

# NPOS 2030 consultation report

Open consultation of the Ambition Document NPOS 2030

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# 1 Executive summary

This report aims to analyse the open consultation of the NPOS 2030 Ambition Document. It responds to two key questions:

1. What is the support for the NPOS 2030 Ambition Document?
2. What did respondents suggest to improve regarding the four elements in the NPOS 2030 Ambition Document?

The Steering Board also requested to advise on:

3. What do respondents advise to onboard in the draft Rolling Agenda of NPOS 2030?

A large majority (strongly) supports the Ambition Document. The guiding principles (84%) and the vision (69%) have most support. These first two elements are strategic, whereas the programme lines (61% support) and key action lines (58% support) are subsequently tactical and operational. There are respondents (strongly) disagreeing with the programme lines (19%) and key action lines (13%). Yet, they made constructive comments to add new programme and action lines.

On the second key question, that is on suggesting changes in the Ambition Document, we see most comments and suggestions on the programme lines. Open education and open software are suggested as two additional programme lines. Regarding guiding principles, respondents would like to add transparency and integrity. Under the topic “Vision” respondents would like to add trust and collaboration as themes. Generally, respondents ask for a stronger link between the strategic level of the guiding principles and vision on the one hand, and the tactical and operational programme and key action lines at the other hand. Respondents also request better definitions of (Open) Science and a clarification of the concept *sovereignty*. About the vision it is said that it could be more ambitious, more inclusive (beyond academic and more international collaboration), and more interactive (bottom up and regular updates). Furthermore, respondents suggest to add *rewards & recognition* in all three programme lines. They also suggest to better connect the programme lines to prevent silos. Regarding the key action lines respondents ask for a wide variety of improvements. Highlighted are outreach & awareness, funding, inclusiveness, and training & skills.

Regarding the third question it is important to start with the common message sent by stakeholders through the consultation: more ambition, more clarity, more participation. Stakeholders have raised a constructive and critical voice, while confirming there is a need for the Ambition Document. This message is relevant for the Rolling Agenda, for which we have 11 points of advice:

1. Follow up on the intention to actively involve stakeholders in the Rolling Agenda.
2. Consider setting up an editorial board for the Rolling Agenda, that will include a delegate for the Universities of Applied Sciences.
3. Better connect the guiding principles and vision with the programme lines and the key action lines.
4. Add Open Education as a 4<sup>th</sup> programme line.
5. Extend existing programme lines to capture open software.
6. Position requirements such as recognition and rewards as key action line in all programme lines.
7. Better explain sovereignty and how it connects to the programme lines.
8. Consider Renaming Citizen Science into Citizen Engagement or Societal Engagement.
9. Clarify the goal of both the Ambition Document and the Rolling Agenda.
10. Consider taking sufficient time for a well-supported ambition and agenda.

11. Consider following the respondent's call for a more ambitious approach.

## 2 Introduction

The NPOS Steering Board has upheld transparency as a guiding principle for Open Science from the early start of drafting the NPOS 2030 Ambition Document. After a series of Round Table meetings with key stakeholders in May 2021, an open consultation was organised in December 2021. This open consultation aimed to give all stakeholders the opportunity to reflect on the NPOS2030 Ambition document, which forms the first chapters of the new NPOS2030 Programme. The feedback received in this consultation will help the NPOS Steering Board and the Programme Line Leads to start filling in actions for each of the Key Lines of Action for the coming years, thus creating a rolling agenda for the next decade. These actions will be discussed with the relevant stakeholders that will contribute by taking on this action to ensure that the ambitions are met.

This NPOS 2030 Consultation Report answers three questions:

1. What is the support for the NPOS 2030 Ambition Document?
2. What did respondents suggest to improve regarding the four elements in the NPOS 2030 Ambition Document?
3. What do respondents advise to onboard in the draft Rolling Agenda of NPOS 2030?

The consultation report is structured around the three questions above. Chapter 2 starts with a concise introduction on the methodology. This paragraph proceeds with a description of support for the NPOS 2030 Ambition Document, based on the statistical reporting by Bureau de Uitkomst. The conclusions about the support serve as background for further analysis of feedback. The third paragraph describes the results and our conclusions about the response to the closed and open consultation questions. For this, we have processed the raw data into a coding book. For each of the four sections in the Ambition Document – that is (1) guiding principles, (2) vision, (3) programme lines, and (4) key action lines – we describe the suggestions for changes by the respondents. In chapter 3 the focus is on overseeing and prioritizing the next steps in editing the NPOS 2030 Ambition Document. We conclude this final chapter with overall conclusions and advise to the NPOS Steering Board.

### 3 Methodology

The open consultation has been announced publicly on the 17<sup>th</sup> of November and was open between 22<sup>nd</sup> of November until 22<sup>nd</sup> of December 2021. The invitation to participate was actively circulated within various open science networks and while the consultation was open it was frequently checked whether key stakeholders had participated.

The consultation was presented as an online survey by Bureau De Uitkomst/SURF. The survey was structured around the four sections of the Ambition Document. For each of the four sections a respondent was able to score the level of support on a five-point scale, and to add comments in a free text field. This combination of a closed and open question supports a clear distinction between analysis of the support for the Ambition Document as written (closed questions), and an analysis of text suggestions and potentially broader responses (open questions). The latter proved to be significant for catching alternatives and opinions.

In total 78 respondents participated in the open consultation. Except for the individuals (n=12), respondents have participated in the consultation on behalf of their organisation. One organisation replied to the consultation with a separate letter, which we have manually added to the raw dataset and in case of doubt the closed answers for this case were scored in the middle category.

In the introduction we have mentioned processing of the raw data. To process the raw data, we have 'normalized' the response to the open questions in a coding book. Ideally, this normalization results in keywords that can be clustered, but in this consultation, responses were often more elaborated using multiple words and thus we used summaries instead of keywords to normalize.

The normalization is a two-step approach that starts with plotting of the response. For instance, assume that a comment on the guiding principles is related to three of the total five. Plotting means we detangle the overall comment into sub-responses that we plot in the coding book under the applicable guiding principles (each guiding principle got a separate column in the coding book). The second step is to add keywords or a short summary to the subsequent guiding principles in the coding book in corresponding keyword/summary columns.

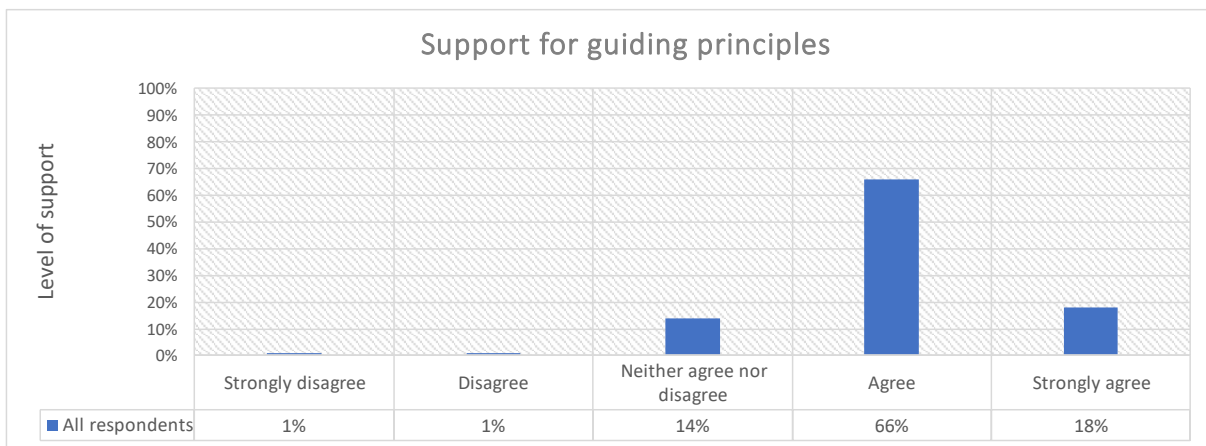
The normalization enables us to determine the frequency of responses and make comparisons. It points towards specific (sub)sections of the Ambition Document that need change according to respondents. We have applied the two-step normalization to all sections of the Ambition Document. This normalization was relatively easy to apply to the guiding principles (section 1) and vision (section 2), but less so with the program lines and key action lines (sections 3-4). This may well be explained by the fact that sections 1 and 2 refer to brief sections on vision, whereas section 3 and particularly section 4 read as plans with specific actions. Another result of the normalization is the ability to use the frequency of similar responses to rank comments.

## 4 Frequency analysis closed questions

In this brief chapter we present an analysis of the level of support for the NPOS 2030 Ambition Document. The open consultation asked each respondent to score the level of support for each of the four sections of the Ambition Document: (1) guiding principles, (2) vision, (3) programme lines, and (4) key action lines.

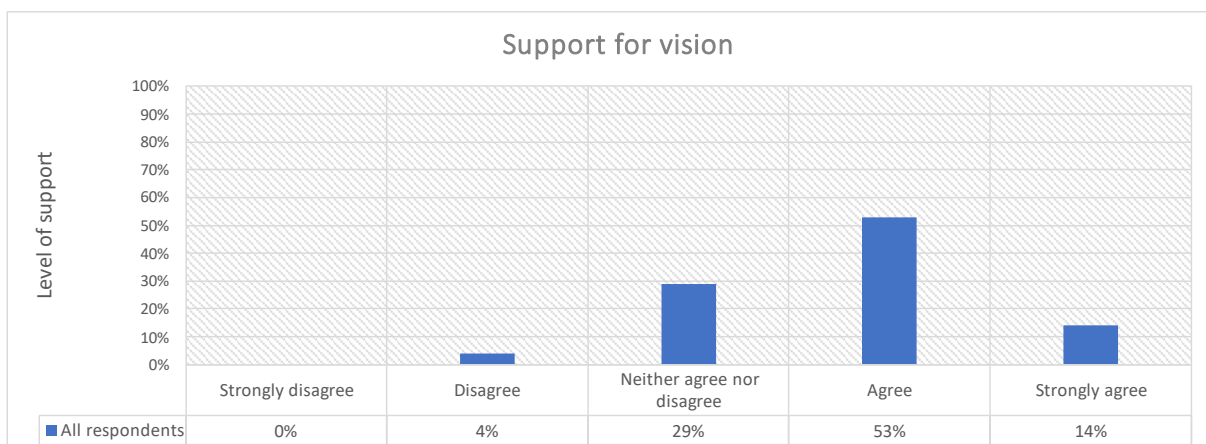
The statistical frequency report was provided by Bureau de Uitkomst. The dataset of the frequency report shows 12 respondents that participated as an individual and 66 respondents that participated on behalf of their organisation. Within the group of organisations (see annex) we see so many differences that it was impossible to make a limited, and homogeneous distribution in subgroups. However, we have done a sensitivity analysis based on a heterogeneous distribution into six subgroups. There were no significant differences found. Therefore, we continue this chapter with a descriptive analysis of the frequency diagrams of the complete population of 78 respondents.

**Consultation question 1.** *To what extent do you agree with the NPOS guiding principles?*



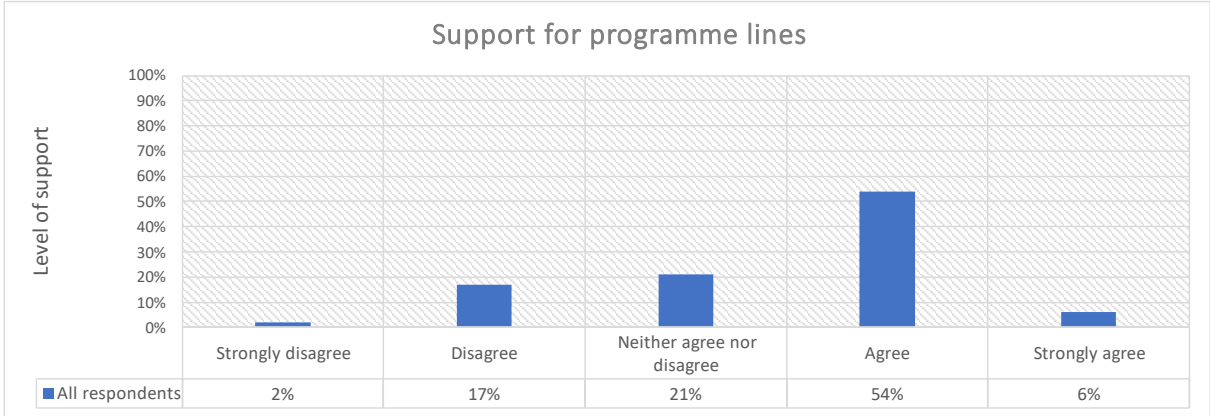
Based on the above frequency table we conclude that with 84% (strong) agreement and only 2% (strong) disagreement, there is large support for the guiding principles.

**Consultation question 2.** *To what extent do you agree with the NPOS vision for 2030?*



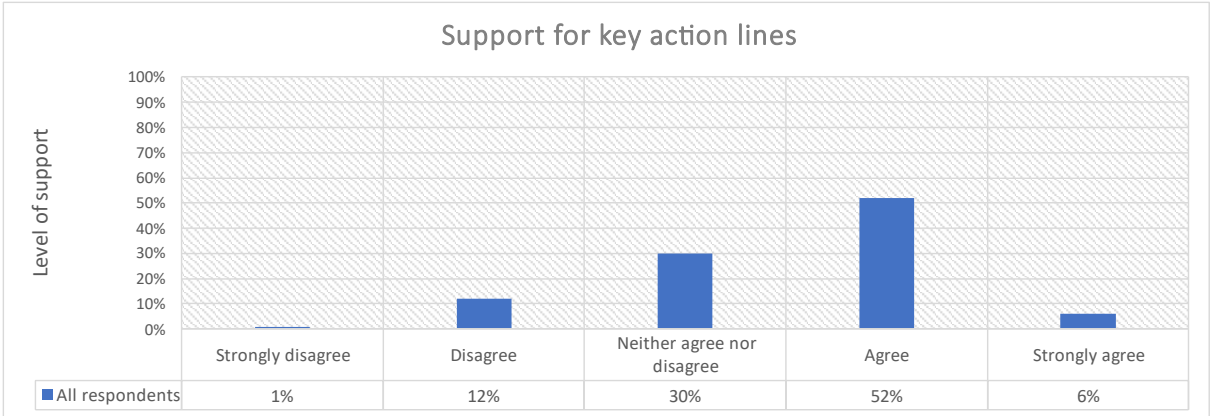
The level of support for the vision remains in majority positive (69%), while the neutral opinions almost double in comparison with the support for the guiding principles.

**Consultation question 3.** *To what extent do you agree with the NPOS programme lines and the Requirements?*



The programme lines are supported by a slight majority (60%). Unlike the statistics on the guiding principles and the vision, we observe a significant score on disagreement. In the next chapter we will learn that there is a substantial call for additional programme lines, such as *open education* and *research software*.

**Consultation question 4.** *To what extent do you agree with the NPOS Key Lines of Action for the Programme Lines?*



Among the four sections of the Ambition Document, support for the key action lines is lowest, but the frequency pattern matches with that for the programme lines. Many respondents have repeated their arguments, which may not be surprising given the fact that key action lines are elements of programme lines. In the next chapter we will learn about miscellaneous suggestions and comments regarding the key action lines.

## 5 Qualitative analysis open questions

This chapter provides a detailed analysis of the responses to the open questions. In the analysis of the responses to the open questions we have labelled the nature of the feedback in categories:

- **MODIFY TEXT:** respondents suggest to change the text; no content related suggestions
- **BETTER EXPLANATION:** respondents suggest to clarify definitions, concepts, etc.
- **CONTENT DISCUSSION:** respondents dispute content or elements of the Ambition Document
- **NOTES:** respondents have miscellaneous comments that do not fit with the above categories.
- **NOTES RC:** notes by the authors to explain or add information.

We have added suggestions what to do with each analysed response. With this approach we hope to support the NPOS Steering Board and Programme Leaders in the next phases of finalising the Ambition Document and setting up a Rolling Agenda.

A final comment of introduction is that we have applied a ranking by putting most relevant responses first.

### 5.1 Feedback on Guiding Principles

The Ambition Document has five guiding principles:

1. Scientific knowledge is a public good
2. Open as early as possible, and closed when necessary
3. Subsidiarity: each organisation implements Open Science within their local organisation and infrastructure in line with (inter)national guidelines on Open Science, in a federated fashion
4. We stand for inclusiveness and invite all stakeholders to contribute
5. Academic and digital sovereignty must be safeguarded via concerted action in the interest of transparent, inclusive, and reliable knowledge creation

A first impression results from a count on the number of remarks. GP05 has the highest frequency mainly because there is a lack of clarity on what this sovereignty means.

GP01	GP02	GP03	GP04	GP05
14	11	17	14	20

We continue with the analysed response for each of the Guiding Principles.

#### **GP1 (Public Good):**

##### MODIFY TEXT

- The (original) principle also includes that everyone has the right to participate and to be protected against moral and material interests. (NOTE RC: this would not only connect to OA, but also with Citizen Science and Inclusiveness).

##### BETTER EXPLANATION

- Connect science as a public good and why we do OA (include 'why').



## **GP2 (As open as possible):**

### MODIFY TEXT

- Many remarks to stay with the original text: “as open as possible, as closed as necessary”.

### BETTER EXPLANATION

- Unclear who is accountable and to what researchers must ‘comply’. (Note RC: this can be in the explanation but doesn’t change the principle).
- Only few comments were made on other developments to make the research process more transparent. (Note RC: this transparency principle will come back at the “missing” section).
- A guiding principle on making open materials accessible in an understandable and easy-to-navigate way for citizens.

## **GP3 (Subsidiarity):**

### BETTER EXPLANATION

- Interpret subsidiarity also to give room to "epistemic neutrality".
- Subsidiarity doesn’t come back later on in *Vision, programme lines* or *key action lines*.
  - o The principle of subsidiarity is about the organisation of implementing Open Science in the Netherlands. This sets it apart from the other principles, which are value-driven.

### CONTENT DISCUSSION

- Central vs decentral
  - o Also refer to sharing knowledge and experience, and don’t make it ‘too separate/individual’ as we need coordination and collaboration. Especially smaller organisations would need central support, e.g., NPOS could structure knowledge exchanges, e.g. with thematic meetings with relevant stakeholders.
  - o Although the responsibility for the implementation is clearly a local one, the implementation itself would greatly benefit from cross-institutional collaboration, coordination and much improved possibilities for standardization.
  - o it would be nice to mention bottom-up initiatives (e.g., Open Science Communities) and encourage organisations try to cooperate with each other on the national programme lines.

### NOTES:

- Especially this subsidiarity principle induces a (governance) question on the role of NPOS: is NPOS a coordinating or facilitating body. See also the “missing” section.

## **GP4 (Inclusive):**

## MODIFY TEXT

- Give room to disciplines, the applied sciences a.o. to fill in inclusiveness in a way that is appropriate and suitable for each of these aspects.

## CONTENT DISCUSSION

- Go beyond 'being involved' and start real collaboration instead.
  - o E.g., frequent contact with potential users and contributors, define priorities based on their input, and engage in public debates with a non-scientific crowd. Diversity, equity, and inclusion within the research community are also needed to make Open Science work. Patient organisations and diversity could be added to the description
- We recommend that diversity, equity, and inclusion within the research community itself is addressed, in addition to the inclusion of diverse stakeholders.
- This GP can give friction with other GPs
  - o the "principle of inclusiveness" (p. 6) – is hard to reconcile with the (unintended) exclusionary dynamics that will be set in motion if the recommendations of the document were to be implemented unreflexively.

## NOTES:

- Give a definition of 'science'
- Many critics on term Citizen Science. Hence, replace the term Citizen Science by Citizen Engagement (or Societal Engagement, but this sounds rather vague).

<https://www.uu.nl/sites/default/files/public-engagement-image.pdf>

"Hence, a more general programme line 'Towards societal engagement' seems in place, as this will have several desired consequences:

- o This name for the program line will speak to a broader audience and to the two-way direction (not just citizens that need to be engaged, but also scientists that must listen). Not all research topics will lend themselves well for a Citizen Science approach. Yet, in most research lifecycles, on the input side, one can stop and think about societal relevance (and agenda setting like the 'nationale wetenschapsagenda'), inclusiveness, diverse roles, and perspectives including the role of citizens and patients as collaborators.
- o This also connects this program line better with the 5 requirements to realise open science. For instance, infrastructures (requirement 1) could be envisioned that not just support citizens and patients to collaborate in research projects, but also to join the debate on research practices (what would the public think of research waste or justifiable reasons for closed data?) and gathering topics that are relevant to study. Support and training (requirement 2) can help researchers to consider how their work connects to society. Community engagement (requirement 3) can refer to bottom-up initiatives and networks that foster societal engagement such as young academies, citizen and patient scientists, and open science communities. Reward and recognition (requirement 4) for public engagement and outreach activities can be implemented more concretely (by e.g., adding

this to yearly evaluation forms) and on a broader scale, e.g., under the heading of ‘societal engagement’ rather than under ‘Citizen Science’ which may be quickly discarded by many as ‘not for me’. Policies and regulations (requirement 5) are likewise more easily formulated for a broader coverage of different disciplines when they are about the connection to society rather than merely Citizen Science (which is again seen as something specific to certain fields).”

### **GP5 (Sovereignty):**

#### **BETTER EXPLANATION**

- Lack of clarity:
  - The implications of the concept of academic and digital sovereignty are not clear to me.
  - Overly complicated and unclear.
  - The title could be: The safeguarding of digital and academic sovereignty; Examples throughout the document would help.
  - We can also understand it as keeping ownership of scientific output and the metadata connected to that output in the public sphere. In that sense the principle would mean an intended safeguard against digital or data monopolies by private parties.
  - This is compatible with the other principles but can be formulated more sharply.
  - it should be made clearer to what extent these are considered a driving force for open science (‘the interest of transparent, inclusive and reliable knowledge creation’) or, conversely, as a barrier to openness.
  - To what degree is there acknowledgement of the tensions between principles 4 and 5? Involving societal stakeholders to shape research collaboratively also requires a certain willingness on the part of scholars to acknowledge dependencies on them. So perhaps principle 5 could be a bit more specific on what independence here means; independence in what? tension between open and safe/secure, between sovereignty and commercial/political.
  - The use of the term ‘public values’ needs unpacking.
  - Unclear how this principle is followed up in the rest of the document.
  - How can this principle be realised in Open Science in the context of changes in stakeholders’ commercial strategies and developments in digitalisation, such as cybercrime. Support researchers in their strive for openness by giving them more tools to accomplish this in line with the communities and disciplines they are working in.
- Academic and digital sovereignty does not preclude close collaboration with commercial parties under the right boundary conditions.
- It would be good to make those risks explicit, as it stresses the urgency for academic sovereignty, when we open-up the research process to others at an early stage.
- Data fraud must be addressed
- Guard academic sovereignty through creating public infrastructure, robust procurement principles and a level playing field for service providers.

### **Missing Guiding Principles:**

## MODIFY TEXT

- Transparency
  - o Transparency in research
  - o Principles that belong to this value (science is a public good) are transparency and digital & academic sovereignty. In the USA, the CARE principles (Collective benefit, Authority to control, Responsibility and Ethics) are used. These principles emphasize the responsible use of the universal right to scientific knowledge. Adding these principles would strengthen the set of guiding principles.
  - o Align them more closely with UNESCO Recommendation on Open Science (<https://en.unesco.org/science-sustainable-future/open-science/recommendation>).  
“Building on the essential principles of academic freedom, research integrity and scientific excellence, open science sets a new paradigm that integrates into the scientific enterprise practices for reproducibility, transparency, sharing and collaboration resulting from the increased opening of scientific contents, tools and processes”(<https://unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en>).
- Research Integrity (and Reproducibility)
  - o Research integrity, and some of the concepts that come with it, including reproducibility, are missing in the Guiding Principles.
  - o The guiding principles now miss a focus on research integrity and reproducibility, and a focus on quality over quantity, as reasons or guiding principles for Open Science.
  - o Several principles are missing, e.g., integrity, transparency, ...;
- Collaboration  
(NOTE RC: either separately or part of Inclusiveness; also explain that subsidiarity doesn't preclude collaboration)
  - o National and International collaboration and knowledge sharing should play an integral part of the Guiding principles.
  - o Some values and principles are missing: transparency, reproducibility and scrutiny, sustainability, and collaboration and participation (inclusiveness).
- Recognition and Rewards
  - o it is not enough to mention Recognition & Rewards as a requirement on page 13. It should be a guiding principle in itself.

NOTE RC: we would not consider Recognition and Rewards as a GP, but as a 'vertical' activity that should be applied to ALL THREE programme lines (and be part of Key Actions).

- Not sure whether it is a requirement, but all three programme lines include great deals of ethical aspects/challenges/questions.  
So, a continuing ethics discussion might also be required to keep progression. And taking a knowledge position in Ethics & Open Science (for the three programme lines), can also be an interesting strategy. This should be a 6th requirement.

## BETTER EXPLANATION

- The GPs are connected (and sometimes give friction).

- While the Ambition Document describes a set of Guiding principles (i.e. ground rules for the implementation of Open Science), it does not describe their underlying values (i.e. the fundamental beliefs that guide our actions). These values constitute an important part of the 'why' of Open Science and should be included in the document.
- We miss reference to the latest version of the Guiding Principles on Management for Research Information and its recommendations.

## Governance

MODIFY TEXT

- Governance
  - o We would suggest incorporating governance in a dedicated section on governance and organisation of the NPOS and its stakeholders.
  - o We recommend including (redesign of) governance as integral part of the plan. We believe the way the governance will be organized will be essential for the movement toward open science

## 5.2 Feedback on Vision

There are six vision elements:

### 1. FAIR

'By 2030, scientific knowledge will be freely available, accessible, and reusable for everyone. Open Science in the Netherlands will be embedded as a standard practice across all scientific disciplines from basic to applied sciences, in the natural, medical, social sciences and the humanities.

### 2. Sharing

We will see diverse and transdisciplinary scientific collaborations and knowledge-sharing through deeper engagement with societal actors, improving the quality of science and scientific output.

### 3. Netherlands leading

The Netherlands has strengthened and expanded its leading role in Europe and beyond to change science for the better with recognition and rewards that do justice to scientific teamwork. We will see a stronger link with, and impact on, societal challenges and sustainable development goals.

### 4. Inclusive

The scientific process will be transparent and inclusive, to the benefit of both science and society. A broader range of stakeholders beyond the traditional scientific community will be engaged with the research life cycle from agenda-setting, research performance to evaluation and communication of outcomes.

### 5. New dissemination

New ways to disseminate digital research results and protected sharing are at the heart of this transition process. The distinction between data and publications will become fluid as they will be published together or with links to each other. New scientific products will see the light, made possible through novel digital services. Journals will change form and format.

### 6. New Forms

Digital research results will be the core of scientific output, supplemented by enriched meta data and publications according to the FAIR principles, public values, and academic sovereignty. This scientific output will be in a format that is accessible to and reusable by a wide audience.'

The number of comments reveals that most emphasis is on the first elements. New dissemination and new forms are mentioned less.

### Count on Vision

VIS01	VIS02	VIS03	VIS04	VIS05	VIS06
14	15	16	13	4	5

Content-wise there is much support for the vision. In the remarks below we only present additions to the existing vision elements and some remarks on missing elements.

### VIS01 (FAIR)

#### MODIFY TEXT

Instead of only phrasing it as

'Scientific knowledge freely available, accessible, and reusable for everyone' we suggest defining this as: *'Scientific knowledge is actively being used in society and citizens beyond the academic field'. In this way we create a joined ambition to not only make the results of Open Science available but also commit ourselves to actively engage with society to make use of these results.*

#### BETTER EXPLANATION

- Go beyond FAIR, i.e., go for actual re-use.
- This connects to another remark: what is missing is implementation of outcomes.
- Quality of data
  - o Include and address data fraud
  - o Include a section on sensitive data (privacy, company data, interviews, pictures and movies).  
NOTE RC: even sensitive data can be described and their metadata can be checked on FAIR criteria.
- Also connect with Software
  - o Data is considered to be an end-product, but data and software are also tools within the scientific process.
- Cataloguing
  - o Mention the Open Knowledge Base as successor of NARCIS
- Recognition and rewards to incentivize open science  
NOTE RC: in other sections and in the programme lines it is stated that recognition and rewards should be a key action line in all programme lines.

### VIS02 (Sharing)

#### BETTER EXPLANATION

1. Address also the Risks
  - o (1) the disclosure of qualitative data from in-depth interviews, which may easily conflict requirements of anonymity,
  - o (2) the resources that are needed to document and maintain large data bases in such a way that these are easily accessible to outsiders,
  - o (3) the risk of abuse of data by users (commercial or not) whose beliefs and ultimate goals conflict with those underlying the original project, and
  - o (4) increased non-response if respondents have to be informed that their data may be openly accessible, and even be used for other purposes than the current project.

### **VIS03 (NL Leading)**

#### BETTER EXPLANATION

- It would be powerful to write about our (RC: universities of applied sciences; HBO) pioneering role and our true potential on working together with commercial and civil organizations.

NOTE RC: there were also questions why NL should lead; instead, maximise collaboration on European and even global scale would be preferred.

NOTE RC: For DISCUSSION:

- o if this remains a vision element, put it as last element (the other items are much more related to each other).
- o Consider reframing this element into Collaboration on EU and global scale.

### **VIS04 (Inclusive)**

#### BETTER EXPLANATION

- Refer to UNESCO
  - o “All scientists and other open science actors and stakeholders, regardless of location, nationality, race, age, gender, income, socio-economic circumstances, career stage, discipline, language, religion, disability, ethnicity or migratory status, or any other grounds, have an equal opportunity to access, and contribute to and benefit from open science. (<https://unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en>).”
- Inclusiveness is mentioned but must be implemented in a more meaningful way. For example, regarding citizen science activities.
- Comment regarding Figure 2 (stakeholders): given that the bottom-up approach in the Open Science movement is so important, the Open Science Communities might also be part of the advisory board, as opposed to stakeholders in the outer circle.
- What is the relationship between the external stakeholders?

NOTE RC: explain – and distinguish – between Inclusiveness as a General Principle and Inclusiveness as a Vision.

### **VIS05 (New ways to disseminate)**

#### BETTER EXPLANATION

- Idiosyncrasies
  - o Media voor Vak en Wetenschap foresees major negative effects for publishers, academic ecosystems, and authors with the proposed ‘one size fits all’-application of the Open Science/Open Access ambitions.
  - o Give room for disciplines (epistemic discussion).
- Explaining results
  - o How to disclose all the new open materials (data/publications/etc.) to the public in a way that makes sense to them, is easy to use and access for the average citizen.
- Types of outputs
  - o Outputs being produced by in the Dutch science field include instruction manuals, reflection instruments, online content, non-text-based outputs, patents, prototypes, software, media publications for general publics, podcasts, in company presentations and workshops, contributions to public debate and discussion, commission and network memberships, web-based applications, smart phone apps, online toolkits.

### **VIS06 (New forms)**

#### BETTER EXPLANATION

- New forms = current functionality + new functionality
  - It is important to ensure, however, that key functions of journals are still served: selection/curation/navigation, certification/ensuring peer review, responsibility for the scientific record.
  - Perhaps it could be added here that these novel formats will be less static than those in the current system, and mention whether and how long-term storage (10+ years) is achieved.
- Elements: papers & books, data, software
  - The distinction between data and publications is completely ignoring software (and educational resources and hardware).
  - We think research outputs should be broad enough to encompass the five elements of Open Scientific Knowledge.
  - It is an omission to not mention education materials at all.

### **Missing in Vision**

- Provide Trust
  - Include a remark about Open Science contributing to the trust in science by the public.
  - Although transparency is mentioned, the value and role of Open Science in reinforcing the quality and rigour of scientific results, leading to increased trust in scientific knowledge is not clearly articulated in the Vision.
  - quality assurance.
- Integrity
  - The role that Open Science plays in scientific integrity (with data reproducibility and replicability) should be spelled out in the vision
- Collaboration
  - The need to create collaborative, engaged networks and the skills and expertise required to build such networks towards achieving the goals of Open Science.
  - Lacks a vision on how legislation could be used to serve Open Science, for example data governance legislation such as the Data Act, Data Governance Act and Digital Services act, but also Dutch IP law (Taverne).
  - Effective collaboration between people. The role of non-academic staff: data stewards, data managers, research software engineers, or scientific community managers
  - Pay attention to knowledge (co)creation and not only to knowledge as output at the end of the research cycle.
- Recognition and Rewards
  - Aligning with the 'Erkennen and Waarden' trajectory will be important here.
  - Recognition and rewards to incentivize open science.
- Explain Why
  - The Vision does not reflect the faster knowledge transfer and prompter path from research to innovation to produce new products and services as such, nor the increased efficiency and scientific productivity due to global participation and the re-use of research.

NOTE RC: this is also mentioned in the Lamy report LAB-FAB-APP (p. 8) as one of the reasons for Open Science.



### 5.3 Feedback on Programme Lines

NOTE RC: Most feedback was on the Programme Lines (PLs), but the comments sometimes also related to the Key Action Lines (KALs).

Programme Lines

1. Open Access
2. FAIR Data:
3. Citizen Science:

COUNT

PL01	PL02	PL03
42	42	33

A lot of comments are on Open Education, which is missing as a separate programme line. Alternatively Open Education could get a separate Ambition Document and Strategy, but Open Education should get a place in the Ambition Document that is more than a footnote.

Similarly, there is a discussion whether Open Software should be a separate PL, or to combine it with Open Access (esp. If this is renamed into Open Research Outputs) or with FAIR Data.

Cross Programme Line issues are:

- Ownership (IP, Copyright on publications, data, metadata, software, ...).
- Community building & Outreach.
- Skills & Training

#### **PL01 (Open Access)**

BETTER EXPLANATION

- All kinds of scholarly output
    - o We must find a common solution for all kinds of scholarly output. In the future the form of research output is less relevant, the infrastructure is more important.
    - o Rename OA into Open Research Outputs.
  - More ambition
    - o The choice for OA is not ambitious enough ...:  
[Quote in Dutch:] “De keuze voor OA (en dan met name de doelstellingen die in het stuk worden gesteld) vinden we weinig ambitieus, zeker niet als het gaat om 2030. Publicaties zijn al grotendeels open, dus als ambitie voor 2030 is het bereiken van 100% nogal beperkt.”
    - o OA is important, but gets too much attention:  
[Quote in Dutch:] “Het onderwerp OA is zeker belangrijk, maar met de keuze om het één van de drie Programmaliijnen te maken, krijgt het wel erg veel focus.”
    - o The open access section needs to be more forthright. The goal of open access must emphasise more the need for ‘cost-constrained’ open access. There should be much more done to encourage non-gold forms of open access, e.g., national, and international collaboration around Diamond OA. This only comes at the bottom of the document.
3. Address the incentive system (Rewards & Recognition)

- Relatedly, the incentive system must be addressed. Because of this, moving to non-commercial publishers is less attractive to many, especially for young researchers who are still building their careers

## **PL02 (FAIR Data)**

- Legal & IP issues
  - I miss the role of IP. I wholeheartedly support Gregory Randall's advocacy and the vision of "The Neuro" in Montreal to pioneer in this. The Neuro goes for 'open intellectual property', see [https://www.mcgill.ca/neuro/files/neuro/openscience-step2-eddu-eng\\_0.pdf](https://www.mcgill.ca/neuro/files/neuro/openscience-step2-eddu-eng_0.pdf). The rationale for their open IP approach is worth reading: <https://doi.org/10.32388/OMUWEL>
- Communities
  - We miss the concept of FAIR implementation communities here: formally and publicly declaring the community and thereby making the community \*itself\* FAIR.  
NOTE RC: this resembles the action of Peter Suber when introducing and implementing Open Access at Harvard.
  - Room for disciplines  
In the How, the FAIR digital Object Architecture is mentioned. Not all scientific disciplines will want or be able to adhere to this framework. It is an implementation question that should not be pushed through in the vision statement of NPOS.  
(Ref: <https://www.nist.gov/programs-projects/facilitating-adoption-fair-digital-object-framework-material-science>)  
With increasing use of data-driven methodologies, concerns around data discovery, data access, and data interoperability have come to the forefront. Communities have convened to work towards convergence of three complementary visions: (1) FAIR Data Principles, (2) Linked Data and Semantic Web, (3) Digital Object Architecture. This convergence has established the FAIR Digital Object Framework. This project seeks to enable the materials community to leverage these developments.
- Actively stimulate data re-use:
  - The consultation document has put lots of emphasis on the development of research data infrastructures and support capacity as organized in Digital Competence Centres, but these are only intermediate goals. Ultimate goals are creating more academic and societal impact per unit of data collected. More emphasis should therefore be put on the re-use of data. Re-use should also be seen (and measured) as one of the most valuable indicators of the success of the FAIR Data line of action.
- Levels of Openness (NOTE: FAIR is not equal to Open)
  - It would still benefit from broader discussion about how open data can be (E.g., if companies collaborate in and perhaps even co-fund research, what level of data confidentiality / IP ownership is justified?).
- Support transdisciplinary sharing of data
  - One proposed practice is that thematic FAIR Data services and research infrastructures will be established at institutional and national level, and another is to install thematic Digital Competence Centres for domains like SSH and health. This development could be at odds with the trend towards transdisciplinary collaboration and convergence of disciplines. FAIR

Data should support rather than suppress these transitions. NPOS should therefore speak out on behalf of infrastructures to support the transdisciplinary sharing of data.

- Distinguish between qualitative and quantitative data
  - o The consultation document currently makes no distinction between qualitative and quantitative data. However, reaching FAIR objectives and developing workable metadata standards for qualitative data is more complicated and the process has seen less progression than for quantitative data. The specific challenges of archiving and sharing complex data that are frequently more socially and politically sensitive than quantitative data require more reflection and separate treatment.
- Other specific topics that need attention in this section include:
  - o linked data initiatives (knowledge graphs);
  - o long-term archiving and storage of research data;
  - o FAIR education for Masters' students, and;
  - o a better appreciation of new types of career path needed in software and data.

### **PL03 (Citizen Science)**

#### **BETTER EXPLANATION**

- Complexity
  - o To propose an additional paragraph in the chapter 'Citizen Science' about the complexity of working according to the Open Science principles when working together with civil and commercial organizations. Two examples.
  - o 1. Tension between Open Science and profit/non-profit organizations: due to embargo's, protection of their products, large investments, and competitions between organizations, it is quite often difficult to share data, prototypes, and output in an Open Science way.  
2. Privacy sensitive research: Research projects involving vulnerable groups of people (e.g., children, families, elderly, physically or mentally disabled people) cannot always be executed in an Open Science way due to privacy issues.
- Definition and interpretation of CS
  - o Suggestion for the citizen science definition to be stretched into public involvement as a whole; not merely focusing on the active participation on the research matter from 'citizens' but making research output accessible in various forms for everyone, e.g., OERs for (potential) students, but also easy-to-understand leaflets or magazine articles for the public.
  - o Suggestion for a definition is: "Citizen Science encompasses all ways of including citizens of civil society organizations in the creation of knowledge, other than as a research object. This can take place in all phases of the research, from agenda setting and question formulation, to research design, implementation, and analysis. These activities are also translated with terms such as co-creation, co-design, patient/public involvement, participatory action research; various public engagement methods can be used to achieve this."
  - o Citizen Science is an umbrella term and withholds societal participation (now between brackets on page 11), societal engagement and involvement and so forth. We would suggest sticking to the term Citizen Science and refer to the principles of Citizen Science, put together by ECSA (European Citizen Science Association). A definition will not do justice since there are over 30 definitions (Vohland e.o., 2021).

- Outreach
  - Compared to the other two action lines the Citizen Science line could be strengthened by e.g., stimulating open public discussions on scientific approaches and results in a societal context, scientific communication for the public (open scientific information does not mean automatically that the knowledge is ‘accessible’ to a wider audience).

## Missing

- Valorisation
  - Have a programme line (next to citizen science) on Valorisation & Open Science. Particularly for Universities of Applied Science this could be an interesting venue to explore further
- Recognition and Rewards
  - A 4th programme line, specifically focused on ‘recognition and rewards’  
Voor “erkennen en waarderen” een aparte programmalijn op te nemen
- Open Education
  - Add open education as forth programme line.
  - The risk of privatisation through digitisation does not only apply to research, but also to education. Opportunities and risks of Open Education are the same as in research and should be dealt with in conjunction.
  - Clearer references to VSNU developing a similar ambition document/declaration for OE in NL higher ed institutions
  - NPOS should aim for collaboration with the other parties on Open Education (e.g., the versnellingsplan; VSNU; SURF on the use of OER. With this Declaration, the Dutch public higher education institutions express the ambition in the coming years as an institution, both individually and jointly, to direct the creation, sharing, reuse and purchase of digital and open learning materials and the associated or derived data.
  - All cross-cutting five requirements for Open Science are relevant to Open Education as well, and Open Science and Open Education often share infrastructure & support systems, as well as target audiences and overall culture change that they are addressing.
  - It is important to note here that Open Education and Open Educational Resources (OER) are not the same. Open Educational Resources focus on making the input and output of education openly accessible and reusable. Open Education is an attitude, a practice, and a method of teaching that inspires inquiry, equal access to course materials, and sharing lessons and materials with the wider community. At the center of Open Education are the principles of Open Science. OER are within the scope of the Versnellingsagenda, which could continue with a strong link to NPOS. Open Education should be in NPOS as a strong pillar because it is a crucial part of changing the academic culture towards the Open Science principles.
  - We would strongly recommend to also include Open Education as a programme line. All universities are working on all kinds of different initiatives that can be categorised under this heading. The current corona measures have promoted new ways of teaching (e.g., online education), but the use of digital means and resources in education has long been a subject of research on education quality and is becoming standard practice in various disciplines (e.g., flipped classrooms).
- Open Software

- Why not include “research software” as an independent programme line or at the very least make it explicit in the key lines of action?
- The whole plan focuses on the technical enabling of FAIR data via support/ services/ infrastructure. But Open Science is a much bigger challenge, since it needs to deal with the mindset of researchers and practices deeply embedded in research culture. Making data easier to reuse is necessary but not sufficient. In this NPOS Ambition, software has been reduced to metadata and is covered by the FAIR Data line. It ignores all the complexities and challenges around software in the research context. Software is an instrument used in research and often even the main output of research; it just doesn’t make sense to subsume it under FAIR data.

Moreover, the document assumes that FAIR data guiding principles can be applied to software, and that they make sense for software. This is not true. Even if one manages to shoehorn FAIR data guiding principles to work for software, this will not help to enable Open Science. Also missing are the infrastructures supporting collaboration, reuse and remixing of the research analysis. In brief: the MAP would be much more convincing if it explicitly mentioned data as only the first step to-wards scientific results and provided arguments as to why the rest is missing from what is meant to be a visionary document. See the recent blogpost "Research software is essential for research data, so how should governments respond?" by Barker et al.

(2021, accessible via [https://zenodo.org/record/5760256#.Ya39t\\_HPO-R](https://zenodo.org/record/5760256#.Ya39t_HPO-R)).

- Research software in particular needs more attention within the Ambition Document. Currently, software seems to be seen as a tool to support data analysis. However, research software is a scholarly output in its own right, similarly to research data or publications. Furthermore, FAIR principles cannot be simply applied to software - they need adaptation for this to happen. As explained in the report of the FAIR WG of the European Open Science Cloud (“Six Recommendations for Implementation of FAIR Practice” doi 10.2777/986252) “...Software is different from data: it is a tool to do something (executable); it is built by using other software (implements multi-step process, coordinates multiple tasks), it has complex dependencies and has a short life cycle with frequent need of versioning (including dependencies). Some of these characteristics also apply to data. However, the variety of software and its publishing and distribution channels, and the necessity to document dependencies and describe data formats, poses a challenge when adapting the current FAIR principles.” Therefore, it is essential that there is dedicated effort to tackle these issues.
- Rearrange the program lines as follows:
  - Towards transparency, quality, and equity
  - Towards FAIR and open research outputs
  - Towards societal engagement
- The ambition document could leave programme lines and actions for the national stakeholders to be chosen and developed in line with their own priorities and standing practices. This approach would be very much in line with the stated guiding principle of subsidiarity.
- The Programme Lines do not fully represent Open Science ambitions, as currently defined internationally in e.g., the UNESCO Recommendation for Open Science.  
NOTE RC: The UNESCO Recommendations are more abstract and policy-oriented
- The program lines are not well matched to the forementioned requirements.

- The transition to OS is in essence a culture change and the main challenges are social. Therefore, we suggest more support for bottom-up academic networks, like the Open Science Communities, to make change happen across all program lines.
- Missing Program lines on e.g., Hardware, Open Education, Software.
- Requirements could be better explained in the different program Lines.
- I miss OS monitoring.
- We miss funding as prerequisite
- Pay attention to digital skills, innovative funding mechanisms and implementation of recognition and rewards:  
[Quote in Dutch:] “Noodzakelijke aandacht voor digitale vaardigheden, innovatieve financieringsmechanismen en grondigere implementatie van erkennings- en waarderingsmechanismen, valt weg door de keuze voor de huidige Programmaliijnen.”
- The requirements are important but the translation within the different programme lines is very different or missing.

#### 5.4 Feedback on Key Action Lines

Remarks on Key Action Lines (KALs) are both in this section and in the Programme Lines (PLs) section. That explains (in part) why the number of responses is relatively low, compared to the PLs remarks.

COUNT Key Action Lines

KAL01	KAL02	KAL03
24	22	22

#### General comments

- Responsible and initiative for action
  - o As an implementation plan though, it is not clear who will be responsible for the implementation of the different Lines of Action.
  - o Moreover, it reads very much as a top-down implementation plan that leaves limited room for the large variety of stakeholders in the Netherlands and for bottom-up and grassroots participation and representation.
  - o However, the inclusion of concrete national actions is sometimes at odds with the subsidiarity guideline. Some sectors and organisations would benefit from other actions than others at this stage in their development towards open science.
- Outreach & Branding
  - o Do researchers become excited about this document?  
[Quote in Dutch:] “Gaat een onderzoeker die dit leest enthousiast worden? Het doet te weinig recht aan NDAs met industrie, MKB.”
  - o We believe international lobby activities are an important aspect of the transformation.
  - o Implementation of the guiding principles and programme lines will have consequences for researchers.... More attention for culture change...  
[Quote in Dutch:] “De implementatie van de guiding principles en programmaliijnen hebben consequenties voor onderzoekers. Er mag meer aandacht worden besteed aan de wijze waarop de benodigd cultuurverandering bij onderzoekers tot stand gebracht moet worden met daarbij aandacht voor de disciplinaire verschillen en gewenste snelheid waarop deze cultuurverandering doorgevoerd moet worden.”

- Inclusiveness
  - o It does seem important to me, when devising new ways of valuing, to also consider that applied science and fundamental science really require a different valuation.
- Ethical issues
  - o Across all programme lines priority should be given towards ethical, legal and societal consequences, including knowledge safety and privacy.

## 1. Open Access

- They key lines of action contains both items from the Mission- and the How sections, while as the name suggests 'key lines of action' should involve the how. The 'mission' should be obtained through the 'how'. The 'mission' is to make all scholarly output open access and available to society. The way to do this is the 'how'.
  - o 1. Making all scholarly output open access (this is the result of the mission) -> this is not a key line of action [see PL01, RENAMING THE PL]
  - o 2. Ensuring that society can reuse all scholarly output; (this is the result of the mission) -> this is not a key line of action [see PL01, SKILLS]
  - o 3. Cost control: full Open Access without additional costs; (is this a 'how'?) -> this is a wish for OA
  - o 4. Maintaining high quality and research integrity; (What has this to do with Open Access?) -> this is a wish for OA [cf. GUIDING PRINCIPLE]
  - o 5. Novel ways of Recognition & Rewards, away from quantitative measures; (incentives for promoting Open Access) [cf. HAVE THIS AS A CROSS PL ACTION]
  - o 6. Control over ownership, public values, and academic and digital sovereignty; (incentives for Open Access) [cf. IP and OWNERSHIP]
  - o 7. Open up services, growing towards less dependency on publishers. (Infrastructure for Open Access) [cf. SOVEREIGNTY and PUBLIC GOOD GPs]
- Proposed Key Line of Actions
  - o 1. Implementing open infrastructures supporting Open Access practices
  - o 2. Make Open Access easy by setting up Support & Training
  - o 3. Make Open Access normative through active Community Engagement
  - o 4. Make Open Access rewarding through incentives (Recognition & Rewards)
  - o 5. Make Open Access compulsory through Policies and Regulations
  - o 6. Make Open Access accessible to the public through reach-out programs (my own point)

NOTE RC: See reply of respondent ID355.

NOTE RC: these are existing or proposed KALs not separate PLs
- KAL01
  - o Suggestions for changes in the text  
Key lines of action Open access: 1. making all scholarly output (including educational material) [cf. PL01]:  
Add to key lines of action Open access: 1. making all scholarly output (including educational material).
  - o As described in response to question number 7, the Key lines are recognizable and a definite way forward, but mostly focussed and conditions under which peer reviewed articles can be published 100% open access. Additional action lines (or activities under the

first two action lines) would ensure the next steps towards 100% open access can be taken across all research disciplines and sectors.

- KAL02
  - The NRO endorses action line 2 in Open Access:  
[Quote in Dutch:] “Het NRO (Nationaal Regieorgaan Onderwijsonderzoek) onderschrijft van harte actielijn 2 uit hoofdstuk 2 Open Access: Sinds 29 oktober 2019 krijgen leraren en andere onderwijsprofessionals die werkzaam zijn op een school in het primair onderwijs, voortgezet onderwijs en middelbaar beroepsonderwijs toegang tot de wetenschappelijke database EBSCO Education Source via [www.voordeleraar.nl](http://www.voordeleraar.nl). Dit is een gezamenlijk initiatief van het NRO, de Koninklijke Bibliotheek, de PO-Raad, de VO-raad en de MBO Raad. Bijna 20.000 onderwijsprofessionals hebben zich hiervoor reeds geregistreerd. Het betreft hier echter een pilot. Het NRO streeft daarom een duurzame, georganiseerde toegang tot literatuur voor onderwijsprofessionals na. We verkennen graag samen met de onderwijssector, uitgevers en andere stakeholders hoe onderwijsprofessionals mee kunnen doen aan de nationale Read-deals die worden gesloten.”
- KAL03
  - On Open Access: line of action number 3 (cost control - for open access without additional costs) will mean in practice that the actions 1 and 2 cannot fully be realised and that the percentage of open access research publications by Dutch authors will remain stuck around 70% to 80%. If this is the policy choice, the action lines 1 and 2 need in my view be reformulated accordingly.
  - Nr. 3. ‘Cost control: full Open Access without additional costs’: Seems intertwined with nr 7. (Open up services, growing towards less dependency on publishers).
  - “Cost control: full Open Access without additional costs”: “additional” in which situation, and for whom?
- KAL04
  - 4. ‘Maintaining high quality and research integrity’: Open peer review is missing. Open Peer Review is an important aspect of Open Science. Opening what has traditionally been a closed process increases opportunities to spot errors, validate findings and to increase our overall trust in published outputs.
- KAL05 Recognition & Rewards
  - 5. Novel ways of Recognition & Rewards, away from quantitative measures; This is of course up to more research policy-oriented organisations than SURF. And although SURF has been a proponent of facilitating alternative impact measures, we would like to point out that this paragraph reads as moving away completely from quantitative measures.  
Adding additional measures would enrich the more fitting ways of evaluation and rewards, (diverse) quantitative measures and qualitative measures will probably both co-exist when optimizing research evaluation and recognition. ‘Moving away from over depending on qualitative measures and developing additional and new quantitative as well as qualitative measures to find more fitting ways for recognition and rewards would form our perspective be more feasible.
  - 5. ‘Novel ways of Recognition & Rewards, away from quantitative measures’: We feel this is not specific to Open Access but more a general key line of action related to requirement 4 (recognition and reward) more than only Open Access



- KAL06
  - o 6. Control over ownership, public values, and academic and digital sovereignty; & 7. Open services, growing towards less dependency on publishers.  
It would be valuable to point out the relationship between these two action lines. The academic community has grown too dependent on a few large commercial organisations. We would like to restore balance there. One way is to try to take back control over ownership through conditions set in agreements and/or legislation. Where that does not work or where the Dutch research community agrees they would never want to run the risk of becoming dependent; there Open infrastructure will be the preferred strategy. An example here can be the essential information about research; “who has produced which output through which funding and where can it be openly accessed”.
- KAL07
  - o 7. ‘Open up services, growing towards less dependency on publishers’: See earlier comments on the mission: NPOS should aim at striking a better balance between supporting legacy publishers and supporting alternative (scholar-led) business models for open access.
- Target groups
  - o The Open Access Key Lines of Action are mainly addressed at the Universities (and written from the perspective of University Libraries), ignoring other key stakeholders, particularly NWO.
- OA and OER
  - o The Lines of Action mentioned under Open Access have a great deal in common with what is always at issue when adopting OER: Maintain high quality; Get control over ownership, public values, academic and digital sovereignty.

#### **BETTER EXPLANATIONS**

- The Key Lines of Action are formulated as ambitions rather than actual lines of action.
- Please include a list of all the currently “missing” RPOs and RFOs, so that it is clear for everyone which institutions you want to include in this national consortium. For the STZ libraries this is very important, as we will be able to convince at management level that the STZ hospitals are a link in the open access chain.
- We cannot find any mention specifically that all scientific output means only output from public funded research.  
Up to now, the obligation is that publicly funded research should be published open access whereas there is no obligation for research that is not publicly funded. Please confirm that it concerns all scientific output regardless of public funding that needs to be published open access.
- Metadata
  - o Metadata regarding Open Access are not mentioned explicitly in the action line on OA: Metadata m.b.t. OA worden in de actielijn Open Access niet expliciet genoemd, wel in de actielijn FAIR data. [*Quote in Dutch:*] “Expliciete aandacht voor de metadata van alle scholarly output (inclusief publicaties) zou ook in de actielijn OA goed zijn, evenals nadruk op het belang van de openheid van deze metadata. Dit kan zowel aandachtspunt zijn in onderhandelingen met uitgevers, als bij het nadenken over infrastructuur voor publiceren.”
  - o The importance of metadata is lacking in the mission and action lines for open access, though it is said to be part of the OA programme line.

Explicit attention for metadata is important in relation to OA of all scholarly output, as well as openness of this metadata. It could be part of negotiations with publishers as well as a consideration in creating publishing infrastructure.

- “Maintaining high quality and research integrity”: this should not be a Key Line of Action within OA, but at most an additional advantage of OA.
- “Open services, growing towards less dependency on publishers”: we will always remain dependent on publishers. The goal is to have diverse types of publishers.
- Is it possible to have a national repository where researchers can really trust that their data is safe there and will be safe in the future?
- Add an extra line of action: Build a professional community of skilled Research Intelligence professionals, among others to help build an Open Knowledge Base and to support career assessment by developing and providing responsible biblio- and alt-metrics. Explanation: A major cause for the wide (ab)use of irresponsible metrics (JIF, H-index) , is lack of access to data and/or expertise required to develop and stimulate the use of responsible metrics, needed in addition to qualitative evidence obtained from peer review.

## 2. FAIR Data:

- Skills & Training
  - o Behalve aandacht voor de opbouw van capaciteit en competenties met betrekking tot datastewards is ook aandacht nodig voor de opbouw van kennis en competenties voor de omgang met research data (research software engineers).
- OA KAL06 also for FAIR Data
  - o On FAIR Data: the action line number 6 of Open Access (control over ownership, public values etc.) seems to me more relevant for research data, where it seems still possible to prevent commercial actors from building a monopoly.
- Recognition & Rewards also for FAIR Data
  - o R&R is mentioned as a key line of action with Open Access, but not with Fair Data and Citizen Science. No need to mention that Recognition and Rewards is necessary for ALL aspects of Open Science not only for Open Access.
- Ownership & IP
  - o The crucial issue of data ownership and intellectual property rights in public private partnerships are not mentioned under this heading.
- Accessibility
  - o Also lacking are explicit statements on accessibility of data for stakeholders outside ‘traditional scientific communities’ and relationship to developments and standards in data stewardship worldwide.
- KAL01
  - o “FAIR data, action 1: not only data stewards, also research engineers, privacy and security experts, etc. They should all work together as a team (which can be a huge challenge indeed)”
  - o We think institutional policy makers would obtain more leverage when the Document mentions the expectation that institutions, for instance, would need 3-5 data stewards per 100 data driven scholars.
  - o First key line - capacity building - is a prerequisite and has top priority.

We would expect a link to both the local and (soon to be established) thematic DCCs and in addition the role of the existing initiative RDNL and LCRDM.

- Open Science cannot just be achieved by only building a professional community of data stewards. Equal or larger attention must be given to other disciplines (Software engineering, and other support functions) and to the skills and training of the scientists themselves.
- 1. ‘Capacity building’: In addition to data stewards, we suggest to also focus on data engineers and privacy experts preferably working together in a team. NPOS could also add support or encourage peer to peer activities here, and coordination between the different communities (e.g., community of stewards and community of Open Science Communities)
- KAL02
  - [*Quote in Dutch:*] In actielijn 2 wordt slechts - onterecht in onze ogen - heel kort gerefereerd aan de rol van funders en van het belang van erkennen en waarderen (in relatie tot RPOs). Dit zou in een volgende versie veel meer aandacht mogen krijgen.
- KAL03
  - “FAIR Data, action 3: interoperable networks will now focus on national level according to this, but on the international level a lot is developed that NL can collaborate on as well. Otherwise, NL will be a lonely FAIR island in the world :)”
  - Action line 3: "The third Key action line is to expand the ecosystem and build networks of services and infrastructures around the data. [*Quote in Dutch:*] "Er wordt dus voorgesteld dat vanuit NPOS-netwerken van diensten en infrastructuren (fysieke, digitale, virtuele, menselijke, ...?) worden gebouwd. Wie gaat dat dan bouwen? Wat gaan ze nu precies bouwen? Wie gaat het betalen, nu en in de toekomst?"
  - 3. ‘Services and infrastructures’: We are in favour of building networks of services that provide information and services that help researchers apply FAIR principles throughout the entire research (data) lifecycle – from grant proposal to data publication and archiving. In our view, this includes support around research data management plans and consent forms, guidance on which platforms to use to share data and code (e.g., DataverseNL, 4TU, DansEasy, Zenodo, Dryad) and recommended subject-specific repositories, and where to pre-register hypotheses.
- KAL04
  - “FAIR data, action 4: This is quite vaguely formulated, I would not consider this an action line”.
  - Acton line 4: "The fourth key line of action is about bringing trust into the system. Trust is key in networks and platforms and in reusing data. Researchers rely on the quality of data when they are reusing them. It refers to the data, but also to safe and secure reuse of the data."  
*[Quote in Dutch:]* “Een groep van mensen en organisaties (NPOS-stakeholders?) gaat vertrouwen (?) in het systeem (welk systeem?) brengen. Als dit één van de vier centrale actielijnen is van het FAIR Data-onderdeel van NPOS, dan zou onderbouwing en toelichting, met gebruik van concretere termen, aan te raden zijn.”
  - 4. ‘Trust Framework for data access’: Description of key line of action lacks concreteness.
- The five (vertical) action lines (infrastructure, support & training, community engagement, recognition & rewards, and policy & regulations) are insufficiently addressed in the 4 key lines of action.

- LT Access
  - “FAIR data: I am missing guaranteeing long-term access to data and software as an action line, including data and software licenses and the use of agreements / terms of use. This is already becoming a problem for large studies that cannot simply deposit data in a repository, but have to work with data access requests (this could be due to GDPR, but also to financial and infrastructural restrictions)”
- Software
  - The OECD recommends adoption of good practice for research data and software management across the research system (<https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0347>), treating both data and software on equal footing, which is lacking in the current NPOS key lines of action.
- Sustainability
  - Facilities, tools & services, and budgets must be in place to make FAIRification structural and sustainable.
- FAIR
  - ‘F’ and ‘A’ from FAIR missing in the key lines. Re-use and Interoperability are explicitly addressed, Findability and Access are not.
  - PIDs
    - In the context of FAIR it would be valuable to mention the essential role of Persistent Identifiers (PIDs). Without PIDs (principle 1 of FAIR), none of the four letters of FAIR is feasible. This would tie nicely into the fact that several stakeholders are currently setting up a national roadmap for PIDs. Lastly, the use of (open) PIDs is not just essential for FAIR data but is also critical in safeguarding the academic sovereignty (through openness and interoperability of information about research), as mentioned in the Open Science Guiding principles in Chapter 1.
- Missing KAL on amount of data
  - We regret that there is no action line on increasing the amount of publicly shared research data sets.
    - It is somewhat disappointing that there is no guidance or ambition on what is expected regarding making data open and open-licensed, beyond just making it FAIR.
- We miss a review of what has been developed so far on an international level (e.g., community of carpentries) and what we can learn from that (or how we will learn from/ collaborate with them).

### **3. Citizen Science:**

- Missing KAL
  - Add to the key lines of action Citizen Science: open up science (research and education) for society.
- Rewards & Recognition
  - It is not clear how researchers are supported to perform citizen science. Especially when academic researchers are in the lead of a research project; how to best organize communication, how to 'translate' work and how to organize.
- Collaboration
  - Missing best practices of how to build (multidisciplinary) collaboration
  - Missing information about citizen scientists that are patients; for this group the work as citizen scientist can be different (e.g., more flexibility needed) because of their disability

- Differences of citizen science between disciplines
- To make citizen science - or rather public engagement – part of academic culture instead of a practice of individuals, incorporation of “participatory and collaborative research methodologies” should be part of early training of researchers.
- There are several well-working citizen science platforms, and their combined efforts should be worked with.
- To strengthen a two-way process in which research finds society, and society finds research, we suggest an environment a/o program which makes it easier for citizens & society to find connection with research(ers). This may enable citizens and societal organizations to pick up on research questions and aspirations, stemming from their specific field of expertise and knowledge.
- KALs for Citizen Science headers are too abstract to be meaningful.
  - A considerable chunk of the HOW text is based directly on a WeObserve deliverable, should be referenced.
  - Actions 1 and 4 may need to be swapped, i.e., create the CS network first
  - Action 3 - Capacity building: beyond the definition, it is not clear who does what with whom to strengthen what?
  - for many/most activities, it is not clear who the driving force/implementing agency is
  - point 4 - establish a CS Network NL - another network, different from point 1?
  - point 5 - very WeObserve-centric; copy&paste from WeObserve texts/work; Sudden intro of citizen observatories seems out of place here
  - Second main para in point 5: why such a strong focus on health?
- Stakeholders
  - STZ hospitals already play an important role as a stakeholder in the citizen science field. We are missing the STZ hospitals as an important stakeholder in the NPOS2030.
  - Not all existing citizen science in the Netherlands originates from universities. What will be done with this? Will they be embraced? Or will they be disregarded and seen as activism that cannot be taken seriously? Because if the goal is to include society, then in my opinion this would be a grave mistake!
  - Not everyone might be willing to be 'coordinated' by an overarching system or board
- Different forms of CS
  - Distinguish between different forms of citizen participation: from thinking along about the research question, to co-collecting data (which in turn varies from individual research to big data), being informed in understandable language about the result and being involved in the implementation.
- KAL on Capacity Building
  - Key Line Capacity Building seems overarching for the other 4 Key Lines of Citizen Science. I doubt whether it should be a separate key line. Also, it says 5 steps, but 7 steps are described.
- Ambition
  - The title Develop best practices for me is not ambitious enough. Already in the text 'Raise Awareness' the document talks about ‘sharing evidence of the impact of involving citizens or being involved by citizens’. So of course, best practices should be shared, but it is also about developing/taking a knowledge position/increase (evidence for) impact by citizen science,

- The key line of action lines could have more pro-active and stimulating approach to engage with citizens. Inclusiveness requires pro-activity and stimulation and an outreach toward scientists to engage with the citizen science to further their research goals."
- KAL01
  - 1. 'Raise awareness': Maybe add that this is part of a culture change? Despite raising awareness does not sound very ambitious, we acknowledge that it is essential to coax a cultural change, which is hugely ambitious. Researchers should realise from the start of their project the importance of engaging society in their research, although this is not always relevant (touches on the culture change).
- KAL02
  - 2. 'Consolidated and further develop best practice': We suggest using the term good practises, because best practices might lead researcher to feel less compelled to ask whether they comply, and the term might give rise to doubts/concerns on who decides what is best. Furthermore, some institutions might be reluctant to share if they look for the best, but to be 'good' might be sufficient and more motivating to share.
  - In terms of action line 2 of citizen science: sharing 'worst practices' might be even more valuable than sharing best practices, especially as these rarely find their way to the scientific literature
- KAL04
  - Key line 4, the network, is strongly related to key line 2. And is it really the network that should be the topic of this key line, or a bit more abstract/higher level: a governance structure for organising CS in the Netherlands /professionalisation of Dutch Citizen Science.  
The Dutch Network is low hanging fruit, and something that is already started. Or say something about the outreach or envisaged number, variety of members of this network. And its position internationally.
  - 4. 'Enhance cooperation, synergies, and transdisciplinary collaboration': We feel that the concept of citizen science is too easily applied to different disciplines, as if it's an all-in-one solution to different kinds of problems ('Haarlemmer olie'). We should pay attention to the transition of knowledge when shared with different groups in society. As long as researchers don't translate their research outcomes into an understandable format to other disciplines or to the broader public, the aim of synergy will be pointless.
- KAL05
  - 5. 'Develop and invest in supporting infrastructures': In this part, citizen science is seen as a contribution to open science. Now it appears that a clear definition of citizen science is lacking: how does it exactly relate to open science? Can they do without each other, or are they intrinsically connected? For example: Is public outreach a part of citizen science or of open science?
  - Key line 5: infrastructure I think, should be in general mainly about data (collecting, analysing, and sharing... how do citizen stay owners of their data, how can we enable them to analyse data, get access to data... and ensure scientific quality of data (collection), and on the other hand citizen science communities/platforms.  
How do we keep citizens involved as co-researchers? How do we enable different stakeholder to get into contact with each other, and inform each other? Now i feel this is

a mix of input from specific domains/projects and not covering the wide range of citizen science projects.

- For action line 5, the emphasis on supporting infrastructure seems to be on COs and medical research; on what was this choice based? Does biodiversity monitoring fall under COs, for instance? Would they recognise the term CO?

And why is health emphasised rather than any of several other fields? In other words, if these two are simply meant as examples, then that's fine but that should then be made clearer. If the intention of action line 5 is to direct support of citizen science only to these two types of CS, then I would not agree with that angle, or at least would need more explanation of why the focus is on these two approaches. Especially since COs are described as a very particular form of CS, which would leave many other approaches less supported (at least, that is how this action line now sounds to me)

- Missing KALs

- Outreach and awareness are needed as key lines of action; however, we miss the overarching analysis on what the key hindrances are for the uptake of citizen science. Whether it is in the collaboration between citizens and scientists and the access to knowledge infrastructures and people for citizens.

- Funding

In terms of building capacity, I would add that funding should also be available not just to research using citizen science, but also research on citizen science. Continually studying existing practices will be key to building capacity and developing best practices, especially with the recent and continuing boom in citizen science projects.

A key line of action could also be seed funding. Like the 'Nationale Wetenschaps-Agenda (NWA)', NPOS could facilitate seed funding for which the public is asked to send in questions and (interdisciplinary teams of scientists?) to send in their proposal of how to investigate these questions. The best proposal will get (seed) funding.

- Include Inclusiveness

Inclusiveness is identified as a core aspect of citizen science. We know from the literature that patterns of exclusion are readily apparent among citizen science participants. As such, in my view inclusiveness requires active attention in each citizen science project (it does not come about self-evidently) and should also be aligned with the aims of a project; not every initiative may have inclusiveness as a core aim, in some cases it may even hamper achieving them

- Connect the PLs (and with previous reports)

- A link should be made to the key action lines of the other programme lines, e.g., what is the impact of citizen science for the infrastructures and the skills and training line in the Fair data programme.
- Currently the Citizen Science sections feels not very well integrated with the other sections. We would welcome a vision on the relation between FAIR and open data, open access and citizen science.
- General remark: large contrast with FAIR data lines of actions, which are much more detailed.
- The key lines of action seem to be quite far from what was described in the NPOS-report "Kennis en krachten gebundeld". The suggestion would be to stick as much as possible to these action lines.

- Definition

- We suggest adding a few lines defining citizen science. Also, it would help to make clear how citizen science and public engagement are related, but also how they are different concepts.
- Training
  - For citizen science it will be good to focus on improvement of scientific literacy, so that the public understands how science works, and can distinguish science from pseudo-science and from technology.



## 6 Implications of the consultation analysis

In this final chapter we will focus on what the consultation feedback could mean for further development of the Ambition Document. Our advice will be structured along the questions we began with in this report:

This NPOS 2030 Consultation Report answers three questions:

1. What is the support for the NPOS 2030 Ambition Document?
2. What did respondents suggest to improve regarding the four elements in the NPOS 2030 Ambition Document?
3. What do respondents advise to onboard in the draft Rolling Agenda of NPOS 2030?

### 6.1 Support for the NPOS 2030 Ambition Document

The overall result of the consultation analysis indicates a solid support for the Ambition Document. Respondents have shown constructive and committed participation in the consultation. The common message from all stakeholder groups is: “Invite us to participate in the follow up process of NPOS 2030”. Conscious of the importance of a broadly supported NPOS 2030, our advice is:

1. **Follow up on the intention to actively involve stakeholders in the Rolling Agenda**, active or informed depending on the situation. It would be leading by example on the guiding principle of inclusiveness. Co-creation of the Rolling Agenda could well be a crucial instrument to raise support for the actual actions and planning.
2. **Consider setting up an editorial board for the Rolling Agenda, that will include a delegate for the Universities of Applied Sciences**. It is important to prevent that NPOS 2030 documentation predominantly covers an academic research practice, while NPOS 2030 aims to bring together all stakeholder groups and their practices.

### 6.2 Suggestions to improve the four elements in the NPOS2030 Ambition Document

To a large extent, the comments are constructive with good suggestions to improve the Ambition Document. Most comments are on the programme lines, as respondents consider them incomplete and want to add programme lines. For the results on the consultation and detailed advice, we refer to chapter 5. In this section we only present overarching advice:

3. **Better connect the guiding principles and vision with the programme lines and the key action lines**. Sometimes the motivation for the selected three programme lines is not clear.
4. **Add Open Education as a 4<sup>th</sup> programme line**.
  - Pro: (1) this is mentioned many times (2) the factors underlying open education and open science are to a large extent the same.
  - Con: (1) adding a large programme line like Open Education induces a risk that the Open Science (and Open Education) are seriously delayed; (2) Open Education could be considered next to Open Science, instead of being one of the programme lines.
  - Note: don't mix up open education with open educational resources.
5. **Extend existing programme lines to capture open software**. This could be multiple lines like FAIR Data, but also Open Access.

6. **Position requirements such as recognition and rewards as key action line in all programme lines.**
7. **Better explain sovereignty and how it connects to the programme lines.** Take also into account that it is perceived to be at odds with inclusiveness.
8. Consider **renaming Citizen Science into Citizen Engagement or Societal Engagement.**

### 6.3 Advise to onboard in the draft Rolling Agenda

Suggestions received in the consultation to improve Key Action Lines give a good indication on how to start filling in the Rolling Agenda together with key stakeholders. We specifically mention the following points to onboard in setting up the Rolling Agenda:

9. **Clarify the goal of both the Ambition Document and the Rolling Agenda.** Respondents are confused about the visionary and programmatic elements in the same document that calls for action in a context with unclarity about governance. That leaves us with two more advices below.
10. **Consider taking sufficient time for a well-supported ambition and agenda.** It is important to keep the process sequence to first complete the Ambition Document, follow up with a governance for all stakeholders involved (including NPOS itself), and finish with co-creating the Rolling Agenda.
11. **Consider following the respondent's call for a more ambitious approach.** A more ambitious NPOS 2030 will not compromise a realistic execution if regular updates are introduced. We suggest a mid-term update of the Ambition Document to capture new developments of open science. A bi-annual update of the Rolling Agenda is helpful to keep agility within the program and among stakeholders.

## Annex: Participating organizations, networks and initiatives in the open consultation

We have asked consent to respondents who participated on behalf of organisations, networks and initiatives to disclose their organisation name in this report. For ethical and legal reasons, the 12 respondents on personal title were not asked to disclose their name.

Disclosed with consent:

- 4TU.ResearchData
- Adviescollege Open Science van de hogescholen
- Amsterdam University of Applied Sciences
- Avans Hogeschool
- Centre for Science and Technology Studies (CWTS), Leiden University
- DANS - Data Archiving and Networked Services
- Digitale Competentie Centra (DCC) Implementatie Netwerk
- Dutch Research Council NWO
- Eindhoven University of Technology
- Erasmus University Rotterdam
- Hogeschool Leiden
- KB, National Library of the Netherlands
- LCRDM
- Maastricht University Recognition & Rewards Programme Team
- Medical libraries of the STZ Samenwerkende Topklinische ziekenhuizen
- Netherlands Cancer Institute - Antoni van Leeuwenhoek ziekenhuis
- Netherlands eScience Center
- Network of Dutch Open Science Communities
- NIOD Institute for War, Holocaust and Genocide Studies
- NL-RSE (Netherlands Research Software Engineers network)
- NRO (Nationaal Regieorgaan Onderwijsonderzoek)
- NWO Institute Organisation
- ODISSEI (social sciences)
- Open Science Community Amsterdam
- Open Science programme of the University of Groningen (UG)
- Open Science Public Engagement Fellow Network, Utrecht University
- Pedagogische en Onderwijswetenschappen, Faculteit der Maatschappij en Gedragwetenschappen, UvA
- Promovendi Netwerk Nederland (PNN)
- PULSAQUA
- Radboud University
- Radboudumc Nijmegen
- Rathenau Instituut
- Regieorgaan SIA
- Samenwerkingsverband Universiteitsbibliotheken en Koninklijke Bibliotheek (UKB)

- SciComNL (Science Communication Association Netherlands)
- Science Centre Delft (TU Delft), and WaterLab
- Springer Nature
- Stuurgroep Digitale Competentie Centra (DCC) Praktijkgericht Onderzoek
- SURF
- Tilburg University Open Science Focus Group
- TU Delft
- Universiteit Leiden
- Universiteit Utrecht Open Access Fellows
- University of Amsterdam
- Utrecht University Freudenthal Institute Science Communication and Public Engagement group
- Vrije Universiteit Amsterdam
- Zone "Towards digital (open) educational resources" from the Dutch Acceleration Plan