

# Applying the Multi-view framework to assess National Spatial Data Infrastructures with particular focus on the Dutch SDI

Lukasz Grus  
Joep Crompvoets  
Arnold Bregt  
Tatiana Delgado Fernandez  
Bastiaan van Loenen  
Witse Castelein



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# Content

- **Assessing SDIs**
- **Multi-view framework to assess SDI**
- **Assessment results**
- **Dutch SDI monitoring**



# SDI characteristics that determine assessment

- Complexity of SDI
- Problematic definition
- Multi-understanding
- Many players
- Serves multiple purposes

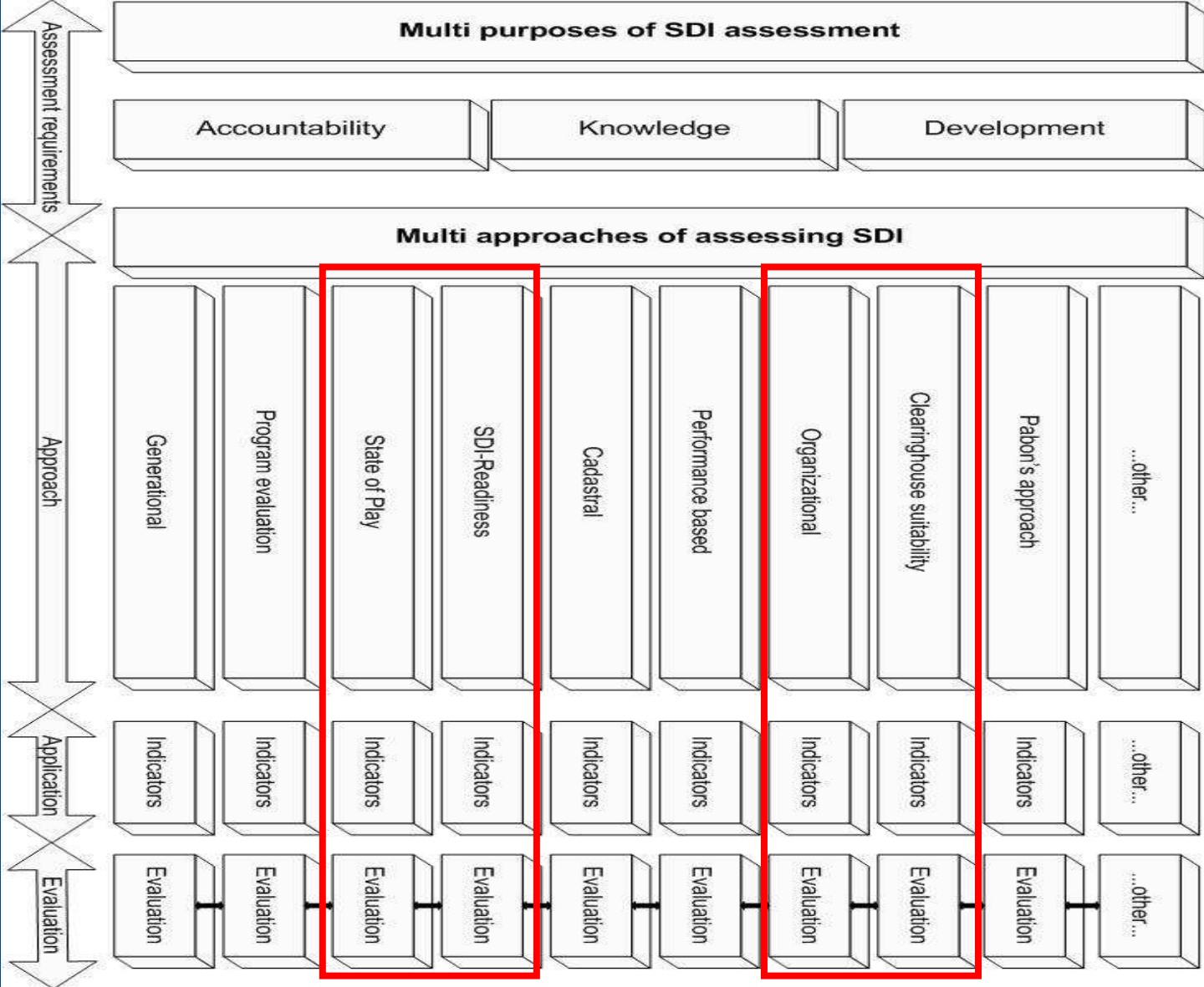


# Principles of assessing SDI

- Use multiple assessment methods and approaches;
- Do not oversimplify;
- Incorporate different views/understandings;
- Decide on the purpose of the SDI assessment: accountability, development and knowledge;
- Flexibility;



# Multi-view SDI framework



# Multi-view SDI framework

- **Multi-view SDI assessment framework based on NSDI as CAS reasoning.**
- **Characteristics**
  - several assessment approaches
  - flexible (extensible)
  - multiple methods
  
  - reduced bias
  - full picture of SDI performance
  - multiple purposes of assessment



# Multi-purpose

- **Link purpose to type of view (approach):**
  - **State of Play – accountability, developmental;**
  - **SDI readiness – knowledge, developmental;**
  - **Organizational – developmental;**
  - **Clearinghouse suitability – accountability, developmental;**



# Countries sampled

Questionnaire distributed to SDI-coordinators  
(including questions relating to the views)

- Brazil
- Canada
- Chile
- Colombia
- Cuba
- Denmark
- Ecuador
- Mexico
- Norway
- Nepal
- Spain
- The Netherlands
- Uruguay
- USA



# Clearinghouse suitability view

- Examination of the developments of the existing national spatial data clearinghouses around the world
- Focus on a systematic description of 15 clearinghouse characteristics described by Crompvoets et al. (2004).



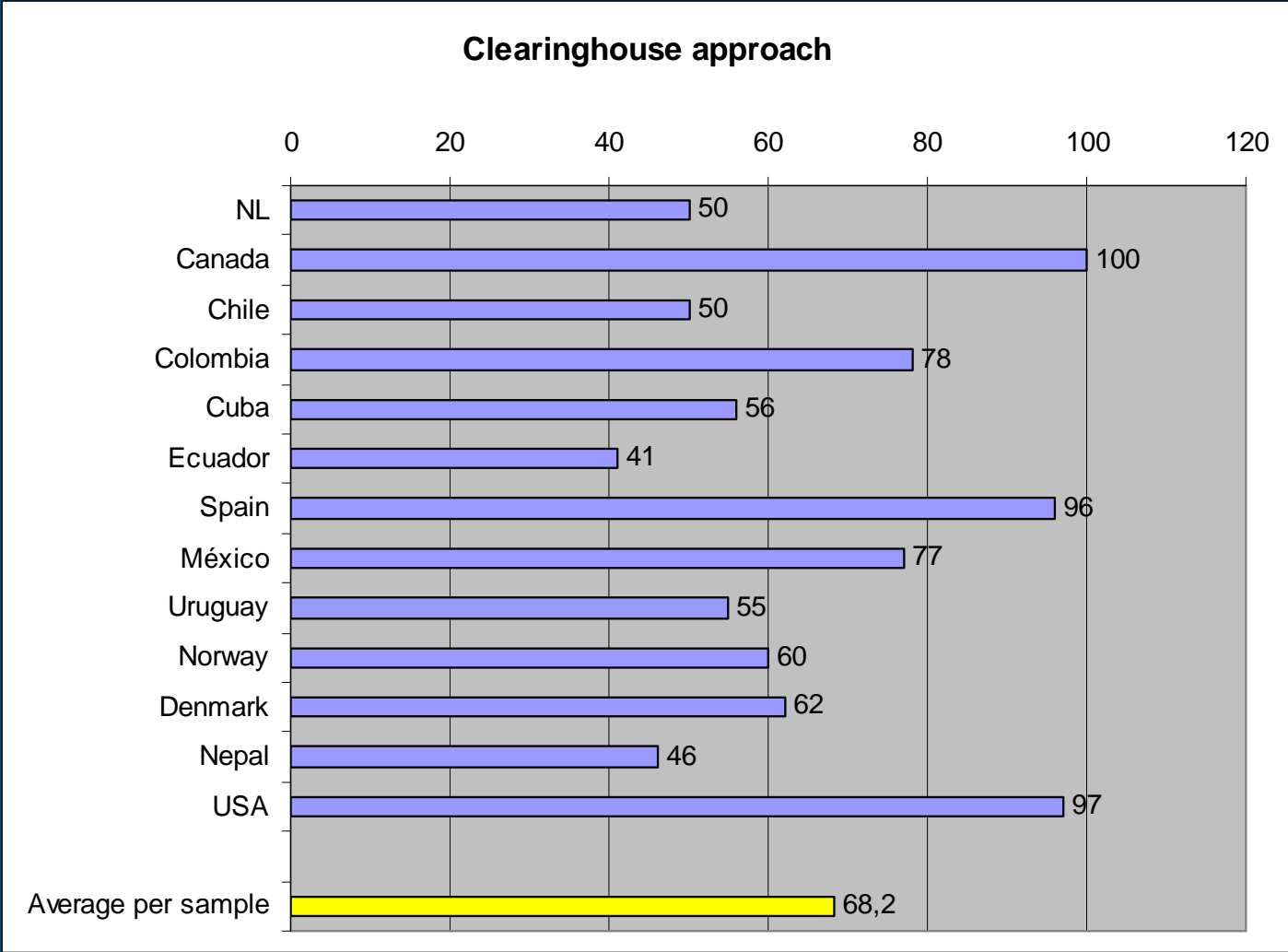
# Clearinghouse suitability view

## Clearinghouse characteristics measured:

- 1) Number of data suppliers;
- 2) Monthly number of visitors;
- 3) Number of web references (Google);
- 4) Languages used;
- 5) Frequency of web updates;
- 6) Level of (meta)data accessibility;
- 7) Number of datasets;
- 8) Most recently produced dataset;
- 9) (De)centralised network architecture;
- 10) Availability of view (web mapping) services;
- 11) Mechanisms for searching;
- 12) Use of maps for searching;
- 13) Registration-only access;
- 14) Funding continuity, and
- 15) Metadata-standard applied.



# Clearinghouse suitability view



Clearinghouse suitability per country

# Organizational view

- Intention to identify, describe and compare the current status of the organizational aspects of the NSDI
- Assessment of characteristics of institutional components:
  - leadership
  - vision
  - communication channels
  - self organising ability of sector
- Four stages of development
  - Stand-alone (stage 1)
  - Exchange (stage 2)
  - Intermediary (stage 3)
  - Network (stage 4)

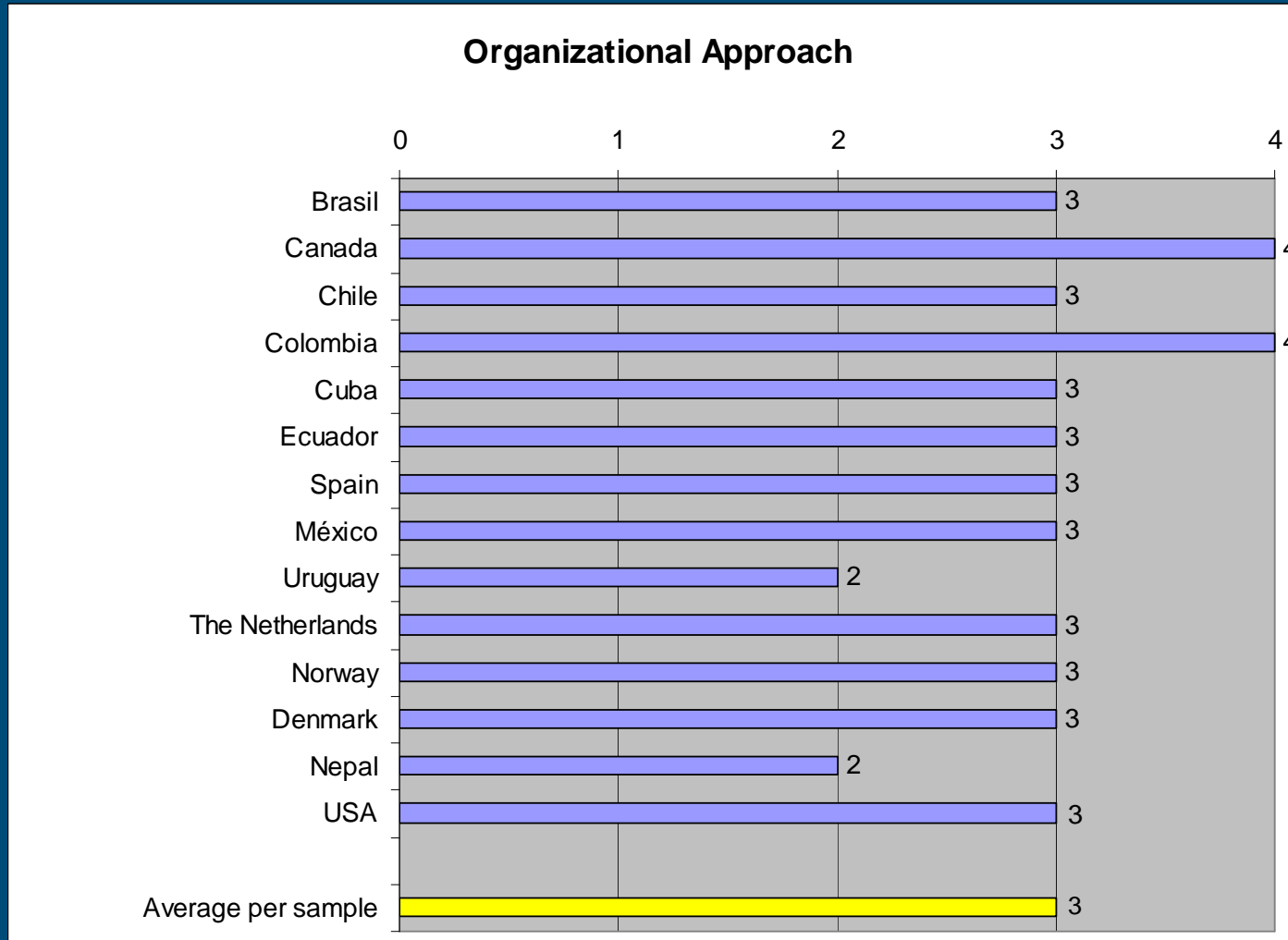


# Organizational view

Stage	Stand-alone	Exchange	Intermediary	Network
Aspect				
Leadership		I	VI	II
Vision	I	V	III	
Communication		II	VI	I
Self-organising ability		I	VI	II



# Organizational view



# State of Play view





- **State of Play of SDIs in Europe performed by the Spatial Applications Division of K.U. Leuven (Vandenbroucke)**
- **Assessment refers to the items that relate to a number of organizational issues and to the six generic components of an SDI (GSDI-Cookbook) + Thematic environmental data**
  - **Organizational aspects**
  - **Legal Framework and Funding Mechanism,**
  - **Spatial data,**
  - **Metadata,**
  - **Access and other Services,**
  - **Standards,**
  - **and Thematic environmental data**



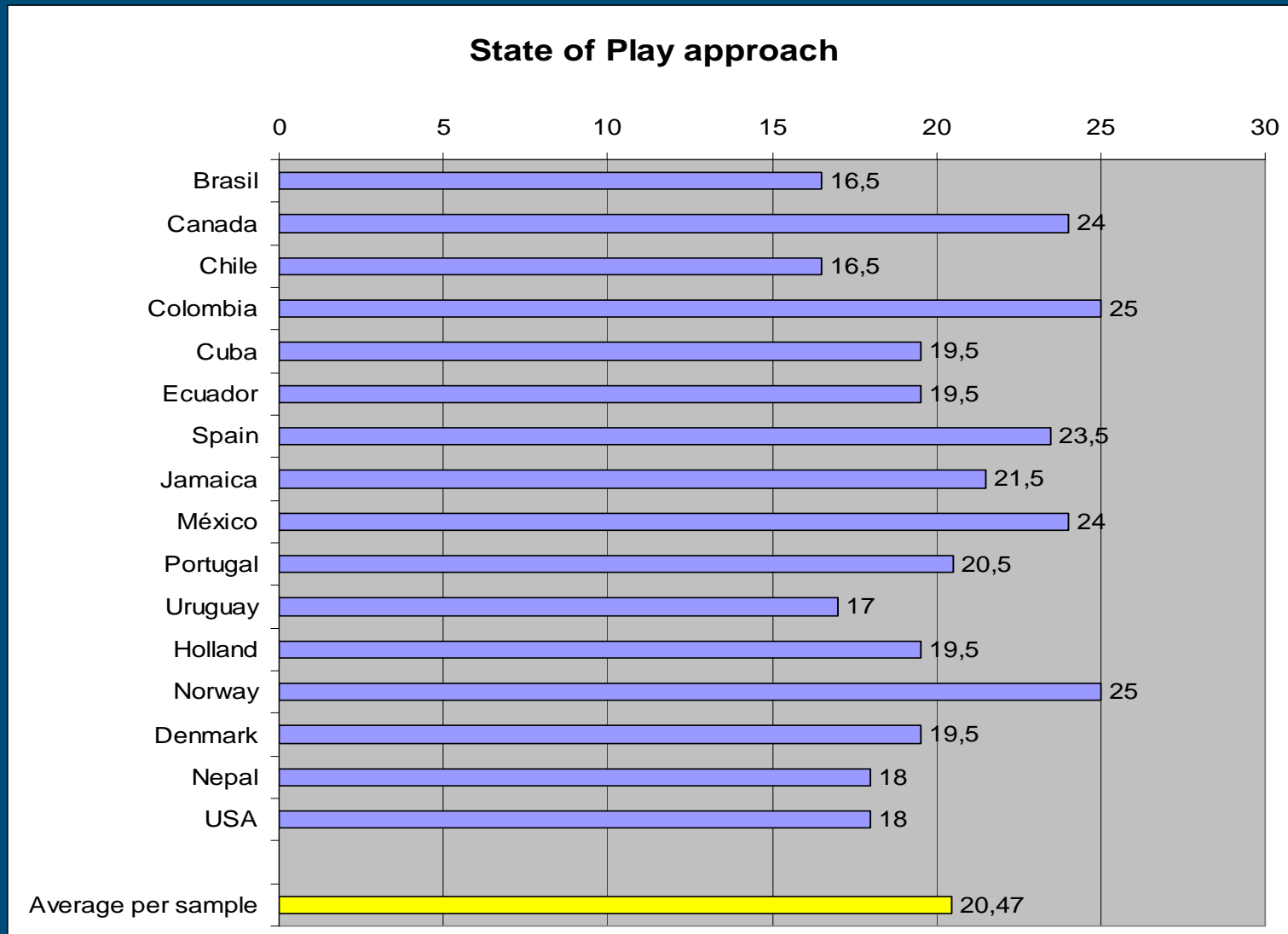
# State of Play view

Country	Organizational aspects											Legal and financial aspects									Spatial Data					Meta-data			Access services			Stand ards			Thematic envir. Data		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
Brasil	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Chile	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Colombia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Cuba	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Ecuador	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Spain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
México	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Uruguay	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Holland	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Norway	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Denmark	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Nepal	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
USA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		

	In full agreement - Value 1
	In partial agreement - Value 0,5
	Not in agreement - Value 0
	Insufficient information

# State of Play view



Values calculated without statements 4, 5, 6.

# SDI-readiness index view

- SDI readiness index is defined as *the degree to which a country is prepared to deliver its geographical information in a community.*
- **Aspects:**
  - organizational
  - information
  - access network
  - human resources
  - financial resources

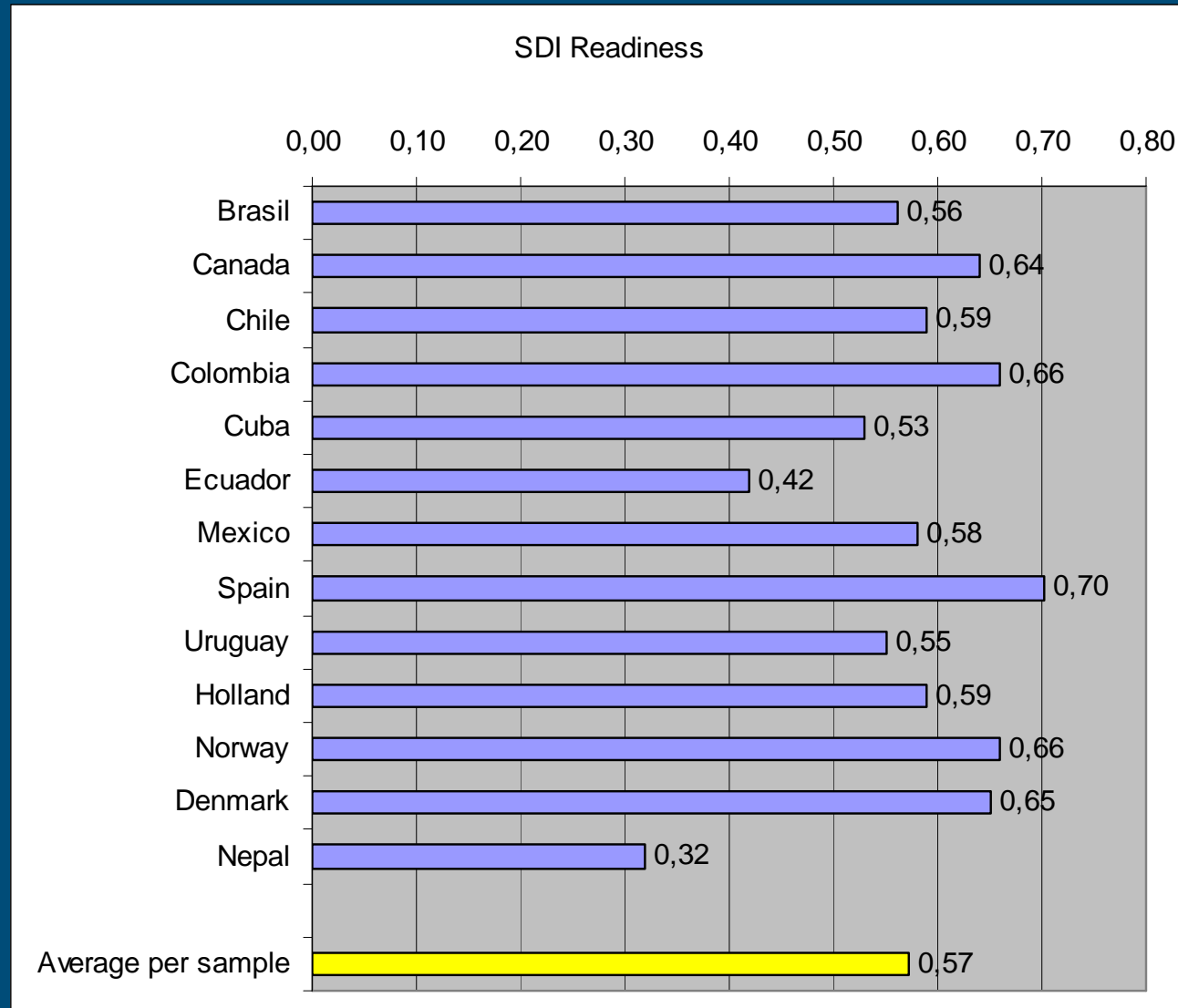


# SDI-readiness index view

- Integrating factors from several points of view:
  - *organizational* (vision, institutional framework, legal framework);
  - *information* (digital cartography availability, metadata availability);
  - *access network and technology* (communication infrastructure, web connectivity, availability of commercial or inhouse spatially-related software, use of open source service);
  - *human resources* (human capital, Culture/Education on SDI culture, individual leadership), and
  - *financial resources* (government funding, funding by means of cost recovery, private and enterprise sector funding).



# SDI readiness view results



# Results per country

Country \ Assessment view	<u>Clearinghouse view</u>	<u>Organizational view</u>	<u>SoP view</u>	<u>SDI readiness view</u>
<b>Brasil</b>	No data	On average	Below average	On Average
<b>Canada</b>	Above average	Above average	Above average	Above average
<b>Chile</b>	Below average	On average	Below average	On average
<b>Colombia</b>	Above average	Above average	Above average	Above average
<b>Cuba</b>	Below average	On average	On average	Below average
<b>Ecuador</b>	Below average	On average	On average	Below average
<b>Spain</b>	Above average	On average	Above average	Above average
<b>Mexico</b>	Above average	On average	Above average	On average
<b>Uruguay</b>	Below average	Below average	Below average	On average
<b>The Netherlands</b>	Below average	On average	On average	On average
<b>Norway</b>	On average	On average	Above average	Above average
<b>Denmark</b>	Around average	On average	On average	Above average
<b>Nepal</b>	Below average	Below average	Below average	Below average
<b>USA (Minnesota state)</b>	Above average	On average	Below average	No data

# Results

- **Canadian, Colombian and Spanish SDIs in each assessment view performs relatively better than others**
- **Nepalese SDI in each assessment view performs relatively worse than others.**
- **Differences between approaches results, but not very high**



# Results

- **SDI readiness view vs. Clearinghouse suitability view**
  - Correlation coefficient = 0,69
- **SDI readiness view vs. State of Play view**
  - Correlation coefficient = 0,54
- **SDI clearinghouse suitability view vs. State of Play view**
  - Correlation coefficient = 0,44

**Different views are not highly correlated which means that they measure different aspects of SDI (are not redundant)**



# Conclusions

- **Multi-view assessment framework shows broader picture of each country SDI**
- **This allows for more objective and less biased NSDI assessment**
- **Multi-view framework application will be continued using more than 4 assessment views, using experts that evaluate a selective number SDIs, and sampling more countries.**



# Conclusions/Recommendations

- **Assessment cannot be too simple**
- **...but must be simple enough to be applicable**
- **Use more than one method/approach**
- **Make assessment not to punish but to help**
- **Use the results in a proper way**



# GIDEON - Vision and implementation strategy



## Objectives (2008-2011):

- Geo-information accessible for citizens and private sector;
- Private sector is able to create economic added value;
- Integrated use of geo-information by the public sector;
- Continues and ongoing development and innovation.



# Implementation strategies

**Embedding geo in e-Government**

**Legal geo basic registers**

**INSPIRE implementation**

**Supply optimization**

**Cooperation/Connection**

**Value adding**

**Knowledge, innovation and education**



# Monitoring and implementation

**Current Status GIDEON: adopted by GI council and send by the Minister to the parliament (2 June).**

**Monitoring and implementation under discussion:**

- **Progress monitoring and reporting to GI council and parliament;**
- **Communication and promotion of GIDEON in geo-sector and to establish links to other (ICT) initiatives;**
- **Observe ongoing developments and identify bottlenecks (pro-active);**
- **Support and facilitate the implementation for stakeholders.**

**Challenge: Use multi-view framework to facilitate the monitoring of GIDEON – under discussion.**



# Thank you

- Questions?
- Survey distribution? [Joep.crompvoets@wur.nl](mailto:Joep.crompvoets@wur.nl)  
[lucas.grus@wur.nl](mailto:lucas.grus@wur.nl), [tatiana@geocuba.co.cu](mailto:tatiana@geocuba.co.cu)

