

Open Science y RRI

Jornadas Regic 2019
Palma de Mallorca, 18 de octubre de 2019

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¿Qué es Open Science?

Open Science aims at transforming science through ICT tools, networks and media, to make research more open, global, collaborative, creative and closer to society

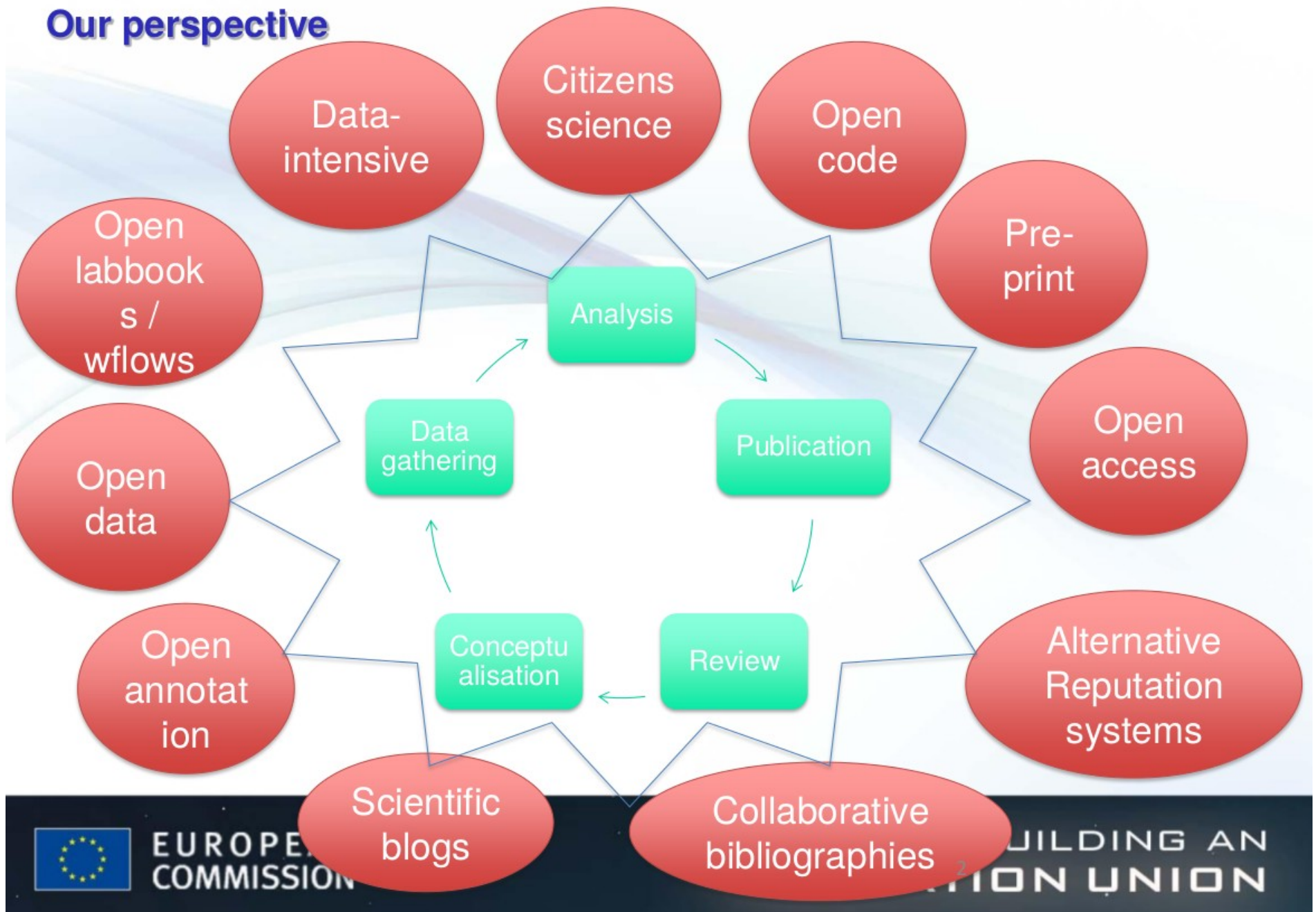
<https://ec.europa.eu/digital-agenda/en/open-science>

Open science is the movement to make scientific research and its dissemination accessible to all levels of an inquiring society, amateur or professional

https://en.wikipedia.org/wiki/Open_science

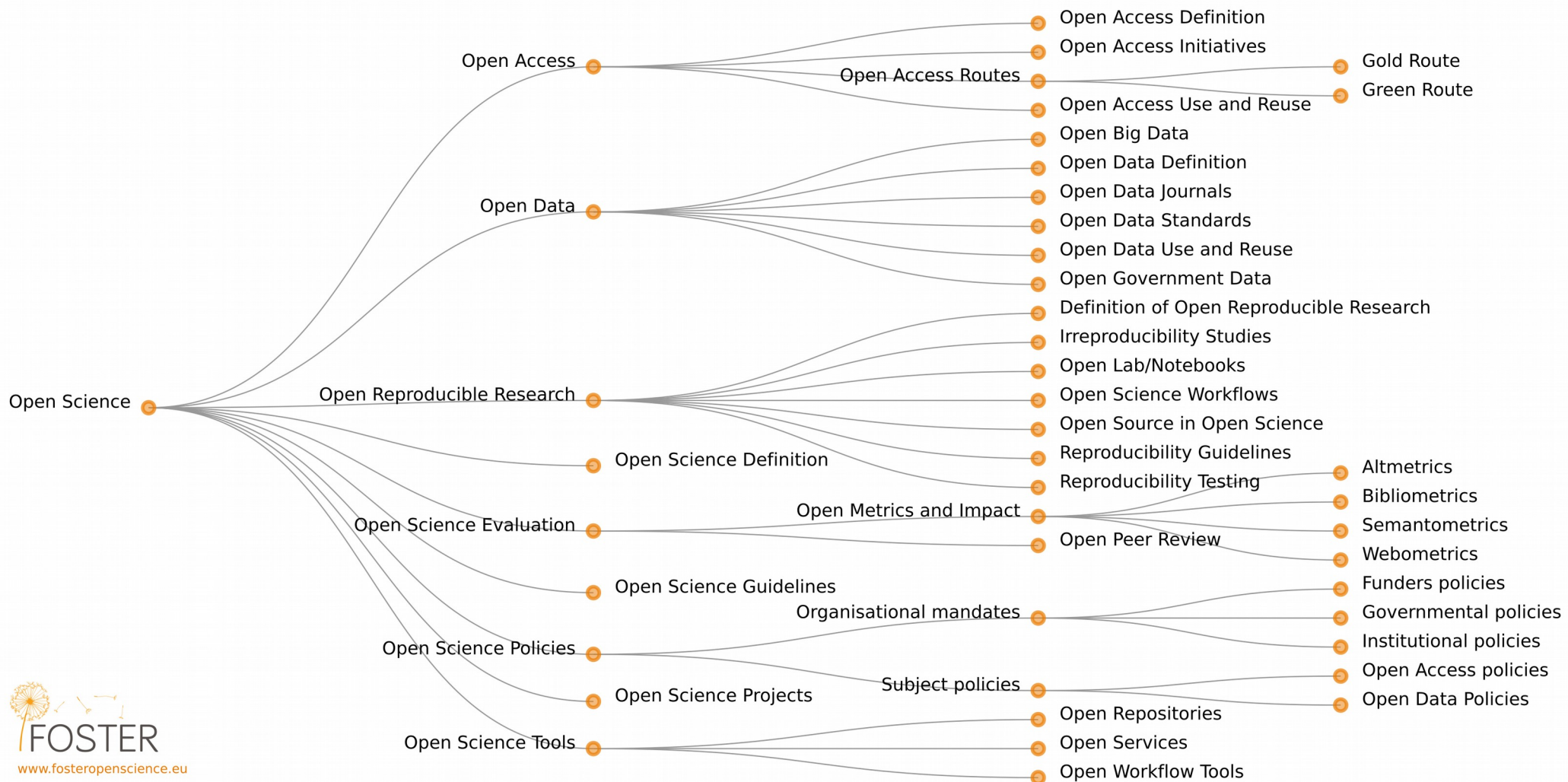
**OPEN SCIENCE:
JUST
SCIENCE
DONE RIGHT**

Our perspective

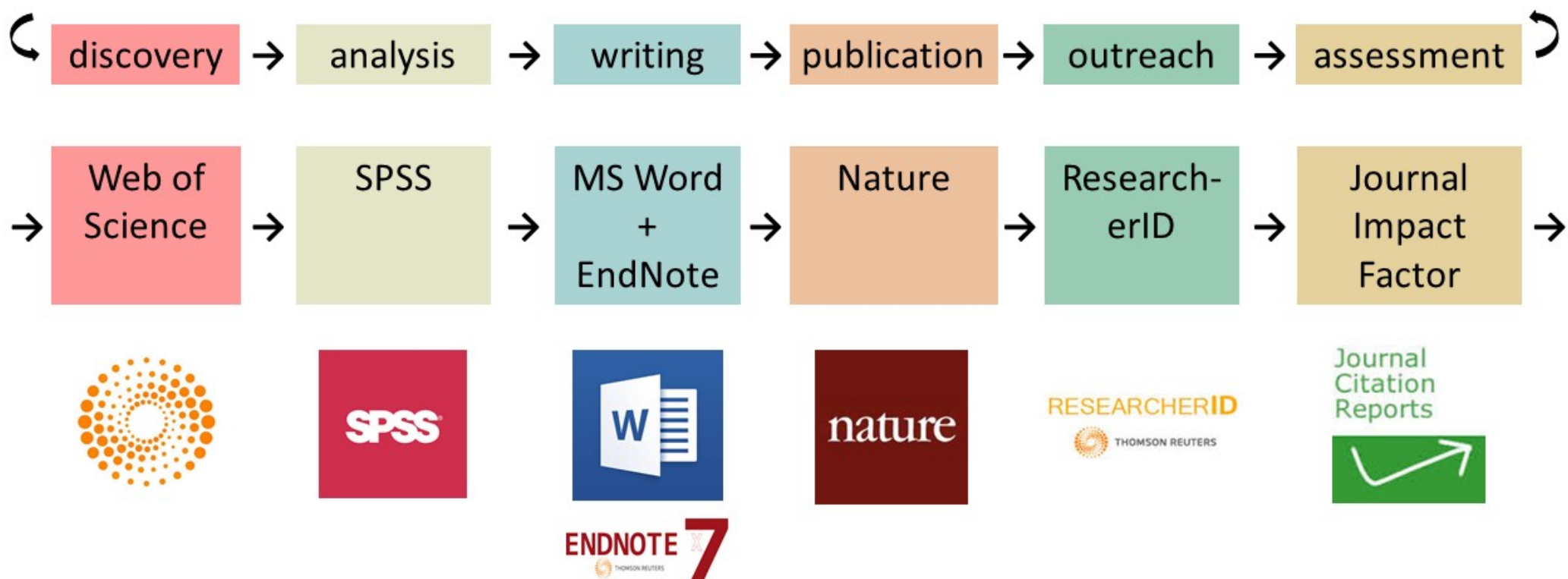


J. C. Burgelman, Comissió Europea, Science 2.0

Open Science Taxonomy

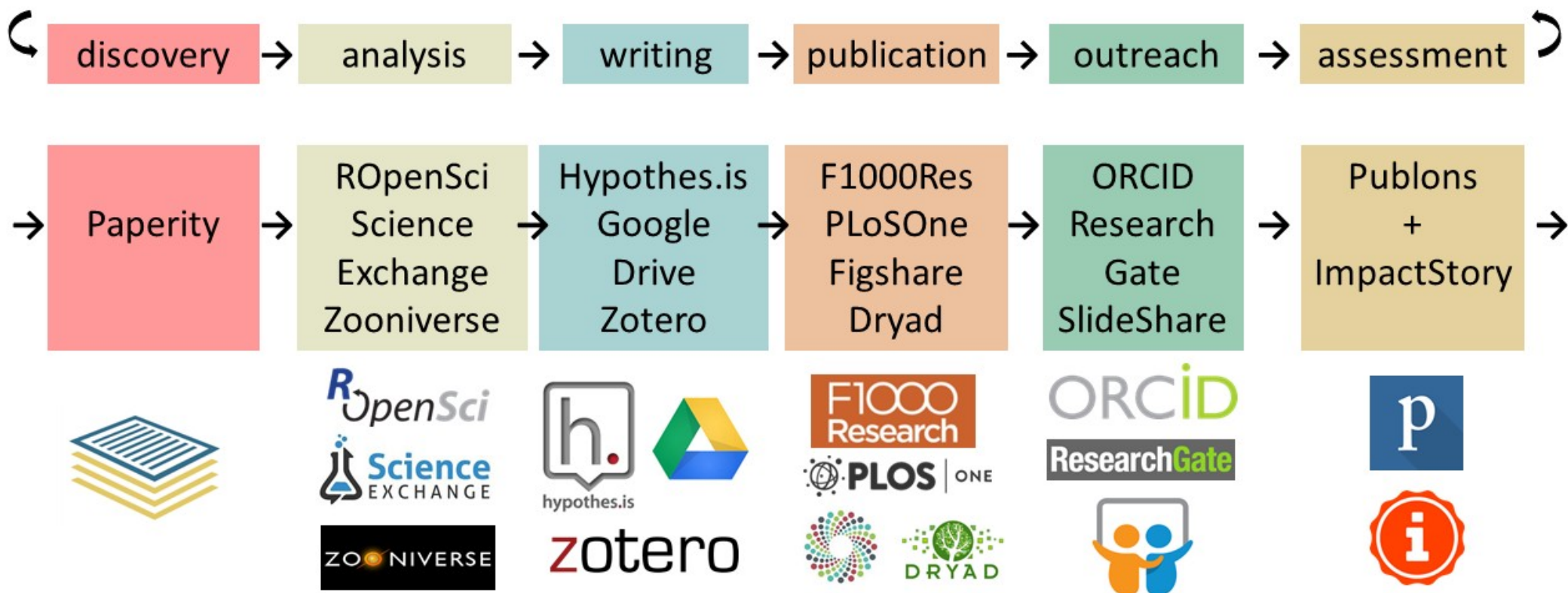


El flujo de trabajo tradicional



<https://101innovations.wordpress.com>

El flujo de trabajo de Open Science



<https://101innovations.wordpress.com>

La evolución del flujo de trabajo de Open Science



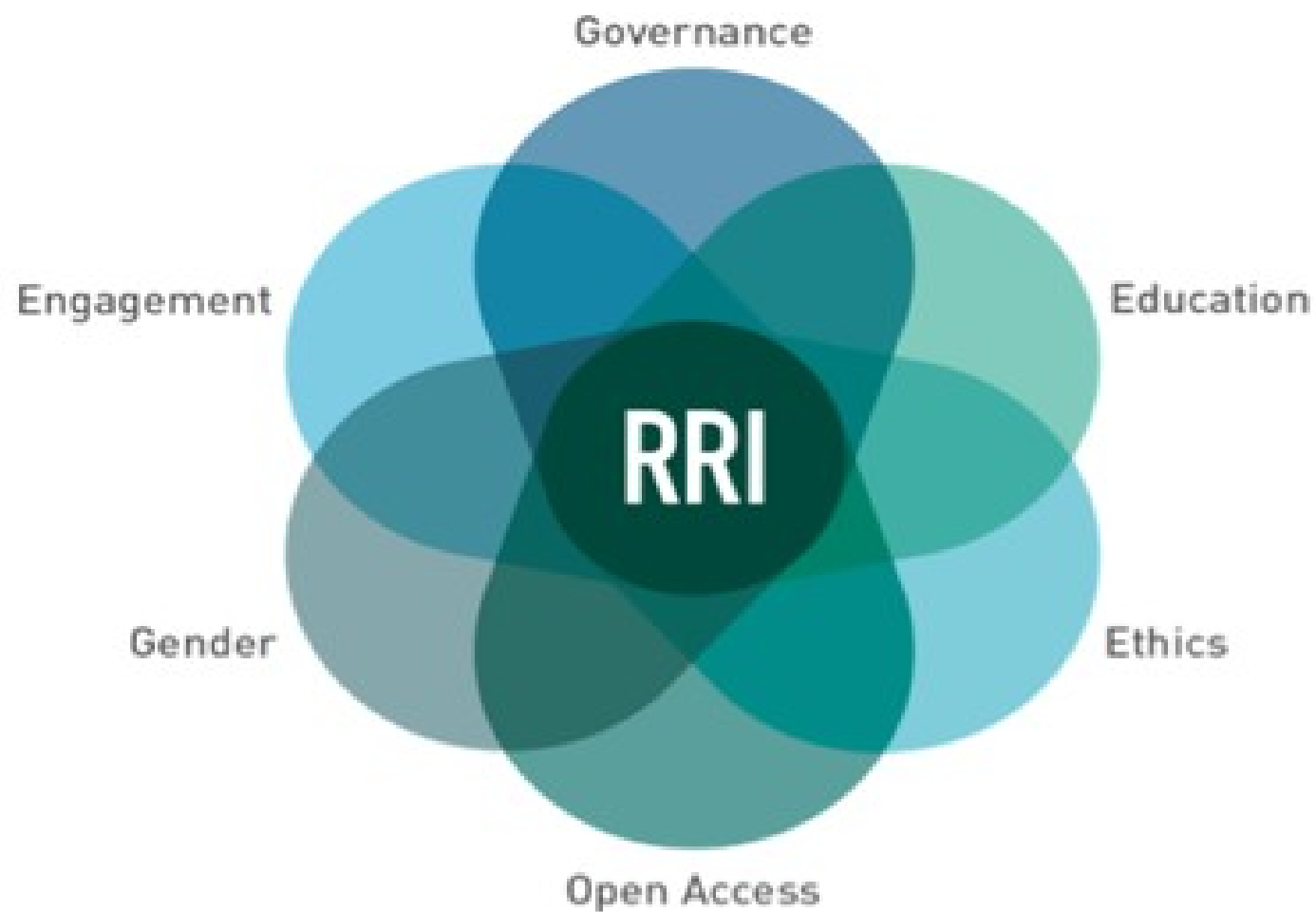
<https://101innovations.wordpress.com>

Los ocho pilares...

- Future of Scholarly Communication
- FAIR Data
- European Open Science Cloud
- Rewards and Incentives
- Research Indicators and Next-Generation Metrics
- Research Integrity
- Skills and Education
- Citizen Science

...se pueden reducir a trabajar en

- Publicaciones científicas
- Datos de la investigación
- Evaluación de la investigación
- Integridad investigadora
- Capacidades y Educación
- Impacto social y participación



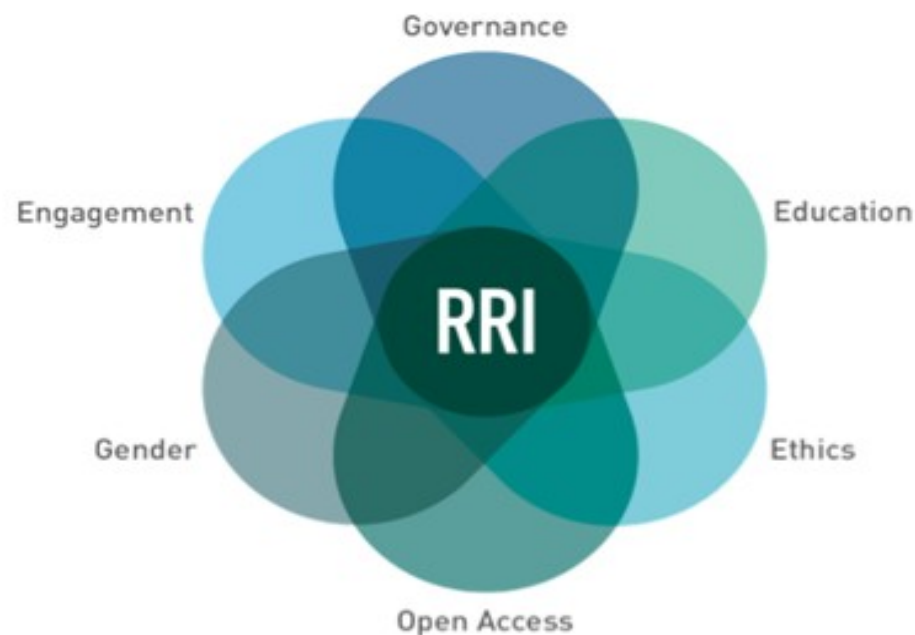
RRI

- Public engagement, which refers to the “engagement of all the societal actors—researches, industry, policy-makers, and civil society and their joint participation in the research and innovation process”
- Gender equality, which means that “all actors—women and men—are on board” in the public engagement activities.
- Science education, which implies the enhancement “the current education process to better equip future researchers and other societal actors with the necessary knowledge and tools to fully participate and take responsibility in the research and innovation processes”.
- Open Access, which means “giving free online access to the results of publicly-funded research (publication and data)”.
- Ethics, which highlights that “in order to adequately respond to societal challenges, research and innovation must respect fundamental rights and the highest ethical standards”.
- Governance, an umbrella key area that remarks that policy-makers “have a responsibility to prevent harmful or unethical developments in research and innovation”

<https://doi.org/10.3390/su9122168>

Necesitamos combinar

- Publicaciones científicas
- Datos de la investigación
- Evaluación de la investigación
- Integridad investigadora
- Capacidades y Educación
- Impacto social y participación



Evaluación

Open Science Career Assessment Matrix (OS-CAM)	
<i>Open Science activities</i>	<i>Possible evaluation criteria</i>
RESEARCH OUTPUT	
Research activity	Pushing forward the boundaries of open science as a research topic
Publications	Publishing in open access journals Self-archiving in open access repositories
Datasets and research results	Using the FAIR data principles Adopting quality standards in open data management and open datasets Making use of open data from other researchers
Open source	Using open source software and other open tools Developing new software and tools that are open to other users
Funding	Securing funding for open science activities
RESEARCH PROCESS	
Stakeholder engagement / citizen science	Actively engaging society and research users in the research process Sharing provisional research results with stakeholders through open platforms (e.g. Arxiv, Figshare) Involving stakeholders in peer review processes
Collaboration and Interdisciplinarity	Widening participation in research through open collaborative projects Engaging in team science through diverse cross-disciplinary teams
Research integrity	Being aware of the ethical and legal issues relating to data sharing, confidentiality, attribution and environmental impact of open science activities Fully recognizing the contribution of others in research projects, including collaborators, co-authors, citizens, open data providers
Risk management	Taking account of the risks involved in open science
SERVICE AND LEADERSHIP	
Leadership	Developing a vision and strategy on how to integrate OS practices in the normal practice of doing research Driving policy and practice in open science Being a role model in practicing open science
Academic standing	Developing an international or national profile for open science activities Contributing as editor or advisor for open science journals or bodies
Peer review	Contributing to open peer review processes Examining or assessing open research
Networking	Participating in national and international networks relating to open science

Indicadores

Criteria	Performance indicators		Perception indicators
	Process indicators	Outcome indicators	
Public engagement	<p>Number and degree of development of formal procedures for citizens' involvement (consensus conferences, referendum, etc.)</p> <p>Number of citizen science projects, discriminating from those supported by institutions and those that are created at grassroots level, by field</p>	<p>Number (absolute and percentage with respect to the total) and the percentage in terms of funding of projects and initiatives (a) led by citizens or civil society organisations and (b) including research done by citizens or civil society organisations (citizen science)</p> <p>Number of advisory committees including citizens and/or civil society organisations</p> <p>Percentage of citizens and civil society organisations with special responsibilities within advisory boards, committees and consultant bodies (chair, rapporteur, etc.)</p> <p>Number of citizens engaged in citizen science projects</p>	<p>Degree of public interest in science and technology issues: percentage of the total population declaring themselves interested; percentage of citizens indirectly showing interest in science and technology (percentage visiting science centres, percentage participating in demonstrations about scientific issues, etc.)</p> <p>Expectations of responsible science: percentage of population that sees science as part of the solution rather than the problem; percentage of population with high expectation</p>
Gender equality	<p>Percentage of research institutions that document specific actions that aim to change aspects of their organisational culture that reinforces gender bias</p>	<p>Percentage of women that are principal investigators on a project</p> <p>Percentage of women that are first authors on research papers</p> <p>Percentage of research projects including gender analysis/gender dimensions in the content of research</p>	
Science education	<p>The inclusion of an initiative or requirement for RRI-related training in a research strategy/call/work programme, etc. (yes/no, percentage)</p>	<p>At the level of R & I projects, whether they encourage or require young researchers to take RRI-related education/training and to apply it in the project (e.g. in an integrated ELSA model)</p> <p>Percentage of research projects with at least one educational resource deliverable</p>	
Open access	<p>Inclusion of open science measures in research policies and calls for proposals</p>	<p>Percentage of research projects that report real added value by an open science mechanism (for themselves and/or other actors)</p>	<p>The extent to which members of the public have visited vital virtual project environments and found them useful</p>

Indicators for promoting and monitoring responsible research and innovation

<https://op.europa.eu/en/publication-detail/-/publication/306a7ab4-f3cb-46cb-b675-9697caf5df19>

Conclusión

La Open Science tiene como objetivo transformar la investigación para que sea más abierta, global, colaborativa, creativa y cercana a la sociedad...

... y también más inclusiva, equitativa, sostenible, íntegra, ética....

Gracias

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