



# Opportunities in Open Science

National Library of Sweden, Vinnova,  
SW NOAD Open Aire, SW Research Council,  
H2020 contact agencies

Stockholm, 19-1-2017

**Jean-Claude BURGELMAN**

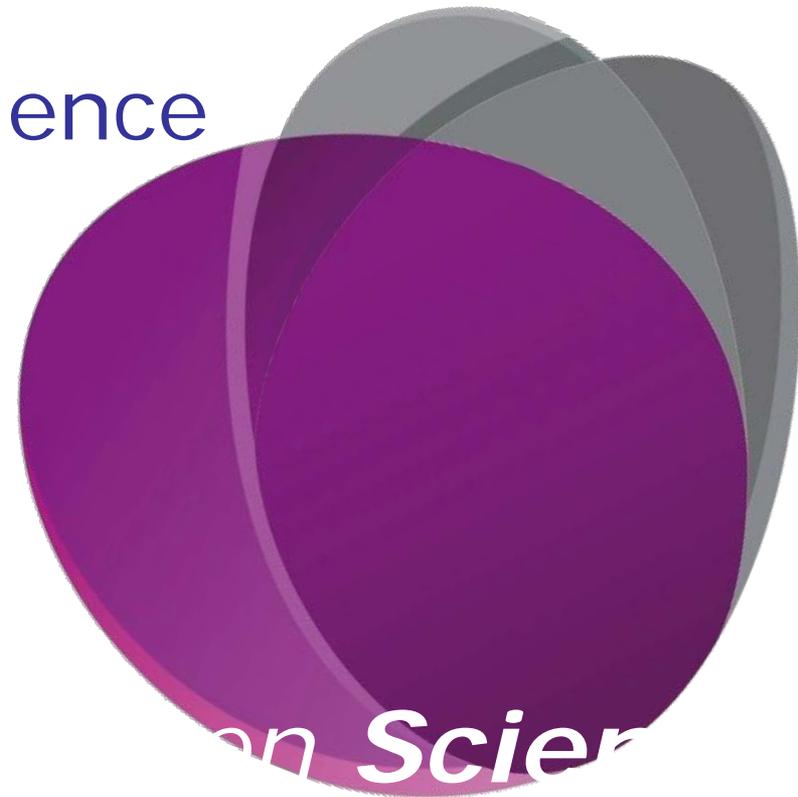
**R. Von Schomberg**

European Commission

Head of Unit

DG Research & Innovation

A.6-Data, Open Access and Foresight

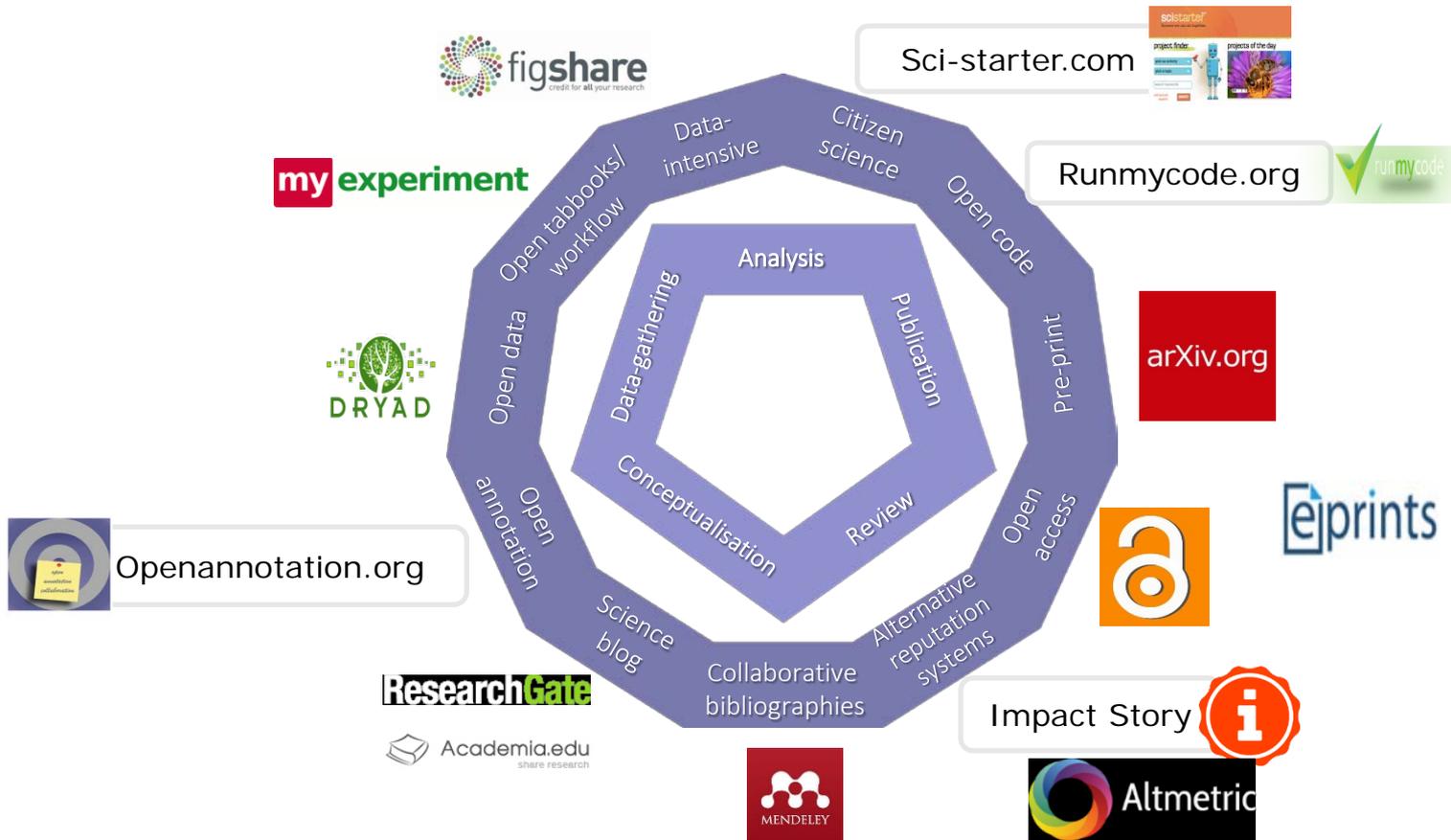


## Open Science: a new approach to the research process

- A systemic change to the way science is organised and research is carried out
- Based on cooperative work and new ways of diffusing and sharing knowledge using digital technologies and new collaborative tools
- It affects virtually all components of doing science and research, from conceptual work to publishing, from empirical research to data-analysis.
- Shifting focus from "publishing as fast as possible" to "sharing knowledge as early as possible"



# Open Science – It's real!



# Why?

- Open Science has the potential to increase the quality, impact and benefits of science (...) by making it more reliable, more efficient and accurate, better understandable by society and responsive to societal challenges (COMPET, 27.5.2016)

# Great opportunities

- ✓ **Better value for money** by strengthening the productivity of the European science and research system through the uptake of results by businesses, in particular SMEs that may not have the resources to pay for access to research results
- ✓ **More transparency**, openness and networked collaboration leading to a higher degree of responsiveness of the research community to societal challenges
- ✓ **A sound science and society relationship**: more openness may also lead to more trustworthy science from the point of view of the citizen and civil society organisations (NGOs)
- ✓ Big and open data are estimated to add 1.9% of EU-28 GDP by 2020.

# Great opportunities for researchers

- ✓ Wider dissemination and sharing of the results
- ✓ Involvement in more interdisciplinary research
- ✓ More visibility and credit for those collecting and sharing underlying research data
- ✓ Involvement in international networks full of potential
- ✓ New career paths e.g. data scientists, start-ups, science diplomacy

# What is at stake?

... the market

- 20m active scientists worldwide in scientific, technical, medical (STM) disciplines
- 8m researchers in the humanities and social sciences (HSS)
- 24,000 scientific journals in STM
- 17,000+ scholarly societies
- 2,000 publishing companies
- 4m submitted scientific manuscripts per year
- >50% rejected = 1.8m publications (STM)

In total in 2014, LERU members alone had an economic impact across Europe of

- €71.2 billion GVA
- 900,000 jobs

Study by BiGGAR economics

[www.biggarereconomics.co.uk](http://www.biggarereconomics.co.uk)

# How - genesis of EC policy

## Extensive stakeholder consultation

- ✓ Public consultation (July-September 2014)
- ✓ Validation workshops (October-December 2014)
- ✓ Final report (February 2015):  
[http://ec.europa.eu/research/consultations/science-2.0/science\\_2\\_0\\_final\\_report.pdf](http://ec.europa.eu/research/consultations/science-2.0/science_2_0_final_report.pdf)

## Broad consensus on key policy action lines

### Strong support by MS and Council

- ✓ Policy debate & Council conclusions 'data-driven economy' May 2015
- ✓ Presidency conference Open Science & Council conclusions 'open science') May 2016

### Reflected in the Commission top priorities and actions

- ✓ Included in the Digital Single Market strategy May 2015
- ✓ European Open Science Agenda May 2015
- ✓ High Level Expert Groups on 8 Action Lines
- ✓ Open Science Policy Platform

## 5 broad policy action lines...

- ... originating from public consultation, validated by stakeholders incl. MS and endorsed in DSM
- ✓ *Fostering and creating incentives for open science*
- ✓ *Removing barriers for open science*
- ✓ *Mainstreaming and further promoting open access policies*
- ✓ *Developing an open science cloud*
- ✓ *Embedding open science in society to make science more responsive to societal and economic expectations*

## 8 key issues to address

1. Reward systems
2. Measuring quality and impact: altmetrics
3. Future of scholarly publishing
4. FAIR open data
5. Open Science Cloud
6. Research integrity
7. Citizen Science
8. Open education and skills

## 8 top level ambitions to realise

- ... 4 with regard to the use & management of research results and data
- ✓ **Open Data:** FAIR data sharing is the default for funding scientific research
- ✓ **Science cloud:** All EU researchers are able to deposit, access and analyse European scientific data through the open science cloud, without leaving their desk
- ✓ **Altmetrics:** The role of alternative metrics in replacing/complementing conventional indicators for research quality and impact (e.g. Journal Impact Factors and citations)
- ✓ **Future of Scholarly publishing:** All peer reviewed scientific publications are freely accessible

## Eight top level ambitions

- ... 4 with regard to relations with research actors (researchers, institutions and funders)
- ✓ **Rewards:** The European research career evaluation system fully acknowledges Open Science activities
- ✓ **Research Integrity:** All publically funded research in the EU adheres to commonly agreed Open Science Standards of Research Integrity
- ✓ **Education and skills:** All young scientists in Europe have the necessary skills and support to apply Open Science research routines and practices
- ✓ **Citizen Science:** Citizen scientists significantly contribute and are recognised as valid knowledge producers of European science

## A new way of doing policy

1. Reward systems
2. Measuring quality and impact
3. Changing business models
4. FAIR open science
5. Open science

**EC installed/will install 8 High Level Expert Groups**

**EC installed Open Science Policy Platform**

Open Science

8. Open education and skills



# Open Science Policy Platform

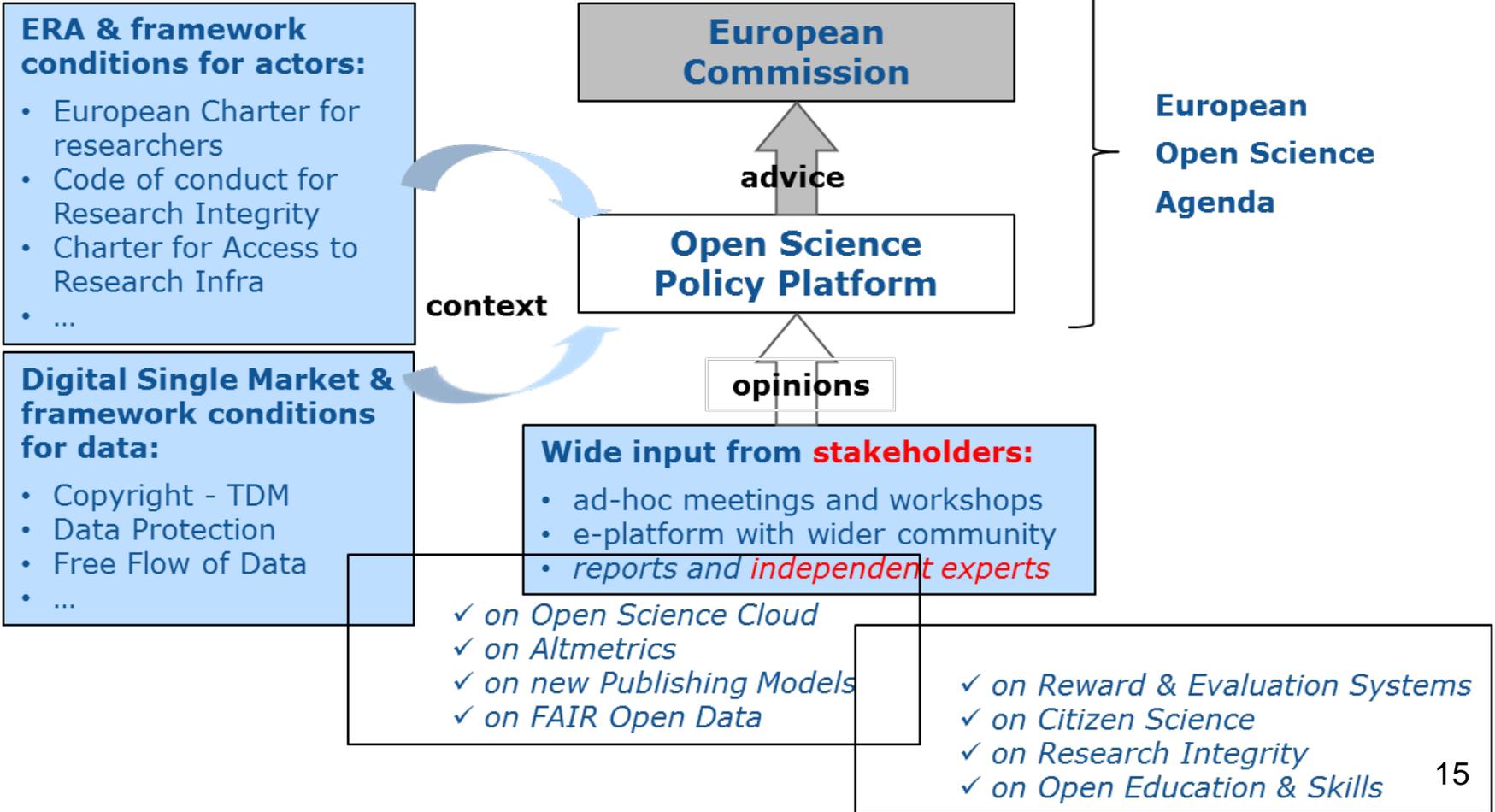
*May 2016 Competitiveness Council:*

*"NOTES the establishment of the Open Science Policy Platform by the Commission, which aims at supporting the further development of the European Open Science policy and promoting the uptake by stakeholders of best practices, including issues such as adapting reward and evaluation systems, alternative models for open access publishing and management of research data (including archiving), altmetrics, guiding principles for optimal reuse of research data, development and use of standards, and other aspects of open science such as fostering research integrity and developing citizen science";*

*Commissioner Moedas will inform the Council biannually on advances of the Platform*

# Co-design!

Ensuring strong stakeholder involvement in preparation, implementation and take-up



## OSPP – goals

### 1. Catalyse the transition towards Open Science

Advance Open Science in order to radically increase the quality and impact of European science

### 2. Identify the issues

Work along the 8 priorities of the Open Science Agenda

Harvest & connect what's happening 'outside' (RDA, MS, G7,...)

Make use of the expert groups, network, outside expertise, best practices, ...

Set up/work on new ideas (Right of initiative)

### 3. Connect the issues

*Have an overarching view*



# Open Science Policy Platform – Meetings

## 1. First meeting on 19 September 2016

- Initial exchange with Commissioner Moedas
- Working method
- Discussions on Open Access to Publication and Data; and on Integrity

## 2. Second meeting on 9 December 2016

- Open Science Cloud
- Citizen Science
- Open Access Publishing Requirements

## 3. Third meeting on 20 March 2017

- Altmetrics
- ...

# Where are we today?

2 policy domains at the stage of implementation

1. Open access (publications and data)
2. European Open Science Cloud (EOSC)

# From FP7 to H2020: OA to publications from pilot to underlying principle

- Obligation to provide OA, either through the Green or Gold way in all areas (deposition mandatory either way)
- Allowed embargoes: 6/12m
- Gold open access costs eligible for reimbursement as part of the project budget while the project runs & post-grant support being piloted through OpenAIRE
- Authors encouraged to retain copyright and grant licences instead

# Optimal re-use of Research Data

## *Competitiveness Council:*

1. Make research data produced by H2020 open by default
2. Encourage MS to Promote data stewardship and implement data management plans
3. Encourage MS and Commission to follow FAIR principles in research programmes and funding mechanisms

## *Follow-Up by Stakeholders, EC and MS:*

1. As of 2017, Open Data is the default option under H2020- Data Management Plans will be mandatory
2. Evaluation of MS advances on Open Data will be necessary
3. Evaluation of MS advances on Open Data will be necessary; Expert Group on FAIR data will advise DG RTD in course of 2017



# European Open Science Cloud

*Competitiveness Council:*

*"CALLS on the Commission, in cooperation with Member States and stakeholders, to explore appropriate governance and funding frameworks"*

*European Commission-Follow up of the April 2016 Communication on a European Cloud Initiative:*

*Commission will need to have a roadmap for funding of European Open Science Cloud: early 2017*

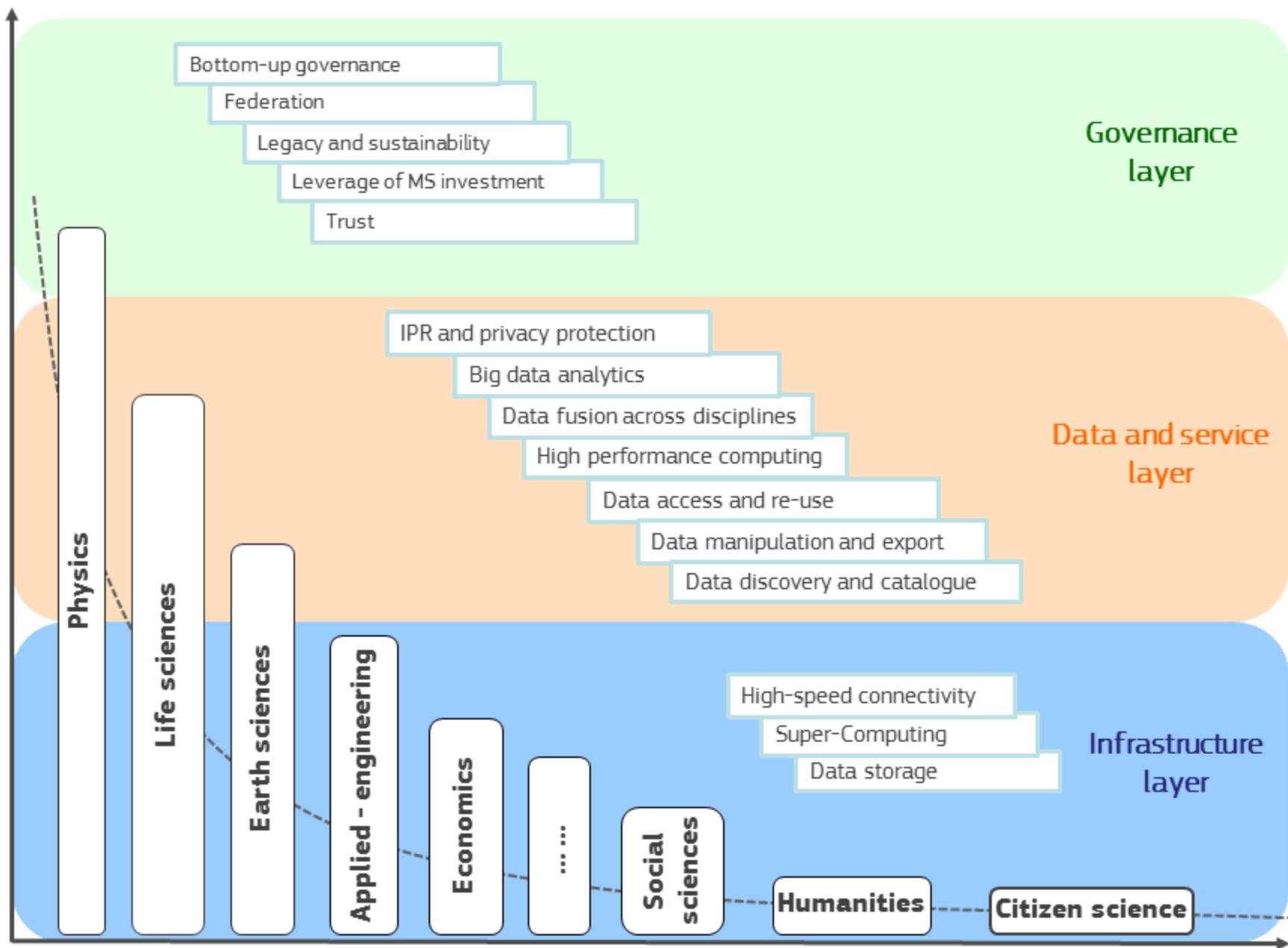
# HLEG EOSC report (11-10 2016)

- Publication of First report by the Commission High Level Expert Group on the European Open Science Cloud
- Including recommendations on Policy, Governance and Implementation

<http://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud>



Scale of scientific activity (data-driven science)



Lead scientific users...

...long tail of science



# Remainder of H2020: actions on Open Science

*Scheduled Launch of a call under Science with and for Society (SWAFS): Open Science in Action (scheduled call for April 2017)*

The challenge is to operationalise an Open Science rationale for one or more of the societal challenges defined under Horizon 2020 (such as Health, Food Security, Climate Action etc) in order to offer research and innovation solutions.

This should be done by a knowledge coalition based of civil society organisations, industry, government, academia and possibly citizen scientists, which are committed to work together and share knowledge and data among each other and interested third parties, thus putting Open Science in action- can include Citizen Science



# Remainder of H2020: actions on Open Science

Preparations for Work programmes 2018-2020

Substantial Funding of European Open Science  
Cloud initiatives: specifics will be known by April  
2017



## And last but not least: going global Open Science and the G7, G20, RDA etc

- G7-Autumn 2017, Italy scheduled to adopt statement on Open Science with special reference to global dimension of Open Science Cloud and Rewards for Researchers to engage with Open Science
- The G20 Science, Technology and Innovation Ministers Meeting of 4 November 2016 stated: *'We encourage discussion on open science and access to publicly-funded research results on findable, accessible, interoperable and re-usable (FAIR) principles in order to increase collaboration on science and research activities'*.

### And also

- Global Science Forum under the OECD is developing a framework for open and inclusive collaboration in Science in order to define future work priorities on Open Science
- UNESCO, RDA, ...

# In one word....

## Exiting policy times

as now is time to bring open science from  
vision to reality



**Let co-do it!**

**Thank you**

**Jean-Claude.BURGELMAN@ec.europa.eu**

**And btw ....**

