The ‘governability’ of Spatial Data Infrastructures

SDI Research and Strategies towards 2030:Renewing the SDI Research Agenda

2018-06-11, Lund, Jaap-Willem Sjoukema

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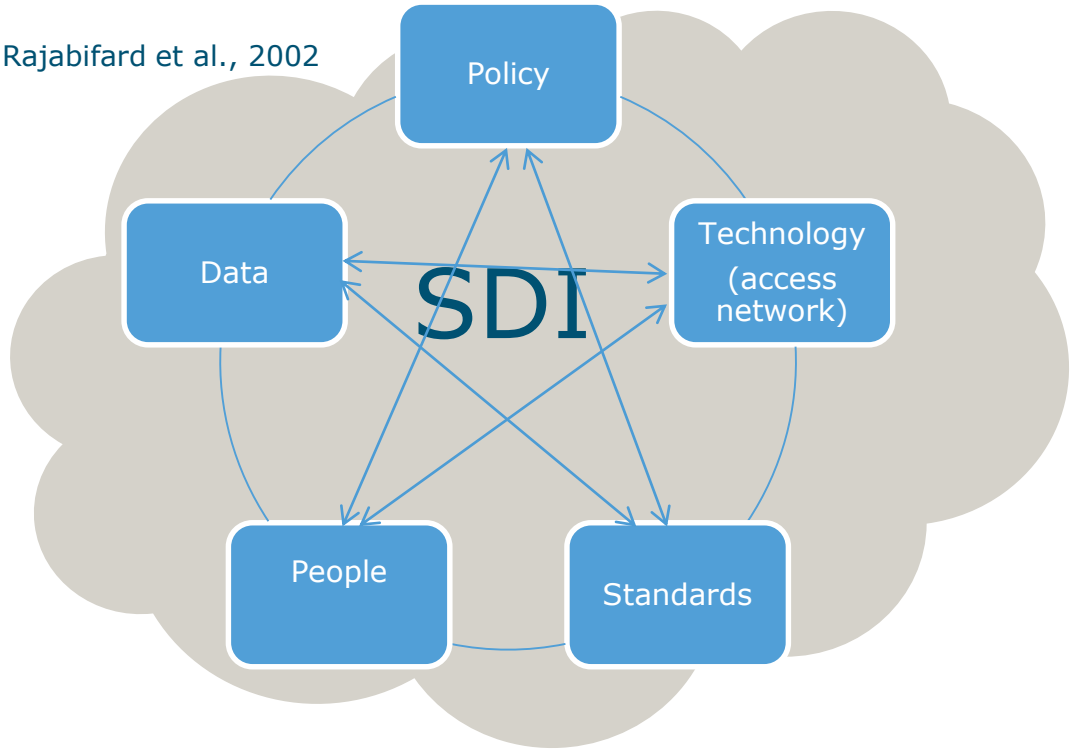
Spatial Data Infrastructures

Adapted from Rajabifard et al., 2002



Every component is dynamic

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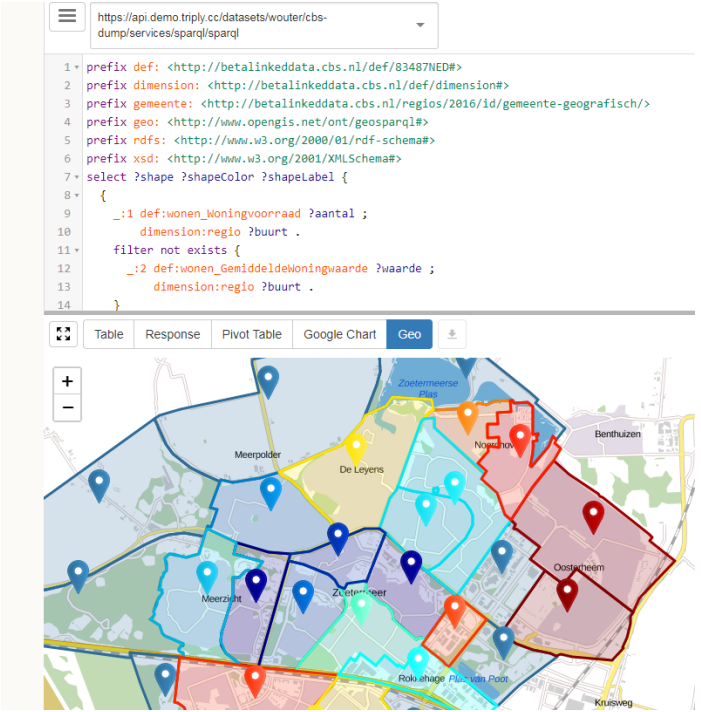
SDI technologies and standards

- Cloud infrastructures
- Linked Data
- REST API’s and ‘Web’ standards
- 3D
- Blockchain
- Visualization (Vector tiling)
- ...But also maintaining and updating SDIs and their ‘legacy’



SDI Data

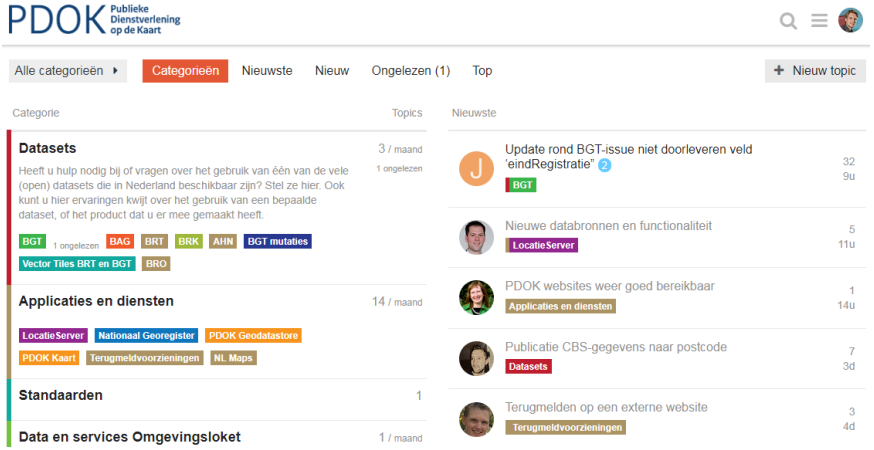
- 3D, BIM
- Integration of datasets
    - Other spatial data
    - Non spatial data
- Data quality monitoring
- Volunteered Geographic Information
- Feedback reporting

SDI Policies

- Open data
- Privacy (GDPR)
- INSPIRE
- ‘Data at the source’ (decentralization)
- Making policies ‘data driven’
- From ‘data infrastructures’ towards ‘information infrastructures’
    - SDIs answering questions

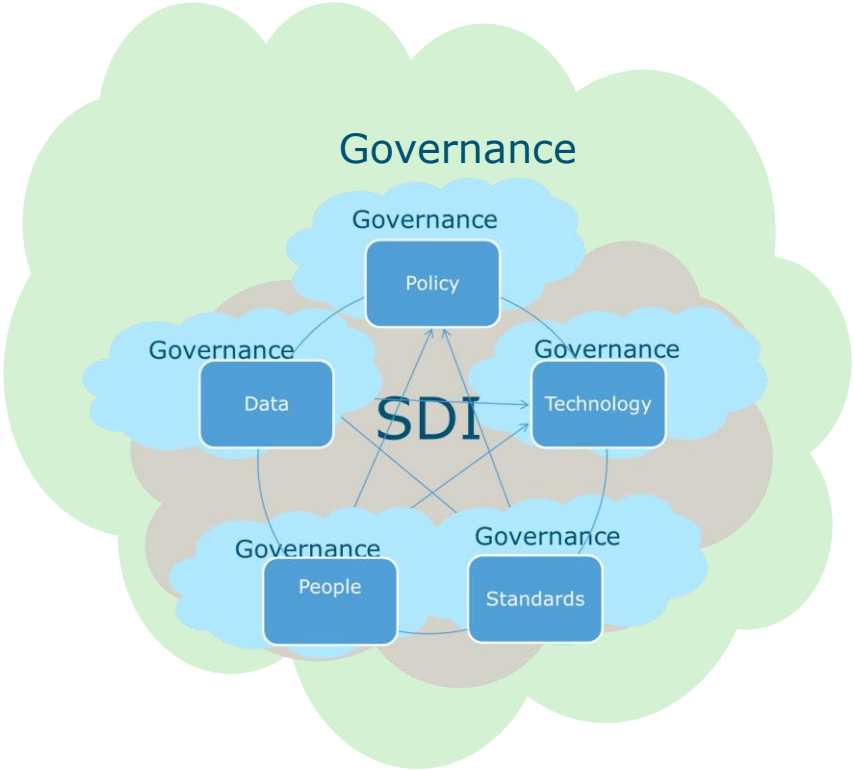
SDI People

- Decentralization
  - More data providers
- Open data
  - More data users
- Creating communities
- Changing role of the third sector (e.g. open-source, start-ups)
- SDI politics: are SDIs sexy? IT projects are scary..



SDI governance

- With so many developments...
- And limited resources...
- We have to make choices!
- Therefore we need SDI governance
    - For its components
    - And the ‘sum of the parts’



But how do we do that?

- How can we design the SDI governance processes so it will be effective?

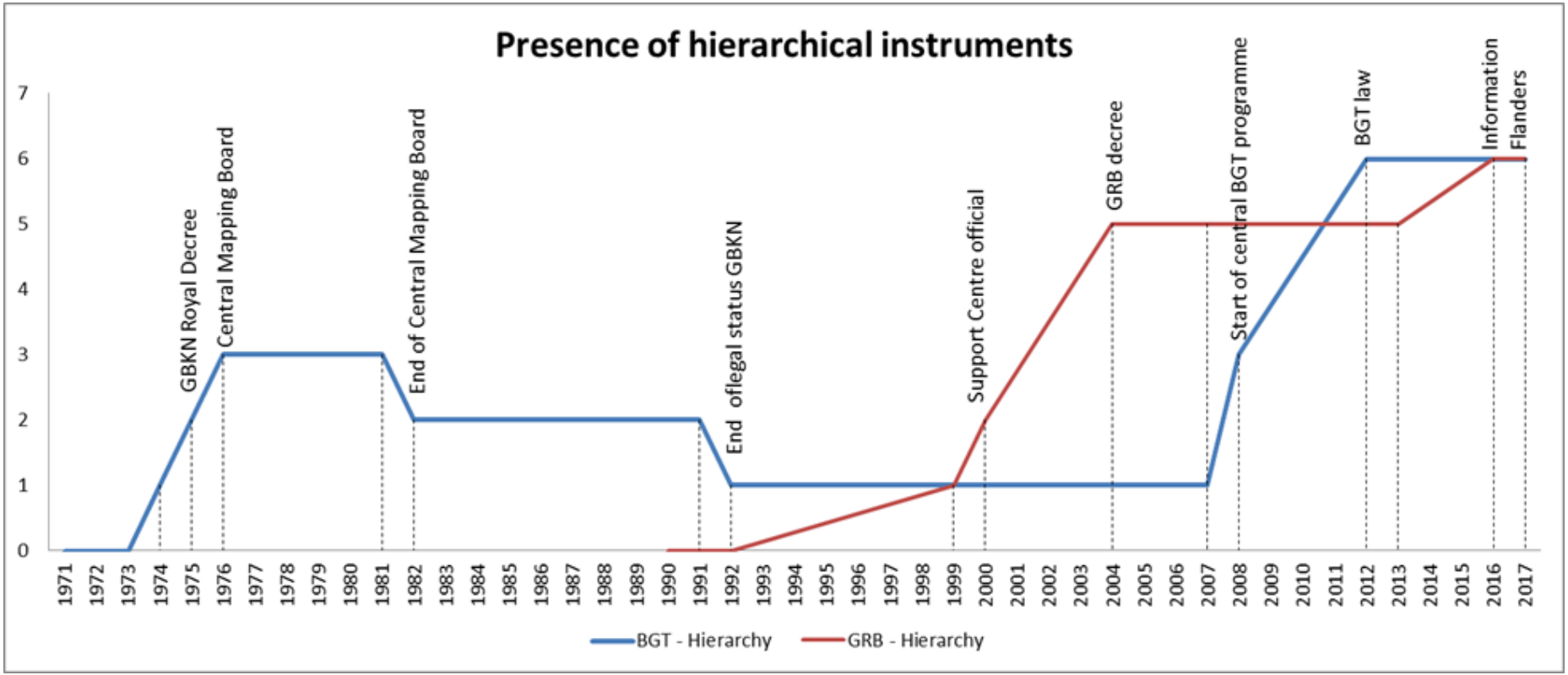
My research

- PhD project to study ‘Effective governance for Spatial Data Infrastructures’
- First step:
    - Exploring the dynamics of SDI governance
    - Case study to of two longitudinal SDI developments:
        - BGT (Netherlands, from around 1970 – now)
        - GRB (Flanders, Belgium from around 1990 – now)
    - Article: http://www.mdpi.com/2220-9964/6/8/251

Some lessons learned

- Both base maps emerged from network activities
- Both developments had a slow and almost failed start in the production of data
- These ‘crisis moments’ sparked self-organization and governance improvements, which led to a more productive development
- It took around 20-25 years to be really successfull
- Both initiatives accumulated a broader mix of market-type, network-type and hierarchy-type interactions during the years

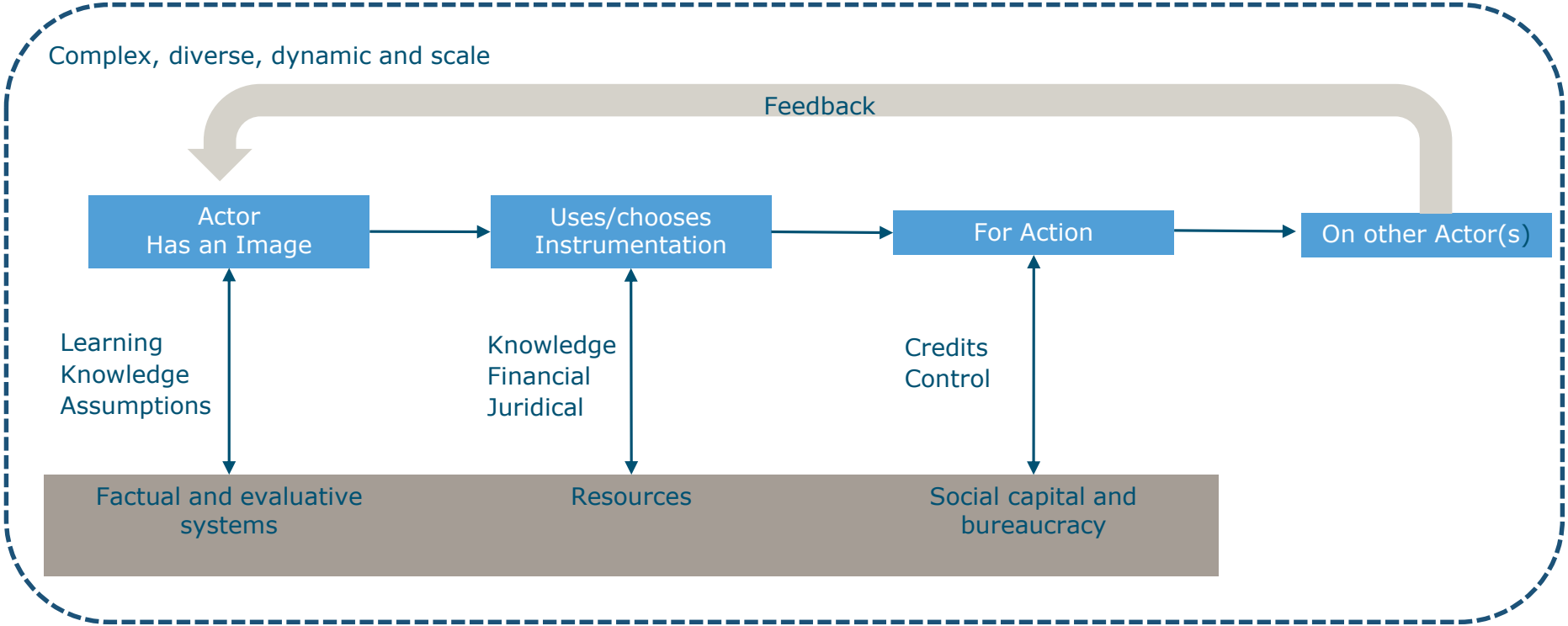
Rise of hierarchical structures



The next research step

- What about todays SDIs?
- Can we measure and determine the ‘governability’ of SDIs?
    - Governability is ‘*the capacity to solve urgent societal problems’ (*Kersbergen & Van der Waarden 2004)
- Can we simplify SDI governance to such an extent that it will be feasible to spot strong and weak points of SDI governance, which are recognised in reality, despite the complexity of both governance and SDIs?

A first try...


Complex, diverse, dynamic and scale
Feedback
Actor
Has an Image
Uses/chooses
Instrumentation
For Action
On other Actor(s)
Learning
Knowledge
Assumptions
Knowledge
Financial
Juridical
Credits
Control
Factual and evaluative systems
Resources
Social capital and bureaucracy

A first try..

- Filled in with ‘variables’ from SDI literature.

Dimension	Images	Instruments	Action
Action level	Vision Strategic planning Involvement of stakeholders Collective decision making Feedback	Knowledge and information sharing Communication Access mechanisms Partnerships Financial management	Leadership Self-organising ability Co-ordination
Structural level	Key performance indicators Strategic Evaluation Capacity building Culture Coordinating functions/entities	Financial resources Knowledge resources Regulated markets Legal framework Licences	Support Bureaucracy

Makes sense?

- Lets discuss!
- Would it be fruitful to study SDI governance? Is it a realistic dream that we will understand SDI governance one day or find an optimal governance scenario?
- What are SDI governance challenges you face/spot?
- Is SDI governance an useful topic to study, or should it be broader (e.g. IT governance, governance of large projects)? Is SDI governance unique?

Thank you!

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