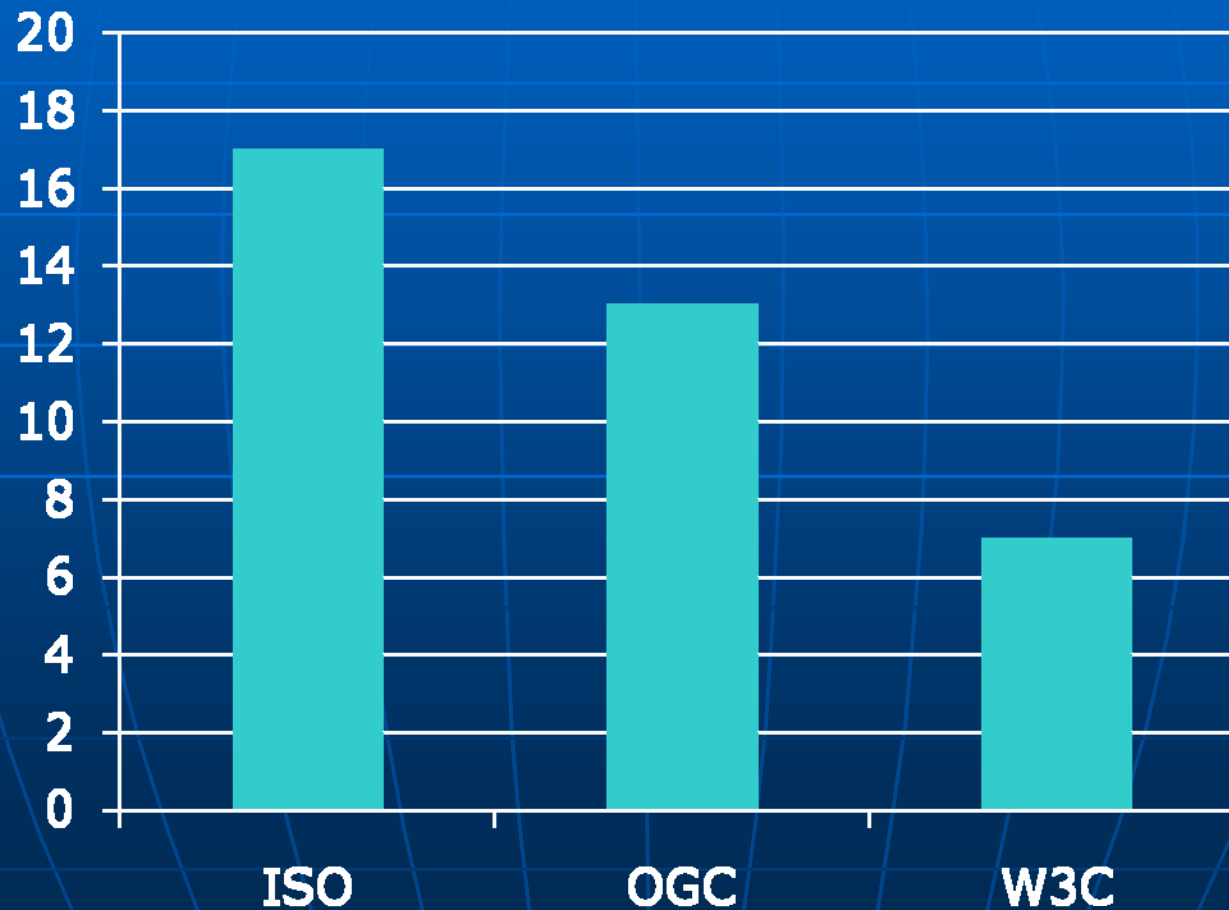
# PC-IDEA Questionnaire Results





# PC-IDEA Questionnaire Results

Number of NMOs of the Americas which follow ISO, OGC and W3C standards

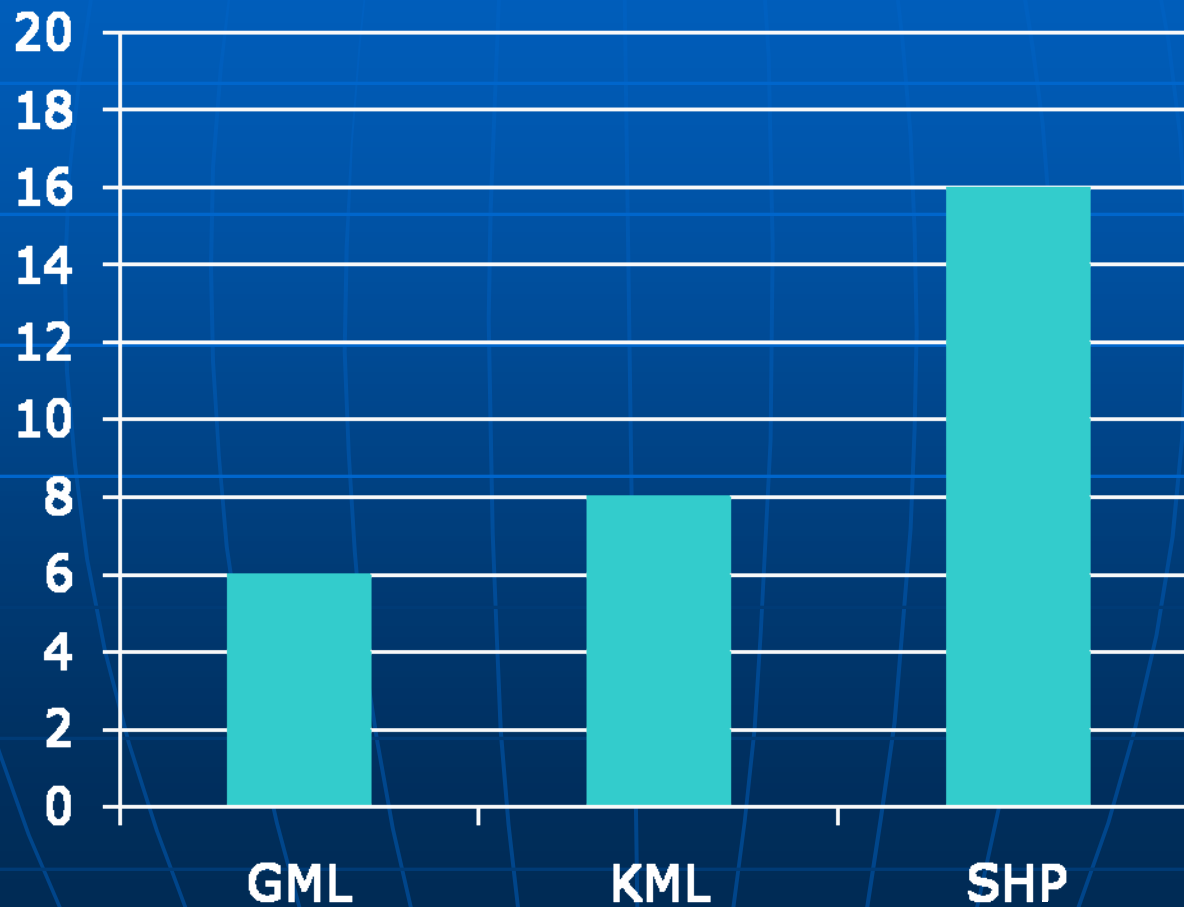






# PC-IDEA Questionnaire Results

Number of NMOs of the Americas which adopt the (OGC) GML, KML, and SHP data interchange formats





# Conclusions

- ✓ UNCE-GGIM plays a very important role in setting up the general strategic legal framework to member countries ⇒ globally, regionally, nationally, and locally
- ✓ Americas
  - ≤ 50% of the NMOs release geospatial data free of charge
  - most of these started doing it during the last two years
  - less than 50% have some sort of restriction on the release of geospatial data
  - open data policy still a challenging issue in the region
- ✓ It is suggested that at least a set of reference and thematic data, at medium and small scale, be made freely available to national and foreign users ⇒ message should be sent to the UN member states fostering them to share, at global level, geospatial data





# Conclusions

- ✓ UNCE-GGIM should include production financing in its agenda, especially in the case of developing countries
- ✓ UNCE-GGIM should issue recommendations and directions to member nations towards the modernization of national legal frameworks to take into account new digital geotechnologies
- ✓ Geospatial framework as important as any other basic infrastructure service ⇒ countries should evaluate the possibility of carrying out an institutional remodeling initiative towards the establishment of a National Geospatial Information Authority (NGIA), with the responsibilities suggested in this presentation
- ✓ A close proximity of NSOs to the proposed NGIAs, contributing to the active participation of the former in the NSDI initiatives, is seen as very beneficial





# Conclusions

- ✓ American countries are in good shape regarding the existence of SDI legal frameworks, SDI policies, the availability of data and services, and the development of reference data standards



- ✓ The low level of monitoring of SDI impact , lack of documentation and dissemination of good practices and the lower level of thematic data standardization - need for including these topics in the formulation/expansion of policies and implementation of institutional arrangements in the Americas



## Conclusions

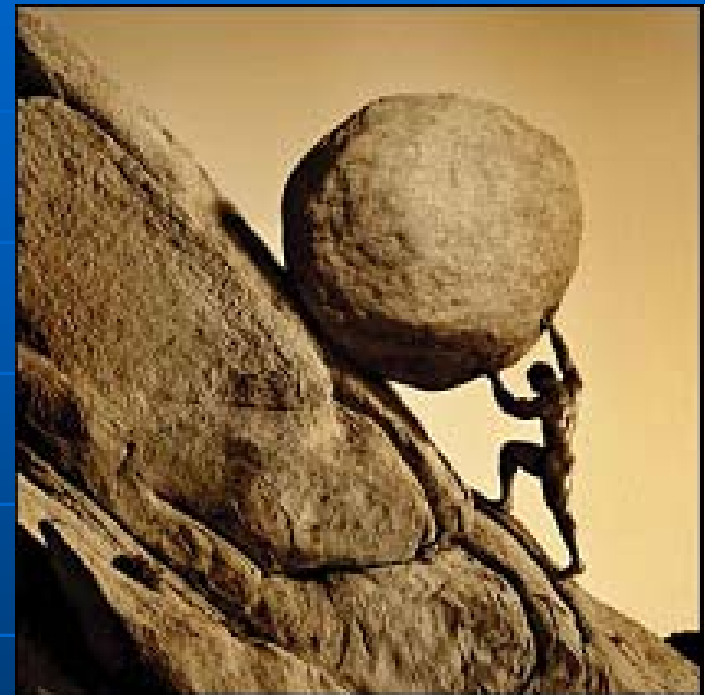
- ✓ Capacity building and education in the Americas was also provided by the survey, pointing out the priorities for producers, users and decision makers to be included into geospatial policies and institutional arrangements in the region
- ✓ NMOs in the Americas have mostly adopted ISO and OGC standards; regarding data interchange formats, the countries of the region still have a way ahead towards adopting a truly open standard in support of data interoperability





## Acknowledgements

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- We would also like to thank GTplan for preparing the questionnaire, the PC-IDEA Executive-Secretary for applying it and the 20 PC-IDEA member countries which have taken the time and effort to answer it, providing a very rich set of information to support the coming PC-IDEA activities



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