

Effects of open data on business models of NMCAs

Which adaptations will be required to ensure sustainable financing?



KENNISCENTRUM
OPEN DATA



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Overview

- Introduction to Knowledge Centre Open Data and EuroSDR
- Research on business models for self-funding agencies
- Outcomes
- What's next?

Knowledge Centre Open Data

www.kcopendata.eu

The screenshot shows a web browser window displaying the homepage of the Knowledge Centre Open Data at Delft University of Technology. The browser's address bar shows 'kcopendata.eu'. The website features a blue header with the logo and navigation menu. The main content area has a central heading and a paragraph of text, followed by four columns of links to Projects, Publications, Education, and Partners, each with a 'Read More' button.

KNOWLEDGE CENTRE OPEN DATA
Delft University of Technology

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Enabling a user-driven, sustainable and fair open data ecosystem

The Knowledge Centre Open Data of Delft University of Technology focuses on one of the most promising policies promoting the accessibility of data: open data policies. The research focuses on the governance of open data, its societal and economic impact, and the legal restrictions on or conditions for implementing and utilizing open data policies.

- Projects** [Read More](#)
- Publications** [Read More](#)
- Education** [Read More](#)
- Partners** [Read More](#)

EuroSDR – Pan-European network for mapping agencies and academia



“EuroSDR is a not-for-profit organisation linking National Mapping and Cadastral Agencies with Research Institutes and Universities in Europe for the purpose of applied research in spatial data provision, management and delivery.”

- 1953-2003 Organisation Européenne d’Etudes Photogrammétriques Experimentales (OEEPE)

Examples of previous research topics:

- Crowdsourcing and National Mapping
- Interoperability Experiment on Defining Validation Data Quality Requirements of CityGML

Current research projects

- Joep Crompvoets and Jantien Stoter, "Project Identifying the Economic Value of 3D Geoinformation"
- Roger Longhorn and Jade Georis-Creuseveau, "Project Marine Spatial Data Infrastructure"
- Bastiaan Van Loenen, Frederika Welle Donker and Joep Crompvoets, "Project Business Modelling for Open Data of NMCA data"
- Fabio Remondino, "Project Oblique Aerial Cameras"
- Bénédicte Bucher, "Project Historic Data"
- Bénédicte Bucher, "Project Benchmark on Software which can handle Heterogenous Data"

Aim of Business Modelling for Open Data of NMCA data project

Most European National Mapping & Cadastral Agencies (NMCAs) are self-funding agencies,

- i.e. required to generate sufficient income to cover a substantial part of their operating costs.

A shift from licenced data supply to open data supply

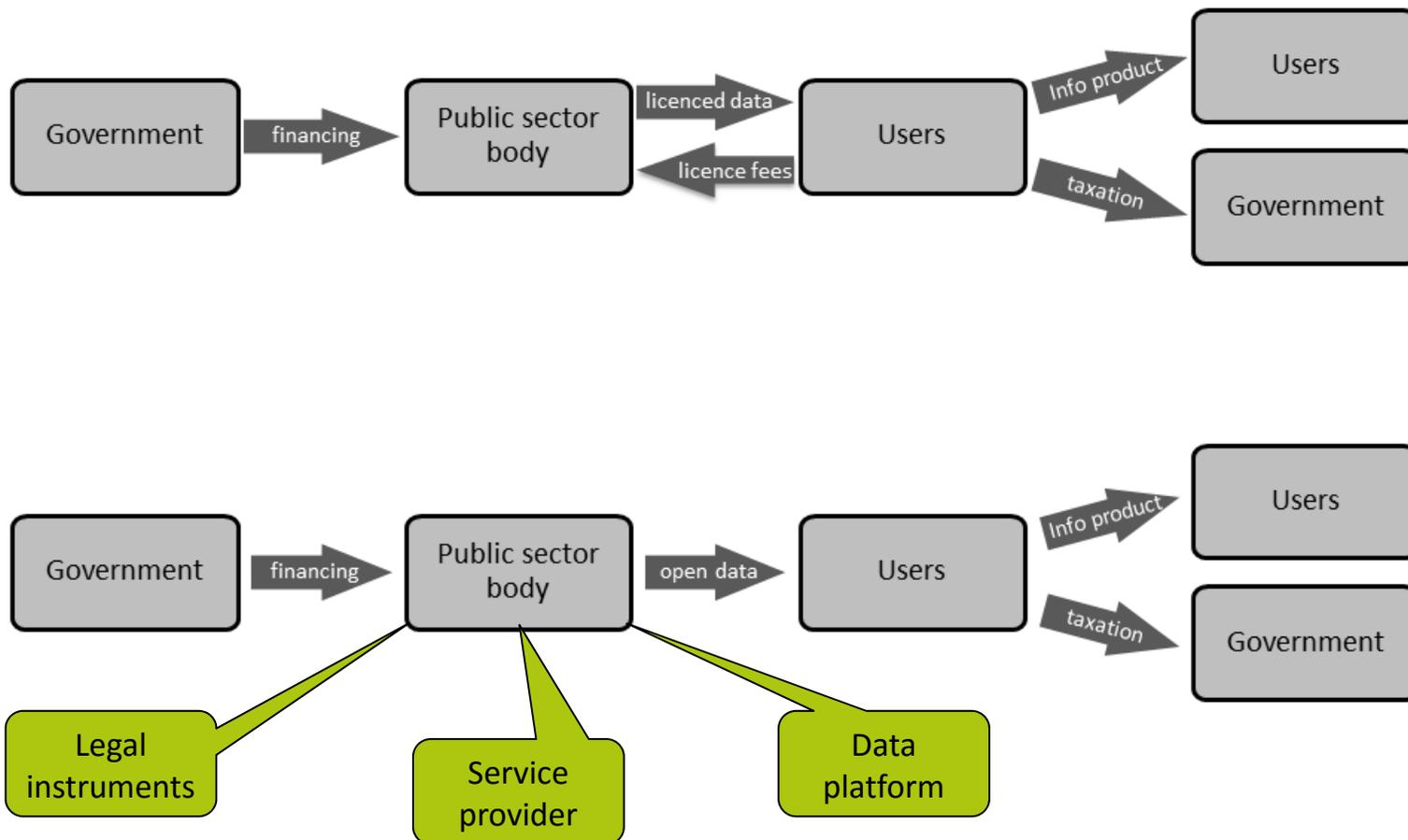
- loss of revenue in the short term
- may pose a risk to data quality.
- become more dependent on political will to cover (part of) operating costs

... to assess the effects of open data policies on the business model of National Mapping & Cadastral Agencies. This includes effects on the way the organisations are able to (re)finance their operational costs and to ensure long-term sustainability of their (open) data

NMCA open data, why?

- Key Register Systems
 - *Aim: to make government tasks more efficient*
 - Collect authentic data once, re-use many times
 - INSPIRE Directive (2007)
 - *Aim: to make policy-making more effective*
 - Free viewing & catalogue services for geodata
 - Digital Agenda for Europe (2010)
 - *Aim: to develop a single market to generate smart, sustainable and inclusive growth in Europe*
 - Opening up public data as a way to tap into the potential for re-use
 - Public Sector Information (PSI) Re-use Directive (2013)
 - *Aim: to promote economic activities in the private sector*
 - All public PSI available with as few restrictions as possible
 - G8 Open Data Charter (2013)
 - *Aim: government transparency and accountability*
 - Open data by default principles
 - National Action Plan on release of high-value data

Cost Recovery versus Open Data



Definition Business Models

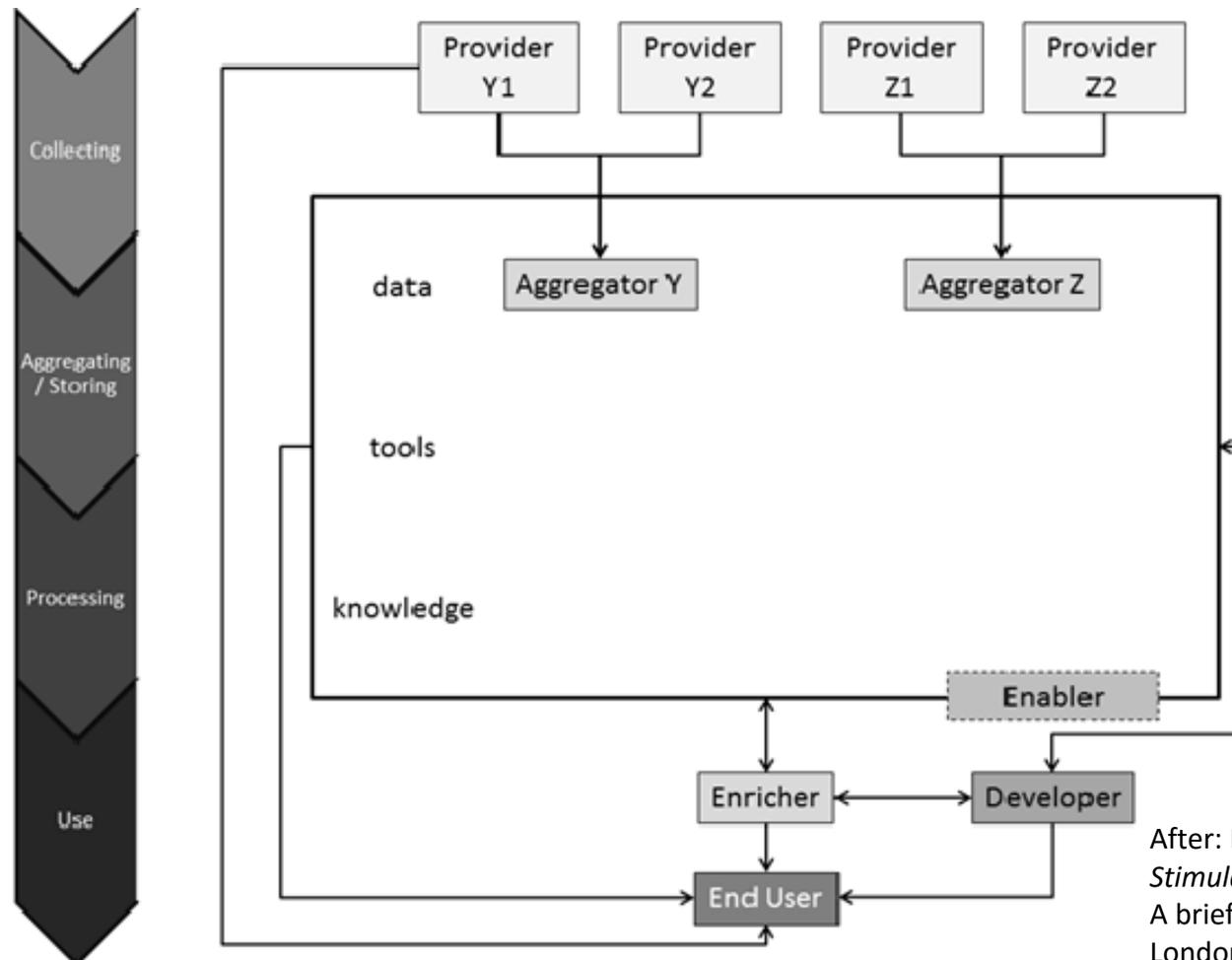
'Abstract representation of an organization (in particular a NMCA), be it conceptual, textual, and/or graphical, of all core interrelated architectural, co- operational, and financial arrangements designed and developed by an organization presently and in the future, as well as all core products and/or services the organization offers, or will offer, based on these arrangements that are needed to achieve its strategic goals and objectives'.

(Al-Debei, M. M., El-Haddadeh, R., and Avison, D., 2008: Defining the business model in the new world of digital business. *In: Proceedings of the Americas Conference on Information Systems (AMCIS), Vol. 2008, pp. 1-11, p.7)*

Or

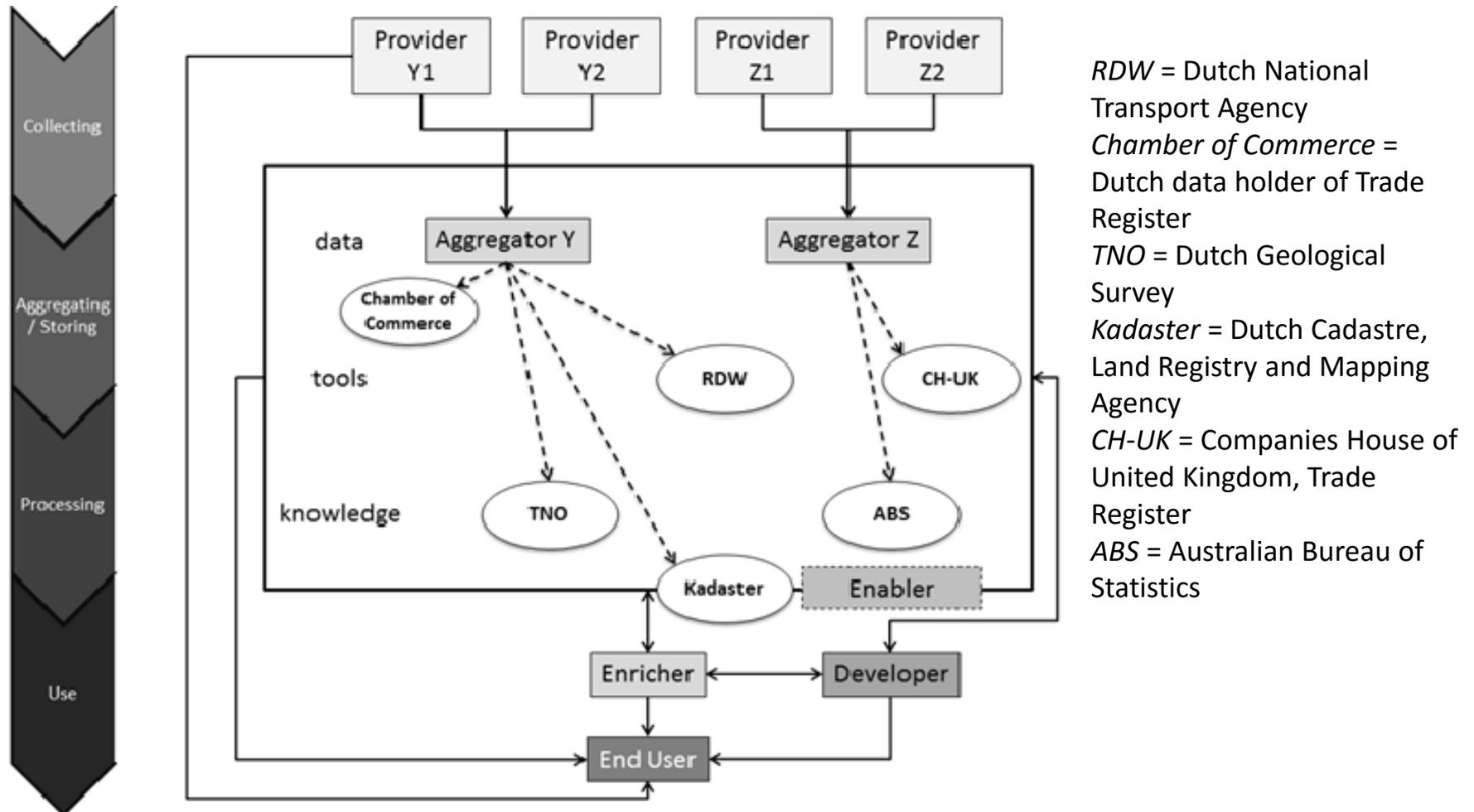
'A description of the strategies an organisation can employ to reach a certain goal'

Roles & activities within Information Value Chain



After: Deloitte LLP (2012). *Open Growth: Stimulating demand for open data in the UK*. A briefing note from Deloitte Analytics. London: Deloitte Touche Tohmatsu Limited

Case study research 2016



RDW = Dutch National Transport Agency
Chamber of Commerce = Dutch data holder of Trade Register
TNO = Dutch Geological Survey
Kadaster = Dutch Cadastre, Land Registry and Mapping Agency
CH-UK = Companies House of United Kingdom, Trade Register
ABS = Australian Bureau of Statistics

Research design of this project

- An online survey of NMCA's in April to assess:
 - Start open data
 - Type of funding in percentages
 - Most popular open datasets
 - Funding of open data
 - Open data policies & licences
 - Measures taken to ensure long-term sustainability of open data
 - Motivation for open data
 - Assessment of maturity level of open data
 - Effects of open data to date
 - Opinion / vision on future of open data
 - Success factors of open data
- A Workshop in Delft 18-19 September 2017
 - To discuss challenges and opportunities of open data

Response rate of the online survey

- 577 persons received a link to online questionnaire
- 43 completed forms returned

17 forms by 15 EuroSDR member	26 forms by non-EuroSDR members
• 11 National Mapping / Cadastral Agencies (NMCAs)	• 10 NMCAs
• 2 State / Local Mapping / Cadastral Agencies (LMCAs)	• 4 LMCAs
• 2 Clearing Houses / Portals	• 2 Open Data public sector bodies
• 1 University	• 4 Universities
	• 3 Private Companies
	• 1 NGO
3 NMCAs returned form twice	• 1 anonymous entry

Geographical response

Country	No.	Country	No.
Belgium	3	Hungary	1
Bolivia	1	Italy	2
Canada	1	Ireland	2
Columbia	1	Lithuania	1
Croatia	2	Netherlands	2
Cyprus	1	Niger	1
Czech republic	2	Northern Ireland	1
Estonia	1	Portugal	1
Finland	1	Romania	1
France	1	Slovakia	1
Germany	5	Slovenia	2
Ghana	1	Spain	3
Global	1	Sweden	1
Great Britain (UK)	1	Switzerland	1
		United States of America	1

Geographical response

27 European (N)MCAs of 43 total responses

Country	No. of respondents
Belgium	3
Bolivia	1
Canada	1
Columbia	1
Croatia	2
Cyprus	1
Czech republic	2
Estonia	1
Finland	1
France	1
Germany	5
Ghana	1
Global	1
Great Britain (UK)	1

1x Eurogeographics
1x Information Flanders
1x private company

Non-EuroSDR
NMCA

1x federal MCA
3x state MCAs
1x university

Country	No. of respondents
Hungary	1
Italy	2
Ireland	2
Lithuania	1
Netherlands	2
Niger	1
Northern Ireland	1
Portugal	1
Romania	1
Slovakia	1
Slovenia	2
Spain	3
Sweden	1
Switzerland	1
United States of	1

unknown

2x universities

Non-NMCA
gov't agencies

Non-EuroSDR
Cadastre

Non-EuroSDR
NMCA

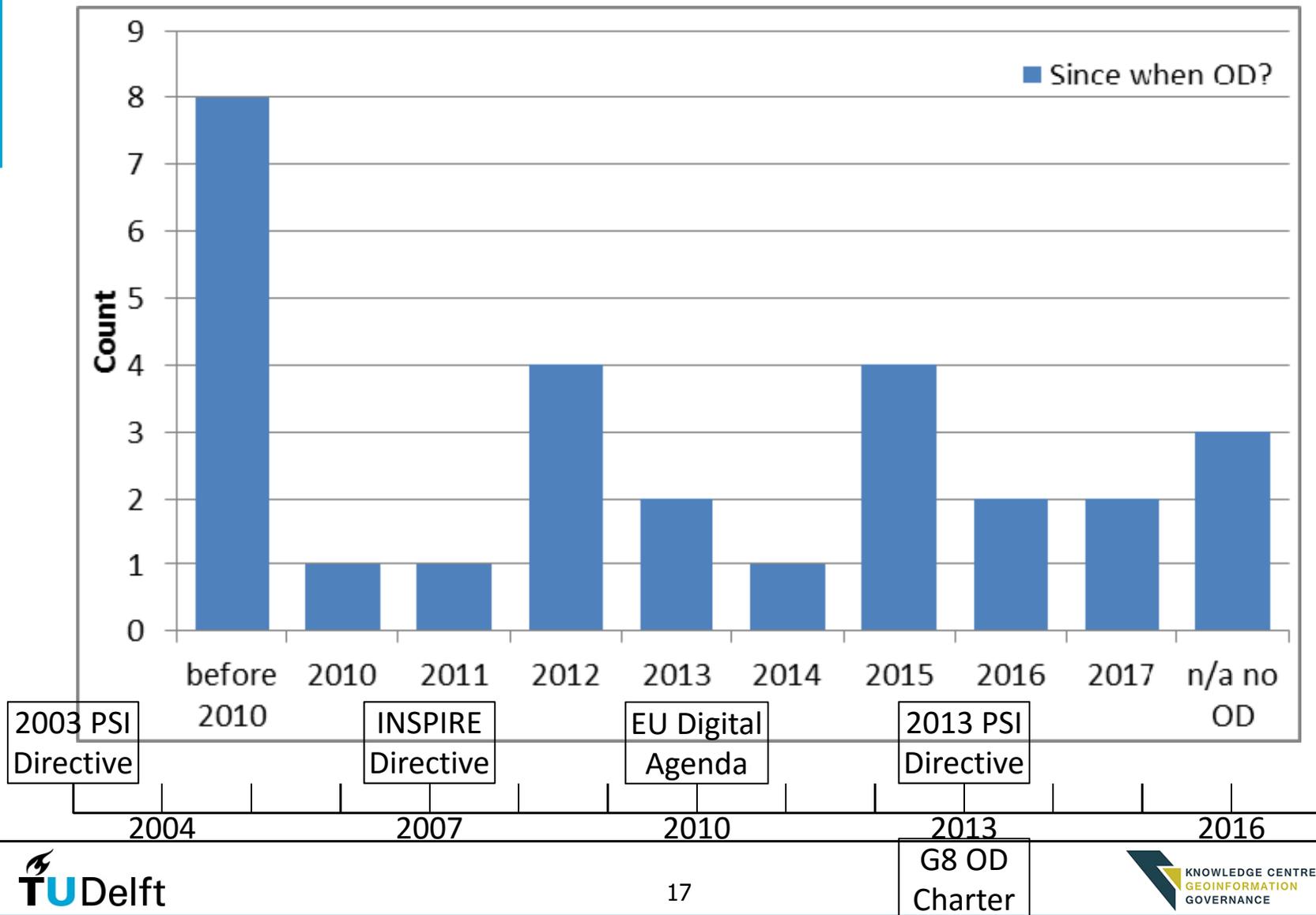
15 out of 18 NMCA
EuroSDR members
responded = 83%

Inclusion criteria

Only completed forms of:

- European-based Mapping and Cadastral Agencies
 - 2 Cadastral agencies
 - 6 State / Local Mapping and Cadastral Agencies
 - 17 forms of 15 National Mapping and Cadastral Agencies
- The Clearing Houses (2)
- Open Data public sector bodies (2)

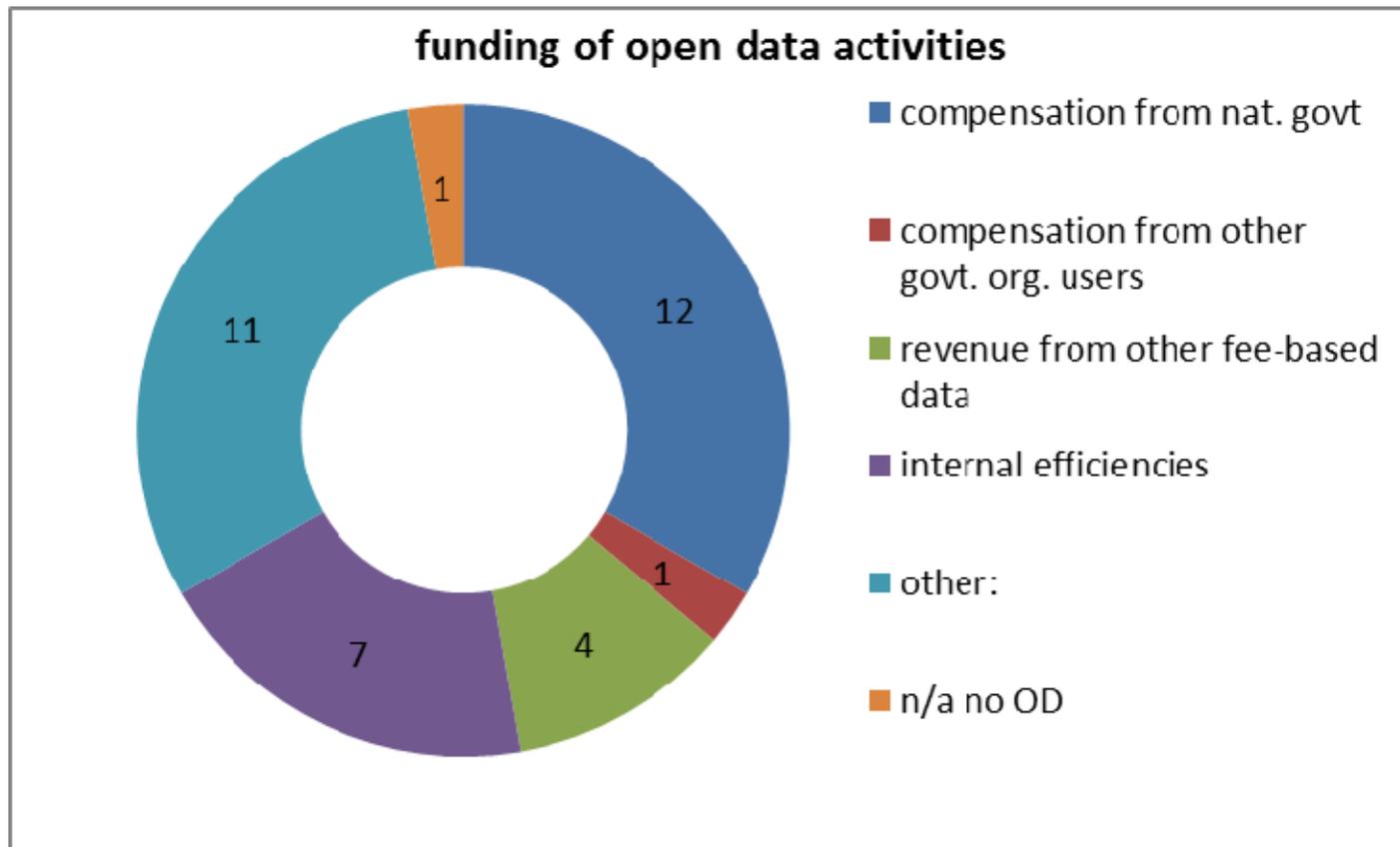
Year when open data supply started



Breakdown of financing operations

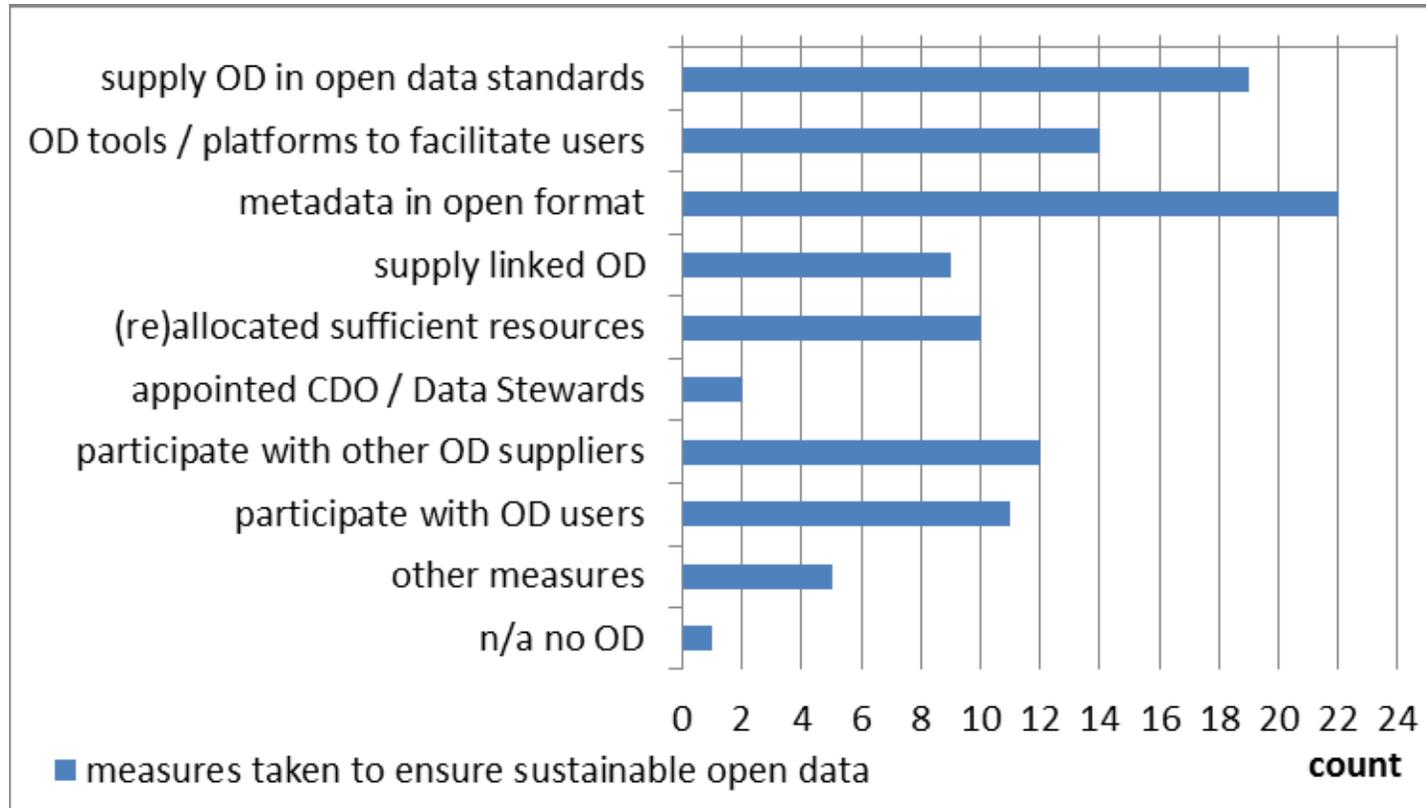
- 9 organisations financed for 98-100% by central government before open data and 10 organisations for 100% after open data
- Other organisations between 30-90% before open data, and this percentage more or less stable after open data
- Other sources of income:
 - Specific taxes (1 org - 10%)
 - Registration fees (4 org's between 6-100%)
 - Fee-based data (8 org's between 6-60%)
 - Other sources (3 org's between 4-15%)

Funding of open data activities



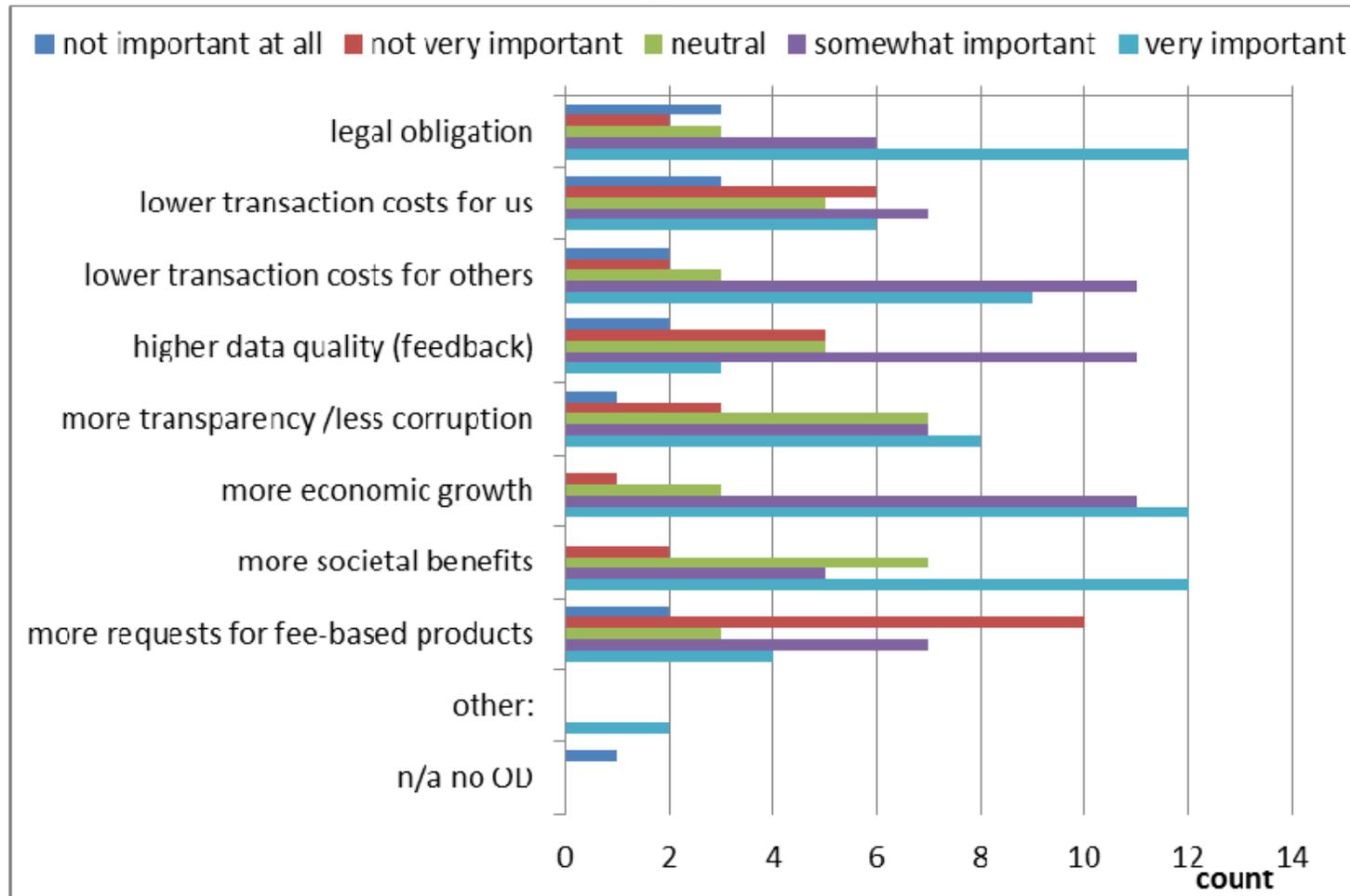
- ‘*other*’ included “commercial projects”, “international projects”, “sale of large-scale data when small-scale are available as open data”, and answers that were already available as a selectable option

Measures taken to ensure open data availability in the long term



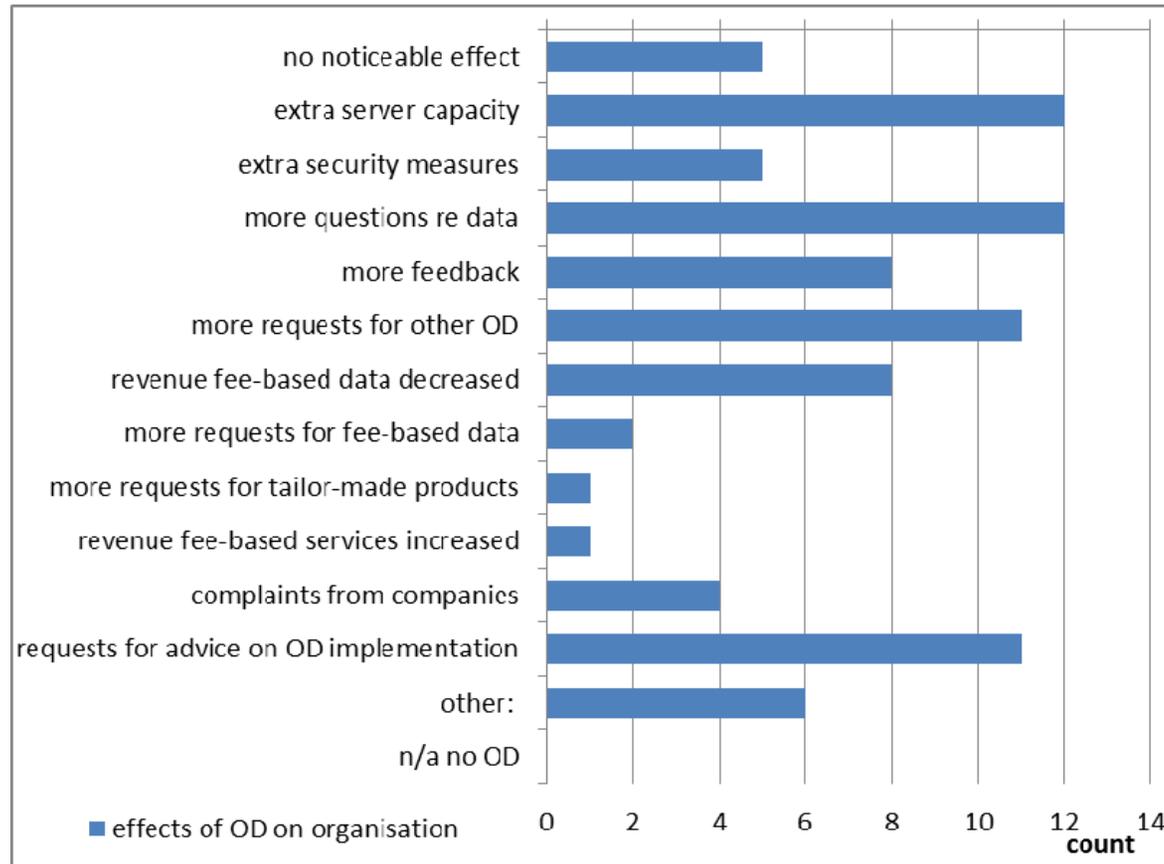
- ‘*other measures*’ included “participation in hackathons”, “innovation programmes”, “INSPIRE requirements”, and “follow national guidelines”

Motivation for open data



- 'other' included "positive contribution to education / research" and "promotion of other products and services"

Effects of open data on the NMCA



- *'other'* included “increased data traffic”, “less information about who is using the data and for what”, “contact with new types of users” and “seen to be a partner in data rather than a supplier”

Preliminary conclusions from survey

- Open data predates Digital Agenda for Europe 2010
 - INSPIRE appears to have a distinct influence
- Nearly all NMCAs receive some extra funding / compensation
 - Ranges from 5% to 100%
- Open data supply has had little effect on breakdown of funding
 - Most NMCAs depend on other sources of income
- Open data activities mainly financed by:
 - Sale of other data products / services
 - Internal efficiency gains

Effects of open data

- Need for extra infrastructural investments to cope with extra data traffic and security measures
- Loss of revenue
- More feedback on data quality
- More requests for extra data, technical issues and advice!
- Efficiency gains
- Shift of role and position in information value chain
 - From data provider towards data enabler

For more in-depth case studies, see:

Welle Donker, F. & B. van Loenen (2016). *Sustainable business models for public sector open data providers*. JeDEM Journal of eDemocracy & Open Government 8(1) p. 28-61, <http://www.jedem.org/index.php/jedem/article/view/390>

Open Data future

- Open Data is here to stay even for self-funding agencies
 - But not without sustainable (co-)funding!
 - Positive business cases for (continuous) political support
 - More cooperation between data suppliers and users
 - Funding!

EuroSDR Workshop “Sustainable Open Data Business Models for NMCAs 18-19 Sept. 2017

Delft University of Technology, the Netherlands

- Which funding models can be utilised by NMCAs and how sustainable are these?
- What have the effects of open data been on the operational costs of the NMCA?
- Which options do NMCAs have to their disposal to refinance their operational costs?
- Is the supply of open data living up to expectations?
- What are the non-financial challenges to implementing open data?
- Is there a future for a pan-European open data infrastructure?

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Thank you for your attention

