European Commission

DIRECTORATES-GENERAL FOR RESEARCH AND INNOVATION (RTD) AND COMMUNICATIONS NETWORKS, CONTENT AND TECHNOLOGY (CONNECT)

Public Consultation:
'Science 2.0': science in transition

QUESTIONNAIRE

A. Information about the Respondents

1. Are you **responding to this questionnaire** on **behalf of/as: * (compulsory)**

- o   Individual
- o   **Organisation**
- o   Company
- o   Public Authority
- o   Other

2. **Please enter your name** or **the name** of your **company/organisation: * (compulsory) (max. 50 characters)**
Government of the Netherlands

3. Please indicate your principal country or countries of residence or activity: * (compulsory)

Austria	Hungary	Slovenia
Belgium	Ireland	Spain
Bulgaria	Italy	Sweden
Croatia	Latvia	United Kingdom
Cyprus	Lithuania	Other (please specify): free text box
Czech Republic	Luxembourg	
Denmark	Malta	
Estonia	Netherlands	
Finland	Poland	
France	Portugal	
Germany	Romania	
Greece	Slovakia	

4. Received contributions together with the identity of the contributor may be published on the Commission's website. Do you agree to your contribution being published under your name? * (compulsory)

- o My contribution can be published under the name indicated.
- o My contribution can be published anonymously.
- o I do not agree that my contribution is published.

B. Recognition of the issue

Do you recognise the trends described in the consultation paper as 'Science 2.0'?

- o Yes
- o Yes, but with a different emphasis on particular elements of 'Science 2.0' (Please specify)
- o Yes, but some essential elements are missing,(Please specify)
  What is described as 'Science 2.0' in the background document, the Netherlands would call 'Open Science' (see I. Terminology).
  In the background document, the Commission identifies three drivers of the evolution in the modus operandi of doing research and organising science: digital technologies, globalization and the increasing demand to address grand societal challenges. The Netherlands recognises that these are three very important developments, but these are drivers of what we would call 'Open Science'. The drivers of what we would call 'Science 2.0' are more diverse and also include the increasing

regionalization/clustering and, to a lesser extent, economic scarcity and the 'battle for brains' . These developments also force science to look for different ways of organising and performing science, such as working with more and new actors and achieving efficient global cooperation. As the Netherlands believe these drivers of Science 2.0 are missing in the background paper, the Netherlands also believes the list of trends should be extended with the trends following from these drivers.

o   No, not at all because (Please specify)

C. Drivers

What **are the key drivers** of 'Science 2.0'?

	I totally agree	I partially agree	I partially disagree	I totally disagree	I don't know
Availability of digital technologies **and** their increased **capacities**	X				
Increase of the global scientific population		X			
Public demand for faster solutions to **Societal** Challenges		X			
Public demand for better and **more** effective science (replicability **of** research results, avoidance **of** duplication of research etc.)		X			
Researchers looking for new ways **of** collaboration	X				
Researchers looking for new ways **of disseminating** their outputs (including publications)	X				
Growing criticism of current **peer-** review **system**					X
Citizens acting as **scientists**		X			
Growing public scrutiny **with** regard to research **integrity** and accountability **of** science and **research**		X			
Scientific publishers engaging in 'Science 2.0'		X			

Public funding supporting 'Science 2.0'	X				
Other (please specify):	(a) Universities turning into both international and regional centres of knowledge. (b) Scarcity of resources (finances and talent). (c) Availability of social media for science communication. This is not (/cannot be) a conclusive list. It will continuously develop, while these drivers themselves will also lead to other new drivers. Regarding the "Growing criticism of current peer review system", the Netherlands are not sure what issue is meant here. The Netherlands believe that peer review by scientists among themselves is a fundamental cornerstone of science, while the pressure to publish may indeed drive change.				

D. Implications of 'Science 2.0' for society, the economy, and the research system

	I totally agree	I partially agree	I partially disagree	I totally disagree	don't know
Science will become more efficient, e.g. by accelerating discovery and avoiding duplication.		X			
Citizen science practices could help reconnect science and society.		X			
Crowd-funding could become an important funding source for research.		X			
Research could be become more responsive to society through crowd-funding.		X			
Data-intensive science can become a key driver of economic growth and development.	X				
Science will become more reliable, e.g. by facilitating the re-use of data.	X				
Science will become more responsive to demands for scientific integrity.	X				
Science will result in faster and wider innovation.	X				
Science will become more responsive to societal challenges.	X				
Other (please specify)	(a) Stability and predictability of funding will be needed. (b) Success rates will be low. (c) The importance of education/skills for science will increase. (d) Links between knowledge institutions, enterprises, government and civil society organisations will (need to) become stronger. (e) Science will become more international and researchers will be more (internationally) mobile. (f) Perverse effects may occur such as publishers publishing as many articles as they can, neglecting proper peer review, when getting paid per article by the authors.				

On what specific issues within 'Science 2.0' do you see a need for policy intervention? Please indicate a ranking ranging from the highest need (11) to the lowest need (1).

	Ranking: 11 (highest need) to −1 (lowest need)
Open access to publications	11
Open access to research data	10
Open code	1
Open source	1
Text and data mining	7
Data-intensive science	8
Citizen science	1
Research metrics	1
Assessment of quality of research	1
Alternative reputation systems	6
Research infrastructure	9
Other: please specify	The Netherlands do consider those ranked as 1 above important, but do not believe policy intervention is needed at a governmental level (at this moment). Other issues that do are: (a) Ensuring funding for longer-term research. (b) Ensuring high quality education. (c) Ensuring links between knowledge institutions, enterprises, government and civil society organisations. (d) Ensuring a link between research & innovation and societal challenges.

With **regard to the first three priorities** you indicated above could you **please specify what** kind of policy **intervention** would be **desirable?**

Please note here:

With regard to the first three priorities we indicated above, this kind of policy intervention would be desirable:

Open access to publications (11).
Member states should decide to work towards open access together, with the involvement of universities, research institutes, and research councils. Together they can build a regional coalition to reach critical mass in negotiations with scientific publishers, and come to an agreement with publishers on open access in the countries involved.

Open access to data (10).
In order to fully profit from the benefits of Open Access to publications and for additional purposes, Open Access to (underlying) research data is of great importance. However, this is a complex issue, and the first step should be to reach agreement among member states on the terminology used. Further steps should be taken along the lines of policy recommendations on the way forward to open access of data and the tools and infrastructure needed. It should be noted that in the end not all data can be open because of issues relating to privacy, security and/or intellectual property. This could be specified in a data management plan.
E-infrastructures need to be renewed and strengthened to be able to facilitate that scientific research data are easily discoverable, accessible, assessable and intelligible, useable beyond the original purpose and interoperable to specific quality standards. Member states will need to work towards a certain amount of harmonisation in used terminology and objectives when it comes to open access to data.

Research infrastructures (9).
Strategic funding of RI's that matches the thematic choices in a country, the international landscape and the available funding, is needed.

Scientific disciplines

1. Are there specific disciplines with more potential than others to engage with 'Science 2.0'? Why?

Please note here:

The Netherlands believe the focus should not be on the disciplines themselves, but on their ability to look beyond the boundaries of their own discipline. Multidisciplinary research is becoming more important, involving natural and social sciences and humanities.

2. Are there specific disciplines with potential to engage with 'Science 2.0', but where uptake so far has been slow? Why?

Please note here:

No opinion

3. Are there specific disciplines without real potential to engage 'Science 2.0'? Why?

Please note here:

No opinion

E: Implications of 'Science 2.0' for researchers

Acknowledgement of 'Science 2.0'-based activities

	I totally agree	I partially agree	I partially disagree	I totally disagree	I don't know
'Science2.0'-based activities (including data curation) should be taken into account for career progression of researchers.		X			
'Science 2.0'-based activities should not have any impact on the recruitment practices of research performing organisations.				X	
Other (please specify)	(free text box)				

What are the most effective channels for awareness-raising of 'Science2.0'?

	I totally agree	I partially agree	I partially disagree	I totally disagree	don't know
Organising debates at universities					X
Engagement of learned societies					X
Funding of specific actions by research funding organisations					X
Awards for specific initiatives					X
Integration in career promotion procedures					X
Integration in research training					X
Other (please specify)	These channels may have effect, but we do not have evidence of what is most effective. Plus, Science2.0 is a bottom up process.				

F. Opportunities for and barriers to 'Science 2.0'

What are the opportunities for 'Science 2.0'?

Potential opportunities <u>at the level of the individual scientist</u>:

	I totally agree	I partially agree	I partially disagree	I totally disagree	I don't know
Wider dissemination and sharing of research outputs	X				
Greater publication opportunities		X			
Involvement in extended, international networks of researchers	X				
Involvement in more multidisciplinary research	X				
Enhanced career perspectives		X			
Possibility to revise the peer review system					X
Research on problems that could not be addressed otherwise	X				
Engaging with a wider public and with society at large	X				
Other: (please specify)	More optimal use of (public funds for) knowledge, research infrastructures and human capital. Regarding peer review, the Netherlands are not sure what issue is meant here. The Netherlands believe that peer review by scientists among themselves is a fundamental cornerstone of science, while the pressure to publish may indeed drive change.				

at the institutional level:

	I totally agree	I partially agree	I partially disagree	I totally disagree	I don't know
Driving economic growth		X			
Facilitating accountable and collaborative research modes	X				
Promoting better science	X				
Better value for money through avoiding duplication		X			
Better value for money through accelerating the research process					X
Creating scientific output to underpin public policy		X			
Fostering new forms of research	X				
Supporting new forms of research-based teaching	X				
Other (please specify)	(free text box)				

What are the barriers to 'Science 2.0'?

Potential barriers at the level of the individual scientist:

	I totally agree	I partially agree	I partially disagree	I totally disagree	I don't know
Lack of acknowledgement / credit-giving for 'Science 2.0' activities (e.g. curated data, science blogs, etc.)		X			
Limited awareness about the potential benefits of 'Science 2.0' for researchers					X
Concerns about quality assurance of new and non-traditional research outputs					X
Lack of new research skills necessary in the context of 'Science 2.0', e.g. data management skills	X				
Lack of financial support					X
Legal constraints (e.g. copyright law)		X			
Lack of incentives for early-stage researchers specifically to participate in new science and research practices					X
Lack of integration in the existing infrastructures					X
Uncertainty / doubts about the potential benefits of 'Science 2.0' for research		X			
Concerns about ethical and privacy issues		X			
Other (please specify)	(free text box)				

at the institutional level:

	I totally agree	I partially agree	I partially disagree	I totally disagree	I don't know
Limited awareness of 'Science 2.0' and its potential benefits		X			
Concerns about quality assurance of new and non-traditional research outputs					X
Concerns about ethical and privacy issues		X			
Uncertainty / doubts about the potential benefits of 'Science 2.0' for research				X	
Uncertainty / doubts about the potential benefits of 'Science 2.0' for the economy and society			X		
Other (please specify)	(free text box)				

G: Development of research metrics and quality assurance

	I totally agree	I partially agree	I partially disagree	I totally disagree	don't know
The determination of research metrics cannot be left to private actors, such as Mendeley or Research Gate.	X				
The recent developments in metrics (e.g. altmetrics) are well known within the research community.					X
Altmetrics should be further developed and take into account impact beyond academic context, e.g. 'market impact'.			X		
Altmetrics should take into account the involvement of civil society.			X		
Altmetrics should take into account researchers' degree of openness (e.g. practicing open access) and their engagement in collaborative research practices.		X			
The European Commission should fund research to advance altmetrics.					X
Data and formula/algorithms for metrics should be transparent.	X				
Altmetics should supplement conventional metrics	X				
Altmetrics should replace conventional metrics				X	
Research needs to be done in order to advance quality assurance procedures.					X
Other: (please specify)	(free text box)				

H: Role of research funding organisations, Member States, and the European Union

Public authorities could facilitate the uptake of 'Science 2.0' by:

	I totally agree	I partially agree	I partially disagree	I totally disagree	I don't know
Developing policies on data sharing for research purposes	X				
Developing policies on facilitating public access to scientific publications	X				
Reviewing evaluation criteria of research proposals	X				
Reviewing procedures of quality assessment of research	X				
Increasing acknowledgement of 'Science 2.0'-based research output		X			
Public authorities should increasingly take into account 'Science 2.0'-related activities by setting benchmarks.					X
Public authorities should focus on implementing framework conditions enabling the uptake of 'Science 2.0' activities.					X
There is no need for any initiatives of public authorities to encourage the up-take of new science practices since it is a bottom-up driven process happening anyway.			X		
The European Commission should promote 'Science 2.0' under Horizon 2020.		X			
The European Commission should dedicate specific actions under the European Research Area to 'Science 2.0'.		X			
Which 'Science 2.0'-based activities would be desirable to be taken into account under the European Research Area? (Please specify)	(a) Open access to publications (b) Open access to data (c) Knowledge transfer (d) (e-) infrastructures				
Other: (please specify)	(free text box)				

I: Terminology of the phenomenon 'Science 2.0'

Which of the following options is the most appropriate term to use for what is described as 'Science 2.0' in the background document?

- o Science 2.0
- o Open Digital Science
- o Digital Science
- o **Open Science**
- o Networked Science
- o Enhanced Science
- o Other (please specify):

Open Science comes closest to the background document. When other issues are incorporated it could be named Science 2.0.

Overall Comments

Do you have any additional comments? (Open question, 500 characters max)

In the fall the Dutch government will publish its vision on science policy. This paper is based on an extensive consultation among the science community in the Netherlands and abroad and also incorporates, where possible and applicable, elements of the European Commission's consultation paper on Science 2.0. In the vision paper, the Netherlands will describe how it foresees the science system to change in the future and how it intends to adapt its policy as a result in order to maintain the high quality of the Dutch science system. These measures include i.e. a change in the funding policy for research infrastructures and the endorsement of the strategy for open access to publications (published in November 2013). The vision will become available in both Dutch and English.