Effects of open data on business models of NMCAs

Which adaptations will be required to ensure sustainable financing?

KENNISCENTRUM OPEN DATA

EuroSDR

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EuroSDR Workshop "Sustainable Open Data Business Models for NMCAs", Delft 18 Sept. 2017

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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

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Our research question

... 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

Research design of this project

- An online survey of NMCAs 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

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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

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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

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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 (Belgium)

Non-EuroSDR NMCA (Czech republic)

1x federal MCA / 3x state MCAs / 1x university (Germany)

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	
United States of	

unknown (Hungary)

2x universities (Italy)

Non-NMCA gov't agencies (Ireland)

Non-EuroSDR Cadastre (Northern Ireland)

Non-EuroSDR NMCA (Romania/Slovakia)

15 out of 18 NMCA EuroSDR members responded = 83%
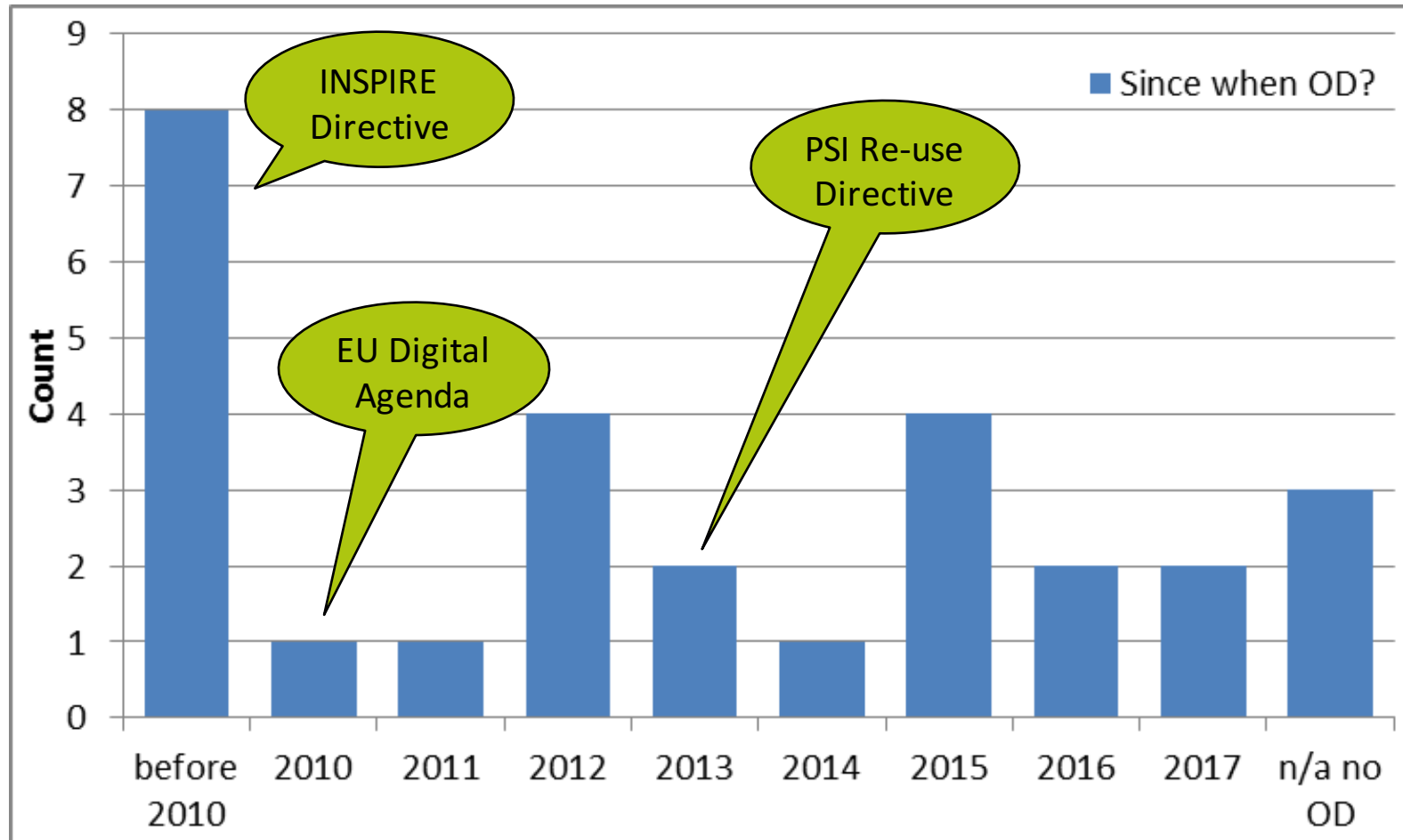
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Inclusion criteria

Only completed forms of:

- 17 forms of 15 European-based Mapping and Cadastral Agencies
  - 2 Cadastral agencies
  - 6 State / Local Mapping and Cadastral Agencies

- The Clearing Houses
  - Information Flanders
  - Eurogeographics

- Open Data public sector bodies
  - Ireland Environmental Protection Agency
  - Ireland Office of Public Works

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Year when open data supply started

Who were the early adopters?

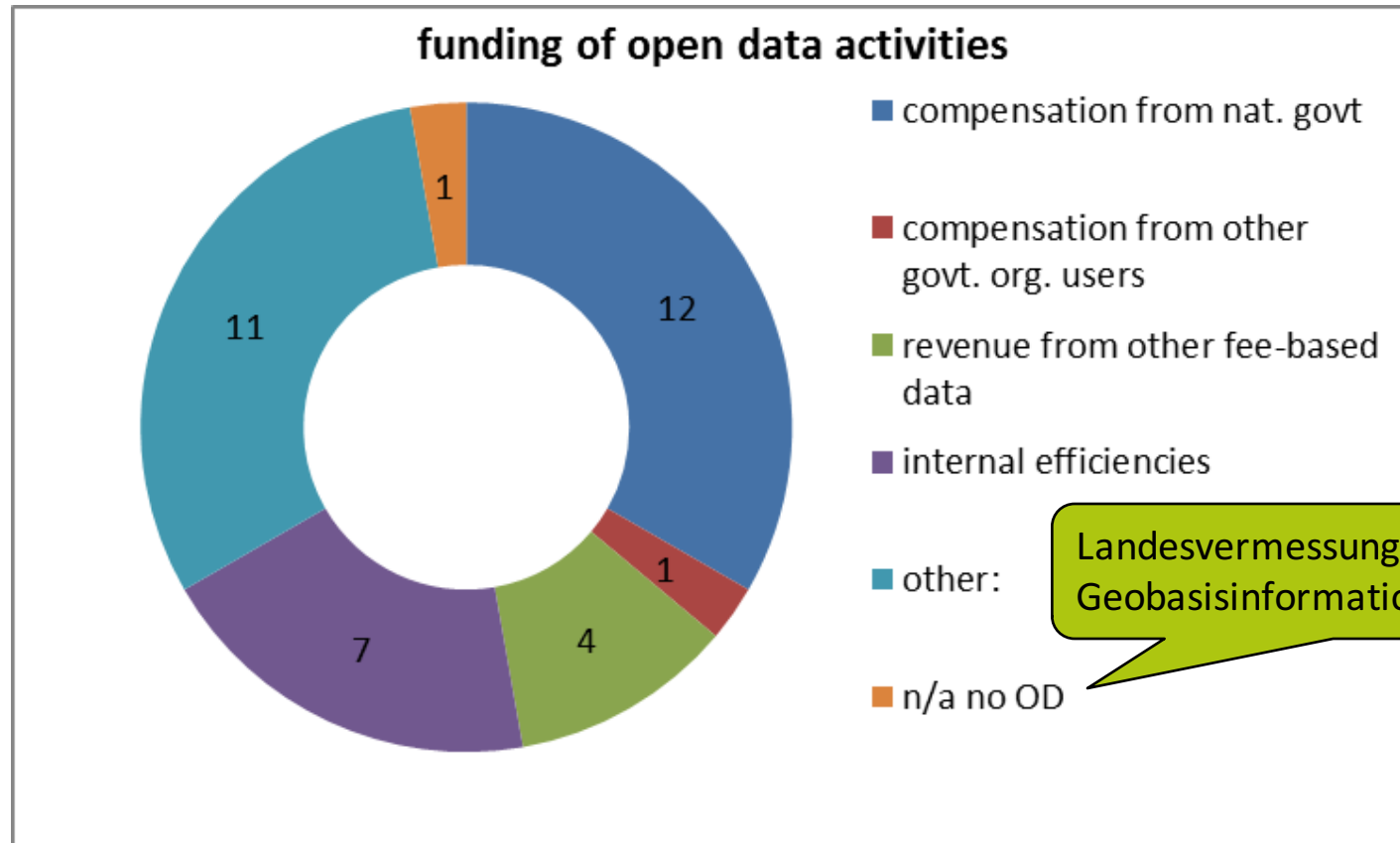| Country	Organisations
Croatia	State Geodetic Department
Estonia	Estonian Land Board
France	IGN
Ireland	Dept. of Public Works
Lithuania	State Enterprise Centre of Registers
Portugal	Direção-Geral do Território
Spain	National Geographic Institute-Nat. Geographic Information Centre
Catalunya	Institut Cartogràfic	Geològic de Catalunya
Great Britain	Ordnance Survey (2010)

Breakdown of funding for operational costs

- 9 organisations financed for 90-100% by central government before open data and 10 organisations for 100% after open data
  - Information Flanders
  - Estonian Land Board
  - Germany Bundesamt für Kartographie und Geodaesie
  - Ireland Environmental Protection Agency
  - Romania National Agency for Cadastre and Land Registration
  - Geodesy, Cartography and Cadastre Authority of the Slovak Republic
  - Czech office for Surveying, Mapping and Cadastres (90-100% before OD, and 90-100% after)
  - Surveying and Mapping Authority of the Republic of Slovenia (98% before OD and 100% after)

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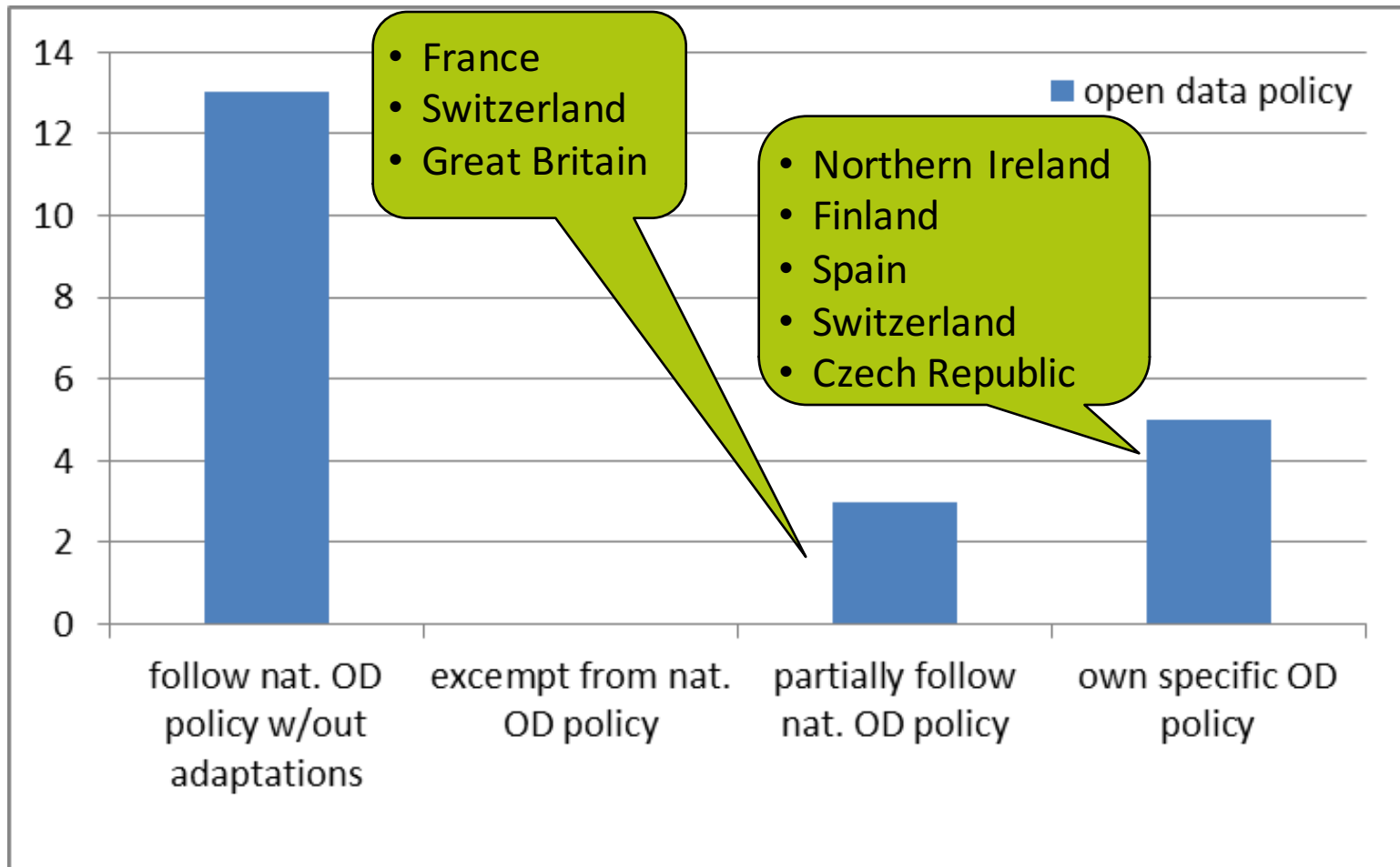GOVERNANCE

Breakdown of funding for operational costs

- 5 organisations received between 60-90% of funding from national government before open data, and this percentage remains more or less stable after open data
  - Except Spain National Geographic Institute - National Geographic Information Centre (IGN-CNIG) (from 66% before OD, and 58% after. After OD more income from tailor-made products and international projects)

- Other sources of income:
  - Specific taxes (Croatia - 10%)
  - Registration fees (4 organisations between 6-100%)
  - Fee-based data (8 organisations between 6-60%)
  - Other sources (3 organisations between 4-15%)
  - Membership fees (Eurogeographics – 70%)

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Funding of open data activities

funding of open data activities

Legend:
- compensation from nat. govt
- compensation from other govt. org. users
- revenue from other fee-based data
- internal efficiencies
- other:
- n/a no OD

Chart values: 12, 1, 4, 7, 11, 1

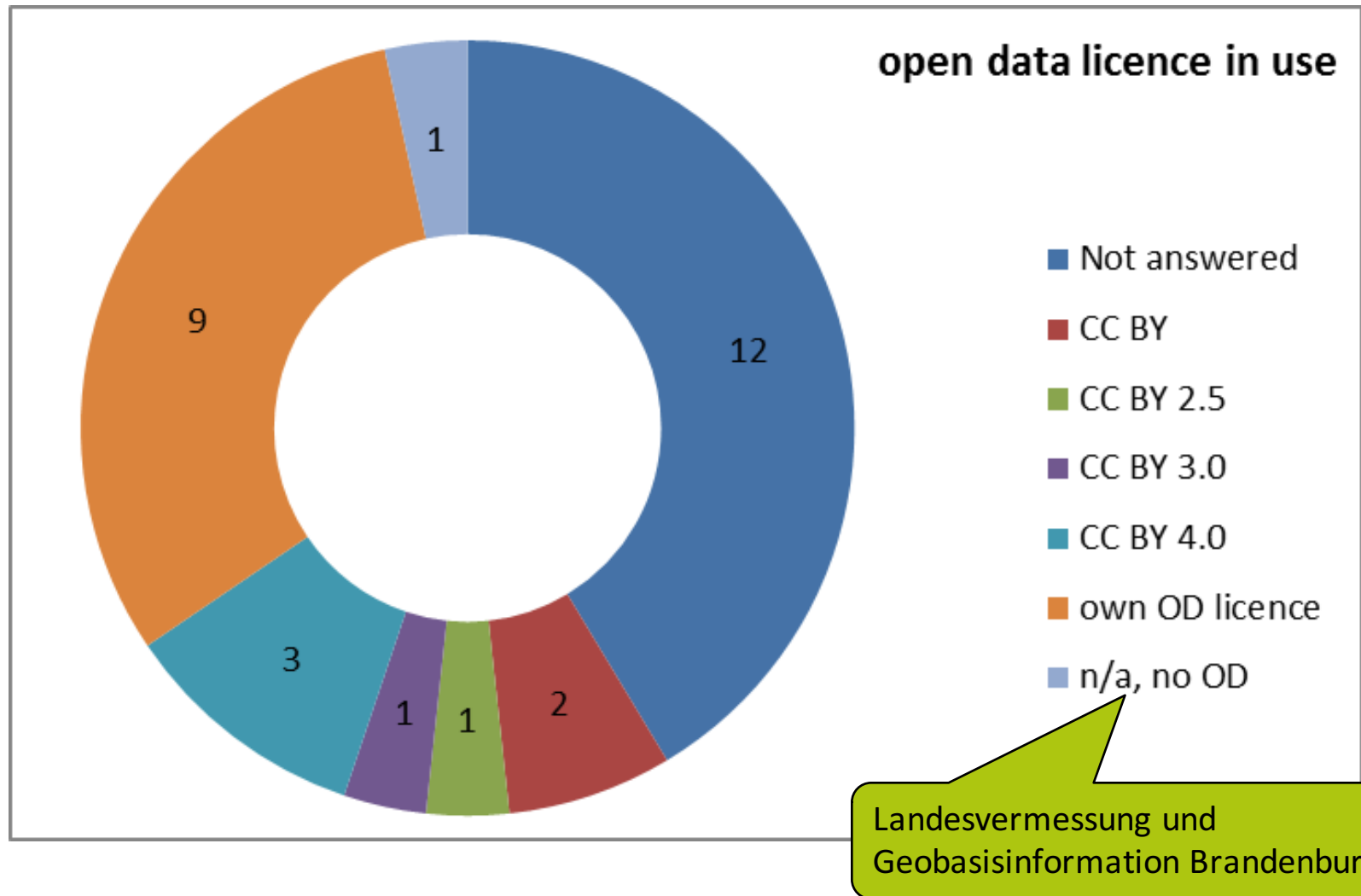Callout: Landesvermessung und Geobasisinformation Brandenburg

- *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
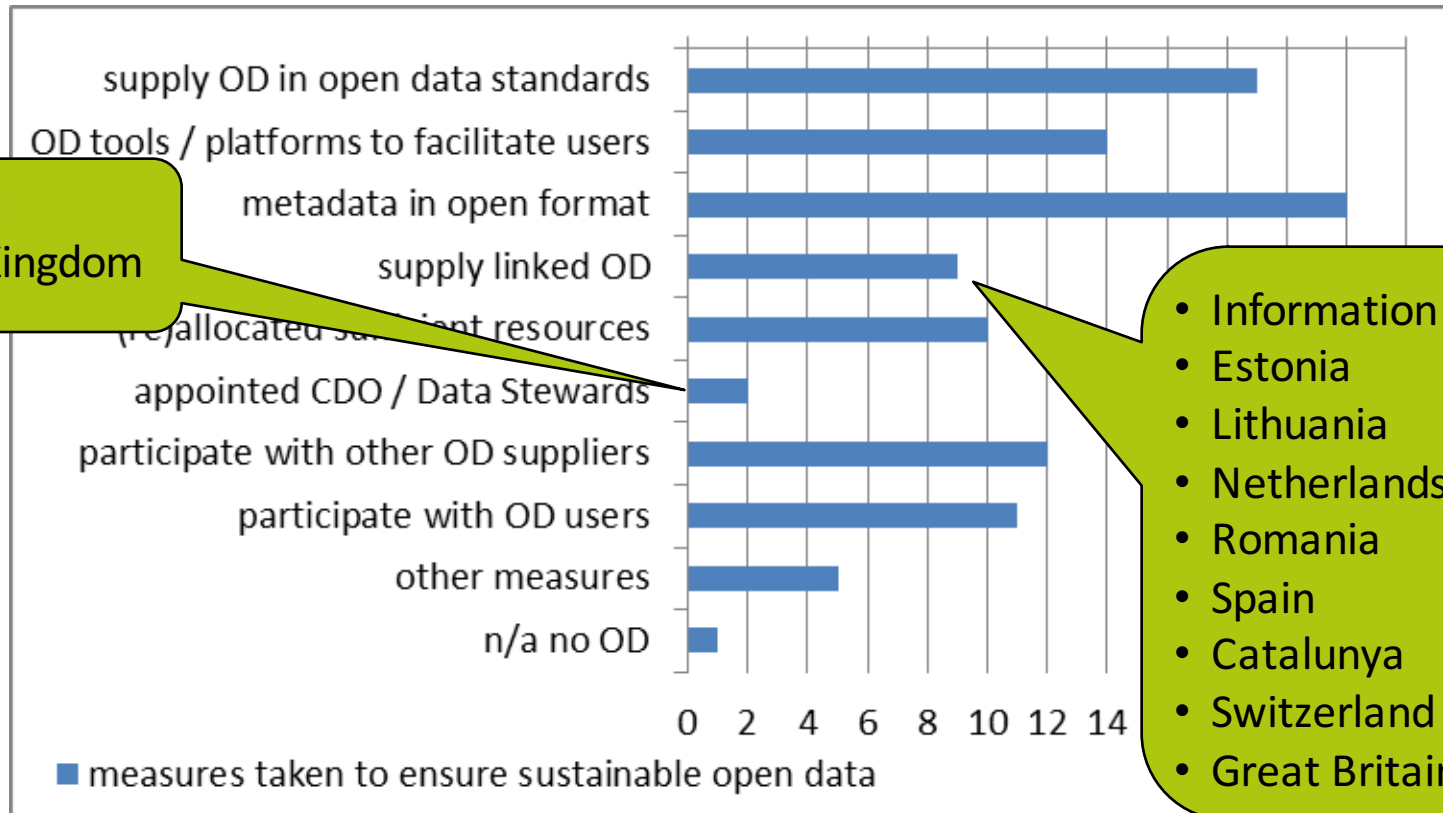
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Follow national Open Data policy or formulated own version?

Which Open Data Licence?

open data licence in use

- Not answered
- CC BY
- CC BY 2.5
- CC BY 3.0
- CC BY 4.0
- own OD licence
- n/a, no OD

Landesvermessung und Geobasisinformation Brandenburg

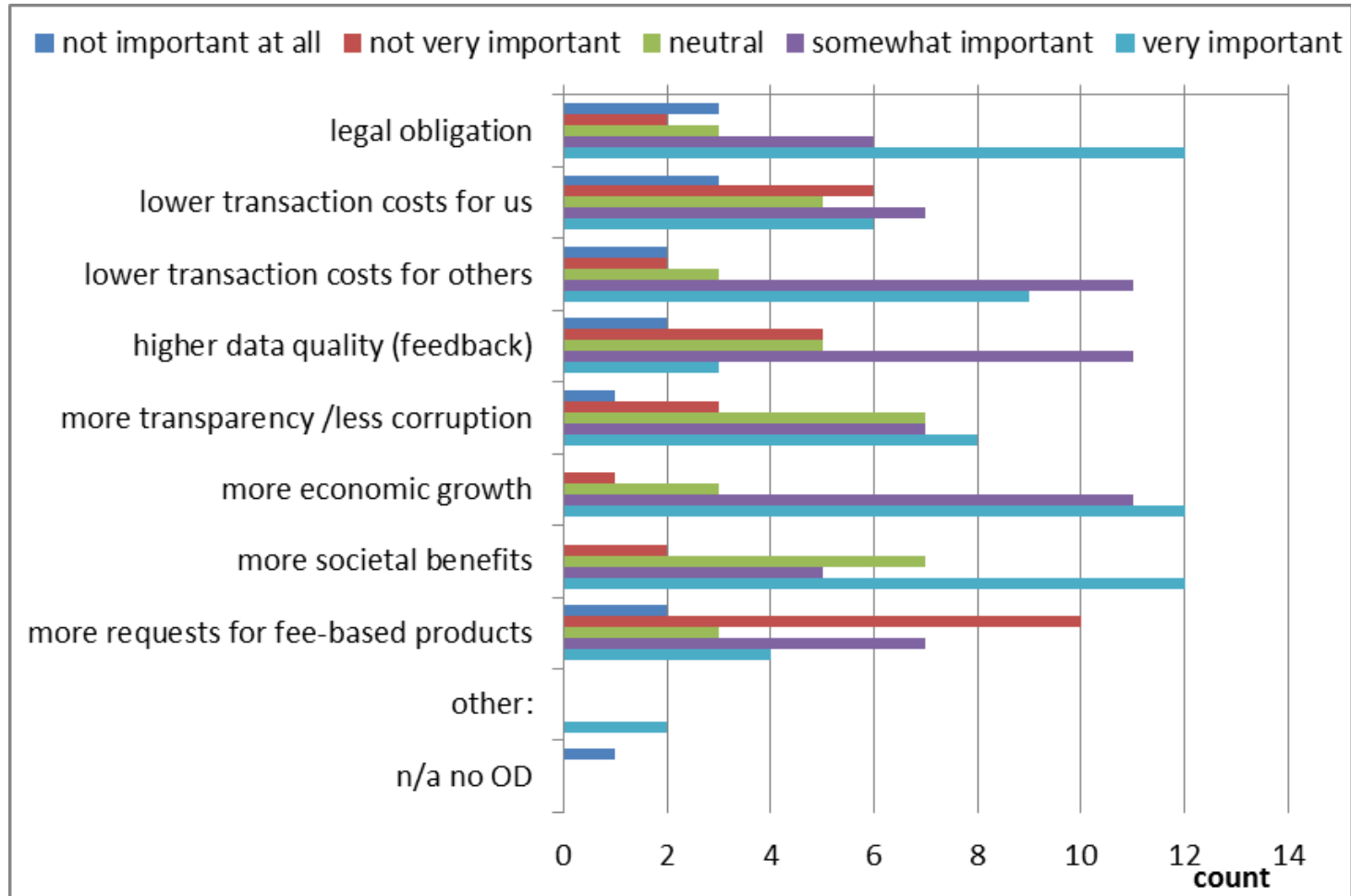# Measures taken to ensure open data availability in the long term

- Romania
- United Kingdom

- Information Flanders
- Estonia
- Lithuania
- Netherlands
- Romania
- Spain
- Catalunya
- Switzerland
- Great Britain

- '*other measures*' included "participation in hackathons", "innovation programmes", "INSPIRE requirements", and "follow national guidelines"
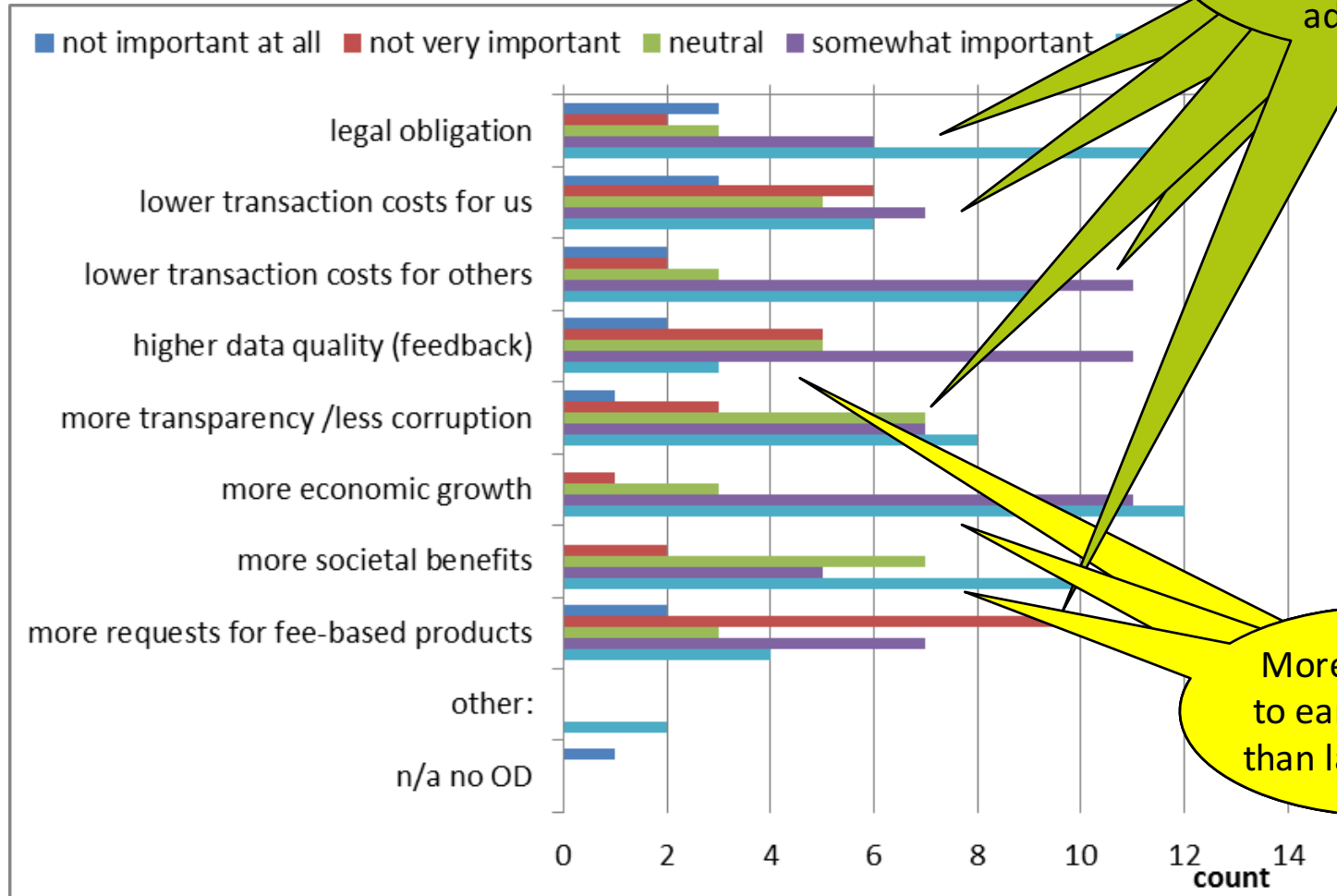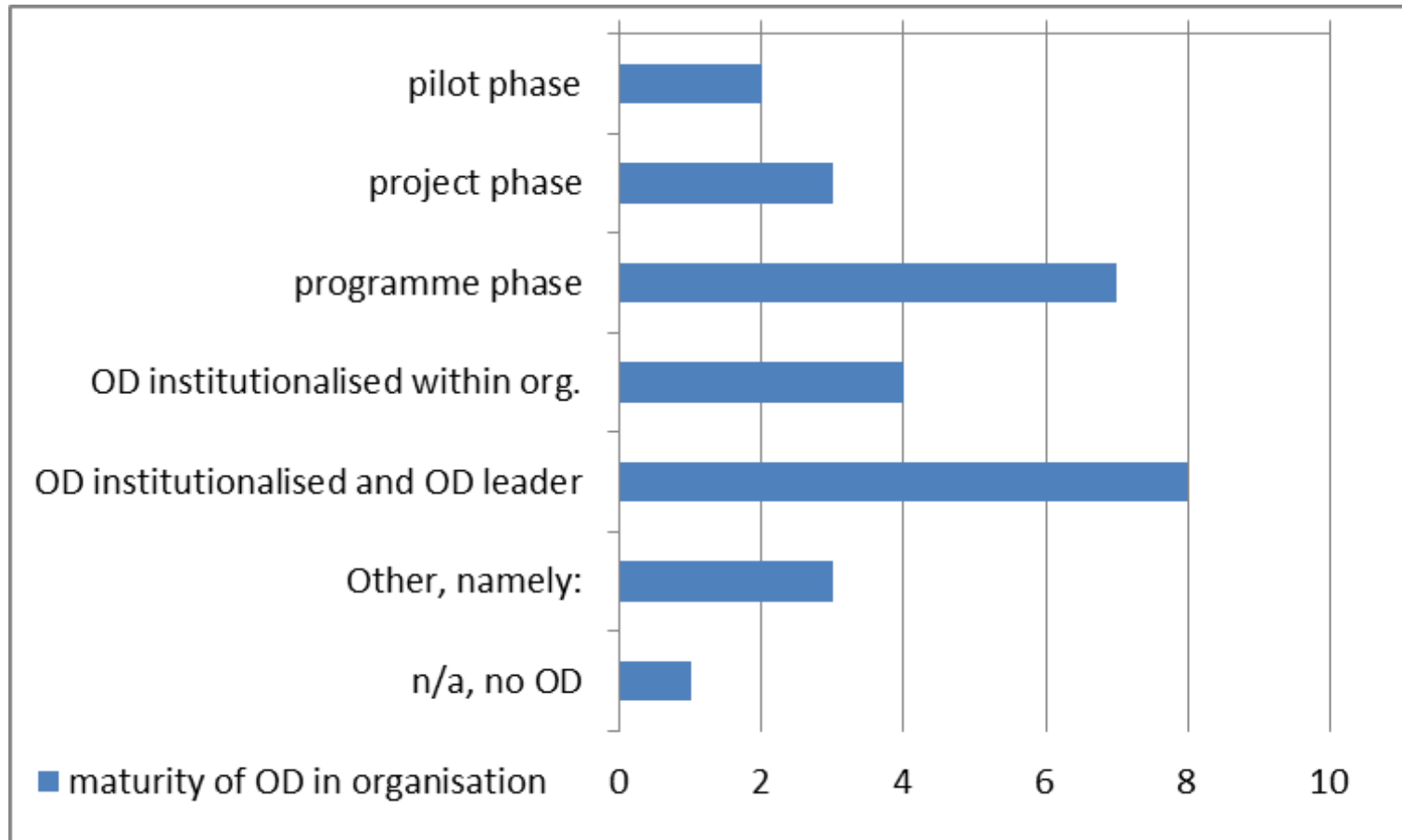
Motivation for open data

- *'other'* included "positive contribution to education / research" and "promotion of other products and services"
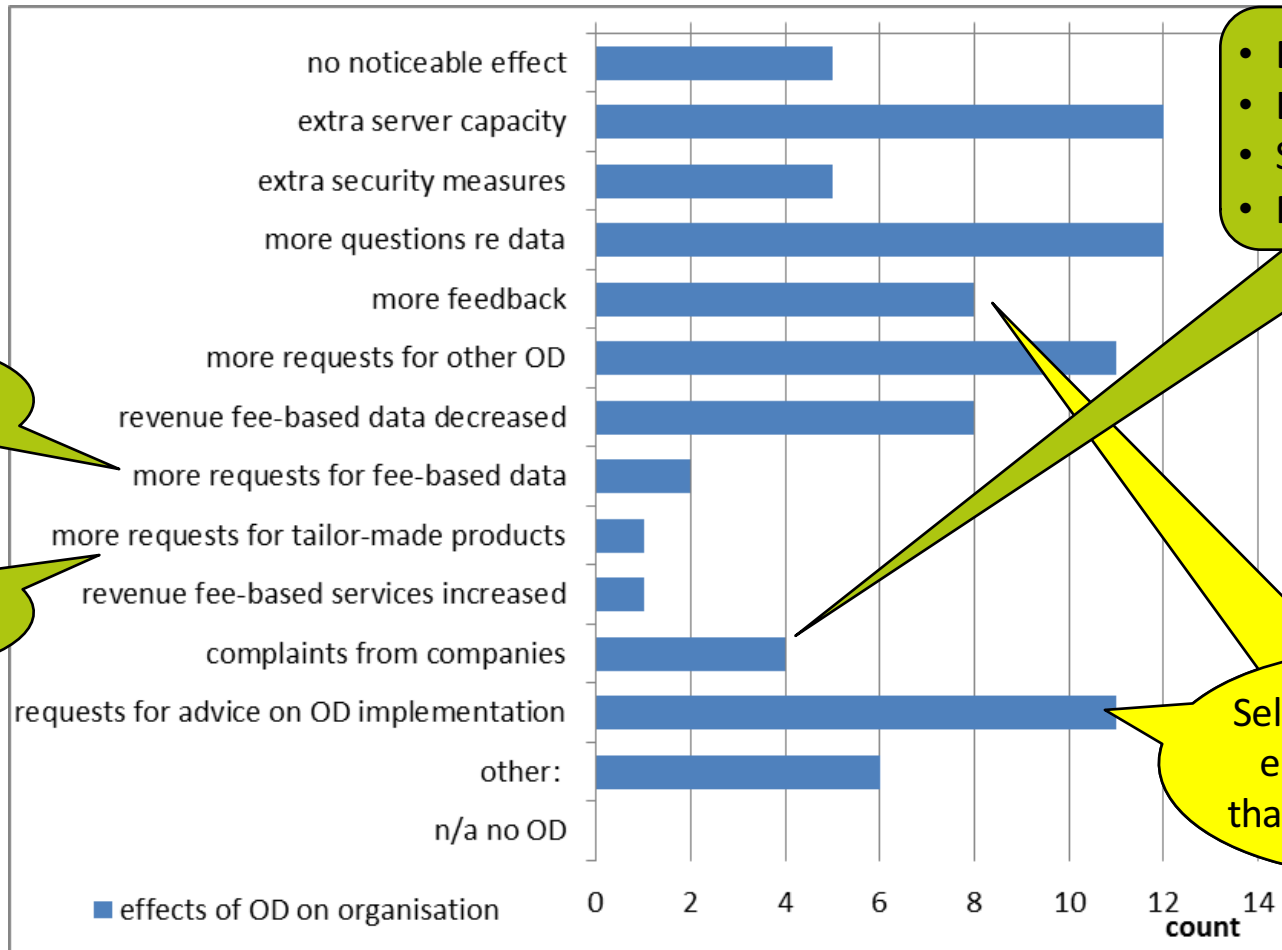
Motivation for open data

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

Level of Open Data maturity

Effects of open data on the NMCA

- Estonia
- Lithuania
- Spain
- Northern Ireland

Croatia

Netherlands

Selected by more early adopters than late adopters

- *'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

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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

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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!

What's next?

Today:

- How to ensure sustainable open data in the long run?
  - From a financial perspective: (re)financing their operational costs?
  - From a technical perspective: formats, (linked) metadata, platforms?
  - From an organisational perspective: cooperation, human resources?
  - From a legal perspective
- How to move from cost recovery to open data: strategies
- Is the supply of open data living up to expectations?
- What are the internal effects of open data and which challenges should be tackled next?

- **Tuesday:** Is there a future for a pan-European open data infrastructure?

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Thank you for your attention