



Instituto Geográfico Nacional
CENTRO NACIONAL DE INFORMACIÓN GEOGRÁFICA



About the Impact of INSPIRE in Latin America & the Caribbean

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*“The rush to think like an European
and feel like an Indian”.*

El Inca Garcilaso de la Vega (1539-1616)

INSPIRE Impact in LA&C
A First Approach
A Waterfall of Influence
Influence in PAIGH and GeoSUR
Evolution of American SDIs
Research
Legal Frameworks
Technical aspects
Conclusions

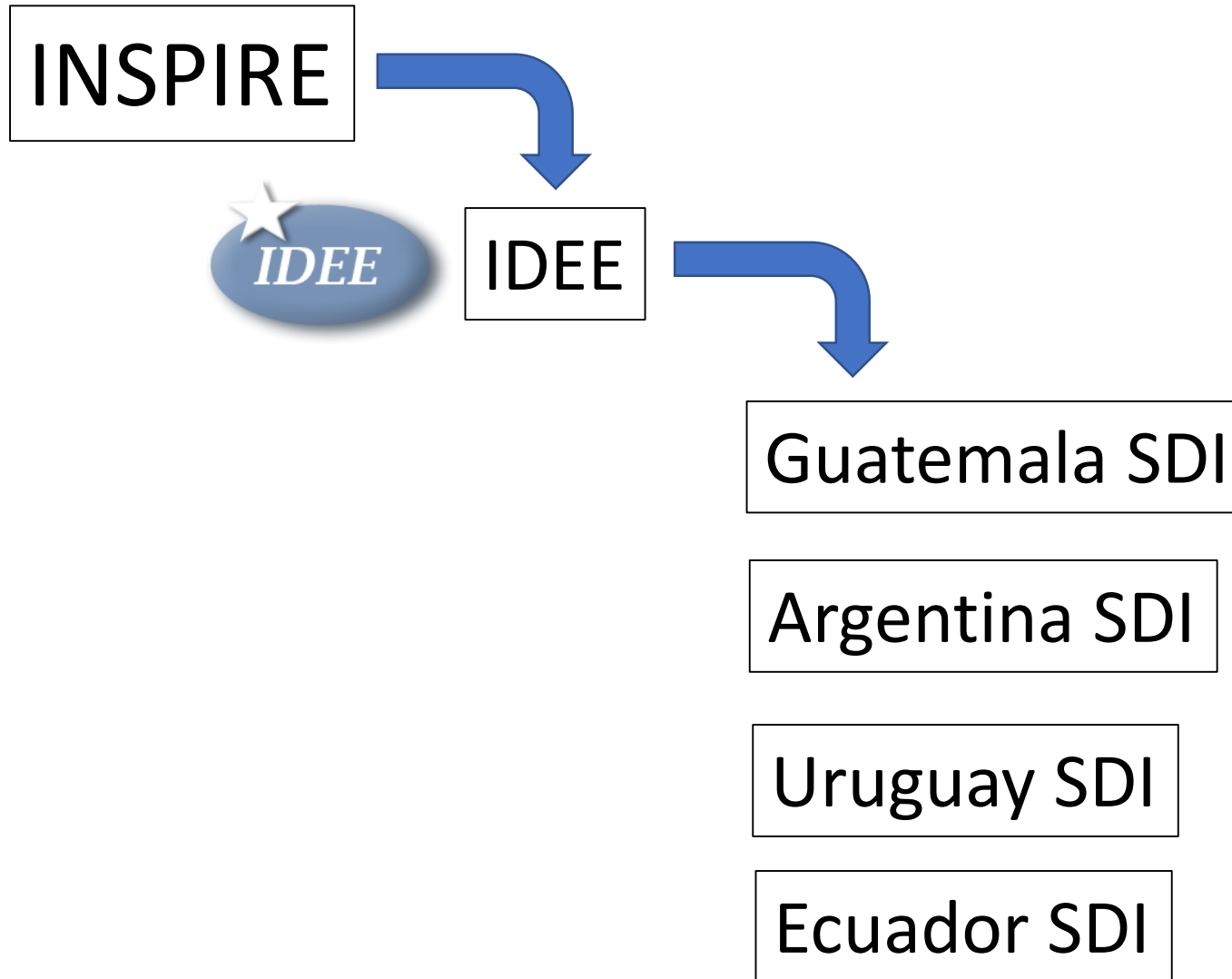
- A very difficult question to answer
- Apparently, not very big influence
- Deep and indirect
- Non-tangible and implicit effect, difficult to quantify



- Spanish Working Group for NSDI founded in 2002
- INSPIRE Directive 2007
- Spanish Master on SDI and Open Source 2006-2011 6 years
 - AECID International Cooperation Spanish Agency
 - UPM Madrid Polytechnic University
 - 150 hours, one month, 10 h INSPIRE
 - 20 students/course, 120 students
- CNIG e-learning courses on SDI or Metadata 2007-2020 14 years
 - 30 courses of 6 weeks
 - Average 100 students/course, more than 2100 students
 - INSPIRE legal framework, metadata and services



A Waterfall of influence

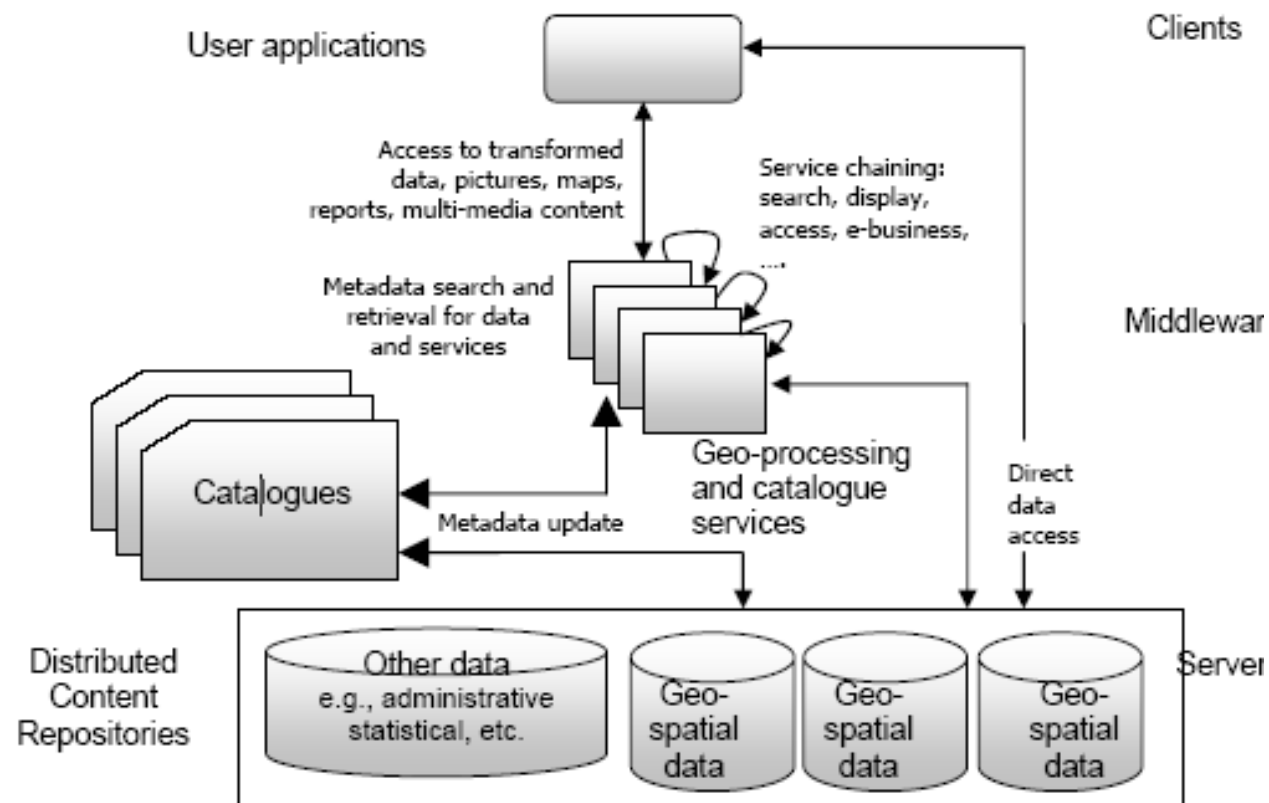


... and others

- Spain is PAIGH Permanent Observer
 - PanAmerican Institute of Geography and History (OEA)
- Close collaboration with General Secretariat since 2006
 - SDI, Training, Metadata support...
 - LAMPv2 metadata profile definition
- CNIG member of GeoSUR Steering Committee (2009)
 - GeoSUR is the Geoportal for South America and the Caribbean
 - Coordinated by PAIGH, financed by CAF (until now)
 - 311 OGC services from 17 countries



An example



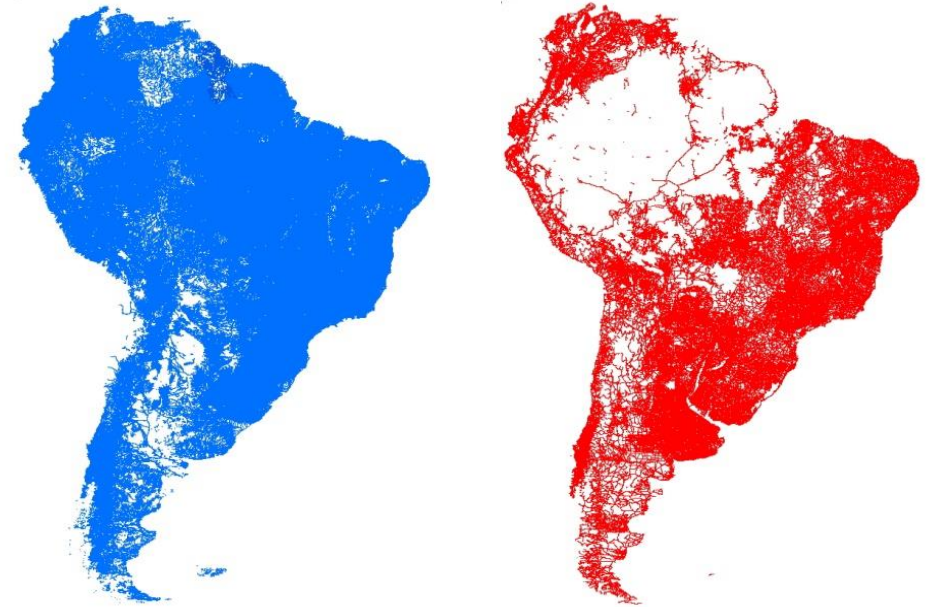
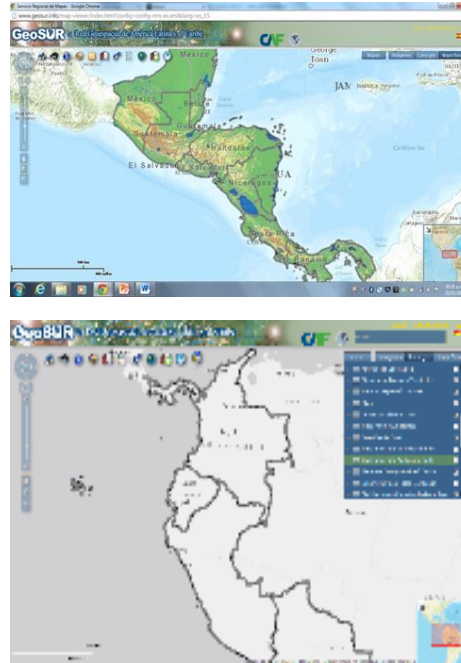
Source: INSPIRE Position Paper of Architecture and Standards
GeoSURr first technical documents

2008	2012	2016	2020
Argentina	Argentina	Argentina	Argentina
-	-	Bolivia	Bolivia
Brazil	Brazil	Brazil	Brazil
Canada	Canada	Canada	Canada
-	Chile	Chile	Chile
Colombia	Colombia	Colombia	Colombia
	Costa Rica	Costa Rica	Costa Rica
Cuba	Cuba	-	-
-	-	-	R. Dominicana
Ecuador	Ecuador	Ecuador	Ecuador
-	El Salvador	El Salvador	El Salvador
Estados Unidos	Estados Unidos	Estados Unidos	Estados Unidos
-	Guatemala	Guatemala	Guatemala
México	México	-	-
-	-	Panama	Panama
Perú	Perú	Perú	Perú
Uruguay	Uruguay	Uruguay	Uruguay
-	Venezuela	Venezuela	-
10	15	15	15

- INSPIRE and Spanish NSDI influence
- Difficult to quantify



- CNIG is the technical facilitator of Integrated Maps of America (MIAs)
- MIACv2 2019
 - Central America
- MIANv1 2017
 - North Andean region
- MIASv1 2019
 - South America
- Future MINA ¿2021?
 - North America



INSPIRED in EuroRegionalMap & INSPIRE

- Research
- Legal Frameworks
- Technical influence

- LatinGEO (2010)
 - Latino American Research Laboratories Network
 - Led by UPM Madrid Polytechnic University
 - Miguel Ángel Bernabé
 - 5 Universities, 22 Thesis
 - Some projects
 - [CYTED IDEAIS](#) (Smart Assistants for SDIs)
 - [CYTED IDEDES](#) (SDIS for Sustainable Dev. In LAC)
 - ...
 - Translation of SDI Cookbook into Spanish

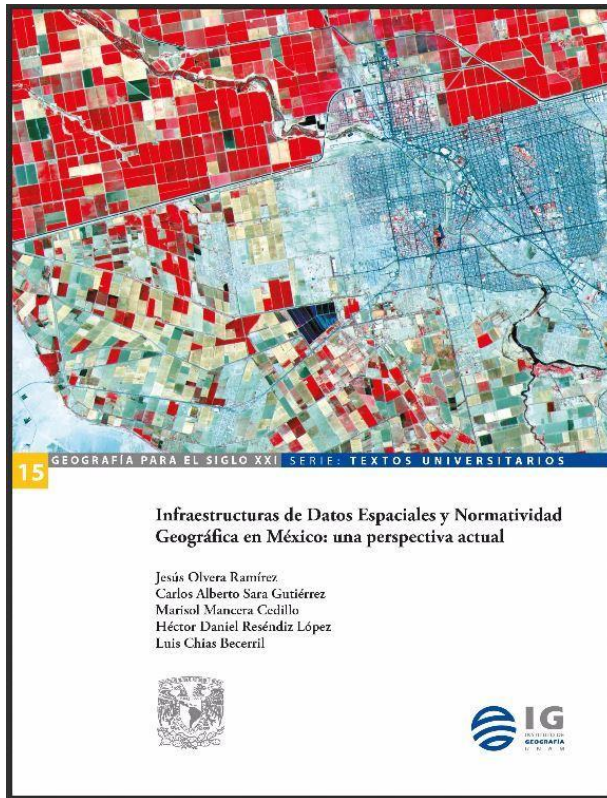


Asociación
RedLatinGEO
Colaboratorio de Tecnologías de la Información Geográfica

<http://redgeomatica.rediris.es/redlatingeo/index.html>

- Bachelor thesis
 - UPM Madrid Polytechnic University
 - A Conceptual Model for the Cadaster of Callao (Perú)
 - Based on ISO 19152 LADM and Cadastral parcels INSPIRE specifications
 - Nelson Chavarría
 - A Model for Air Navigation Cartography in Ecuador
 - Based on Transport Network and General Feature Model
 - José Yépez

- INSPIRE is one the fundamental references to be studied



- “SDIs and Geographic Rules in Mexico: a Current Perspective”

Jesus Olvera Ramírez et al,

Universidad Nacional Autónoma de México, 2014

- A key reference with several sections about INSPIRE



Standards for GI Web Services for Public Sector



Good Practices for the Implementation of SDIs in Public Sector

- Peru SDI fundamental documents
- Uses INSPIRE as a reference (among others)

- 2003/98/EC Directive on the re-use of PSI
- 2007 INSPIRE Directive
 - Exceptions
 - Public Security, Defense, Public Health...
- 2013/37/UE Directive on RPSI
- 2018 RGPD

- Influence on Mexican Legal Framework
- Other countries

- Panamerican Insitute of Geography and History (PAIGH) proposal on Fundamental/Reference Themes
 - It takes INSPIRE A I and II as a reference, among others
 - <https://www.ipgh.org/assets/dgf.pdf>

Geodesy Framework	RS	Hydrography	HY
Geographic Names	GN	Relief	EL
Administrative units	AU	Land Cover	LC
Addresses	AD	Imagery	OI
Cadaster	CP	Settlements	
Transport Network	TN		

GeoSUR geoportal is similar to INSPIRE geoportal



GEOSUR

El Programa GEOSUR es una iniciativa del CAF (Banco de Desarrollo de América Latina), en coordinación con el Instituto Panamericano de Geografía e Historia (IPGH), cuyo objetivo es promover el uso y disseminación de la información geoespacial relevante producida en la región, para la planificación, el desarrollo sostenible y el impulso de las Infraestructuras de Datos Espaciales en las Américas. Como uno de sus principales componentes se destaca el presente geoportal, el primero en su género desarrollado en la región, que ofrece a sus usuarios el acceso a aplicaciones y servicios para encontrar, compartir, procesar y utilizar de manera gratuita e interactiva información geoespacial de la región.

La participación de instituciones generadoras de información geográfica es uno de los componentes fundamentales de esta Red Geoespacial. Más de ochenta instituciones participantes operan servicios de mapas que están actualmente vinculados a este Geoportal. La red está descentralizada y dichas instituciones operan y mantienen sus geoservicios y sus datos, sólo la información de índole regional es mantenida directamente por GEOSUR.



Catálogo de metadatos



Centro de Descarga de Datos

Las últimas noticias de GEOSUR

[Encuesta Usuarios GEOSUR](#)
2018-03-08 11:49:02

[Boletín GEOSUR de Enero a Agosto de 2018, volumen 5, número 1](#)
2017-10-23 22:44:29

[Boletín GEOSUR de Mayo-Julio de 2017 volumen 4, número 5-6-7](#)
2017-07-21 13:08:41

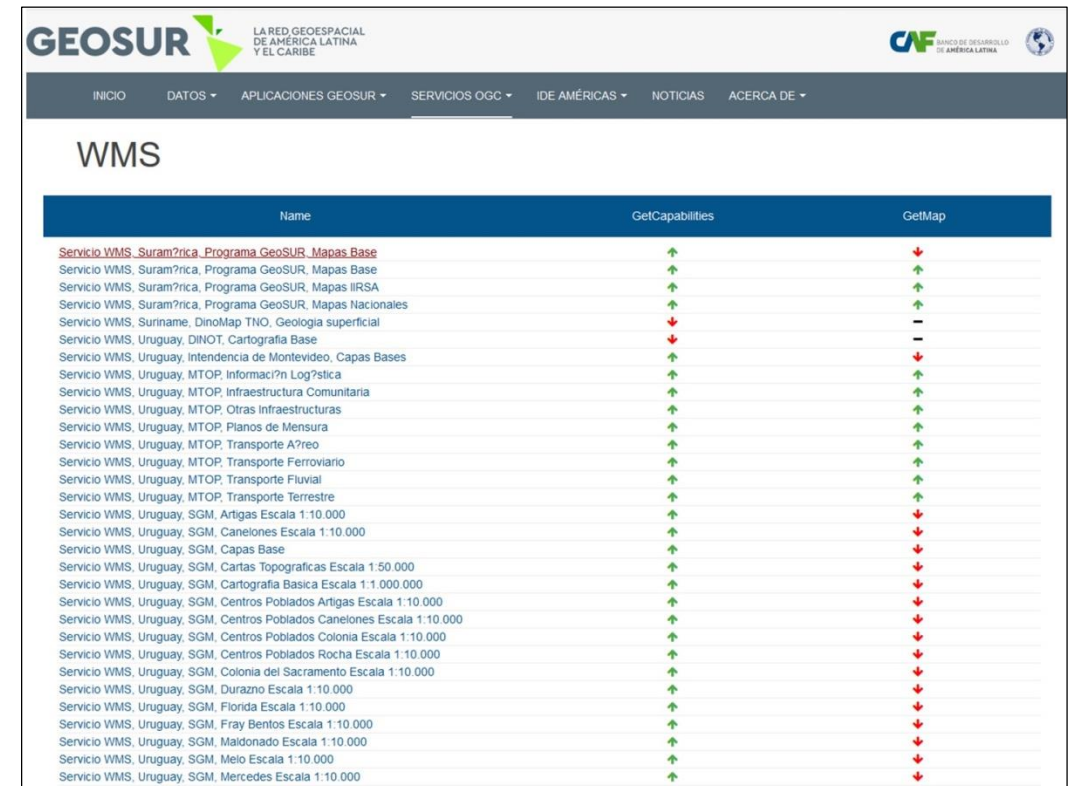
[Boletín GEOSUR de Marzo-Abril de 2017 volumen 4, número 3-4](#)
2017-05-05 13:06:33

[Boletín GEOSUR de Enero-Febrero de 2017 volumen 4, número 1-2](#)
2017-02-28 12:17:36

- Metadata catalogue
- Service Status Checker
- Web Services
- Viewer
- Applications
- News, docs...

- INSPIRE is the most used reference on Quality of Service

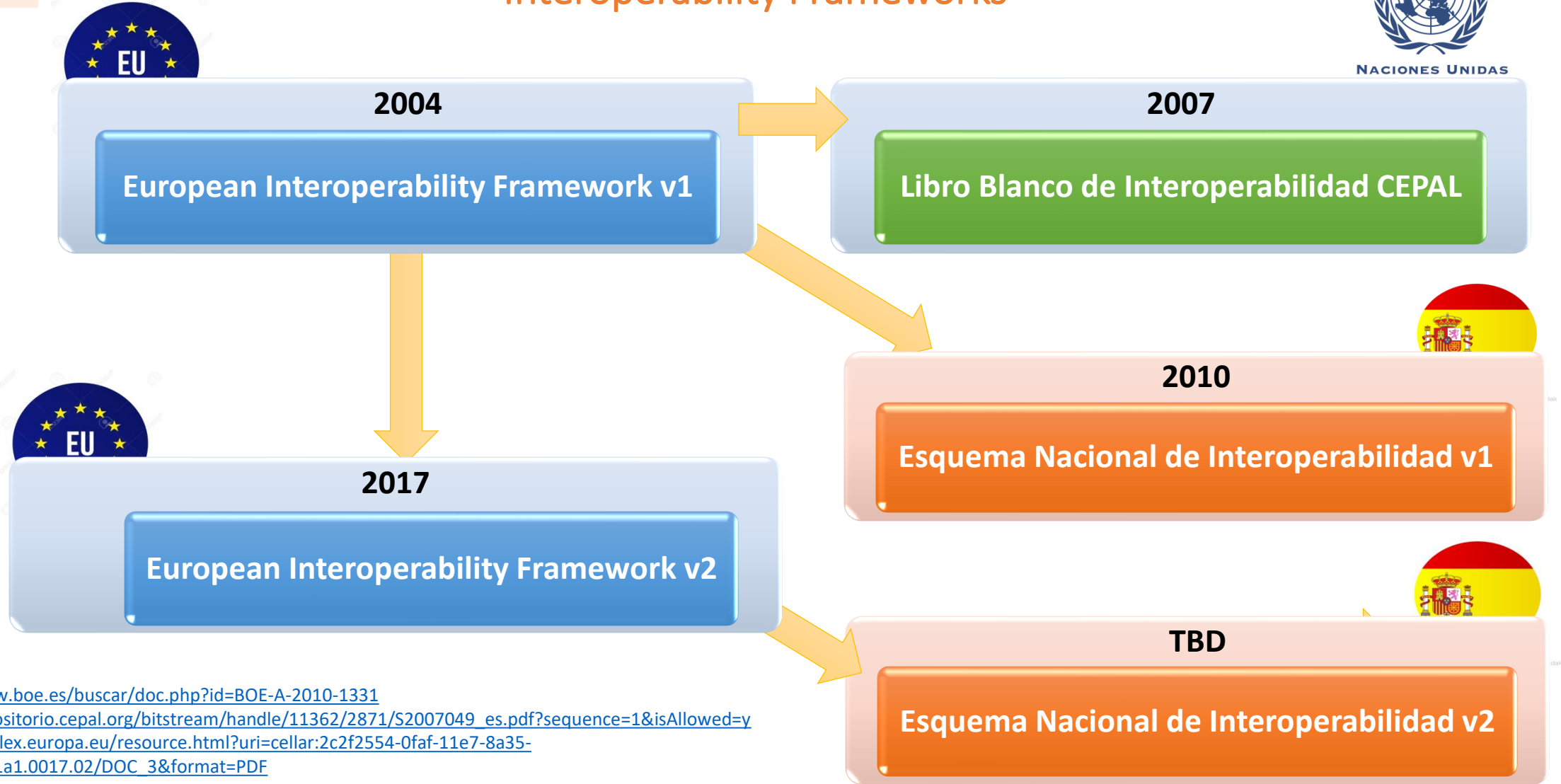
- WMS and WMTS
- Performance $t < 5\text{ s}$
- Availability $> 99\%$



Name	GetCapabilities	GetMap
Servicio WMS, Suram?rica, Programa GeoSUR, Mapas Base	↑	↓
Servicio WMS, Suram?rica, Programa GeoSUR, Mapas Base	↑	↑
Servicio WMS, Suram?rica, Programa GeoSUR, Mapas IRSA	↑	↑
Servicio WMS, Suram?rica, Programa GeoSUR, Mapas Nacionales	↑	↑
Servicio WMS, Suriname, DinoMap TNO, Geologia superficial	↓	-
Servicio WMS, Uruguay, DINOT, Cartografia Base	↓	-
Servicio WMS, Uruguay, Intendencia de Montevideo, Capas Base	↑	↓
Servicio WMS, Uruguay, MTOP, Informaci?n Log?stica	↑	↑
Servicio WMS, Uruguay, MTOP, Infraestructura Comunitaria	↑	↑
Servicio WMS, Uruguay, MTOP, Otras Infraestructuras	↑	↑
Servicio WMS, Uruguay, MTOP, Planos de Mensura	↑	↑
Servicio WMS, Uruguay, MTOP, Transporte A?reo	↑	↑
Servicio WMS, Uruguay, MTOP, Transporte Ferroviario	↑	↑
Servicio WMS, Uruguay, MTOP, Transporte Fluvial	↑	↑
Servicio WMS, Uruguay, MTOP, Transporte Terrestre	↑	↑
Servicio WMS, Uruguay, SGM, Artigas Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Canelones Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Capas Base	↑	↓
Servicio WMS, Uruguay, SGM, Cartas Topograficas Escala 1:50.000	↑	↓
Servicio WMS, Uruguay, SGM, Cartografia Basica Escala 1:1.000.000	↑	↓
Servicio WMS, Uruguay, SGM, Centros Poblados Artigas Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Centros Poblados Canelones Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Centros Poblados Colonia Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Centros Poblados Rocha Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Colonia del Sacramento Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Durazno Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Florida Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Fray Bentos Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Maldonado Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Melo Escala 1:10.000	↑	↓
Servicio WMS, Uruguay, SGM, Mercedes Escala 1:10.000	↑	↓

Service Status Checker (FDGDC)

Interoperability Frameworks



<https://www.boe.es/buscar/doc.php?id=BOE-A-2010-1331>

https://repositorio.cepal.org/bitstream/handle/11362/2871/S2007049_es.pdf?sequence=1&isAllowed=y

https://eur-lex.europa.eu/resource.html?uri=cellar:2c2f2554-0faf-11e7-8a35-01aa75ed71a1.0017.02/DOC_3&format=PDF

Three big influences on SDI & GIS in LAC

BIG solutions



- INSPIRE is a permanent reference on SDI for American countries
- They use the verb “to tropicalize”
 - To try to adapt some technical solution to other latitude
- There also some reluctance
 - Latin America is not Europe
- They don't take advantage of multilinguism

- Technological and economic gap
- No Panamerican legal context
- Language
- INSPIRE documents are not easy to understand
- Some INSPIRE weak points
 - Heavy legal-tech. Contents
 - Complex framework
 - Lack of software, specially Open Source software
 - Open Data not fully adopted in UE

- **Quite big**, deep, continuous on time
- It is a clear reference and an object of inspiration
- Specially in
 - Themes organization
 - Legal framework
 - Conceptual models
 - Specifications
 - Metadata
 - QoS
- All SDI experts knows INSPIRE quite well



Thanks a lot for your attention!

Questions?

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