



# Next-Generation Metrics Recommendations by EC EG and OSPP WG on Altmetrics

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# Open Science

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## Eight Objectives for 2020 by EC

... 4 in relation to use and handling of data and research results

- ❑ **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:** Alternative metrics replaces/complements conventional indicators for research quality and impact (e.g. Journal impact factors and citations)
- ❑ **Future of scholarly communication:** All peer reviewed scientific publications are freely accessible

**FAIR** = to make data **F**indable, **A**ccessible, **I**nteroperable, and **R**e-usable.

# Open Science

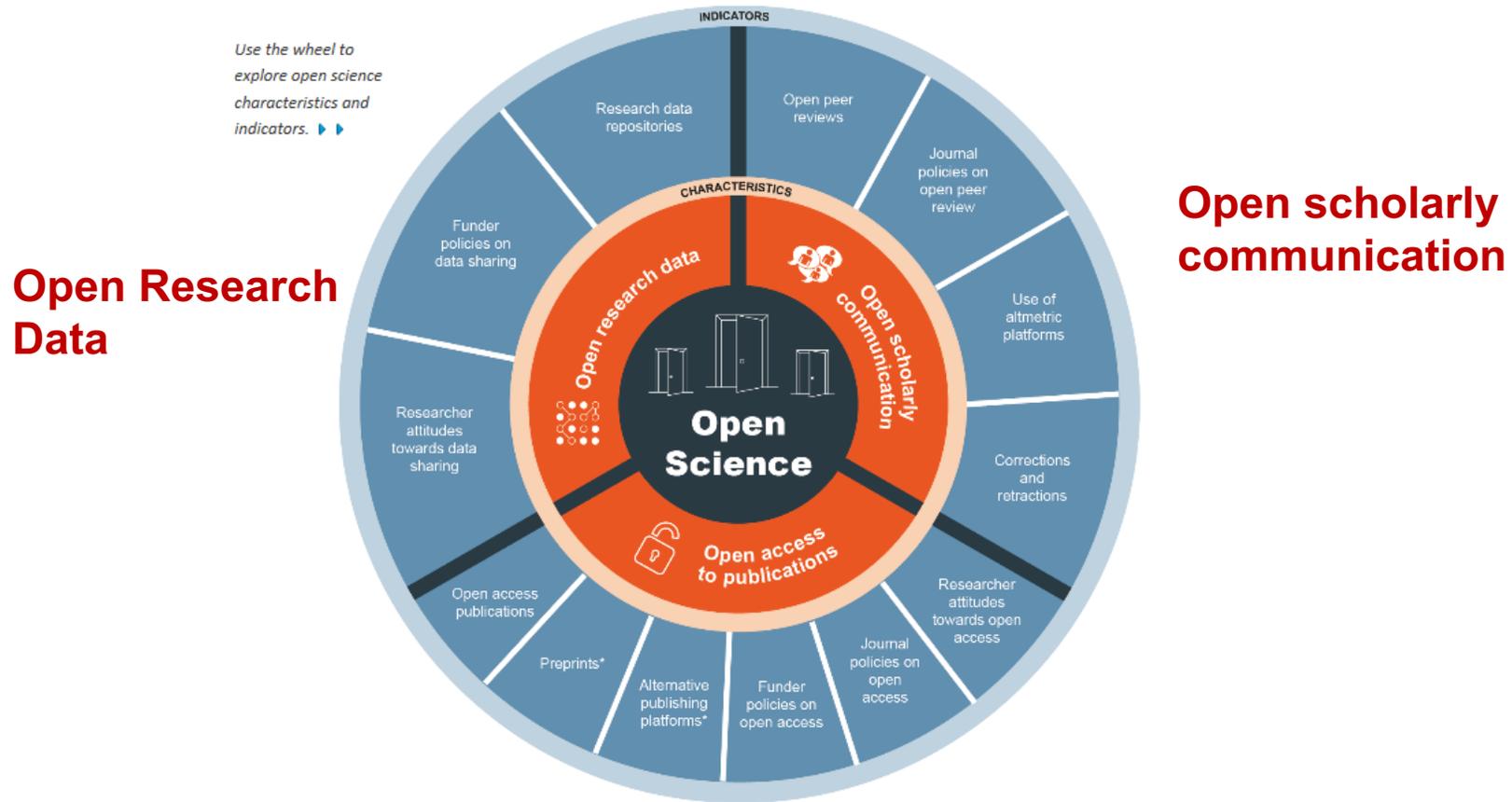
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...4 in relation to actors (researchers, organisations, funding agencies)

- ❑ **Rewards**: The European research career evaluation system fully acknowledges Open Science activities
- ❑ **Research Integrity**: All publicly 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**: CS significantly contribute and are recognized as valid knowledge producers of European science

# Open Science Monitor

<http://ec.europa.eu/research/openscience/>



\* These indicators are for both open access to publications and open scholarly communication.

**Open access to publication**



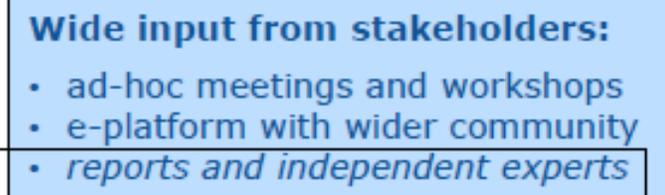
## High Level Groups

- **Science Advisory Mechanism (SAM)**  
7 members, chair Rolf Dieter Heuer (former DG CERN, DPG)
- **Open Science Policy Platform (OSPP)**  
25 members (Universities, Research Org., Academies & Learned Soc., Funding Org., Citizen Science org., Libraries, ...)  
chair Johannes Vogel (ECSA)
- **High Level Group on Maximising impact of European Research and Programmes**, as part of the interim evaluation of H2020  
12 members, chair Pascal Lamy (former director World Trade Org.)

# Open Science Policy Platform



European  
Commission



- ✓ *EG on open science cloud*
- ✓ *EG on altmetrics*
- ✓ *EG on alt. business models for OA publishing*
- ✓ *EG on FAIR open data*

## European Open Science Agenda:

- OA publishing models
- FAIR open data
- Science Cloud
- Alternate metrics
- Rewards & careers
- Education & skills
- Citizen Science
- Research integrity
- ...



advice



opinions



context

# OSPP members

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25 members from eight stakeholder groups

- ✓ **Universities:** EUA, LERU, CEASAR, ACEU, YERUN
- ✓ **Research Organisations:** EARTO, EMBO, EU-LIFE, ENoLL
- ✓ **Academies/Learned Societies:** EPS, EUCHEMS, YEAR, GYA
- ✓ **Funding Organisations:** Science Europe
- ✓ **Citizen Science Organisations:** ECSA
- ✓ **Publishers:** STM, OASPA
- ✓ **Open Science intermediaries:** RDA, F1000, OpenAIRE, EGI, DARIAH, GEANT, Business Europe
- ✓ **Libraries:** LIBER

# OSPP Calendar

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Kick-off:	Brussels, 19 September 2016
2 <sup>nd</sup> meeting:	Brussels, 9 December 2016
3 <sup>rd</sup> meeting:	Berlin, 20 March 2017
4 <sup>th</sup> meeting:	Tallinn, 13 October 2017
5 <sup>th</sup> meeting:	Brussels, 2 March 2018

Organized under:

EC, Directorate General for Research and Innovation

Directorate A - Policy Development and Coordination  
A.6 – Data, Open Access and Foresight

# Work Program

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	Dec'16	March'17	October'17	March 2018
Citizen Science	*	**	(***)	
EOSC	*	**	(***)	
Open Access	*	**	(***)	
Altmetrics		*	**	(***)
Rewards			*	**
Skills			*	**
Integrity			*	**
FAIR data				*

\* First discussion on EG report , \*\* Adoption of WG outcome

# OS General Calendar

	1st OSPP Meeting	2nd OSPP Meeting	3rd OSPP Meeting	27th March 2017	Compet Council May 2017	12th June Stakeholder Conference on EOSC	Launch EG Future of Scholarly Publication	Sept 2017	4th OSPP Meeting 13th Oct 2017	5th OSPP Meeting Feb/March 2018	Compet Council May 2018
	<b>Complete</b> <b>Incomplete</b> <b>Not Started</b> Agreement OSPP to address all 8 OS ambitions				Moedas reports on OSPP advice on OA and EOSC	Input gov. EOSC from OSPP		Launch EG Future of Scholarly Publishing		Prepare integrated advice OSPP on all 8 OS ambitions	Input from OSPP integrated advice
Future of Scholarly Publishing		1st discussion on OA	Adoption of outcomes WG OA to publication					Input from outcomes 3rd OSPP for consideration EG			
EOSC		1st discussion on Cloud	Adoption of outcomes WG Cloud								
<u>Altmetrics</u>			1st discussion EG report Altmetrics						Adoption recommendations on Altmetrics		
Citizen Science		1st discussion on Citizen Science	1st discussion of WG work								
Research Integrity		1st discussion on Research Integrity									
Rewards									1st discussion EG report Rewards	Adoption outcomes WG	
Skills									1st discussion EG report Skills	Adoption outcomes WG	
Fair Data				Kick-off EG Fair Research Data						Discussion Fair Data	

# Tallinn 4<sup>th</sup> OSPP Meeting 13 Oct. 2017

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## Agenda (partial)

- Presentation of Expert Group's report on **Rewards**  
Response by OSPP WG on Rewards and Discussion
- Presentation of Expert Group's report on **Skills**  
Response by OSPP WG on Skills and Discussion  
**Survey on Open Science** by Gareth O'Neill (EURODOC)
- Presentation of Expert Group's report on **Altmetrics**  
Response by OSPP WG on Rewards, conclusion and adoption  
(→ **Next generation metrics**)  
General consensus: merge Rewards, Skills and Altmetrics
- Round table of Estonian Stakeholders on **challenges and opportunities of OS** for librarians (text and data mining, copyrights, soft skills etc.)

# EC Expert Group Report on Altimetrics

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## **Next-generation metrics: Responsible metrics and evaluation for Open Science (6 international experts, Spring 2017)**

1. The Opportunity of Open Science
2. Available metrics: The State of the Art
3. Next Generation Metrics (NGM) for OS
  - with 5 headline findings
  - 12 targeted recommendations

# Some definition of Altmetrics

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‘In scholarly and scientific publishing, **altmetrics** are non-traditional metrics proposed as an alternative to more traditional ***citation impact*** metrics, such as ***impact factor*** and ***h-index***. The term altmetrics was proposed in 2010\*. Although altmetrics are often thought of as metrics about articles, they can be applied to people, journals, books, data sets, presentations, videos, source code repositories, web pages, etc.

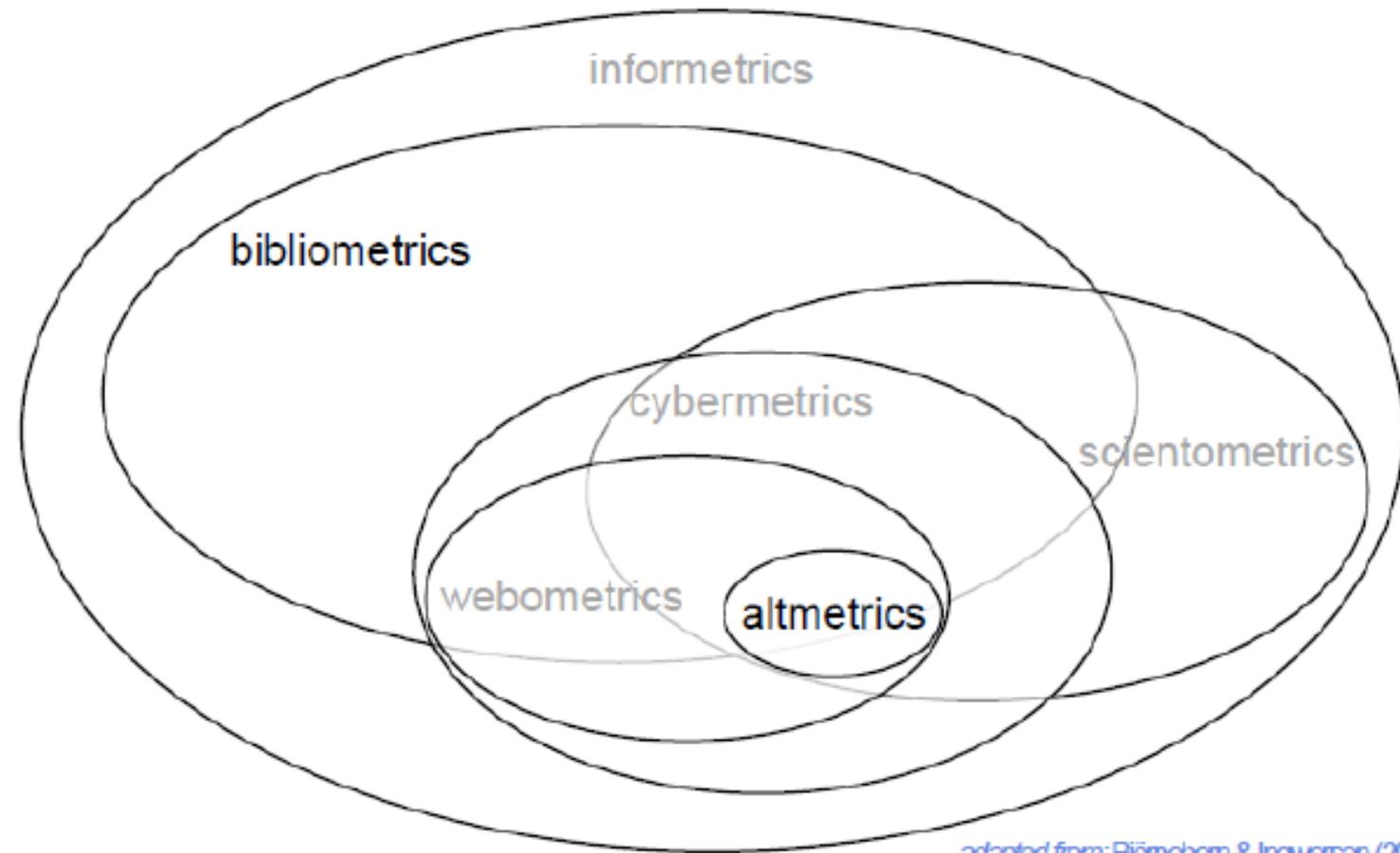
...are based mainly on online social media applications’

(Wikipedia)

\* Priem and Hemminger 2010  
Scientometrics 2.0

# Some definition of Altmetrics

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*adapted from: Björneborn & Ingwersen (2004, p. 1217)*

**Figure 2:** The basket of metrics for the evaluation of science (Haustein, 2015).

# EC Expert Group Report on Altmetrics

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## 5 Headline Findings

1. OS to be grounded in a mix of quantitative and qualitative metrics  
*one size doesn't fit all !*
2. Transparency and accuracy are crucial to support users needs
3. Make better use of existing metrics for OS (usage metrics)
4. Next generation of metrics to be underpinned by open, transparent & linked data infrastructure
5. Measure what matters (quality indices instead of easy collected ones)

# EC Expert Group Report on Altmetrics

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## 12 Targeted Recommendations in support of OS

- Organised under 4 of the headings of the European Open Science agenda
  - Foster Open Science (3)
  - Remove barriers to OS (3)
  - Develop research infrastructures for OS (3)
  - Embed OS in society (3)

# Foster Open Science

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## 3 Targeted Recommendations:

- EC to provide clear guidelines for responsible use of metrics for OS
- EC to encourage development of new indicators and assess existing ones
- EC to assess likely benefits & consequences as part of '*meta-research*' programs

# Remove barriers to OS

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## 3 Targeted Recommendations:

- Adoption and implementation of OS principles & practices should be recognized and rewarded
- EC to highlight how inappropriate use of indicators can impede progress towards OS
- EC to encourage that metrics from private platforms (Twitter, Facebook, ResearchGate,...) are used by researchers in addition to open metrics, for proper validation

# Develop research infrastructures for OS

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## 3 Targeted Recommendations:

- Realising EOSC vision will rely on linked-metadata as basis for open publicly available data infrastructure
- EU Research system and EOSC should adopt ORCID as preferred identifiers system
- EC to encourage stakeholders in reducing emphasis on journal impact factors and use them in broader context of metrics

# Embed OS in society

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## 3 Targeted Recommendations:

- EC to identify mechanisms for promoting best practices and standards for the responsible use of metrics in support of OS
- Agenda of this EG to be taken forward by new Forum for NGM
- This Forum on NGM should focus on FP9 and the design of next generation research data infrastructures

# OSPP WG on Altmetrics

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## Members

Given Name	Surname	Organisation
<b>Kristiina</b>	<b>Hormia-Poutanen</b>	Association of European Research Libraries (LIBER)
<b>Ernst</b>	<b>Kristiansen</b>	European Association of Research and Technology Organisations (EARTO)
<b>Rebecca</b>	<b>Lawrence (Chair, Rapporteur)</b>	F1000
<b>Sabina</b>	<b>Leonelli (Rapporteur)</b>	Global Young Academy (GYA)
<b>Natalia</b>	<b>Manola</b>	OpenAIRE
<b>Eva</b>	<b>Méndez</b>	Young European Research Universities Network (YERUN)
<b>Christophe</b>	<b>Rossel</b>	European Physical Society
<b>Michela</b>	<b>Vignoli (Rapporteur)</b>	Young European Associated Researchers Network
<i><b>Marta Dias</b></i>	<i><b>Agostinho</b></i>	<i>EU-LIFE</i>

# Endorsement by OSPP WG

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**Endorsement** of the EC EG report on Altmetrics with emphasis on:

1. importance of using a **mix of qualitative and quantitative metrics**
2. need to **tailor the selection of indicators** to specific goals and situations
  - dependent on what is being measured
  - dependent on the field

# Key premises for policies

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1. WG and related initiatives should be renamed into '**next-generation metrics**' (NGM)
2. Need to **distinguish between two types of indicators** to assess, reward and incentivise open research:
  - [1] those **measuring Open Science behaviours** themselves
  - [2] those **providing insight into quality, value and impact** of the research outputs

The reward system should be based on both, and move away from indicators that inhibit transparency & inclusiveness in science
3. **Provide evidence of the advantages** that Open Science can bring for researchers but also for science and society at large
4. **Coordinate NGM recommendations with OSPP Rewards and Skills WGs** to ensure aligned recommendations across all three areas.  
→ coherent rewards system across disciplines

# Seven proposed priorities for action

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## 1. Agree on **specific goals of open science/open research**

- decide what desirable outcomes should be incentivized and measured
- identify the indicators most suitable for measuring those outcomes.

Action : EC (via OSPP & other relevant stakeholders)

## 2. Develop **statements of principles on appropriate uses of indicators** to:

- Establish a culture of assessing what works in research practice
- Ensure with pilot studies that new policies support research and researcher assessment efficiently and effectively – openly tracked
- Implement best practice more broadly

Action: Research institutions & funding bodies

# Seven proposed priorities for action

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3. **Commission a study to propose concrete and adequate indicators** for best practice in research assessment
- review effectiveness with active pilots especially through FP9 and ERC in:
    - measuring the quality of researcher, project and institutional outputs
    - incentivising open science behaviours

Action: EC with other major European funding bodies (& worldwide)

4. EC research policy making, funding and evaluation **must be grounded in open metrics** to enable fair and formal validation.
- Need cross-sector discussion on how to ensure core metrics are made available in an equitable and sustainable way.
  - Need infrastructure to enable open metrics
  - Closer collaboration with metrics developers/innovators to ensure proper choice of OS metrics

Action: EC lead by example, and facilitate infrastructure for open metrics

# Seven proposed priorities for action

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## 5. Use of **persistent and standard identifiers** for researchers & outputs

- **ORCID to be adopted for EOSC** + other research infrastructures & scholarly publication platforms (publishers)
- **ORCID mandatory for FP9 & ERC grants**, and actively promoted across research institutions, funding agencies & publishers
- All research outputs associated with **unique object identifiers** (e.g. DOIs)
- **CRedit (Contributor Roles Taxonomy)** to be promoted across scholarly output platforms to capture specific individuals' contributions

Action: EC for EOSC, FP9, ERC, & encourage its use in EU Member States

## 6. **Linked & standardized metadata & vocabularies** to form basis of EOSC

- Use right identifiers, standards and vocabularies
- Ensure indicators are contextually robust and can be properly understood

Action: EOSC HLEG to address broader conception of research outputs & associated metrics for EOSC.

# Seven proposed priorities for action

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7. Establish a **European Forum for Next Generation Metrics** to take recommendations forward
  - With active engagement of key European research funders, institutional research managers, and researchers on assessment panels
  - As well as non-academic stakeholders e.g. researchers in industry, end users, civil society representatives, etc.

Action: EC to establish such group to proceed with concrete actions

# Summary

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- EC needs to lead and support the required **mindset shift**
- Importance to **ensure active use of new research infrastructures** for Open Science  
(e.g. EOSC and the H2020 platform for Open Access publishing)
- Need to both **reward Open Science behaviours**, but importantly **assess quality & impact with metrics that incentivise Open Science behaviours**
- The recommendations from this WG **need to complement those from the Rewards & Incentives WG and the Skills & Education WG.**

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**Thank you**



# Some Events Calendar

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**12 Oct. 2017: Tallinn, Estonian Presidency Research Policy Confence  
European Research Excellence – Impact and Value for Society  
→ Tallinn call for action 2017 with 3 priorities in R&I  
(Investment, Impact, Trust)**

**10-11 Nov. 2017: Uni Zurich, EC country visit to Zurich (CH)  
Mutual Learning Exercice o n Open Science, Altmetrics and Rewards**

**28-29 Nov. 2017: Brussels, special info event by EOSC pilot project  
Cordinated by UK Science and Technology Facilities Council (STFC) &  
funded by H2020**

**31 January 2018: Brussels rue du Trône 62, workshop on **Open Data in Science:  
Challenges and Opportunities for Europe** organized by European  
members of ICSU**