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Diversity in RDM Requirements across Europe: Preliminary Results of Science Europe Survey

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Open Science and Sharing Research Data: Towards European Guidelines on RDM procedures.

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On definitions and contexts

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What is research data?

- Research data is any data produced, modified or expanded upon in research work (quantitative and qualitative).
- Data can be for example:
  - raw data, unprocessed, original data
  - quality controlled data, errors removed
  - processed data, original data processed by some means
  - aggregated or statistical data
  - data used only in the publishing of results

What is research data policy?

- Policy can be defined as “a set of ideas or a plan of what to do in particular situations that has been agreed to officially by a group of people, or an organization” (SPARC/DCC open data & open science policies 2017).
- Many open science policies include also research data policies.
- *A research data policy should define how data is managed, accessed, disseminated and preserved*. It may also set time limits for data sharing, instruct on legal & ethical guidelines and give recommendations of data repositories.
- Research data policies setting open access to research data as the default practice is needed in transitioning towards open science.

What is data management plan?

- *Data management plan (DMP) should describe how you manage data during the whole research life cycle* and it need to be updated during research project. Good data management is fundamental to all stages of the research process.
- The management of research data need to be considered from the beginning of the research process so that no data is lost or stored inappropriately.
- *DMP should include at least data description, documentation, metadata, storage, ethics and legal compliance, data sharing and long-term preservation*.
- DMP is needed to make the data openly accessible, assessable and usable.

Milestones of open access to research data

- Robert K. Merton (Columbia Univ.) presented in 1942 the idea that scientific research should be free to all. Research (which produces data) should be shared freely for the common good.
- The World Data Centre (WDC) system was created in 1958 to archive and distribute data collected from International Geophysical Year -programme by the International Council of Science (ICSU).
- UK Data Archive has retained social science and humanities data from 1967 on.
- NIH Statement on Sharing Research Data in 2003 lists benefits of data sharing. Sharing is essential for expedited translation of research results into knowledge, products, and procedures to improve human health.
- OECD signed in 2004 a declaration of Principles and Guidelines on Access to Research Data from Public Funding, which essentially states that all publicly funded archive data should be made publicly available.
- DCC was launched in 2004 to solve challenges in digital curation that could not be tackled by any single institution or discipline in UK. Provides also generic services, some development activity, research and capacity building for data curation. Today internationally-recognised centre of expertise in digital curation providing practical help how to store, manage, protect and share digital research data.
- G8 leaders signed the G8 Open Data Charter in 2013, which outlined a set of five core open data principles.
- European Commission Guidelines on FAIR Data Management in Horizon 2020 (Open Research Data Pilot).
- The Concordat on Open Research Data developed by a UK multi-stakeholder group in 2016.

SE survey on data policy and data management

- The *Working Group on Research Data* (WG RD) of Science Europe (SE) in November – December 2018 conducted a survey of European Research Funding Organisations (RFO) and Research Performing Organisations (RPO) on data policies and data management.
- Main topics covered by this survey are as follows: a) **policy coverage, b) policy stipulations, c) support provided for data sharing, d) data management planning (DMP) criteria (data description and collection, documentation and data quality, ethics and legal compliance etc.), e) evaluation of DMPs at RFOs or quality control.**
- Preliminary results are from 18 countries and 22 SE member organizations from Europe, including Germany, France, UK, Netherlands, Finland etc, plus three non-European, not included in this analysis yet.

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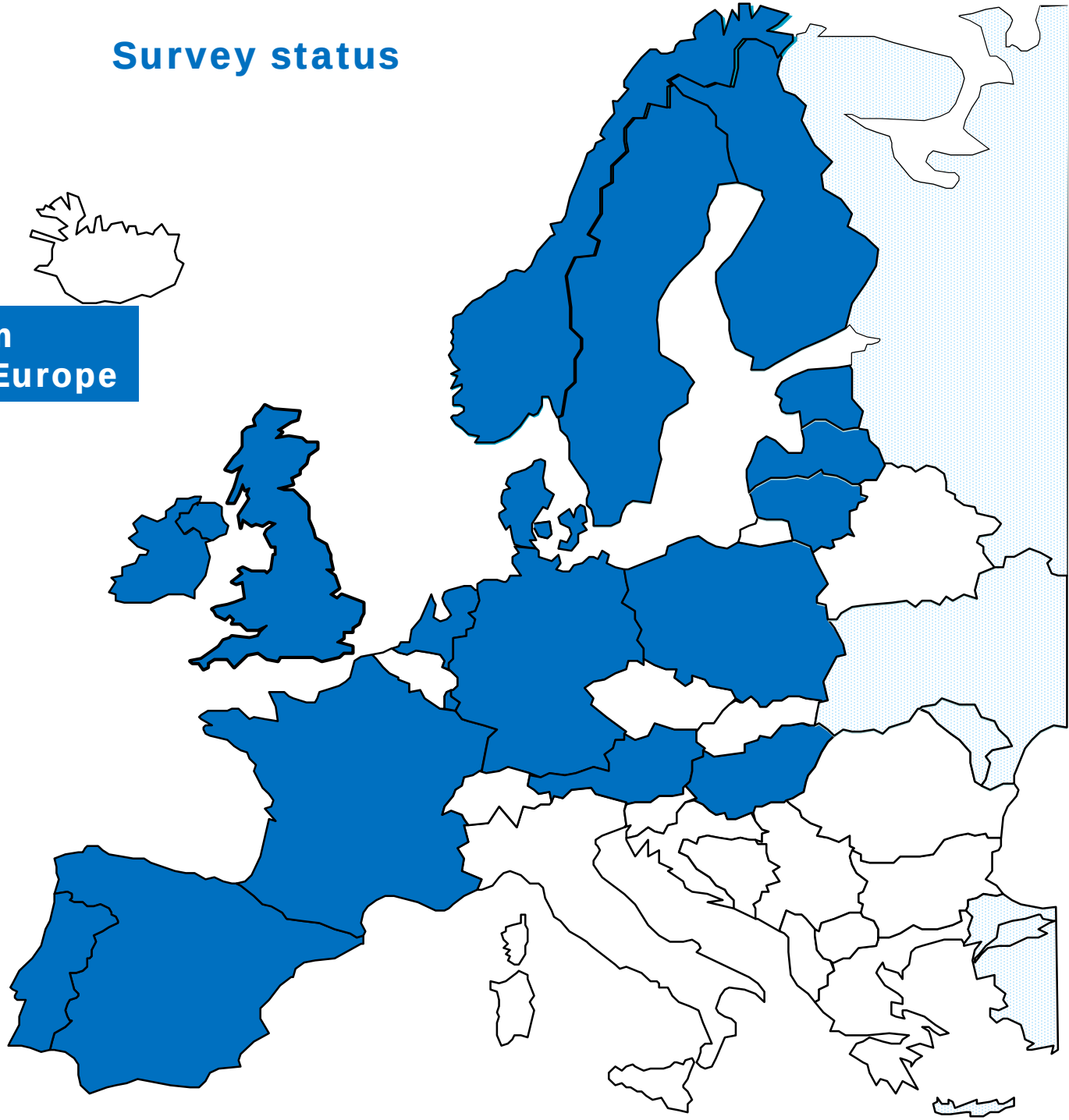
Survey status

Survey received from 22 organisations in Europe



About survey items or criteria

- Our own DMP criteria was compared to DCC, H2020, ERC, Wellcome Trust and The Finnish national DMP criteria / templates using dmponline and dmptuuli tools (by DCC & UC3)
- Comparison of criteria, questions and guidelines was made.
- The answers were compiled in six worksheets.
- Data re-coded: Y=1, Y/N=0 N=-1
- Averages of the re-coded columns calculated.
- Overview what criteria are common in SE member organisations.
- However, not possible to say what criteria are considered most important

Data policy findings

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Contents of data policy

- Three sections:
- Policy coverage
- Policy stipulations
- Support provided

Policy coverage

- Open access publications policy (journal articles, conference proceedings)

	N	%
Fully requested	18	81,8
Partially requested	3	13,6
Not requested	1	4,5
Total:	22	100,0

The sharing of data through trustworthy institutional national or international data repositories

	N	%
Fully requested	14	63,6
Partially requested	5	22,7
Not requested	3	13,6
Total:	22	100,0

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Policy stipulations

- Set time limits for making research outputs accessible

	N	%
Fully requested	11	50,0
Partially requested	6	27,3
Not requested	5	22,7
Total:	22	100,0

Request the data management plan in grant applications

	N	%
Fully requested	8	36,4
Partially requested	5	22,7
Not requested	9	40,9
Total:	22	100,0

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Support provided

- Organisation's own data repository or online open access repository

	N	%
Fully covered	6	30,0
Partially covered	2	10,0
Not covered	12	60,0
Total:	20	100,0

Costs covered for publication fees and data sharing (budget line)

	N	%
Fully covered	13	59,1
Partially covered	8	36,4
Not covered	1	4,5
Total:	22	100,0

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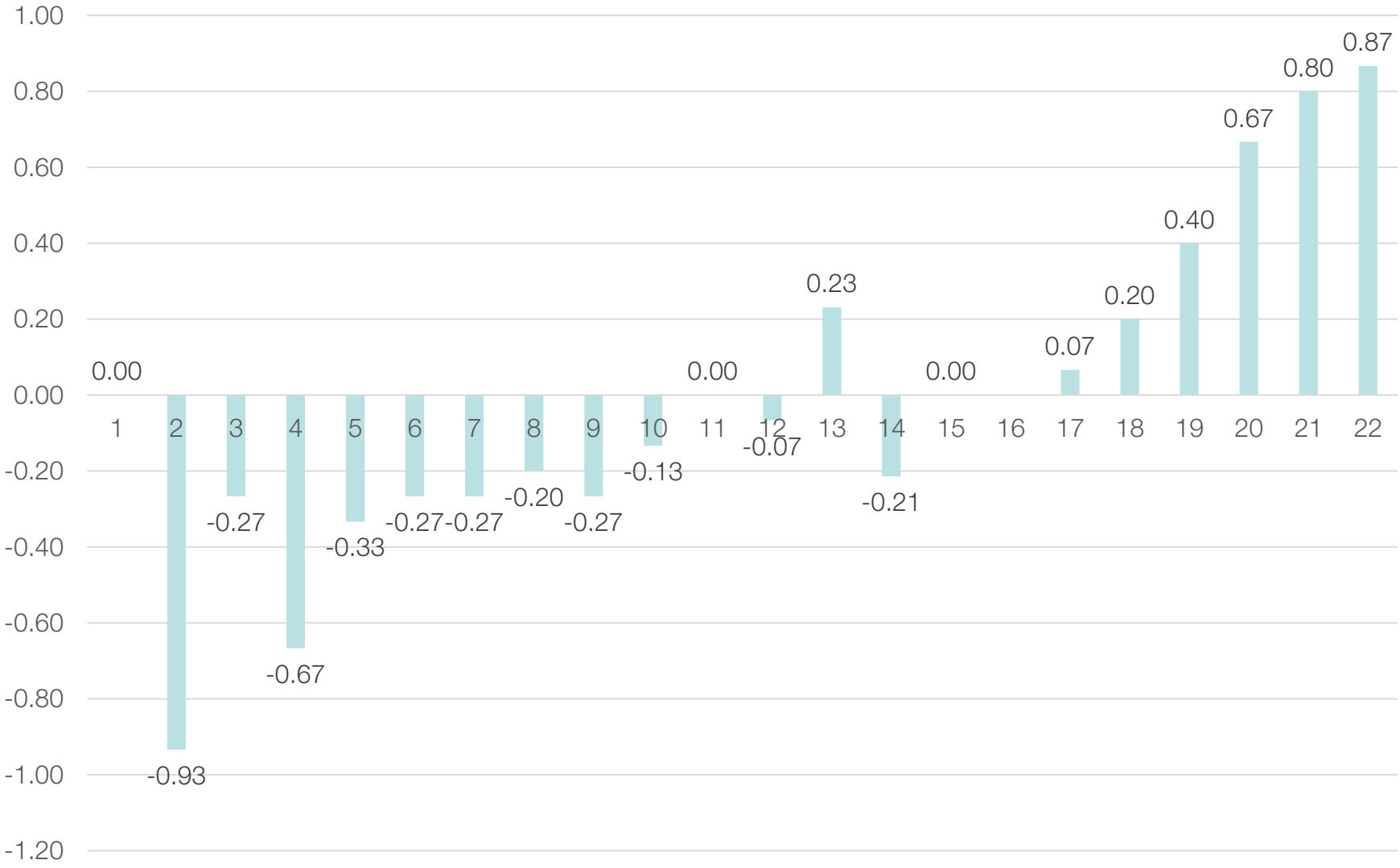
DP instruments applied by RFOs: averages of scores



Findings from data management planning

Documentation and data quality

- Metadata (standard, naming, keywords)

	N	%
Fully requested	8	57,1
Partially requested	2	14,3
Not requested	4	28,6
Total:	14	100,0

Data quality control measures

	N	%
Fully requested	9	56,3
Partially requested	5	31,3
Not requested	2	12,5
Total:	16	100,0

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Data storage and ethics

Storage and backup plans during research

	N	%
Fully requested	7	50,0
Partially requested	3	21,4
Not requested	4	28,6
Total:	14	100,0

Codes of conducts and ethical data management

	N	%
Fully requested	9	56,3
Partially requested	5	31,3
Not requested	2	12,5
Total:	16	100,0

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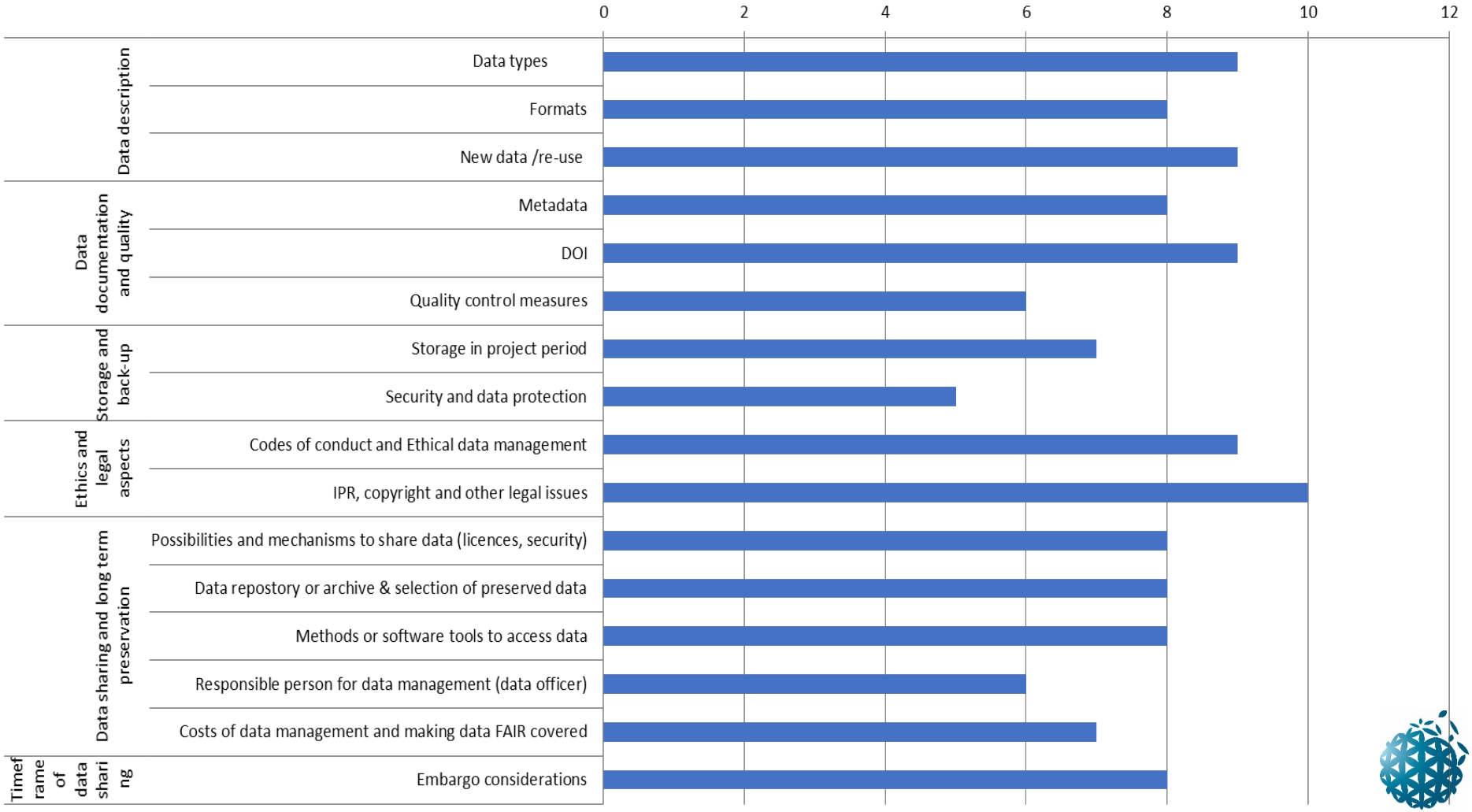
Contents of data management plans or SE DMP-template

- Six sections:
- Data description and collection, or reuse of existing data
- Documentation and data quality
- Storage and backup
- Ethics and legal compliance, codes of conducts
- Data sharing and long term preservation
- Timeframe of data sharing
- *3-8 guideline questions for each criteria/sub question*

Most common DMP criteria

Total for respondents with requesting DMPs (n=14)



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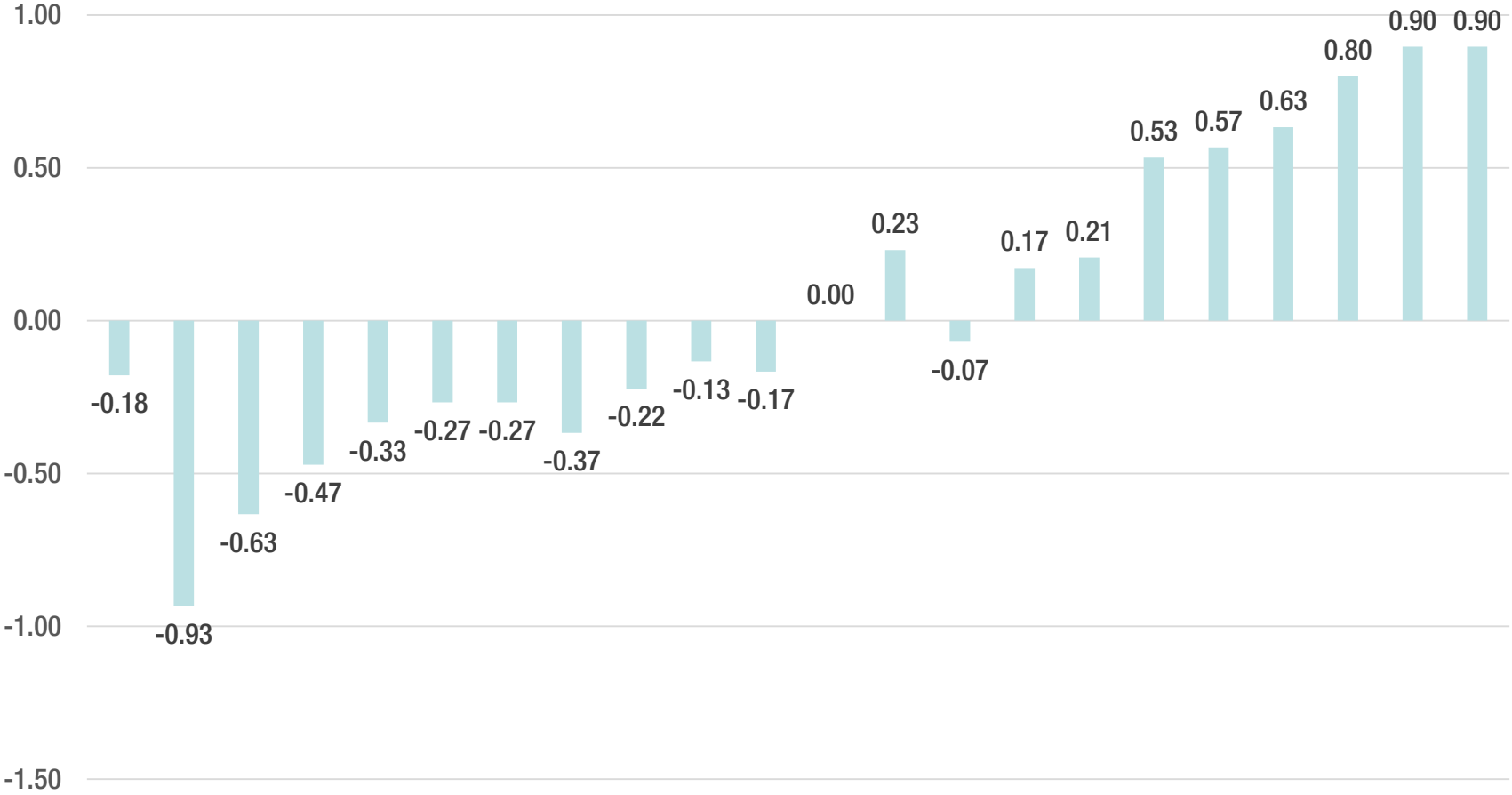
DP and DMP instruments used by RFOs: averages of scores



Few tentative conclusions

- There is a need to have a standard as core requirements for DMPs
- DMP is not a value in itself
- DMP is a tool/ instrument to foster better quality of research, encourage data exchange and re-use, to decrease data costs at least relatively, because of broader data re-use
- DMP must be an obligatory element of research cycle
- DMP requirements need to be clear, economic, but not bureaucratic
- DMPs need to stay as “living documents”
- DMPs need *ex ante* and *ex post* evaluations in the research planning

Thank you for your attention

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