

# Perquè en diuen RRI quan volen dir...

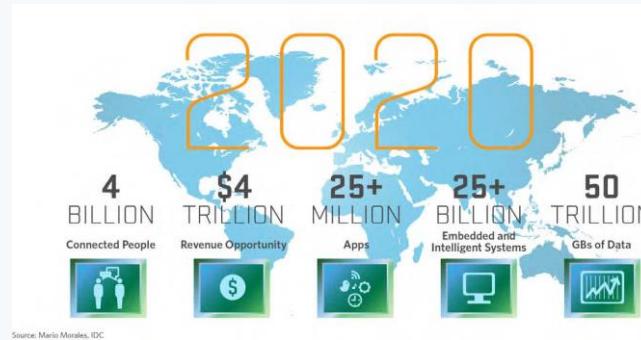
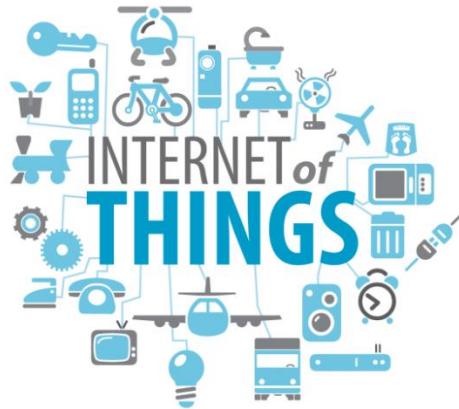
Daniel García Jiménez



["la Caixa" Foundation](#)









## Millennium Development Goals



# The Silver Economy

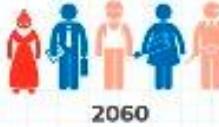
Europe is ageing



By 2060  
one in three Europeans  
will be over 65.



The ratio of **Working** people  
to the 'inactive' others  
is shifting  
from 4 to 1 today  
to 2 to 1 by 2060.



**Costs for care are rising sharply**  
If we don't change our systems for health and social care,  
we will not have the money and the people  
to guarantee a good and healthy life for all



If we reinvent our systems for health and social care, **innovative new ICT-products and services** can help us deliver **better and cheaper care for all**

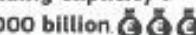


(\*) Brazil  
(\*\*) India,  
Source:

**Active and healthy ageing** offers also **great opportunities**.

If we are prepared to change our systems for health and social care, we can benefit from those.

Today **Europeans over 65** have a **spending capacity of over €3,000 billion**.



**Ageing in good health** allows us to



Travel



Learn new things



Prepare our homes  
for living independently  
for the many years to come

Europe has what it takes to **benefit** from these **new opportunities**

A solid R&D base  
in European industry



A host of  
SMEs & start-ups  
are now developing



New ICT  
products  
such as  
care robotics



Health mobile  
applications  
that assist  
with tracking



Big pharma companies  
are developing  
integrated therapeutic  
solutions



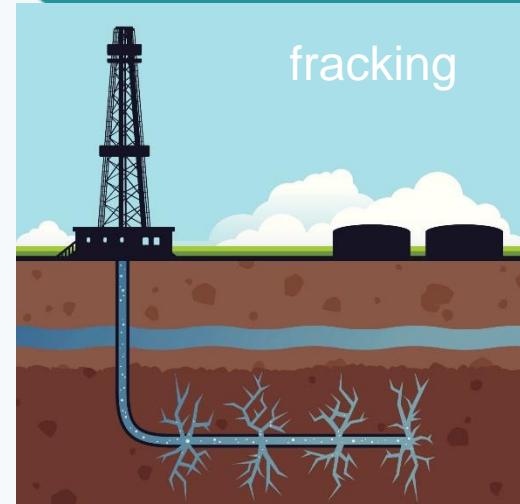
The Silver economy offers  
**new highly skilled  
tech jobs**



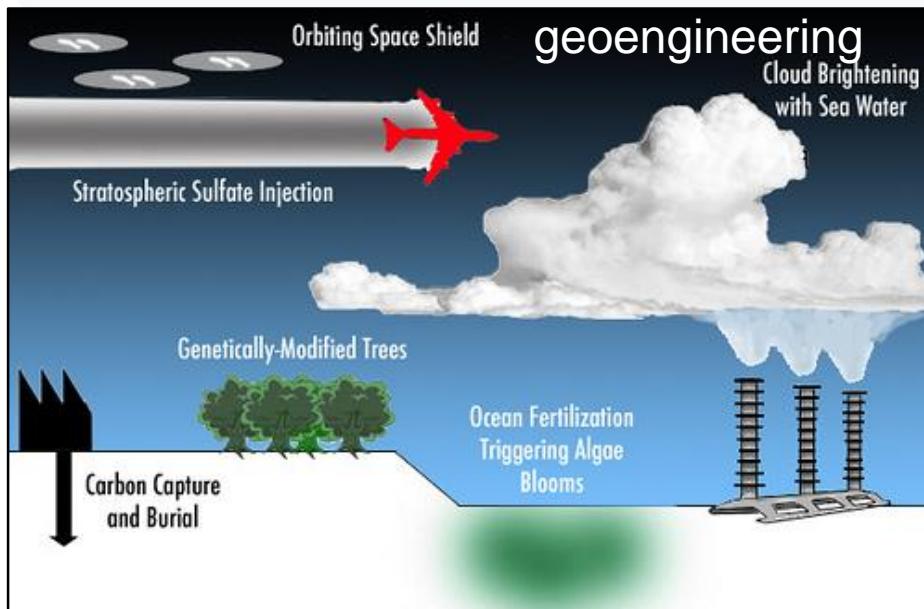
but also the opportunity for  
**low qualified  
population to reskill**



# | Brave new world?



smart meters



big data



- Rich/poor disparity
  - larger than ever
  - ↑ in Europe and USA
  - accelerated by technology-driven economy?  
(e.g., *The Second Machine Age*, Brynjolfsson)
- 1% richest in USA = 34% accumulated wealth



MIT Technology Review, October 2014



# Brave new world?

## The 10/90 gap

Most drug research is for the wealthiest people on earth

More than

**\$70bn**

is spent each year in the world on research and development of new drugs

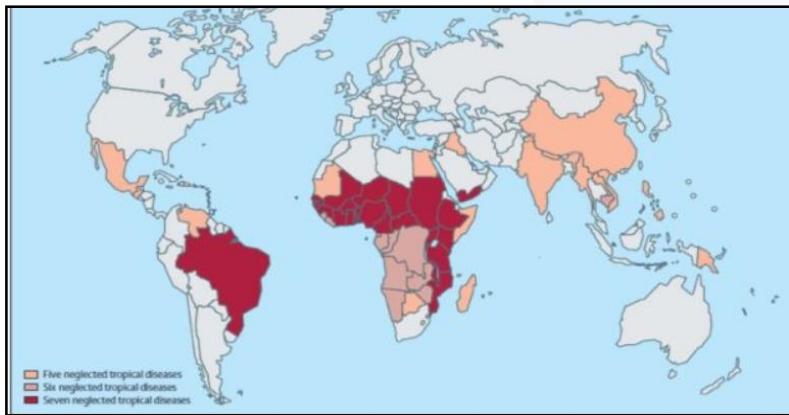
Less than

**10%**

of this is spent on

**90%**

of the world's health problems



Neglected diseases affecting  
1 billion people in the world

*The Guardian.  
Special Report. Aids.*



New drugs are needed for: sleeping sickness, dengue fever, malaria, schistosomiasis, tuberculosis, chagas disease, lymphatic filariasis, leishmaniasis, leprosy, onchocerciasis.



## Publishing pressure

## Reproducibility

NATURE | NEWS



# Irreproducible biology research costs put at \$28 billion per year

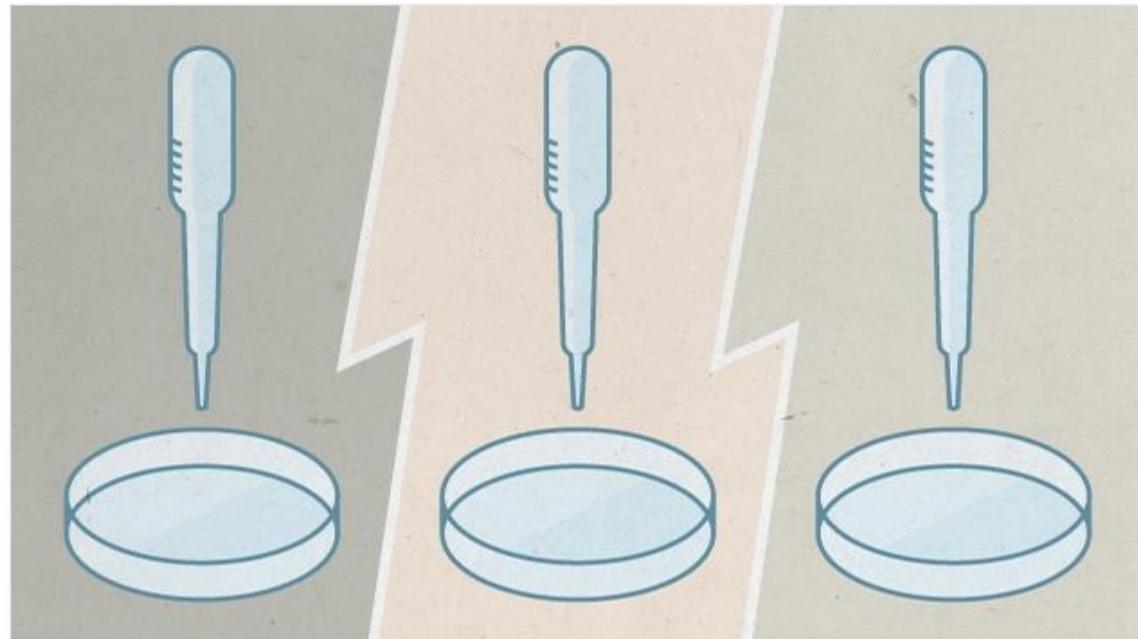
Study calculates cost of flawed biomedical research in the United States.

Monya Baker

09 June 2015



Rights & Permissions



Scientists in the United States spend \$28 billion each year on basic biomedical research that cannot be repeated successfully. That is the conclusion of a study published on 9 June in *PLoS Biology*<sup>1</sup> that attempts to quantify the causes, and costs, of irreproducibility.

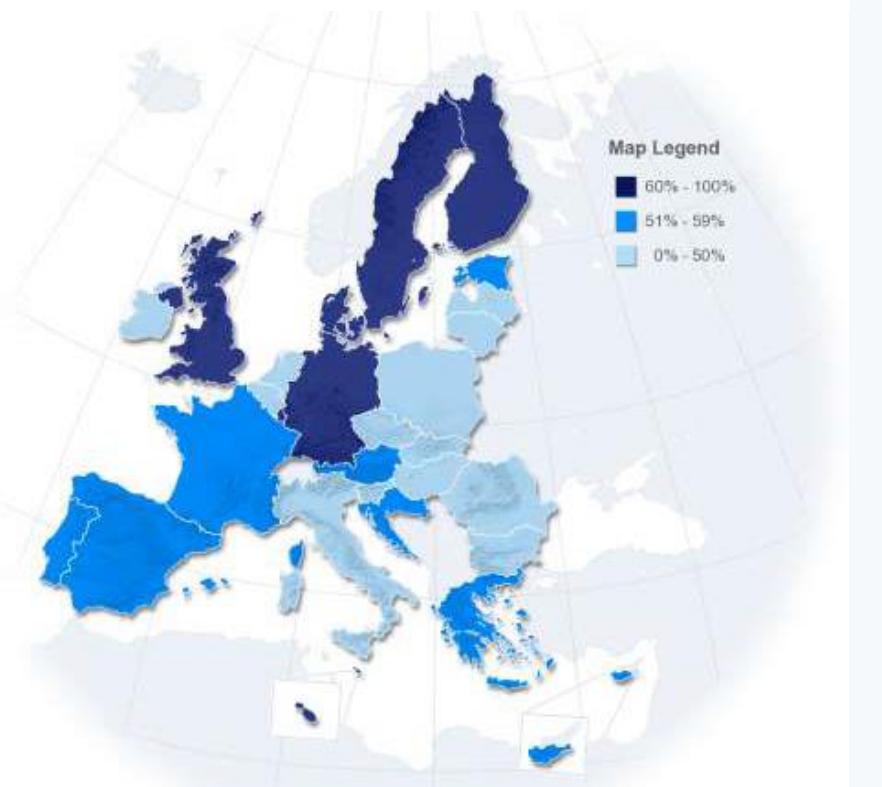


77% S&T positive impact in society

62% S&T changes too fast our life

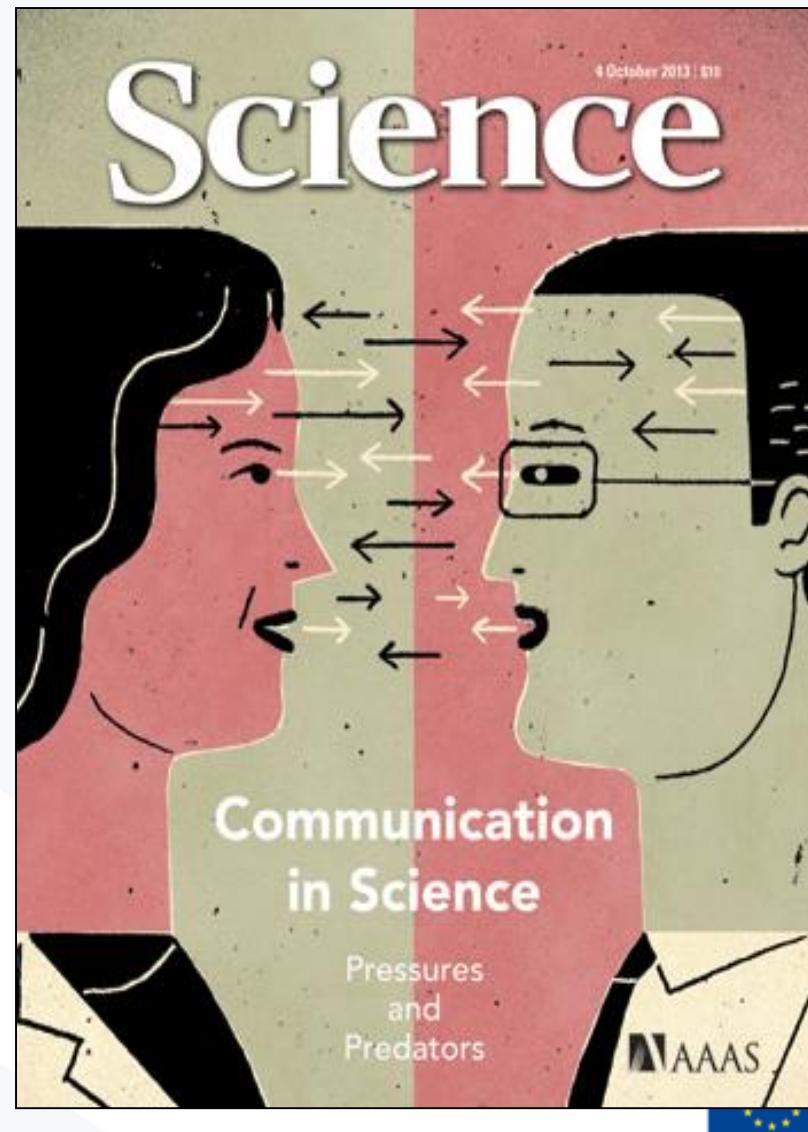
55% S&T public dialogue required

 DK	72%
 SE	69%
 DE	66%
 MT	65%
 UK	64%
 LU	63%
 FI	62%
 EL	59%
 FR	58%
 CY	57%
 EU	55%
 EE	55%
 AT	55%
 ES	53%
 PT	51%
 IE	50%
 BG	50%
 BE	49%
 PL	48%
 NL	47%
 LT	47%
 IT	47%
 CZ	46%
 LV	45%
 HU	44%
 SK	43%
 RO	43%
 SI	40%
 HR	57%



Special Eurobarometer 401. Responsible Research and Innovation (RRI), Science and Technology





# | R&I under pressure

U.S. adults

AAAS scientists

*Safe to eat genetically modified foods*

37%

51 point gap

88%

*Safe to eat foods grown with pesticides*

28%

40 point gap

68%

*Favour use of animals in research*

47%

42 point gap

89%

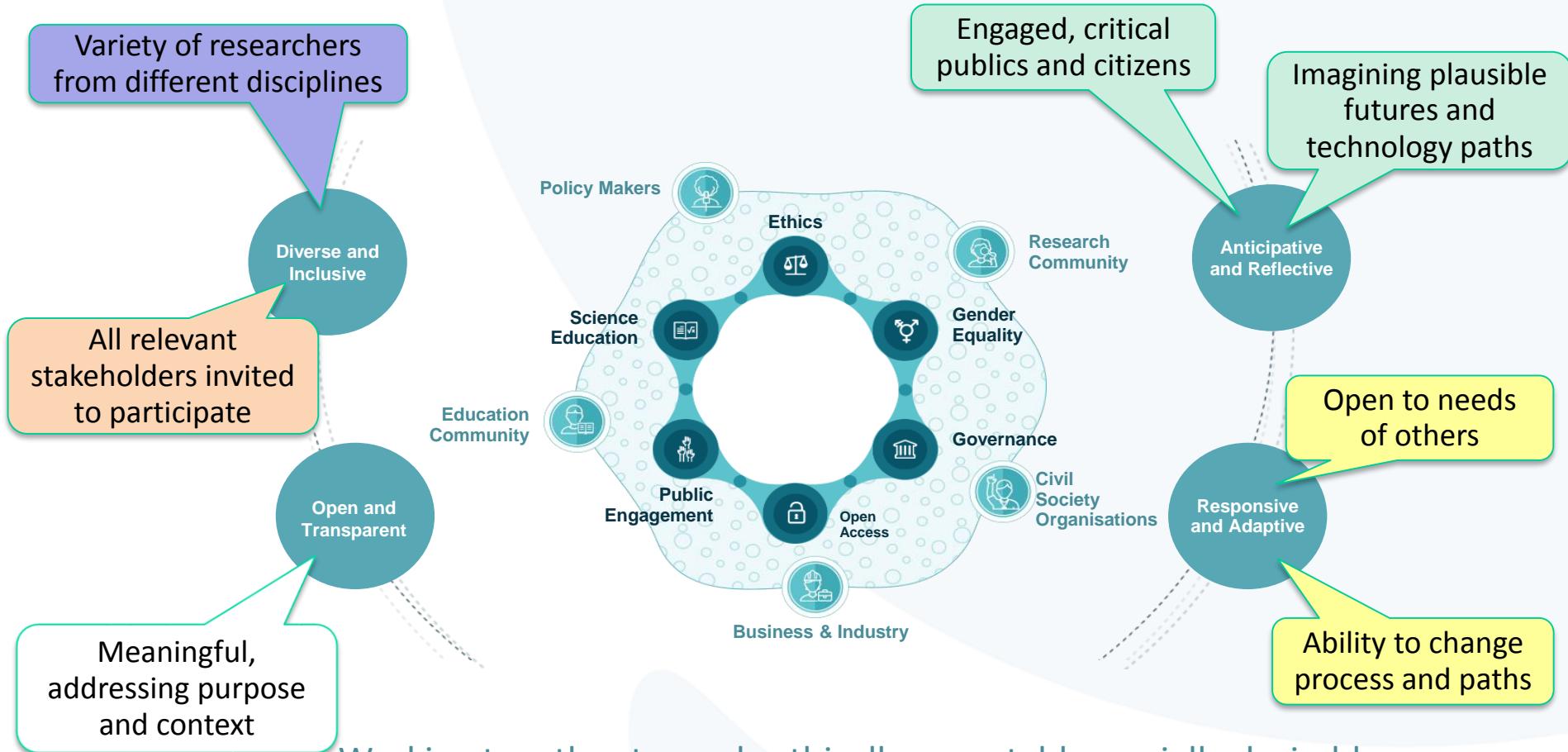
PewResearchCenter *Internet, Science & Tech*

Public & Scientist's Views on Science & Society; January 2015



# | What is RRI?

Responsible Research and Innovation (RRI) is about including all actors, considering specific key issues and integrating some process dimensions in the R&I practice



Working together towards ethically acceptable, socially desirable and environmentally sustainable products and services that address the grand societal challenges of our time



# | The bright side: opportunities for RRI

- Bring science & society closer
- Strength democracy by engaging citizens
- Boost scientific culture & careers
- Improve learning by connecting research and practice
- Create better innovations & new markets
- Increase competitiveness & creativity
- Avoid future controversies (Collingridge dilemma...)



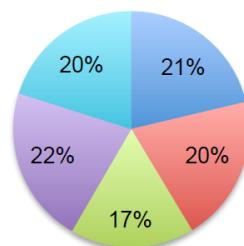
27 workshops

30 countries

400+ participants

48-52% women-men

#### Workshop attendees by stakeholder group



# The dark side: obstacles for RRI



RRI is the end of  
'true' science!



Science needs to  
become *Responsible*?  
So scientists are  
irresponsible now?!



What about basic  
research? Is this  
applicable to all fields or  
just to applied research?



RRI — that's just old wine  
in new bottles...



RRI is about much more than  
only research! It is too  
demanding for researchers!



We first need to  
educate citizens before  
they can participate!

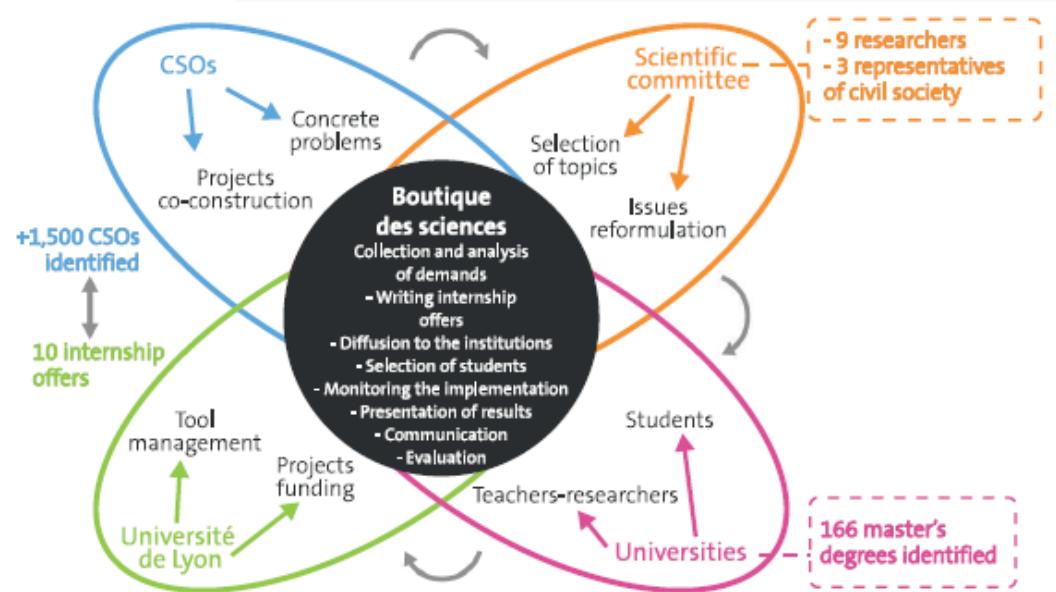


That's too complicated  
and abstract for me!





Provide independent, participatory research support in response to concerns experienced by civil society



# | What is RRI... in practice?



Plan de co-gestión del  
sonso

Premio Mérito a la  
Conservación 2013 de  
WWF







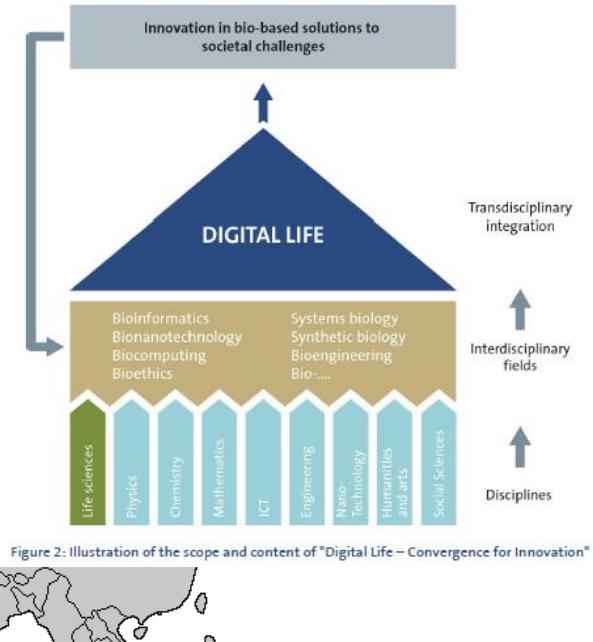
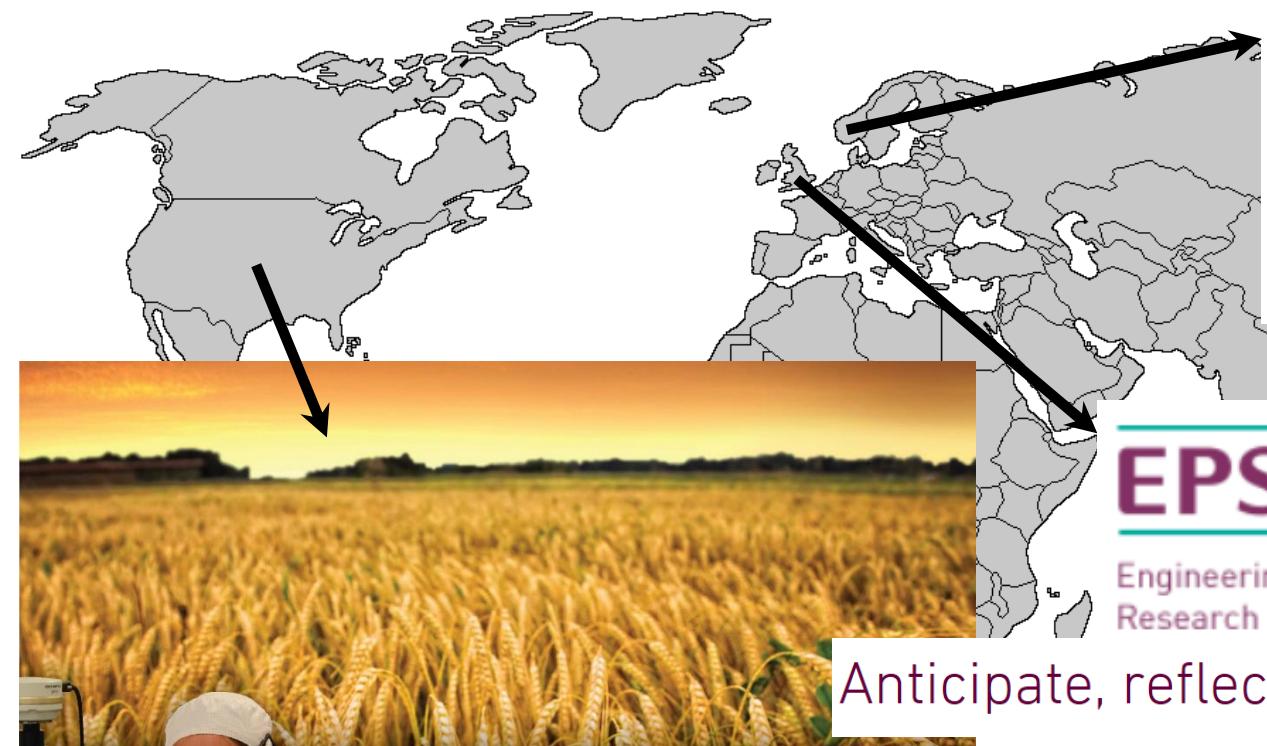
Unesco Science report:

*...that science should become an overtly **public enterprise** rather than one conducted behind closed laboratory and library doors, that publicly funded science should be **done openly**, that its **data** should be **open to scrutiny**, that its **results** should be **available freely** or at minimal cost, that scientific results and their implications should be **communicated more effectively to a wide range of stakeholders**, and that **scientists should engage publicly in the transdisciplinary mode**....*

*Science for a sustainable and just world: a new framework for global science policy?* Heide Hackmann and Geoffrey Boulton



# | The times they are a changin'...



# EPSRC

Engineering and Physical Sciences  
Research Council

Anticipate, reflect, engage and act (AREA)



# | The times they are a changin'...



Moedas 3 O's (Open innovation, open science, open to the world) strategy:

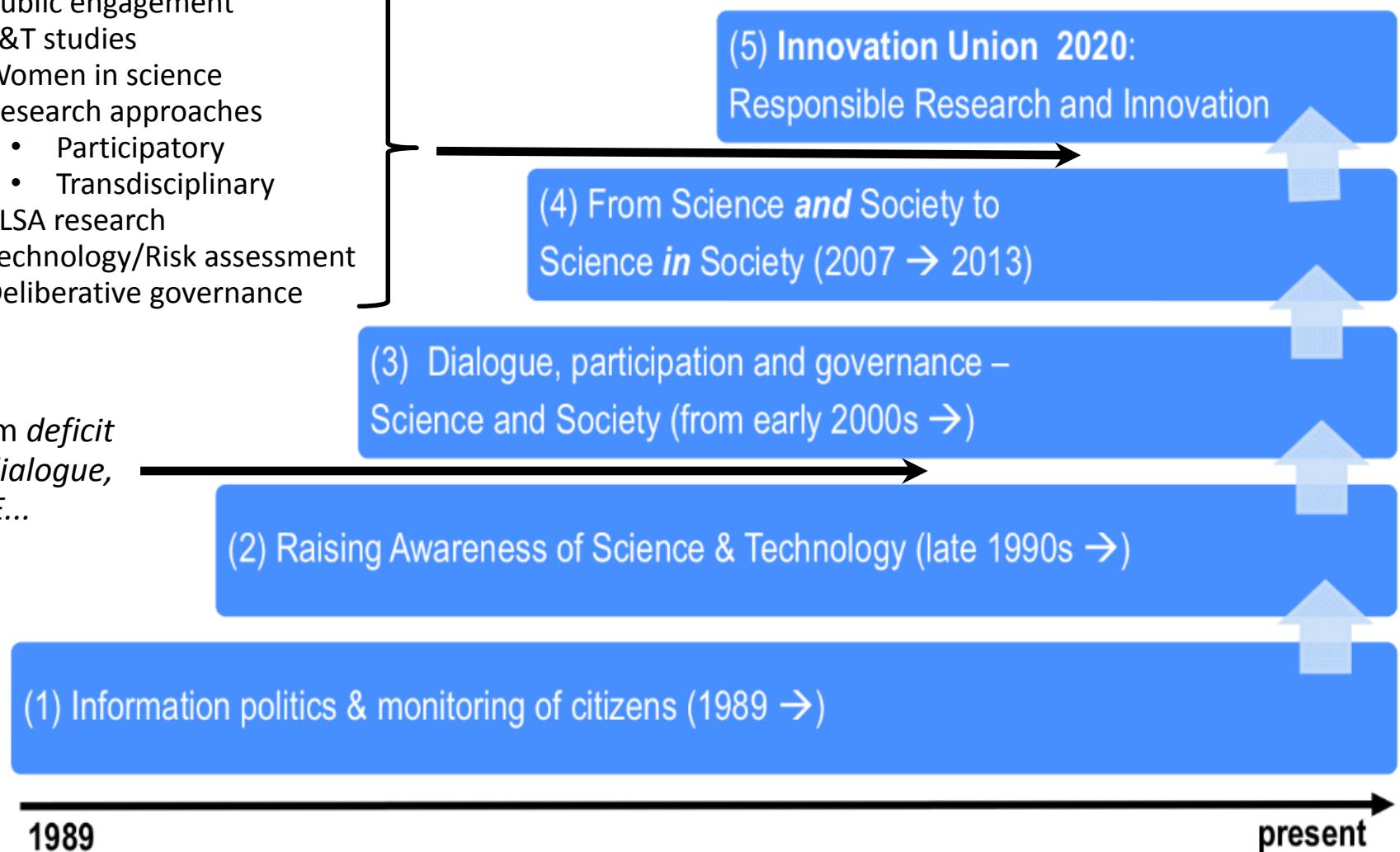
*...there is a revolution happening in the way science works. Every part of the scientific method is becoming an **open, collaborative, and participative process**.*

Search for a smart, **sustainable and inclusive growth of our societies**



- Public engagement
- S&T studies
- Women in science
- Research approaches
  - Participatory
  - Transdisciplinary
- ELSA research
- Technology/Risk assessment
- Deliberative governance

From *deficit*  
to *dialogue*,  
IBSE...



POLÍTICA CIENTÍFICA: Política científica

## España recibe 553 millones de euros del programa Horizonte 2020



Me gusta



Tweet



Durante el primer año del programa Europeo Horizonte 2020, España se ha situado como el quinto país que más fondos recibe de la Unión Europea, con una cifra de retorno de 553,3 millones de euros. Además, las entidades españolas participan en la actualidad en 953 actividades de I+D+i y lideran 101 proyectos de este programa. Estos y otros datos los ha presentado hoy el Ministerio de Economía y Competitividad.

Más información sobre: [Programa](#) [Horizonte 2020](#) [Carmen Vela](#) [I+D+i](#) [ciencia](#) [innovación](#) [Unión Europea](#) [investigación](#) [universidad](#) [Clima](#) [fondos](#)



SINC |

[Seguir a @agencia\\_sinc](#)

| 11 junio 2015 15:40





# HORIZON 2020



## Excellent Science (24.4 B €)

European Research  
Council  
(13.1 B €)

Future and Emerging  
Technologies  
( 2.7 B €)

Marie Skłodowska-Curie  
Actions  
( 6.1 B €)

Research Infrastructures  
( 2.5 B €)

## Industrial Leadership (17 B €)

LEIT = Leadership in  
enabling and industrial  
technologies

- ICT
- Nano, new materials
- Biotechnology
- Space

( 13.5 B €)

Access to Risk Finance  
( 2.9 B €)

Innovation in SMEs  
( 0.6 B €)

## Societal Challenges (29.7 B €)

Health  
(7.5 B €)

Food  
(3.9 B €)

Energy  
(6 B €)

Transport  
(6.3 B €)

Climate  
(3 B €)

Inclusive Societies  
(1.3 B €)

Security  
(1.7 B €)

## Spreading Excellence (0.8 B €)

## Science for Society (0.5 B €)

EIT (2.7 B €)

JRC (1.9 B €)

Euratom (1.6 B €)

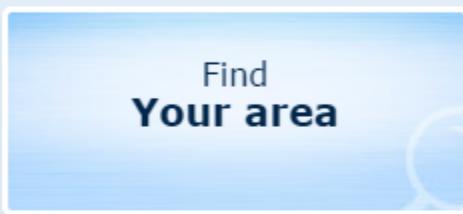


## Sections navigation



Science with and for Society

Responsible research & innovation



Find  
Your area

## Responsible research & innovation

Responsible research and innovation is an approach that anticipates and assesses potential implications and societal expectations with regard to research and innovation, with the aim to foster the design of inclusive and sustainable research and innovation.



Responsible Research and Innovation (RRI) implies that societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society.

In practice, RRI is implemented as a package that includes multi-actor and **public engagement in research and innovation**, enabling easier access to scientific results, the take up of gender and ethics in the research and innovation content and process, and formal and informal science education.

Implementing RRI in Horizon 2020

Responsible research and innovation is key action of the 'Science with and for Society' objective RRI actions will be promoted via Science with and for Society objective via:

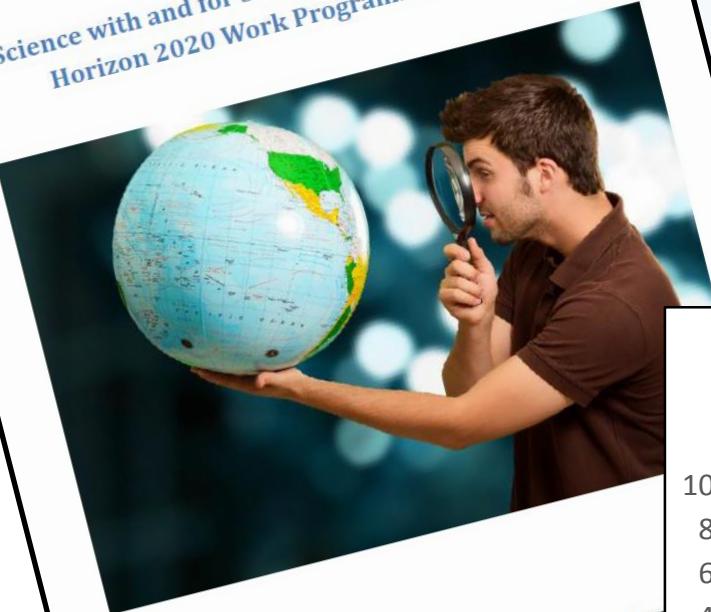
- actions on thematic elements of RRI (public engagement, open access, gender, ethics, science education), and
- via integrated actions that for example promote institutional change, to foster the uptake of the RRI approach by stakeholders and institutions.

RRI is furthermore a 'cross-cutting issue' in Horizon 2020, which will be promoted throughout Horizon 2020 objectives. In many cases, inter- and transdisciplinary solutions will have to be developed, which cut across the multiple specific objectives of Horizon 2020. Within the specific objectives of programme, actions can focus on thematic elements of RRI, as well as on more integrated approaches to promote RRI uptake.

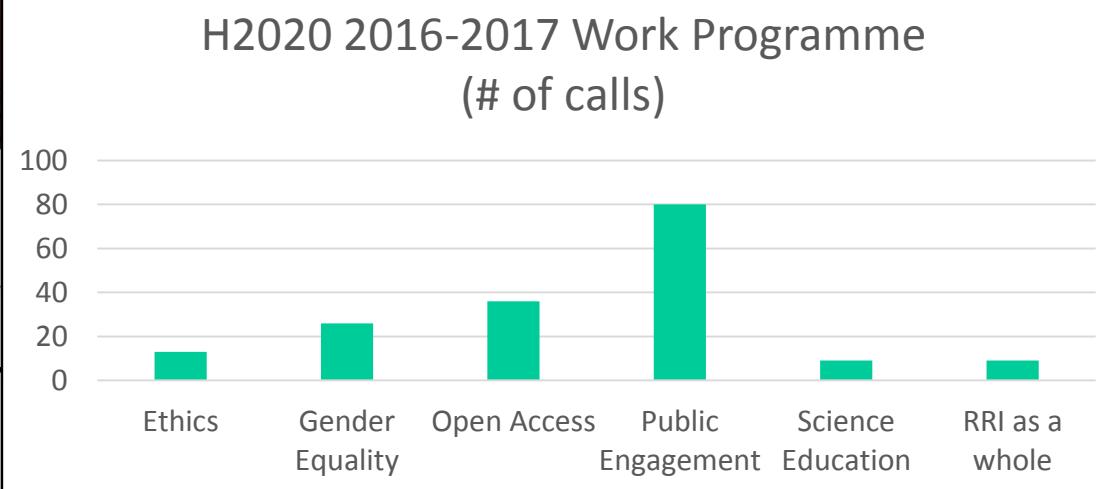


## RRI Opportunities in Horizon 2020

Science with and for Society relevant topics in the Horizon 2020 Work Programme 2016-17



SiS.Net2 is a Horizon 2020 project funded by the European Commission under the grant agreement No 654009. [www.sisnetwork.eu](http://www.sisnetwork.eu)

# | How to put RRI in practice?

Normative conditions for RRI (but not enough...)



GENDER  
EQUALITY

Gender equality in decision-making bodies, in research teams and in research content



ETHICS

Research integrity, plagiarism, ethics education as part of research training, ethics of scientific policy advice, role of ethics committees...



OPEN  
ACCESS

Green and golden routes, EC pilot programs on open access and data management





## A crucial element for RRI

### Active actors of research

- Science shops, patients organizations, NGOs

### Research funders

- Crowdfunding, patients organizations

### Set up R&I agendas

- NGOs, patients organizations, *trade unions, citizen meetings*

### Supervise R&I

- Assessment committees, NGOs, patients and consumers organizations

### Collect data (*citizen science*)

- Astronomy, environmental sciences, natural hazards...

### Disseminate R&I results

- Journalists, communicators, museums...

From:



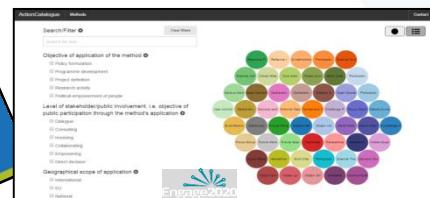
## RRI Hubs



# Training tools



## Catalogues of tools



## Dedicated portals



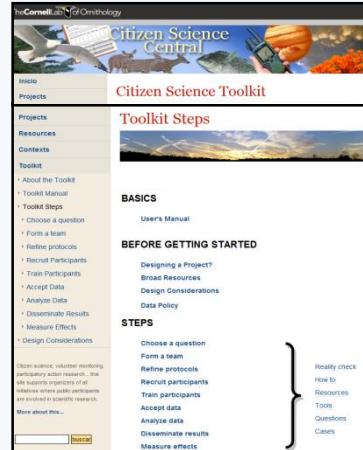
Your gateway to gender and science resources

## Registry of Open Access Repositories

Home	About	Search	Search Content	Browse
<a href="#">Login</a>	<a href="#">New Entry</a>	<a href="#">Create Account</a>		



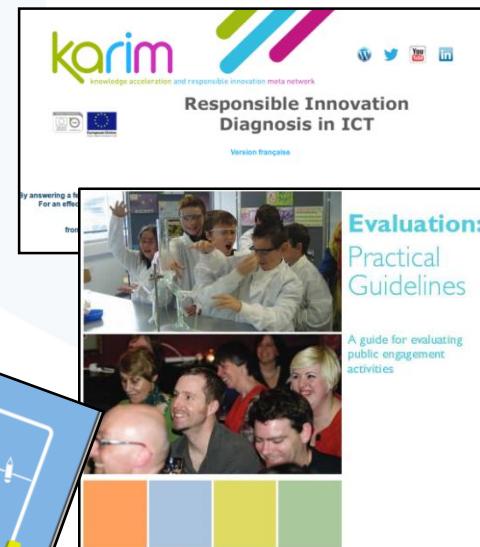
## Dissemination & advocacy tools

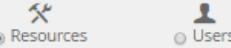


# Tools to plan & implement



## Self-assessment tools





*I am looking for...*

Type here what you are looking for

SEARCH

UPLOAD A RESOURCE

**Filter resources by:**

Type:  Tool  Inspiring Practice  Project  Library Element

Useful for:  Policy Makers  Research Community  Education Community  Business & Industry  Civil Society Organizations

Address:  Ethics  Gender Equality  Governance  Open Access  Public Engagement  Science Education

more filters

Showing 1-12 of 404 results



**Action Catalogue**  3 

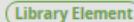


**Engaging the Young with Responsible Research and Innovation**  2 



**US Office of Research Integrity Resources**  1 



**Strengthening Community University Research Partnerships: Global Perspectives**  1 



**ETHICSWEB. Inter-connected European information and documentation system for ethics and science: European Ethics Documentation Centre**  1 



**Agenda Eau**  1 



**SATORI. Stakeholders Acting Together On the ethical impact assessment of Research and Innovation**  1 



**SoScience! driving responsible innovation**  1 



**Fundación Ibercivis**  1 

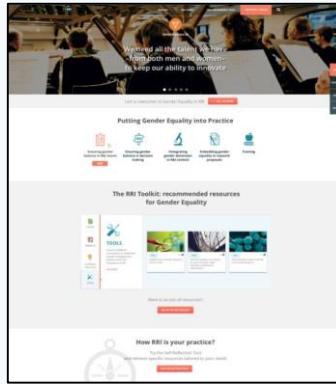
I need a guide to implement RRI in my H2020 research proposal

How can I engage social actors in my research project?

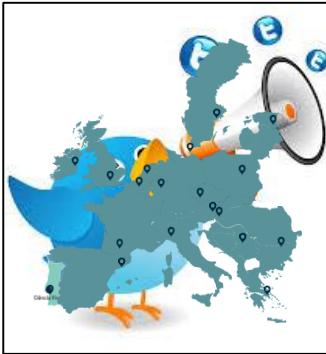
My university needs a gender equality plan and a research integrity code



# An RRI Toolkit: what for?

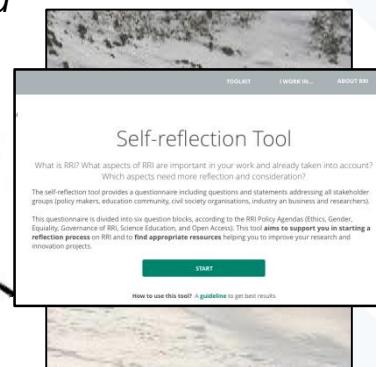


## Landing A crash course on RRI



Advocating &  
disseminating

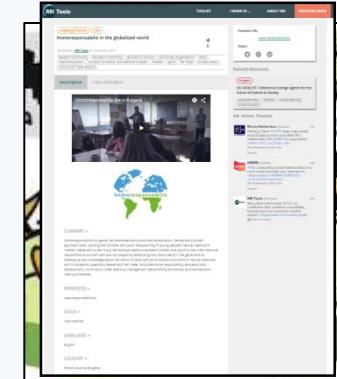
Spread the word  
on RRI



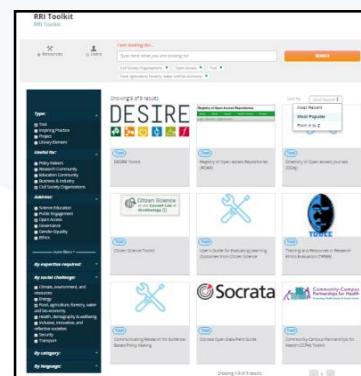
Reflecting  
Examine and retrace  
your RRI route



Implementing  
Specific actions  
to become RRI



Learning  
How others  
do RRI



Implementing  
Specific actions  
to become RRI





[www.rri-tools.eu](http://www.rri-tools.eu)

@RRITools

dgarcia@fundaciolacaixa.es  
@rocambloguesco

**RRI Toolkit**  
Built with and for the Community of Practice

 Resources     Users    *I am looking for...*    Type here what you are looking for    **SEARCH**    **UPLOAD A RESOURCE**

**Filter resources by:**

**Type:**    
■ Tool  
■ Inspiring Practice  
■ Project  
■ Library Element

**Useful for:**    
■ Policy Makers  
■ Research Community  
■ Education Community  
■ Business & Industry  
■ Civil Society Organizations

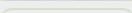
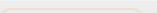
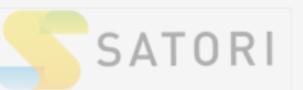
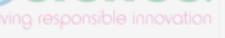
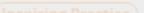
**Address:**    
■ Ethics  
■ Gender Equality  
■ Governance  
■ Open Access  
■ Public Engagement  
■ Science Education

more filters 

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 1 2 3 4 

**Sort by:**  **Most Popular** 

 <b>Irresistible</b> Engineering the Young with Responsible Research and Innovation  3  Action Catalogue	 <b>THE OFFICE OF RESEARCH INTEGRITY</b>  1  US Office of Research Integrity Resources	
 <b>Strengthening Community University Research Partnerships: GLOBAL PERSPECTIVES</b>  1  Strengthening Community University Research Partnerships: Global Perspectives	 <b>ethicsweb</b>  1  ETHICSWEB. Inter-connected European information and documentation system for ethics and science: European Ethics Documentation Centre	 <b>Agenda eau</b>  Réseau pour la recherche de demain  1  Agenda Eau
 <b>SATORI</b>  1  SATORI. Stakeholders Acting Together On the ethical impact assessment of	 <b>SoScience!</b>   1  SoScience	 <b>ibercivis</b>   1  Fundación Ibercivis