Does code sharing count for my career?

Researchers‘ perceptions on the assessment of OS practices

DFG

“Chinese government bulldozes ‘publish or perish’ mentality

Move to reduce reliance on SCI citations in decision-making could affect everything from researchers’ careers to university rankings, experts say.”

Taken from the Times Higher Education, 3 March 2020, cf.
https://www.timeshighereducation.com/news/chinese-government-bulldozes-publish-or-perish-mentality

Overview

1. **The working group „Scientific Practice“ within the Priority Initiative „Digital Information“**
2. **OS-CAM and survey design**
3. **Results**
   - **Current state of appreciation for OS**
   - **Future state of appreciation for OS**
   - **Barriers for appreciation of OS**
   - **Not sufficiently thought through**
   - **Tension between academic freedom and OS**



1. The Priority Initiative „Digital Information“

- is a close collaboration of the German science organizations in the sphere of digital information that started in 2008.
- is guided by the principle to equip researchers with the information infrastructure best suited to meeting their research needs.
- entered a third collaboration phase in 2018 to target genuine digital phenomena.
- adresses interdisciplinary topics with the appropriate degree of precision in eight fields of action, cf. https://www.allianzinitiative.de.

1. The Priority Initiative „Digital Information“
The action field „Scientific Practice“

- **starts from the question**

  how digital technologies support the process of gaining scientific insights, its reproducibility, as well as the availability of research results.

- **looks at topics like**

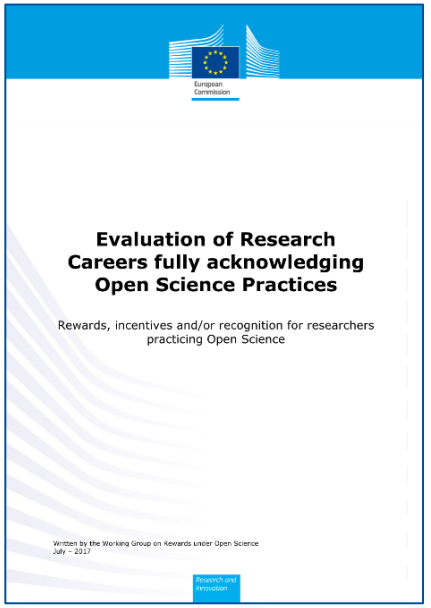
  suitable indicators, the acceptance of openness, requirements for infra-structures, or unintended consequences of the digital transformation.

- **and intends**

  to analyze and demonstrate positive and negative potentials and the supporting role of the information infrastructure. It does not claim, however, to lead discussions in the research communities‘ place.

2. OS-CAM and Survey Design

- Impression that large parts of the German research community do not really follow the European debate around open science.
- No German participation in the Mutual Learning Exercise that led to developing the „Open Science Career Assessment Matrix“ (OS-CAM)
- **„Evaluation of Research Careers …“** (July 2017)



2. OS-CAM and Survey Design

Objectives for the Assessment of OS Practices

- Take into account the performance of researchers from all sectors (e.g. public universities, applied research, industry)
- Use benchmarks which adress various subsystems of scholarly activities
- Replace the sole use of the IF by looking at a variety of research outcomes in a broad sense

Means to fulfill these objectives

- Introduce the „Open Science Career Assessment Matrix“
- Consider various career stages of researchers when applying the OS-CAM

Open Science activities	
RESEARCH OUTPUT	
Research activity	
Publications	
Datasets and research results	
Open source	
Funding	
RESEARCH PROCESS	
Stakeholder engagement / citizen science	
Collaboration and Interdisciplinarity	
Research integrity	
Risk management	
SERVICE AND LEADERSHIP	
Leadership	

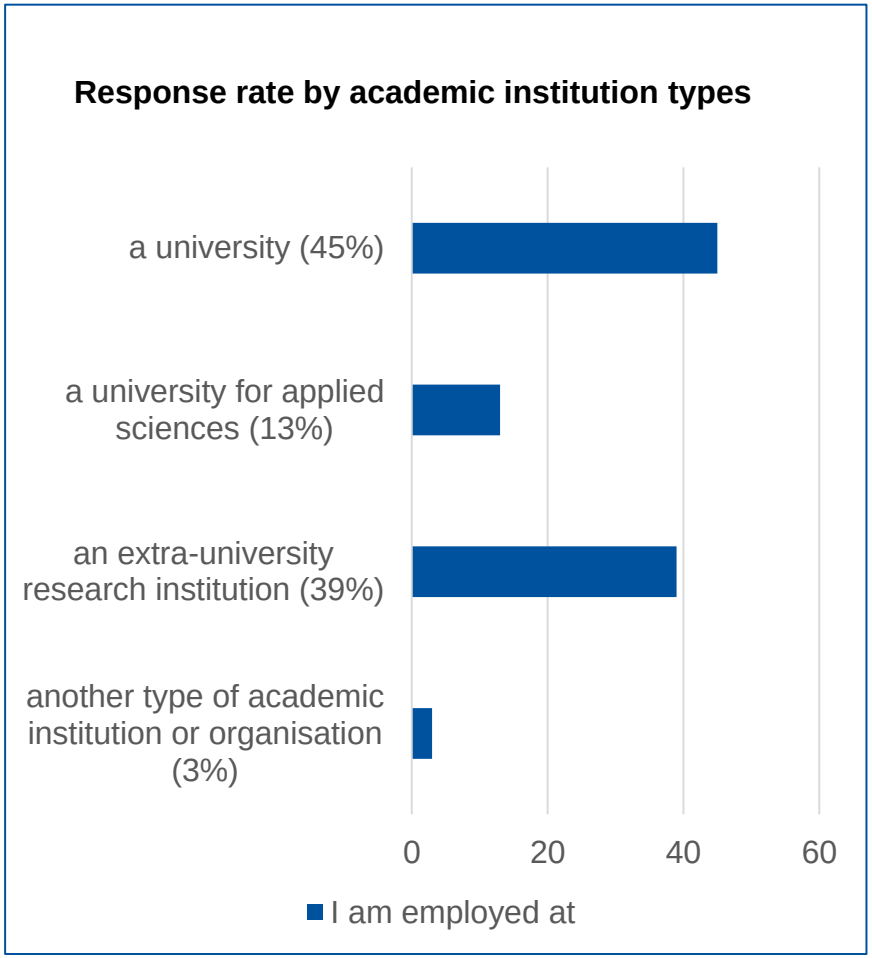
[…]

2. OS-CAM and Survey Design

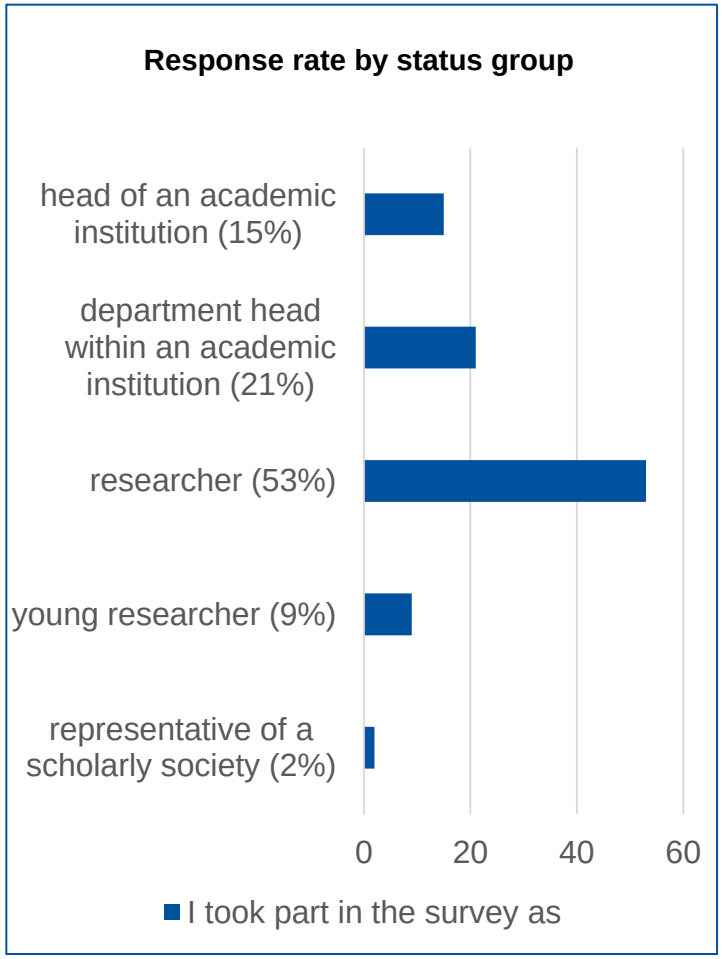
- Wish to stimulate a broader discussion on the approach within the German research community
- **Online Survey in order to examine**
  - whether OS contributions are particularly appreciated
  - whether OS contributions should be particularly appreciated in future
  - how difficult it may be, when assessing research performance, to take into account contributions decidedly targeting OS
  - what circumstances may not have been adequately reflected yet in order to align research assessment with OS
- Quantitative analysis complemented with qualitative feedback

3. Results
3.0 Survey returns and reponse rate by institutions

- Survey period from 07.03.-10.05.2019
- 1.445 requests of link to survey
- **371 completed and fully analysed questionnaires**
- **Rich information provided in the free text fields**
- Hearty thanks to the information management colleagues from the Fraunhofer Association who carried out the survey



3. Results
3.0 Response rates by status groups and OS dimensions



- **OS-CAM dimensions for survey**
  - Original publications in open access
  - Depositing publications in OA repositories
  - Providing research data for re-use by third parties
  - Providing research software
  - Contributing to open science infrastructure
  - Teaching open science courses
  - Engaging in citizen science
  - Engaging in political debates around OS

3. Results
3.0 Some preliminary remarks

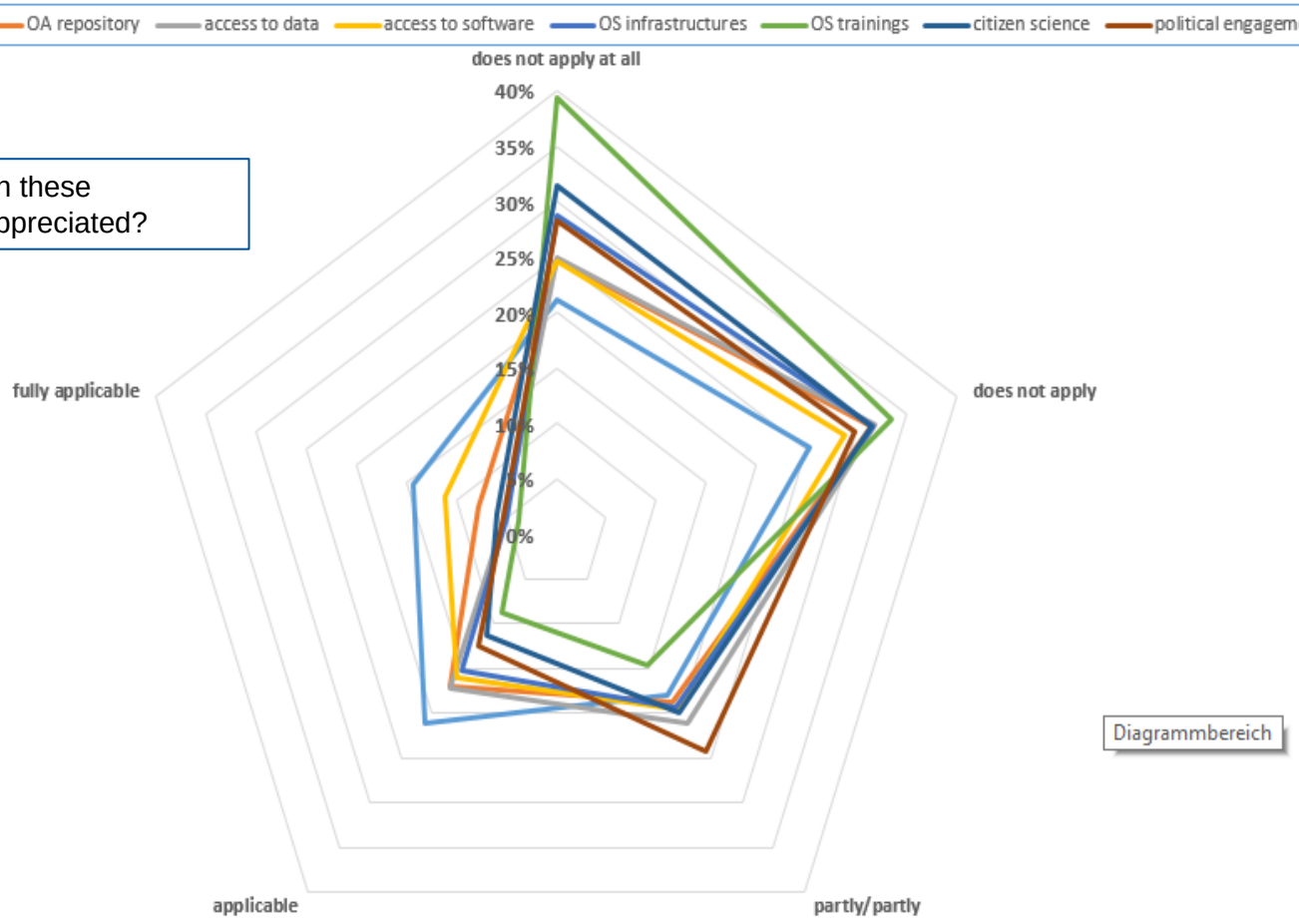
- The survey is **not representative.** Results can only highlight various issues.
- **Was there a self-selection bias?**
  - There were many well-informed, detailed responses on the one side …,
  - as well as harsher reactions on the other side (e.g. „Leave this nonsense be!“).
- The **status group** doesn‘t seem to influence the overall position towards OS.
- The OS train is obviously on its way – while **its pace varies hugely.**
- There seems to be a greater **reluctance by universities** than by non-university research organisations towards OS.

3. Results
3.0 Some preliminary remarks

- **Changing perceptions of the *meaning* of OS which is e.g. seen as**
  - an important element of good scientific conduct;
  - an indicator for the quality of research;
  - an enabler for developing and applying new research methods;
  - an instrument for outreach to the public;
  - an ideology that has no relationship with doing proper research at all.
- **Further reasons for the *heterogenity of responses* are**
  - the differences in the mode of doing research (competition versus cooperation);
  - worries regarding issues of quality control;
  - different subject cultures.

3. Results
3.1 Current state of appreciation for OS: overall picture

Q 3.1: Are contributions in these dimensions particularly appreciated?



3. Results
3.1 Current state of appreciation for OS for status groups

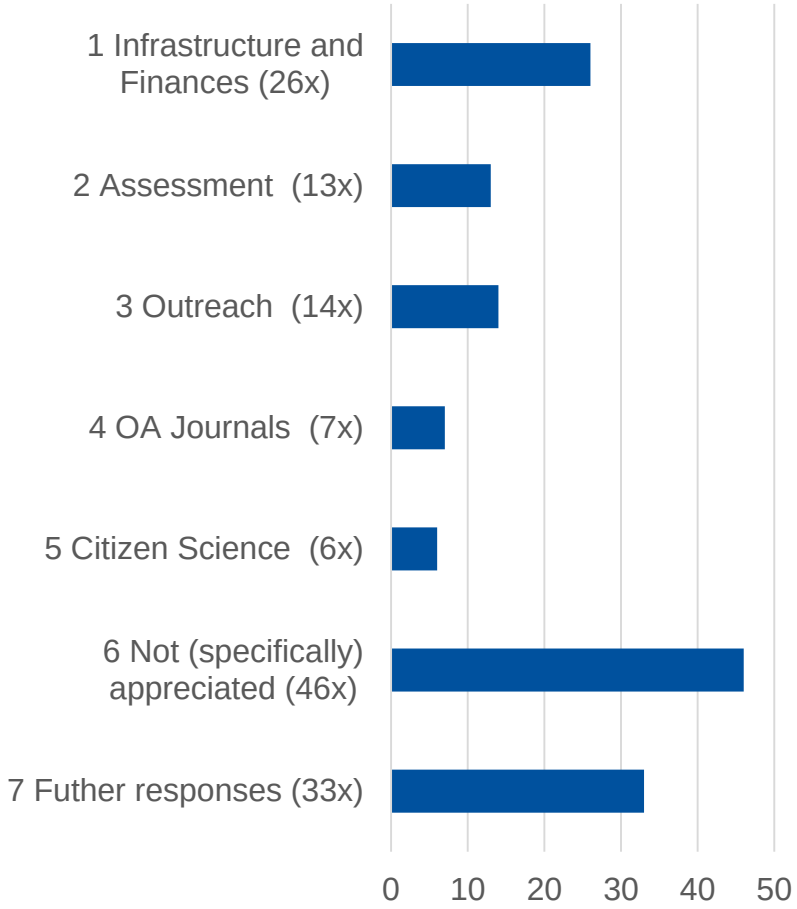
	Original OA Publications	OA Repositories	Research Data	Research Software
In total	35%	25%	22%	27%
Heads	**42%**	**38%**	30%	**41%**
Department Heads	40%	26%	**37%**	34%
Researchers	34%	20%	14%	18%
Young Researchers	29%	25%	30%	35%

Percentages of responses *(fully applicable + applicable),* structured by status groups
Bold = highest value for dimension; red = highest value for status group

3. Results
3.1 Current state of appreciation for OS

- The dimensions „teaching“, „citizen science“ and „political engagement“ are lagging behind with regard to their relevance for academic reputation.
- The concept of authorship remains highly important: original publications and research software win.
- The position within the hierarchy partly defines what seems important: research software development is rather carried out by junior researchers.
- The heads‘ high awareness for publications seems to verify that IF-based assessment remains key – or are changes already visible, e.g. by looking at contributions to software development?

3 Results
3.1 Examples for the appreciation of OS activities



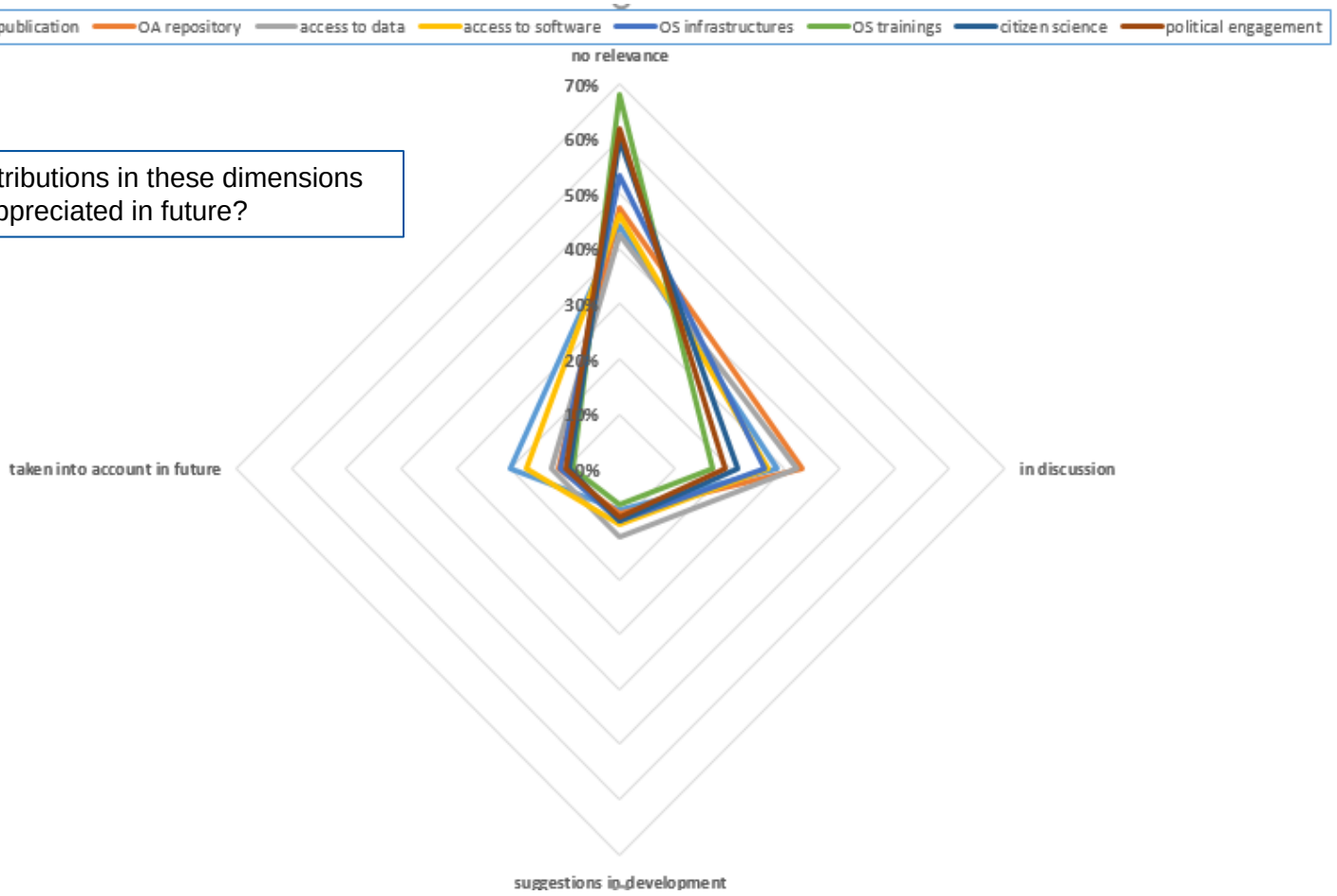
- Appreciation
  1. by providing infrastructure or financing OA publication charges;
  2. by recognising OS in the assessment of research performance;
  3. by supporting public outreach activities (prizes, homepages, workshops);
  4. by engaging in the production of OA journals;
  5. by engaging in citizen science;
  6. is not (specifically) given
  7. Further responses

3 Results
3.1 Examples for the appreciation of OS activities

- **Frequent mentions of lacking appreciation for OS**
- **Focus on open access to publications**
  - Appreciation by the provision of funds to finance APCs
  - Appreciation by self-engagement in producing OA journals
- **Rare hints that OS plays a dedicated role in tenure and hiring**
- **Clear connection between OS and science policy**
  - *„There will be more institutional engagement for open science since the Senate of the federal state Berlin aims for that. It is not at all clear, though, how that will look like.“*
- **Lack of dialogue between the various research sectors**
  - *„Appointees for open science should talk more with the technology transfer offices.“*

3. Results
3.2 Future state of appreciation for OS: overall picture

Q 3.2: Shall contributions in these dimensions be particularly appreciated in future?



3. Results
3.2 Future state of appreciation for OS for status groups

	Original OA Publications	OA Repositories	Research Data	Research Software
In total	27%	19%	25%	27%
Heads	**34%**	**25%**	26%	**37%**
Department Heads	29%	24%	**32%**	33%
Researchers	25%	16%	22%	22%
Young Researchers	25%	7%	12%	7%

Percentages of responses *(„will be recognised in future“* + *„we are in the process of developing suggestions for future recognition“),* structured by status groups
Bold = highest value for dimension; red = highest value for status group

3. Results
3.2 Future state of appreciation for OS: overall picture

- As regards future appreciation for contributing to open science, the surveyees do not seem very confident – although much debate is going on.
- Appreciation relates to original publications and software – not data: the concept of authorship obiously remains very important.
- When looking at status groups, (department) heads seem more open to acknowledge contributions in the data and software area than researchers.
  - Is this caused by the heads‘ need to follow political discussions more closely?
  - Or does it simply show how frustrated researchers are when they realize that what counts for promoting their career is publications, publications, publications …?
  - Even if that is that is the case, the open access status of a publication is not likely to be taken into account for the academic reward system.

3. Results

3.2 Future state of appreciation for OS for status groups

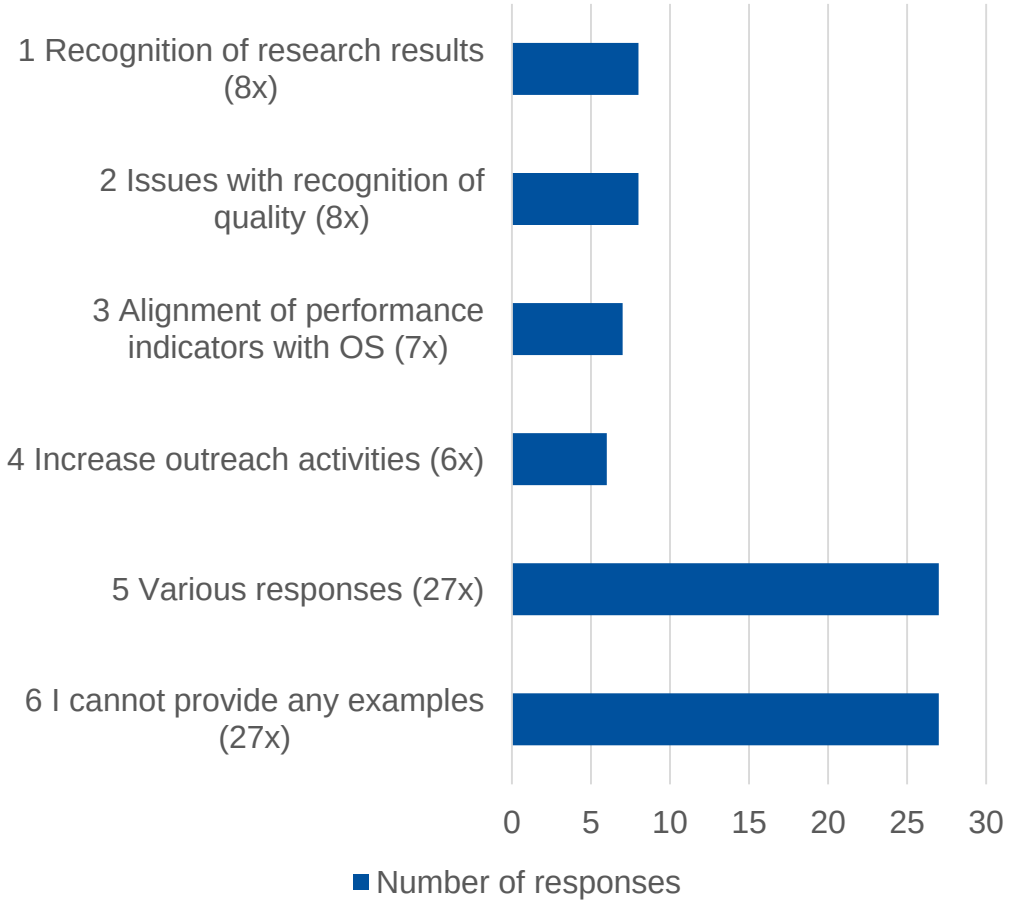
	Original OA Publications	OA Repositories	Research Data	Research Software
In total	44%	47%	43%	46%
Heads	30%	39%	39%	29%
Department Heads	38%	36%	32%	37%
Researchers	**51%**	55%	**52%**	**57%**
Young Researchers	50%	**60%**	38%	**57%**

Percentages of responses *(„This has no relevance for the assessment of research performance“)*, structured by status groups

Bold = highest value for dimension; red = highest value for status group

3 Results

3.2 What is actually discussed to appreciate OS activities in future?



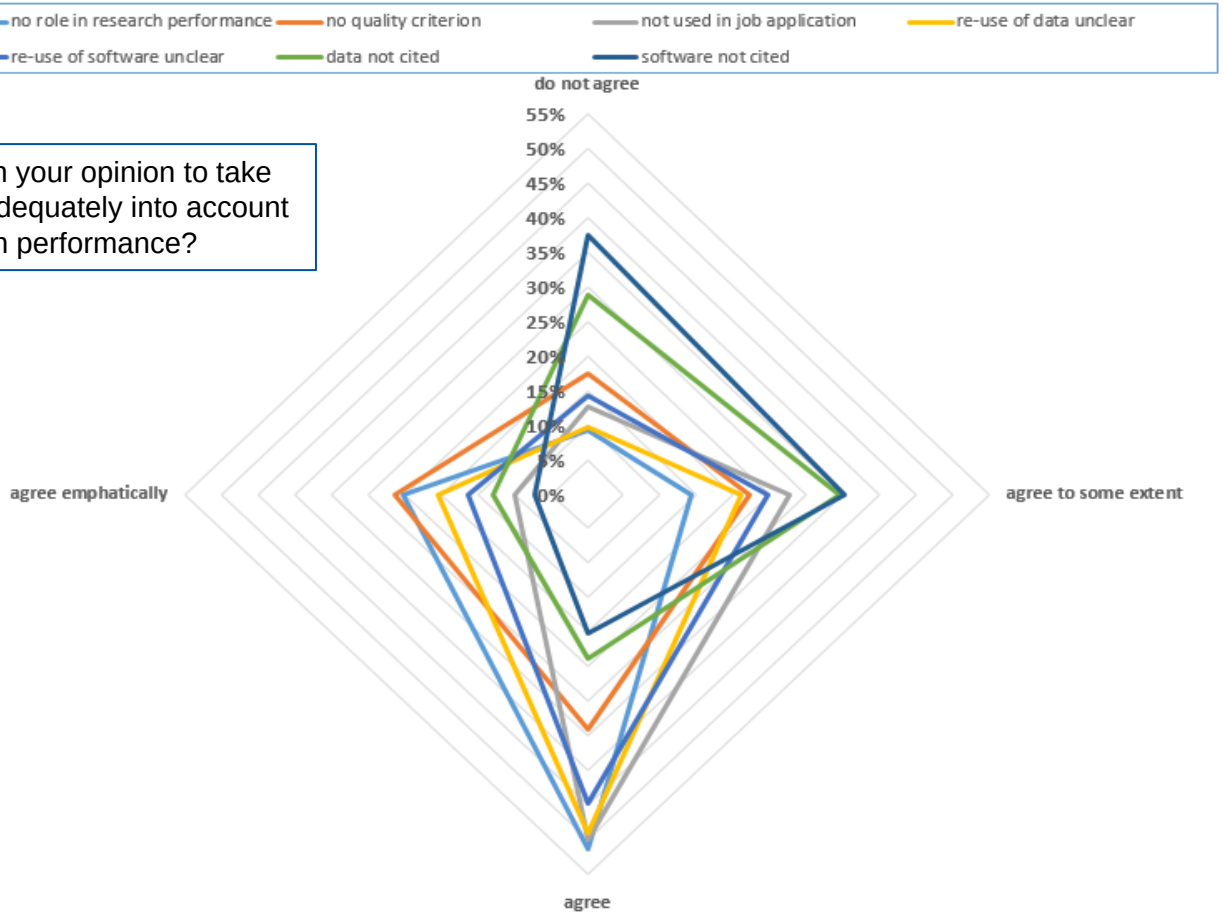
1. Appreciate research data; integrate data and software into the reporting of research results.
2. OA/OS is not a quality criterion *per se.*
3. Take OS into account when hiring etc.
4. Increase enagement in science communication.

3. Results
3.2 What is actually discussed to appreciate OS activities in future?

- **Striking high number of responses that cannot point out any examples**
- **Asking to make no differences between various modes of science does not mean to be against OS:**
  - *„We try to make all our work publicly accessible. We do not, however, distinguish between the assessment of results when they are provided in the open, and we do not recognize such provision in any other way.“*
- **Coming back to semantic ambiguity which is not always beneficial to the research community:**
  - *„Open science is primarily seen as an instrument for improving public outreach. Because of this, only superficial actions take place.“*

3. Results
3.3 Barriers for adequate appreciation of OS

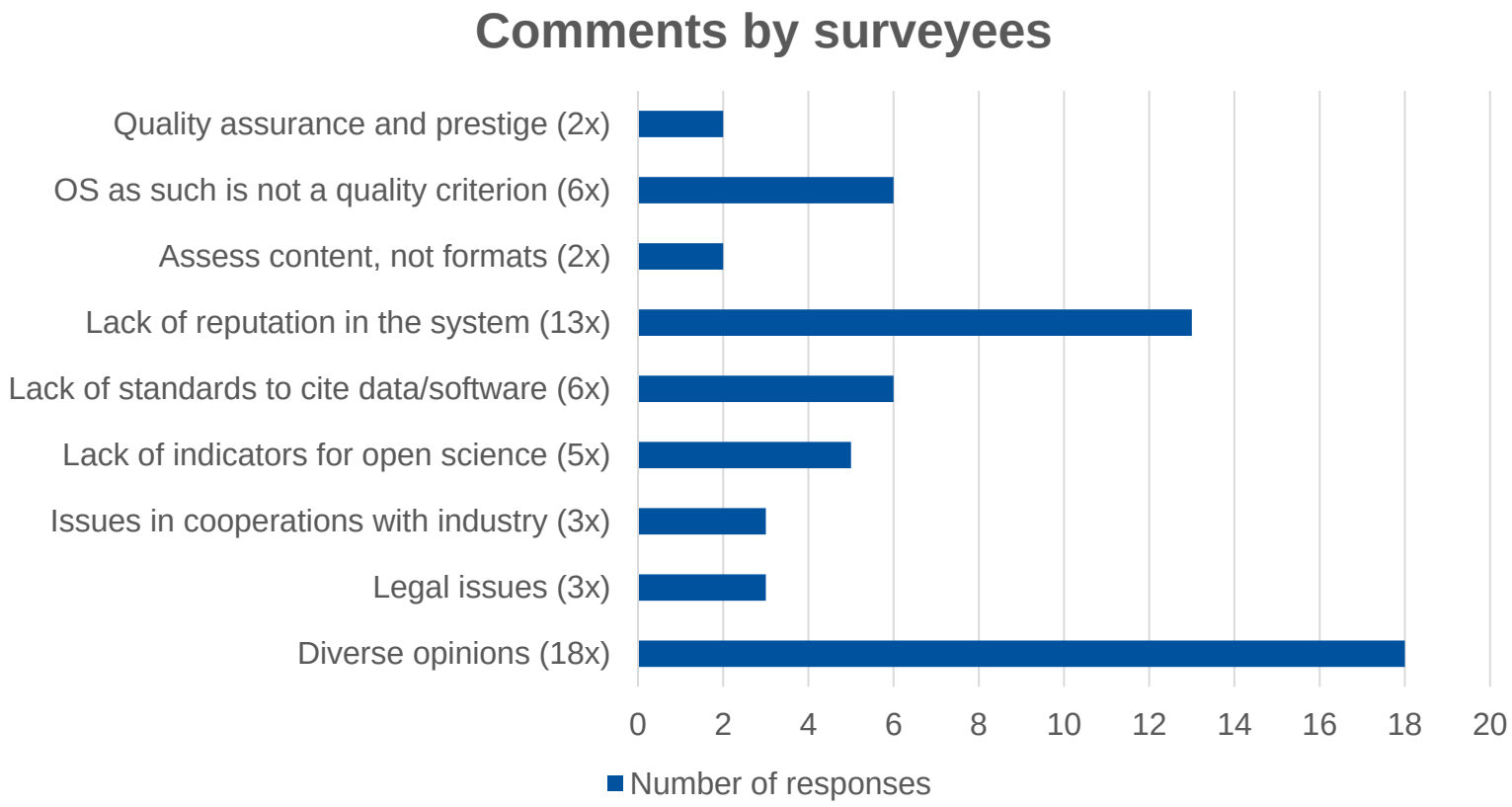
Q 3.3: How difficult is it in your opinion to take open science activities adequately into account when assessing research performance?



3. Results
3.3 Barriers for adequate appreciation of OS

- **Diverse opinions on assessing the quality of open science**
  - In general, OS is not seen as a quality criterion as such.
  - This opinion is clearly reflected in answers provided in the free text fields.
  - However, there is a distinct difference between the status groups:
    - 8% of *institution heads* disagree with the statement that OS is not a quality criterion per se.
    - 8% of *department heads* disagree …
    - 19% of *researchers* disagree …, and even
    - 48% of ***young researchers*** disagree …: do they see a new kind of quality in OS?
- **Progress in developing citation habits**
  - Indication that the community slowly gets used to cite data and software
  - Yet again, young researchers are most confident that will happen:
    - 38% resp. 50% disagree with the statement, that data resp. software is not cited

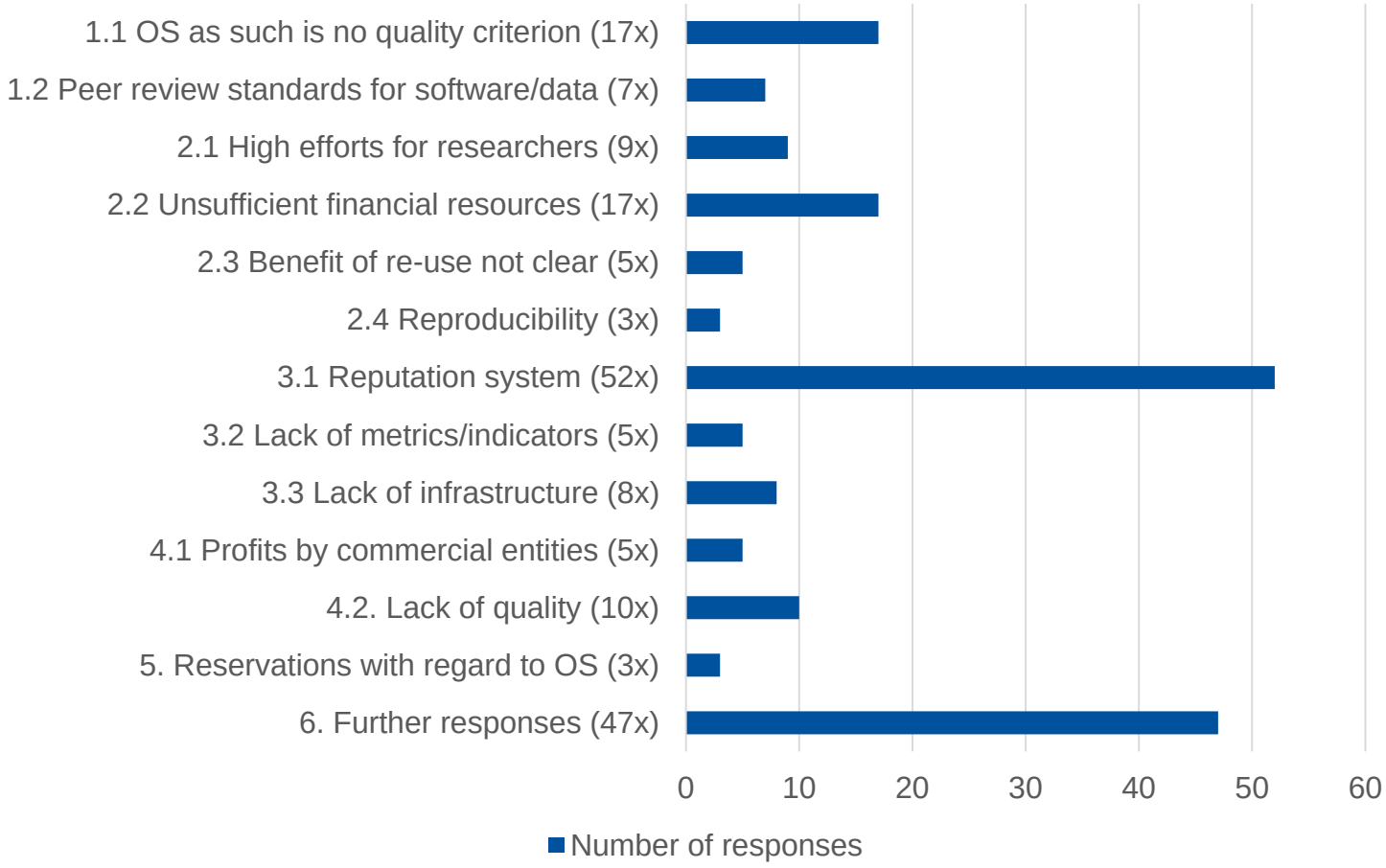
3. Results
3.3 Issues that hamper the adequate assessment of OS activities



3. Results
3.3 Issues that hamper the adequate assessment of OS activities

- **Different modes of doing research**
  - *„The actual research system relies on competition whereas OS parly relies on sharing. There is a friction which is not yet elegantly tackled.“*
  - *„We miss a culture for experimentation which recognizes not only results, yet also processes, basic approaches, and which assesses even a failure as a result.“*
- **Permeable boundaries between OS and „toll science“**
  - *„Open access and data sharing should not be amalgameted. There are toll access journals which require data sharing, and I can publish in an open access journal without making my data publicly available“.*
- **Mental barriers without necessity?**
  - *„There is a lack of awareness for their own acitivities by which researchers already practise open science.“*

3. Results
3.4 Not yet sufficiently thought through to include OS in assessments

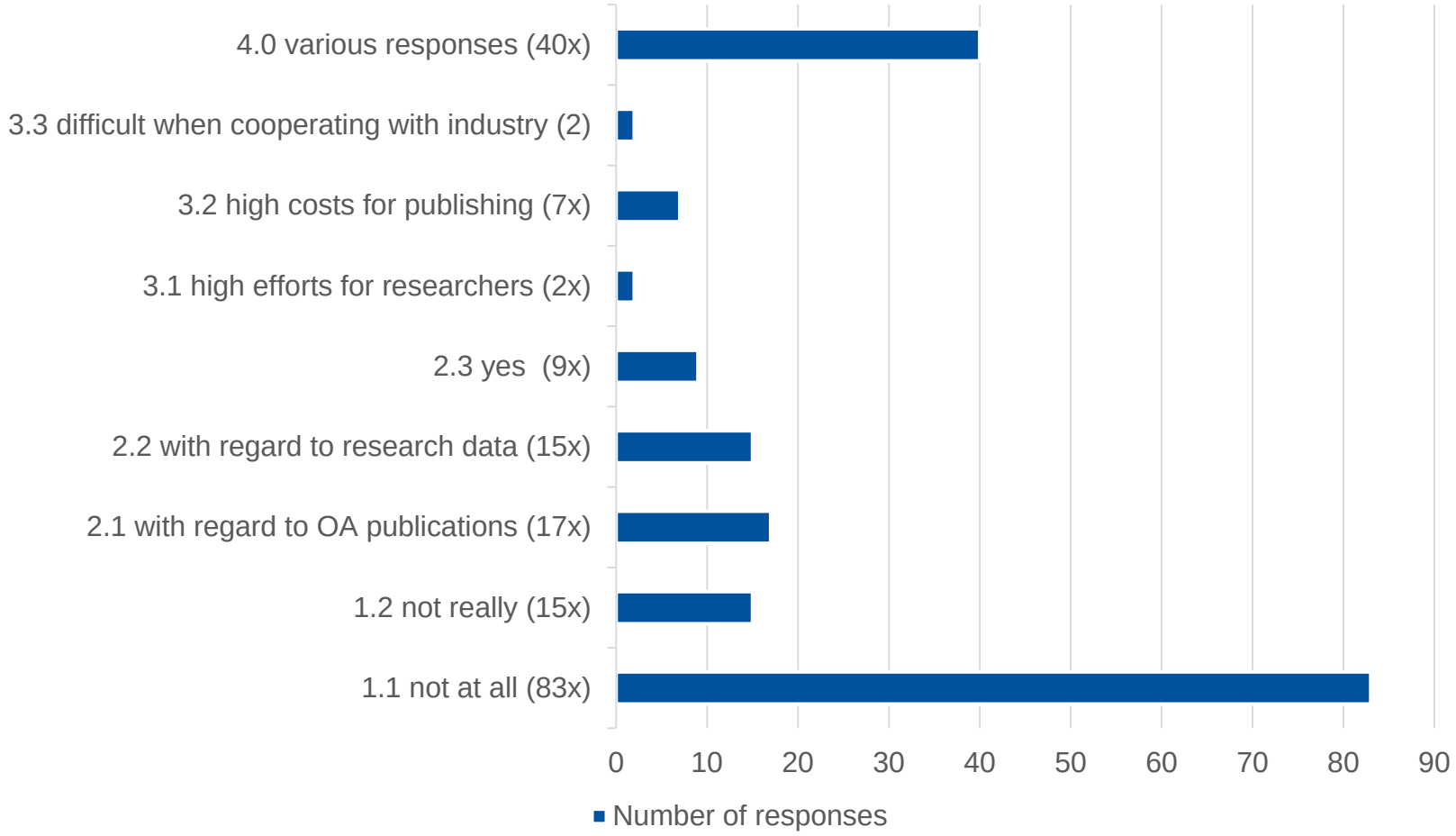


1. Issues of quality assurance
2. Issues with regard to re-use
3. Gaps
4. „Shady“ sides
5. (Severe) reservations

3. Results
3.4 Not yet sufficiently thought through to include OS in assessments

- **Huge reliance on the traditional reputation system**
- **Clear concerns related to the quality of research**
- **Clearly articulated frustration with insufficient funding**
  - *„Researchers like me apply for publication costs, and when the grant is approved exactly these costs are not funded.“*
- ***However:* is there much unnecessary turmoil?**
  - *„It is not really clear whether the efforts to invest in re-use are justified.“*
  - *„Those areas for which it is beneficial already practise open science (astronomy, particle physics, DNA sequencing).“*
  - *„In a transition phase, the acceptance for open science heavily depends from the individual community.“*

3. Results
3.5 Tension between academic freedom and open science?



3. Results
3.5 Tension between academic freedom and open science?

- **Tension does not seem to be an issue for most researchers**
- **Clear concerns whether the efforts are always worthwile**
  - *„The re-use of data from my field (solid-state physics) by third parties is practically impossible. Valid analysis of such data requires the exact knowledge of the concrete measuring setup. It is nearly impossible to provide this for re-use. Thus, investing in data archival is usually a waste of money.“*
- **A range of problems from economic issues to academic culture**
  - Basic funding, legal issues (e.g. copyright), power of publishing houses
  - Laws increased the academic workload, e.g. for data protection
  - (Partially closed) data are an asset to actively initiate cooperation
  - Openness poses difficulties for transfer and patenting

3. Results
3.5 A complex system requires differentiated approaches

- ***Different audiences* need *different editing* of scientific results**
- **Provision to the own research community**
  - Publications, conferences, visits by guest researchers are good ways for re-use.
  - Reproducibility requires even more editing by the authors.
- **Provision to a broader public**
  - There are also manifold, already established ways for public outreach.
  - Here, even much more editing is required to make research results comprehensible.
- **Questions of *authorship* are clearly factored in – so far …**
  - Protection against un-entitled re-use is needed.
  - Huge efforts for editing easily diminish research productivity.

Many thanks for your attention!

Further information

- on the DFG: **http://www.dfg.de**
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