

Perquè en diuen RRI quan volen dir...

Daniel García Jiménez



El científico Francisco Barral, en un campo con trigo transgénico apto para celiacos.

Los problemas para transferir los resultados de la investigación a las empresas provocan el abandono de los hallazgos o su comercialización en el extranjero

Grandes inventos atrapados en un cajón

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Científicos que desconocen el mercado

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Mundos imitables

Para que se las...
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Para que se...
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El volcán Mauna Kea...
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comercialización, Plan...
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CIENCIA Y TECNOLOGÍA



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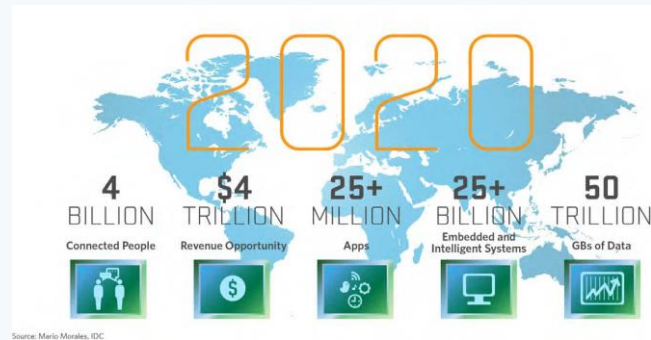
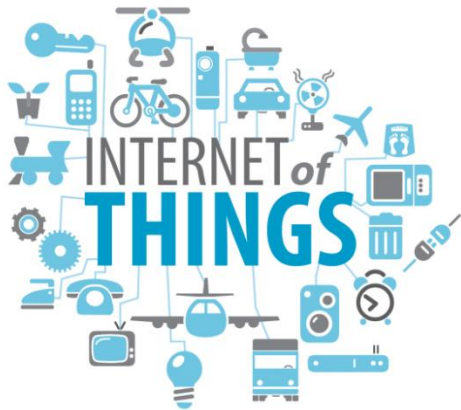
Las ventajas de La Palma

En Canarias todo sería...
En Canarias todo sería...
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Hawái que no pueda...
Hawái que no pueda...
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es que en los últimos...
es que en los últimos...
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Millennium Development Goals



The Silver Economy

Europe is ageing

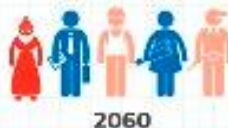


By 2060
one in three Europeans
will be over 65.



Today

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



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.



Cal
2.

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.**

Electronic Health Record



General Practitioner
monitors online progress



Social Services
activate regular visits
of carer and social worker



(*) 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



Work for more years



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



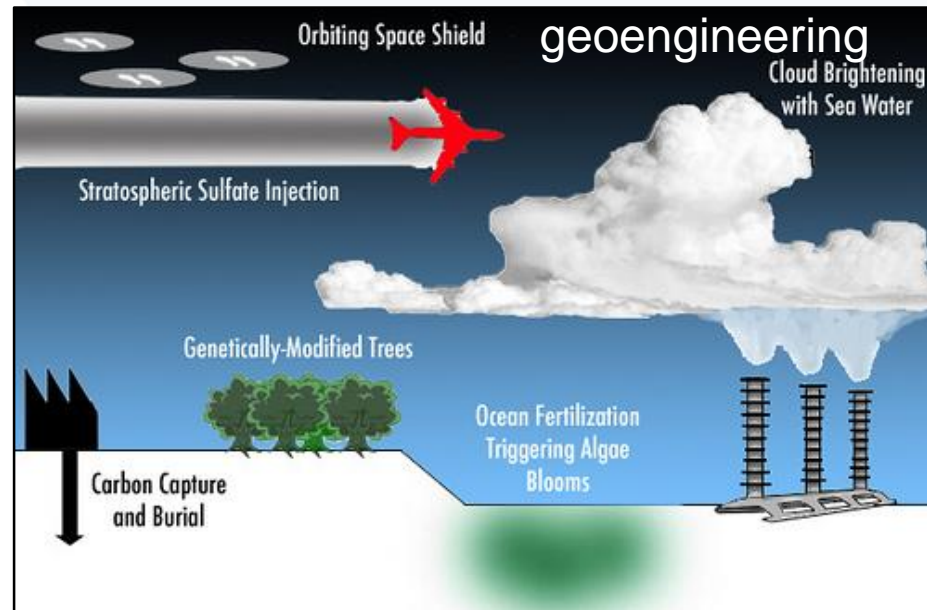
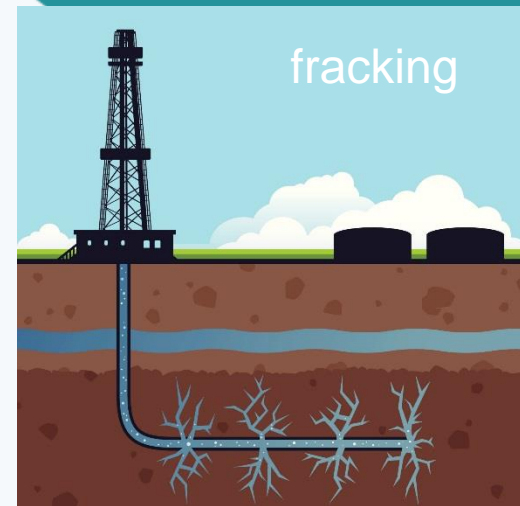
The Silver economy offers
**new highly skilled
tech jobs**



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



Brave new world?



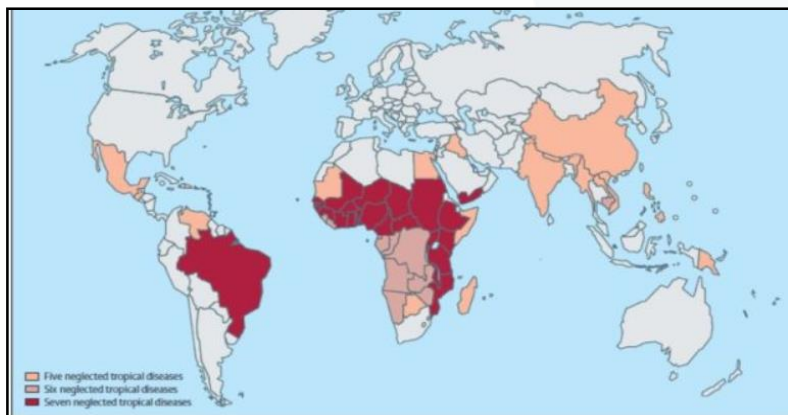
smart meters



- 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



Neglected diseases affecting
1 billion people in the world

*The Guardian.
Special Report. Aids.*

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

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



Publishing
pressure

Reproducibility

NATURE | NEWS



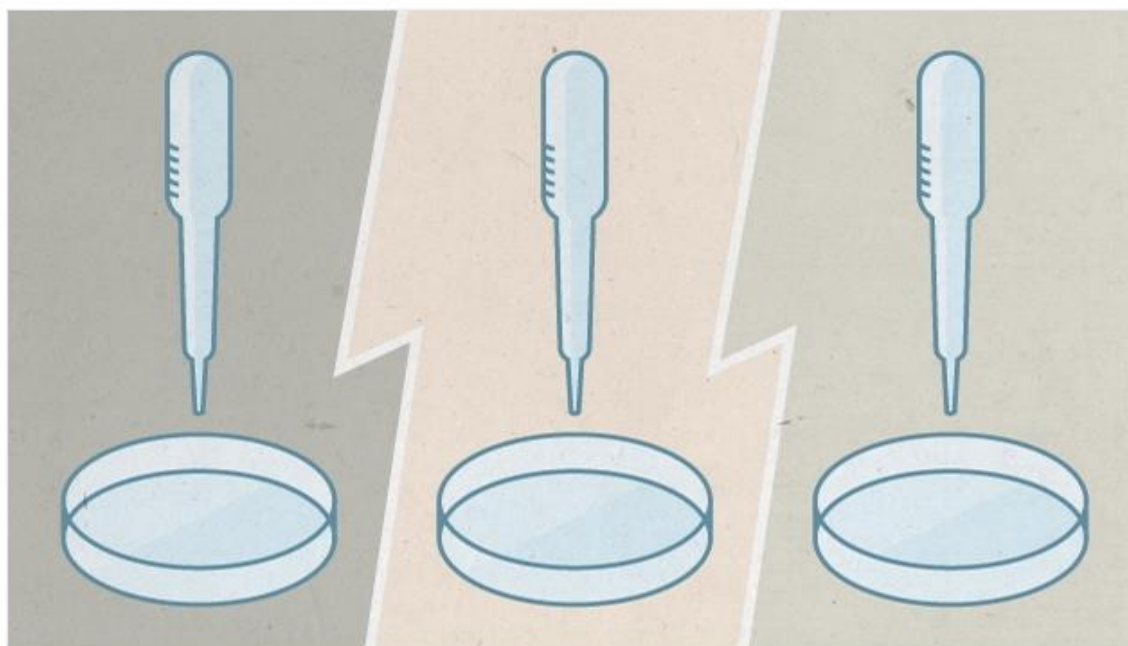
Irreproducible biology research costs put at \$28 billion per year

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*¹ that attempts to quantify the causes, and costs, of irreproducibility.

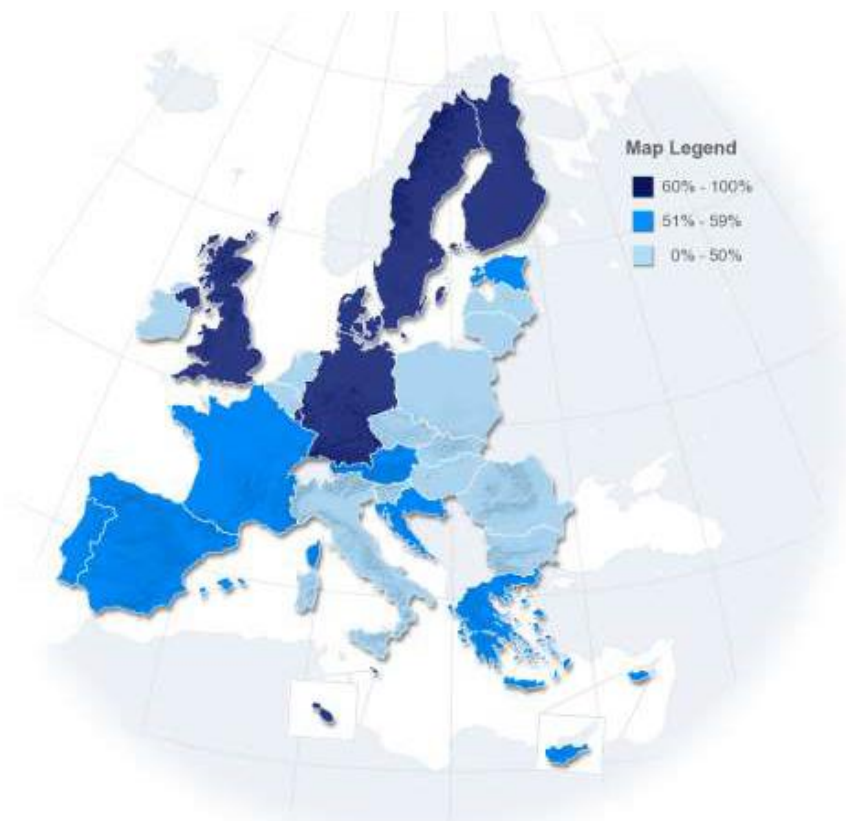


77% S&T positive impact in society

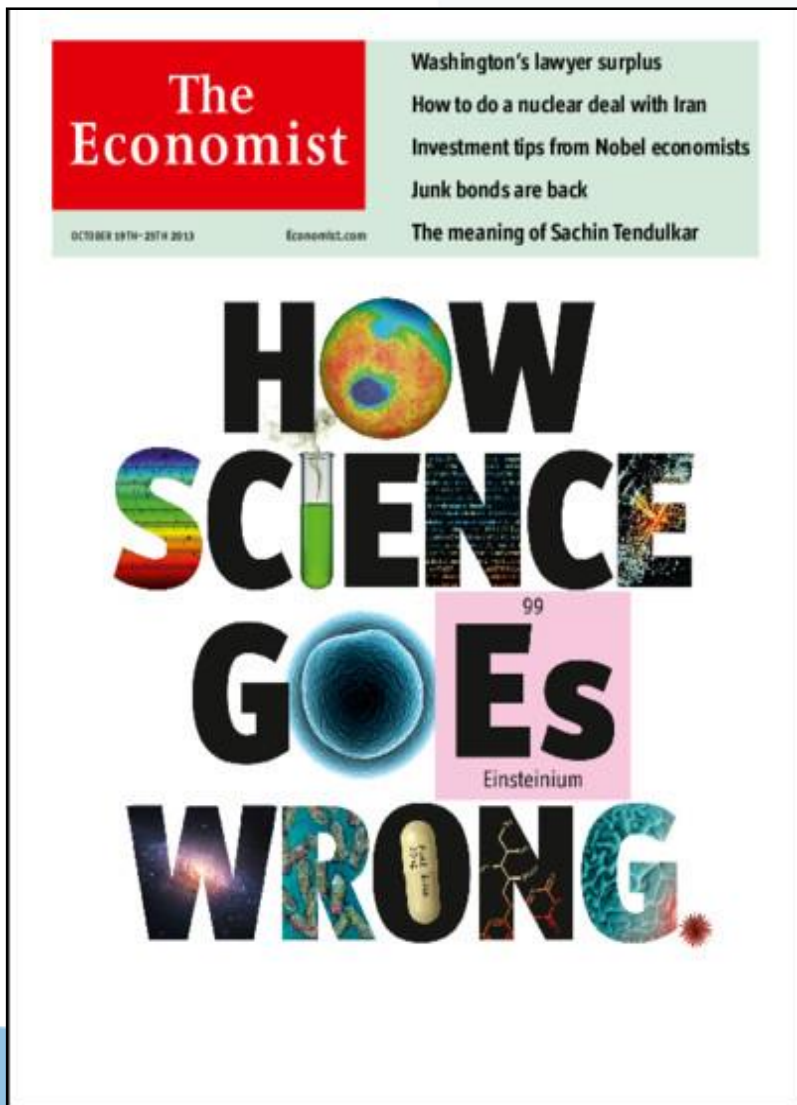
62% S&T changes too fast our life

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

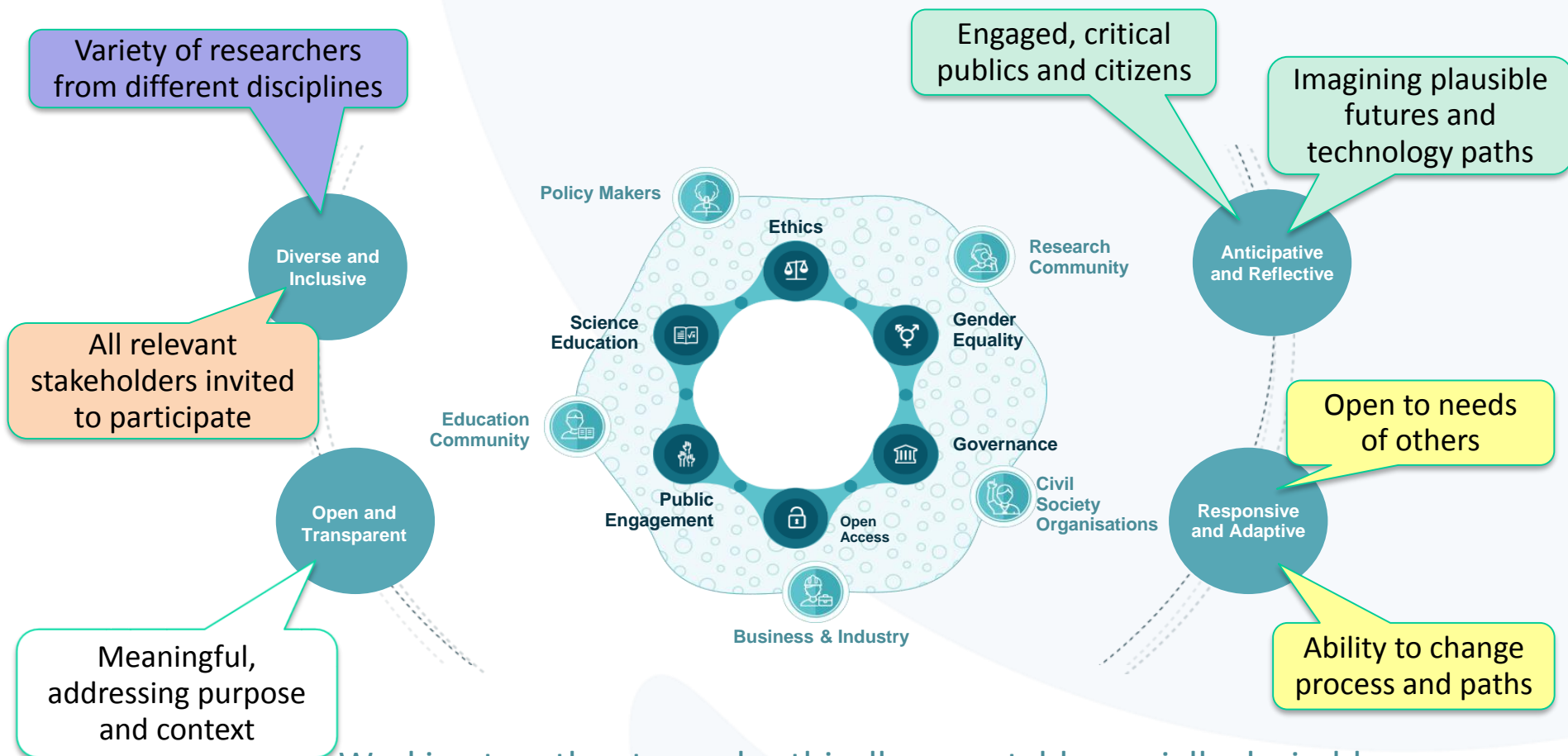
28% 40 point gap 68%

Favour use of animals in research

47% 42 point gap 89%

| 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

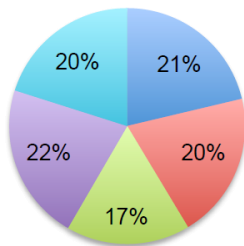
| The bright side: opportunities for RRI

- Bring science & society closer
- Strengthen 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...)

The dark side: obstacles for RRI

27 workshops
30 countries
400+ participants
48-52% women-men

Workshop attendees by stakeholder group



■ POL
■ EDU
■ IND
■ RES
■ CSO



The dark side: obstacles for RRI

RRI is the end of 'true' science!

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

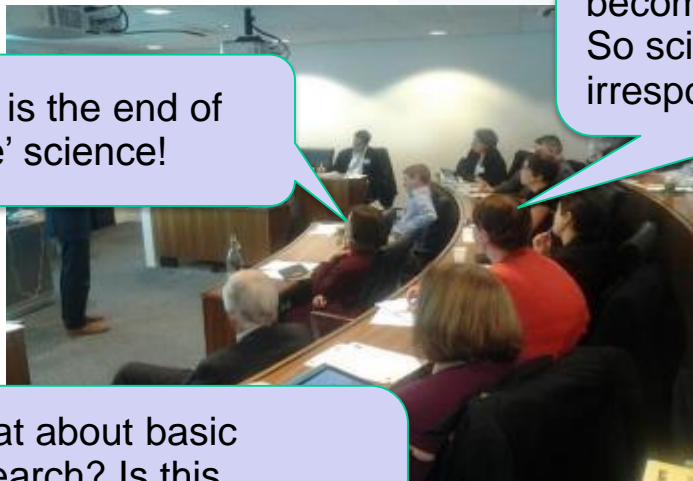
What about basic research? Is this applicable to all fields or just to applied research?

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

That's too complicated and abstract for me!

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

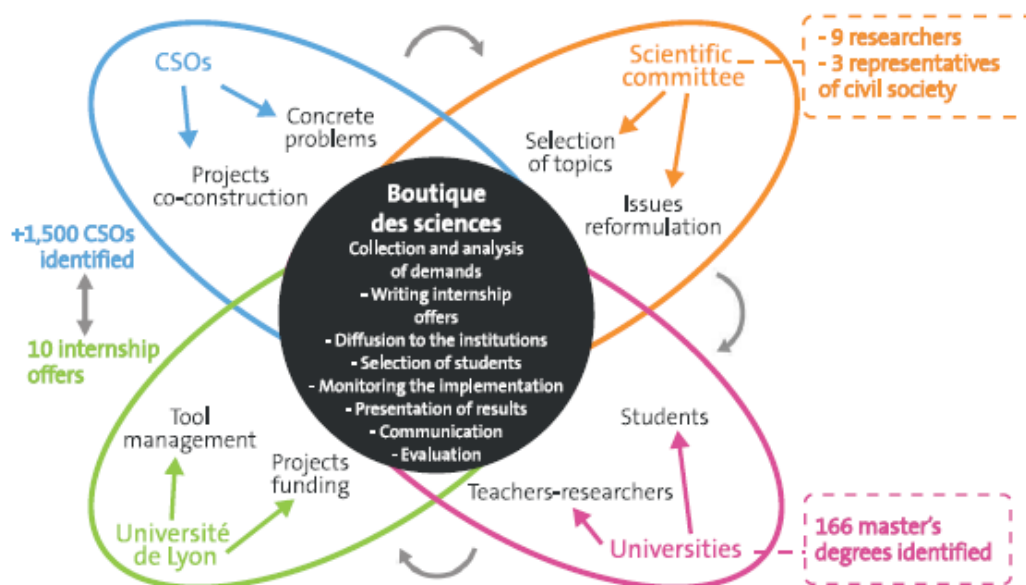
We first need to educate citizens before they can participate!



What is RRI... in practice?



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

 **CSIC**
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

icm Institut
de Ciències
del Mar





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| The times they are a changin'...



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'...

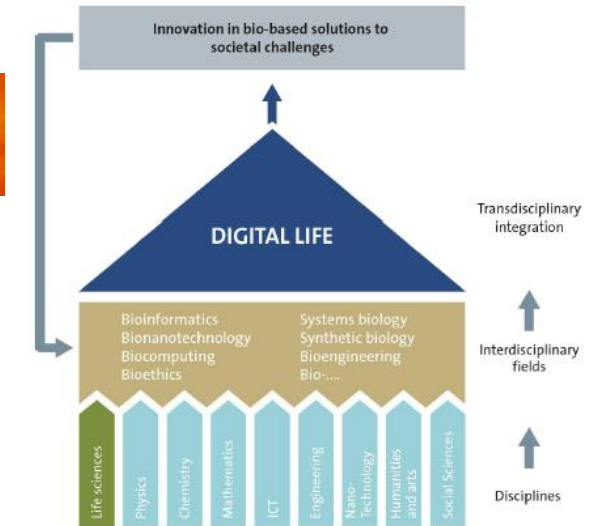


Figure 2: Illustration of the scope and content of "Digital Life – Convergence for Innovation"

EPSRC

Engineering and Physical Sciences
Research Council

Anticipate, reflect, engage and act (AREA)

Responsible Research in Action

"I consider every aspect of my research,
including what happens with it outside of the lab."

The work of a few can impact the lives of thousands.
Think about the impact you want your work to have.

| The times they are a changin'...



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

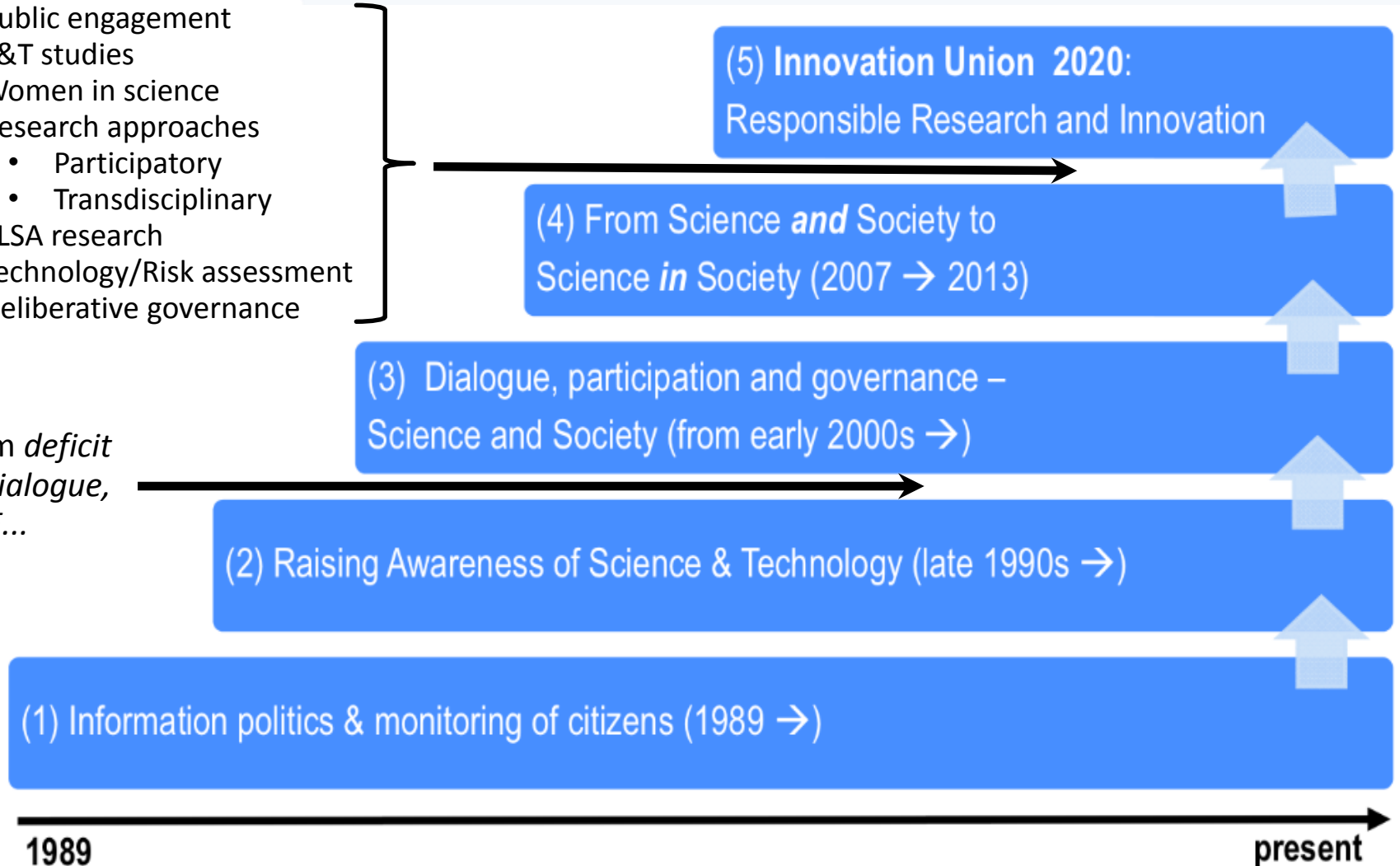
*...there is a revolution happening in the way science works. Every part of the scientific method is becoming an **open, collaborative, and participative process**.*

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

Nothing new under the sun

- 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



g+1 0

Me gusta 206

Tweet 57

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

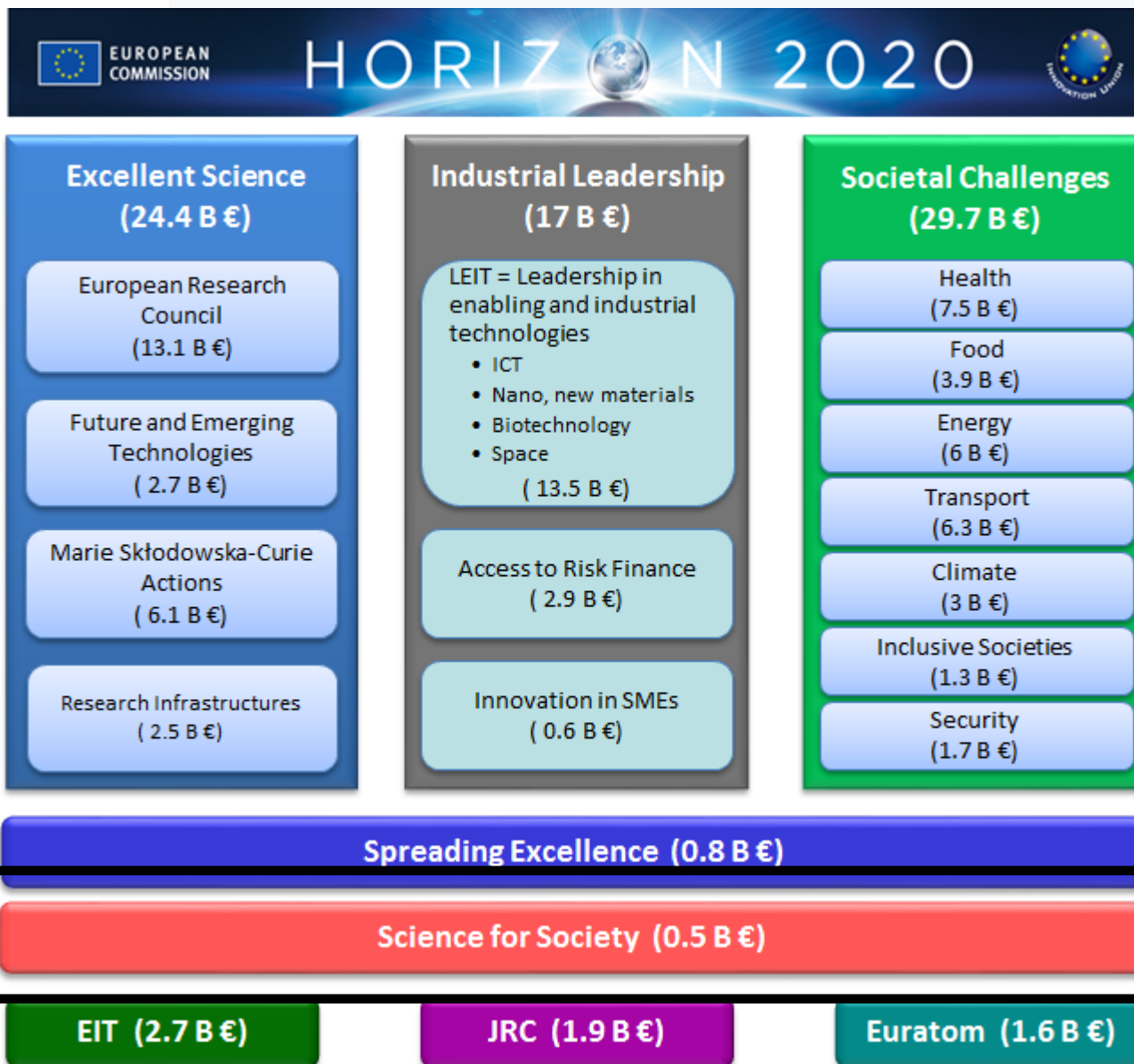


SINC |

Seguir a @agencia_sinc

| 11 junio 2015 15:40





[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.

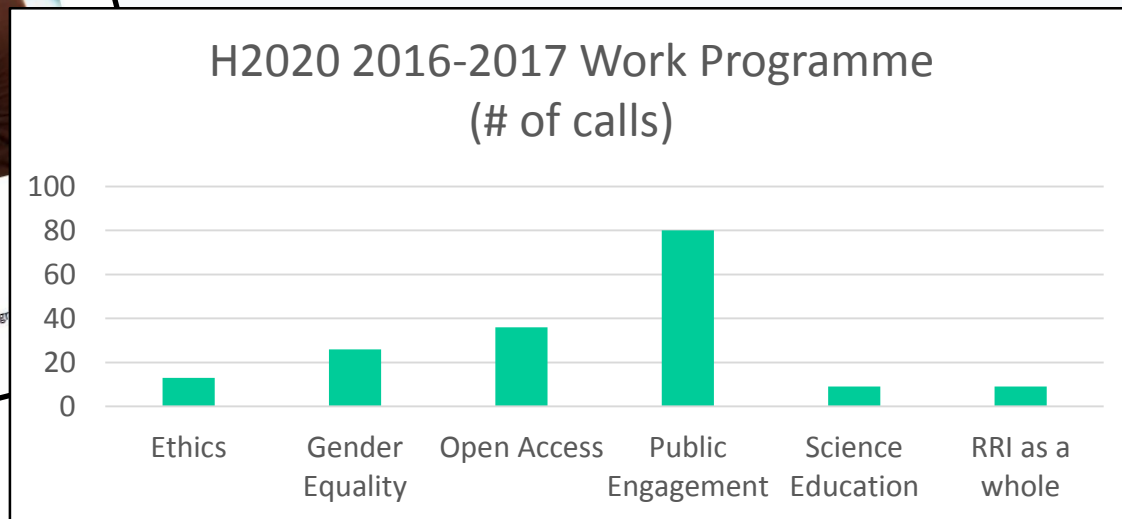
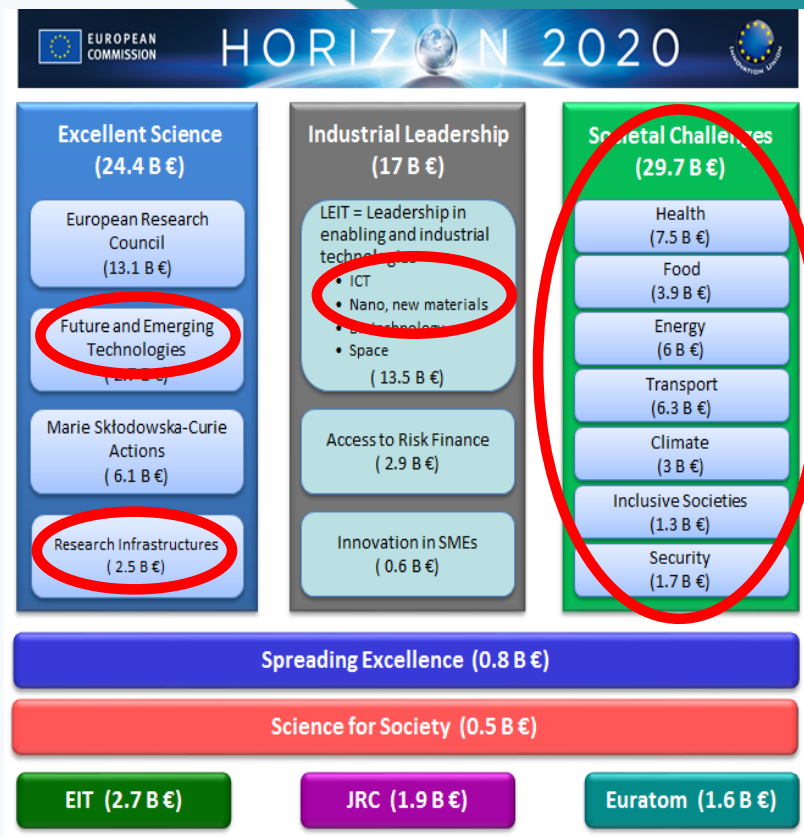
In practice, RRI is implemented as a package that includes multi-actor and [public engagement in research and innovation](#), enabling easier access to scientific results, the take up of gender and ethics in the research and innovation content and process, and formal and informal science education.

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.



| 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

| How to put RRI in practice?



PUBLIC
ENGAGEMENT

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:

INNOVATIVE
TOOLS

TRANSFORMATIVE
TRAINING

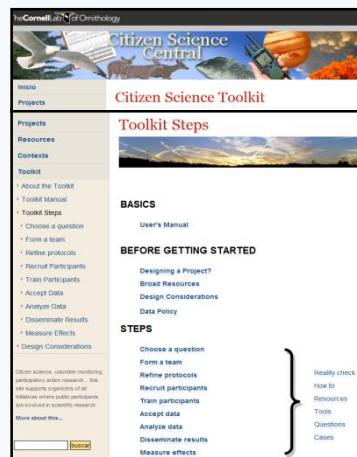
WIDE
DISSEMINATION

RRI Hubs



Training tools

Promoting Open Science among Young Researchers: Challenges and Opportunities (4 workshops)



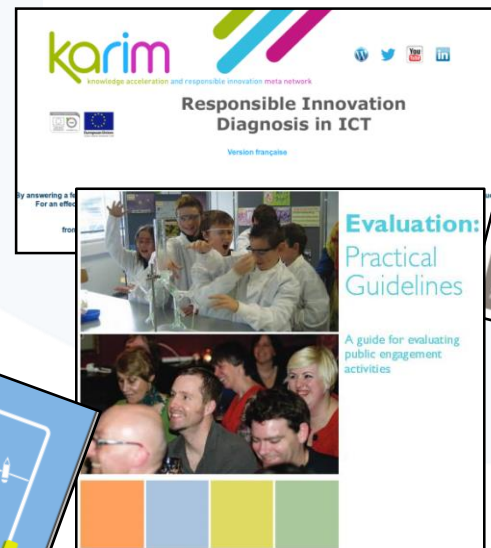
Tools to plan & implement



Catalogues of tools



Self-assessment tools



Dedicated portals

GenPORT

Your gateway to gender and science resources

Registry of Open Access Repositories

Home About Search Search Content Bro

Login New Entry Create Account

Dissemination & advocacy 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



Tool

Action Catalogue

3

1 2 3 4



Project

IRRESISTIBLE. Including Responsible Research and innovation in cutting Edge Science and Inquiry-based Science education to improve Teacher's Ability of Guiding Learning Experiences

2

Sort by: Most Popular



Tool

US Office of Research Integrity Resources

1



Library Element

Strengthening Community University Research Partnerships: Global Perspectives

1



Project

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

1



Inspiring Practice

Agenda Eau

1



Project

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

1



Inspiring Practice

SoScience

1



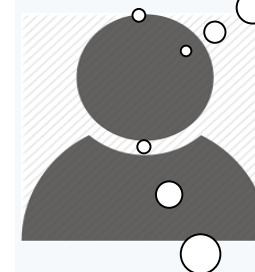
Inspiring Practice

Fundación IberoCivis

1

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

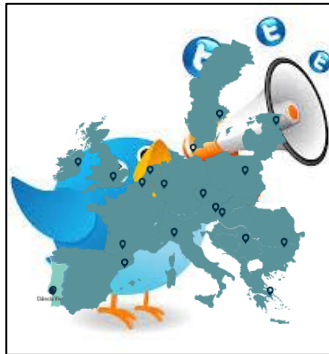
How can I engage social actors in my research project?



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

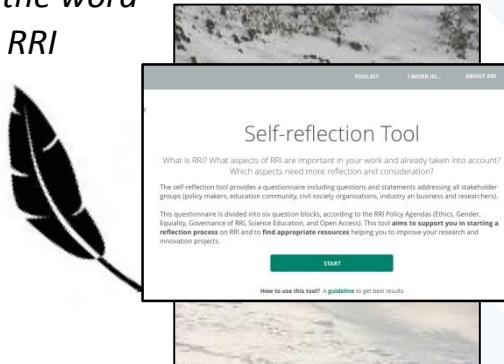


An RRI Toolkit: what for?



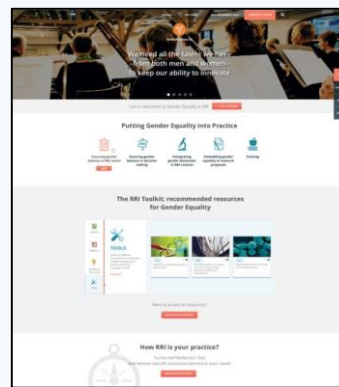
**Advocating &
disseminating**

*Spread the word
on RRI*



Reflecting

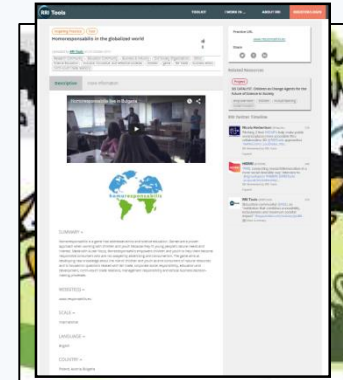
*Examine and retrace
your RRI route*



Landing

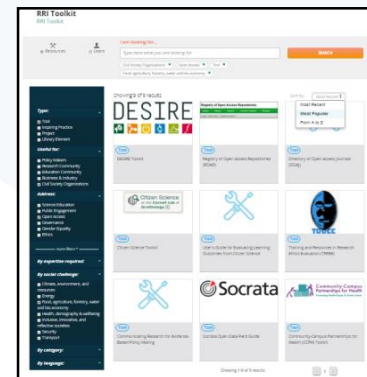
*A crash course
on RRI*

**help actors to learn through
a collaborative, iterative process
how to research and innovate
more responsibly**



Learning

*How others
do RRI*



Implementing

*Specific actions
to become RRI*





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**

Filter resources by:

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1 2 3 4

Sort by: Most Popular

Tool 3 likes
Action Catalogue

Project 2 likes
IRRESISTIBLE. Including Responsible Research and innovation in cutting Edge Science and Inquiry-based Science education to improve Teacher's Ability

Tool 1 like
US Office of Research Integrity Resources

Library Element 1 like
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Project 1 like
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Inspiring Practice 1 like
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Project 1 like
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Inspiring Practice 1 like
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