



Investigació i Innovació Responsables

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Jornada La Unió. Barcelona 4/2/2016

Recerca i Coneixement. Compromesos amb el futur

Recerca



Innovació



Talent



Societat



PewResearchCenter *Internet, Science & Tech*

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



Biomedical sciences:

Safe to eat genetically modified foods

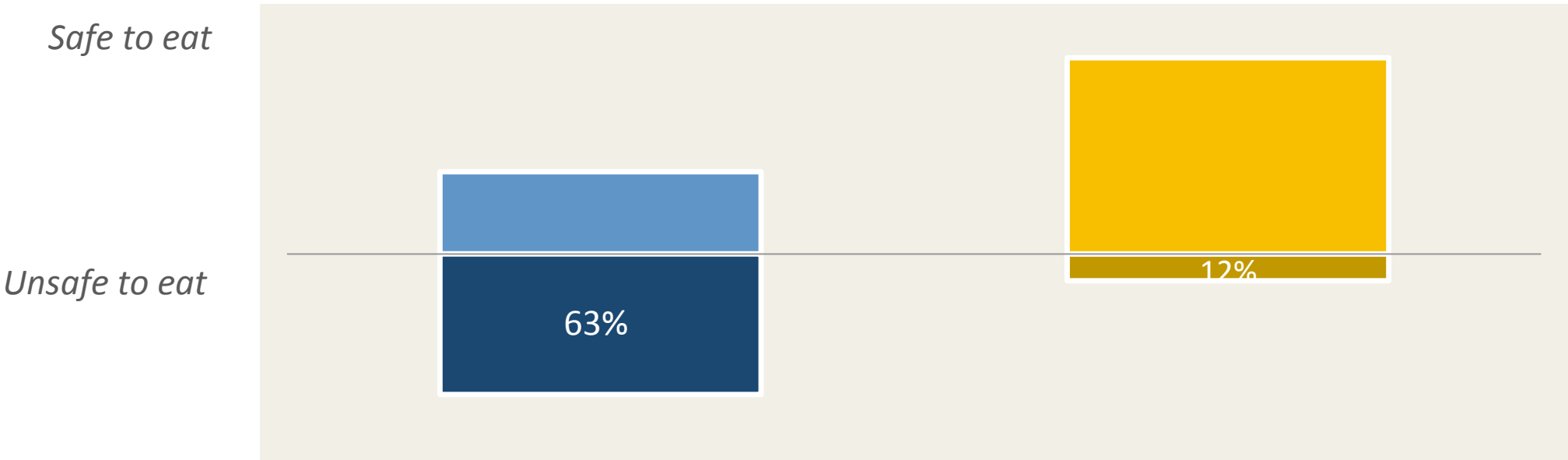
Favor use of animals in research

Safe to eat foods grown in pesticides

Childhood vaccines (e.g. MMR) should be required

Safe to eat genetically modified foods

37% ● 51 point gap ● 88%



● U.S. adults

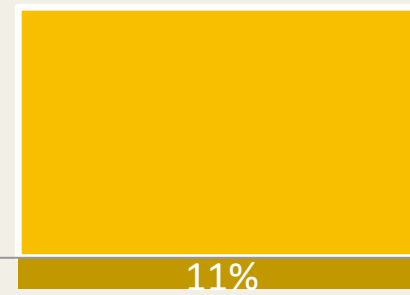
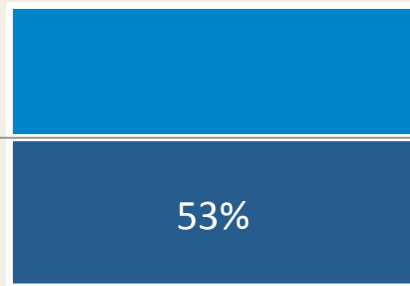
● ASSS scientists

Favor use of animals in research

47% ● 42 point gap ● 89%

Favor animal research

Oppose animal research

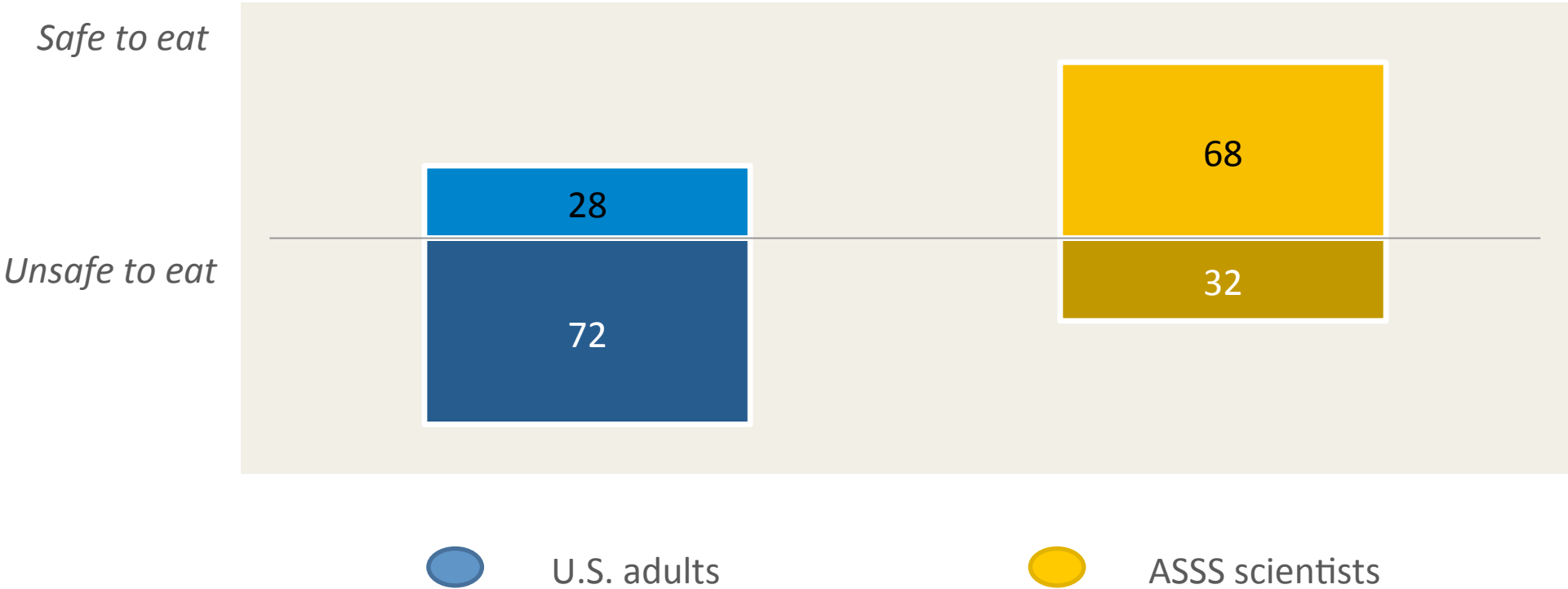


● U.S. adults

● ASSS scientists

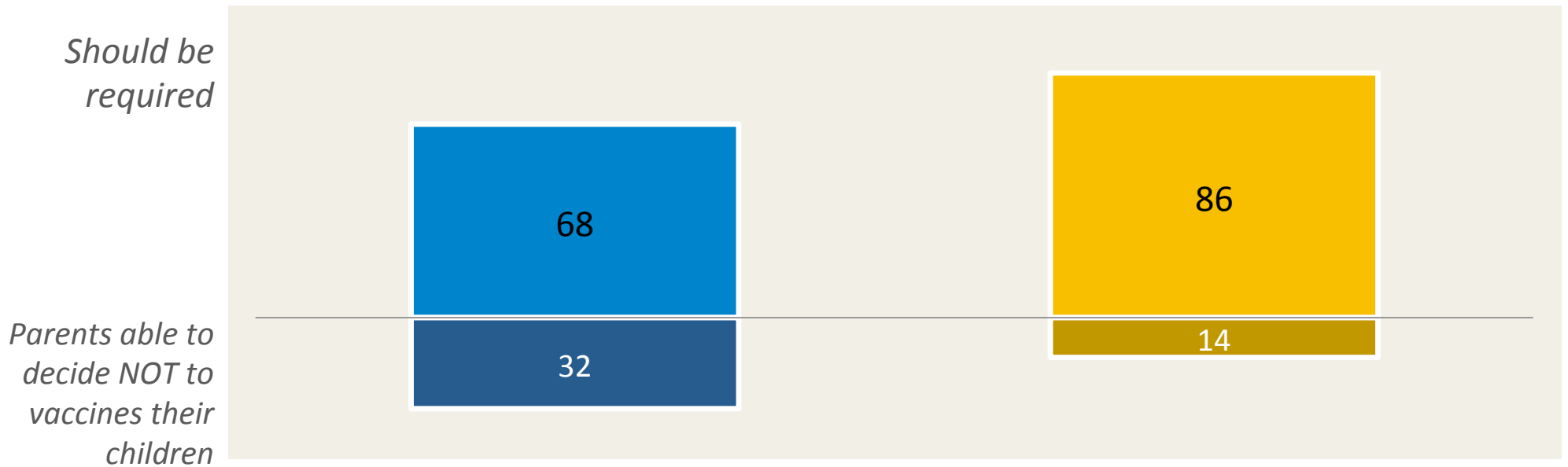
Safe to eat foods grown with pesticides

28% ● 40 point gap ● 68%



Childhood vaccines should be required

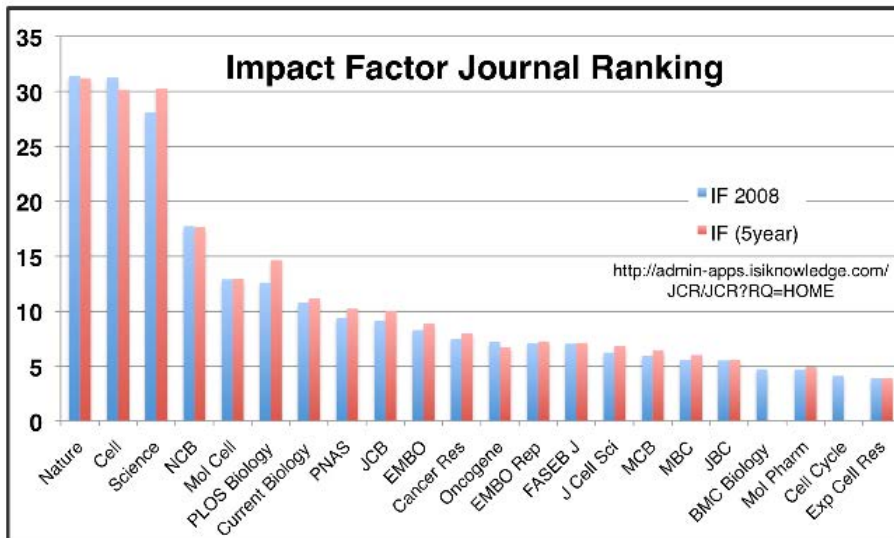
68% 18 point gap 86%



U.S. adults

ASSS scientists

- Impacte científic
- Impacte econòmic
- **Impacte social?**



Medical Research: What's it worth?

Estimating the economic benefits
from medical research in the UK



Health Economics Research Group (HERG)
Brunel University
Office of Health Economics (OHE)
RAND Europe

For the Medical Research Council,
the Wellcome Trust and the
Academy of Medical Sciences
November 2008



Programes de Ciència i Societat

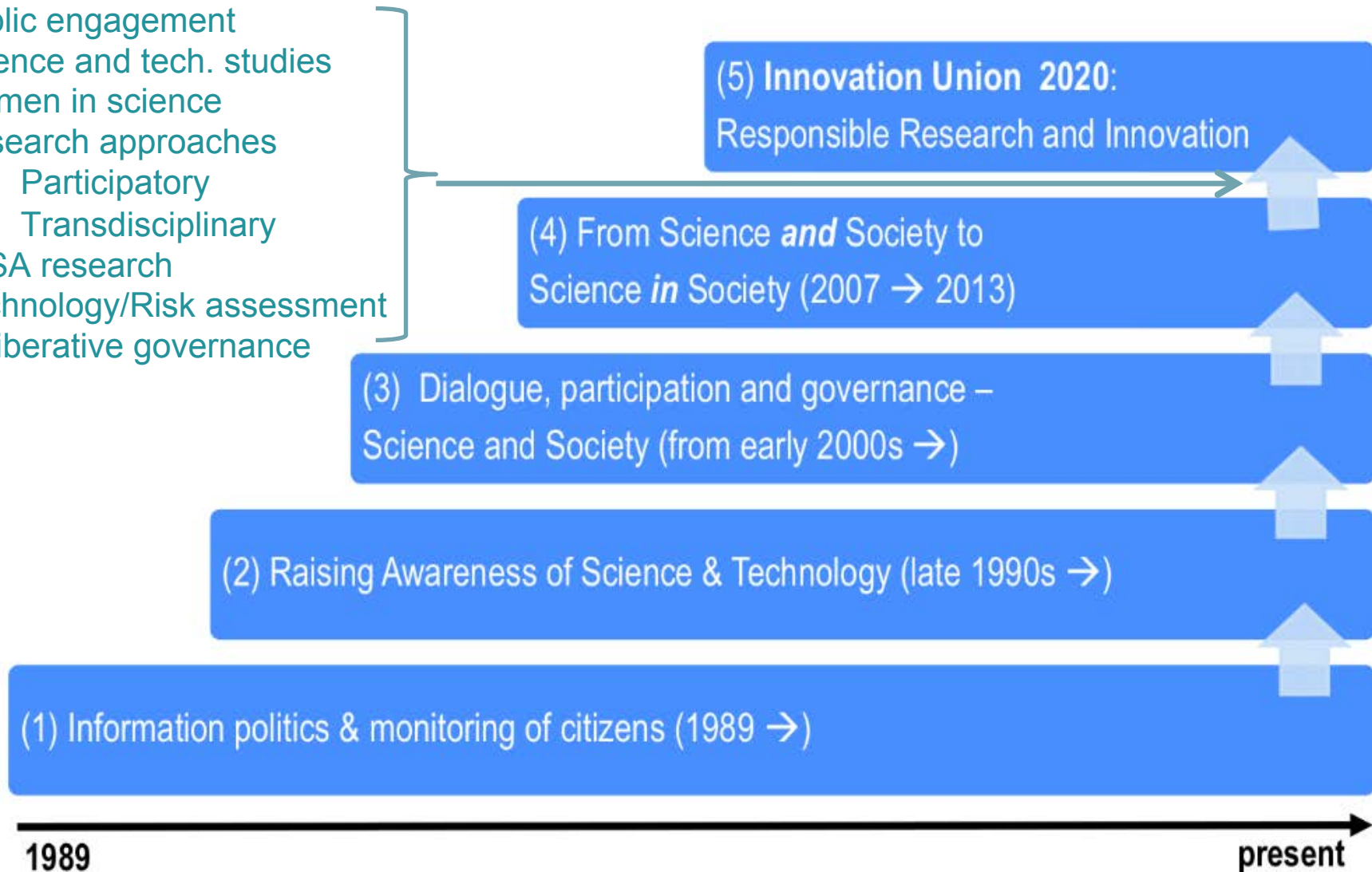
(2) Raising Awareness of Science & Technology (late 1990s →)

(1) Information politics & monitoring of citizens (1989 →)

1989

present

- Public engagement
- Science and tech. studies
- Women in science
- Research approaches
 - Participatory
 - Transdisciplinary
- ELSA research
- Technology/Risk assessment
- Deliberative governance





Responsible Research and Innovation

“We need ambition at a policy level to support the best science *for* the world and not just the best science *in* the world”

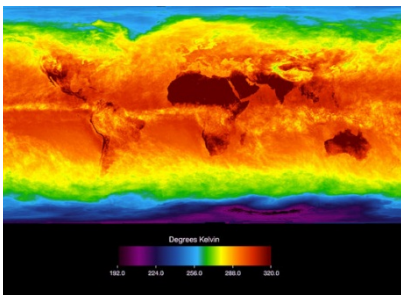
*Morten Østergaard “Science in Dialogue Conference”.
Opening session. Denmark*

- 1. Què i perquè RRI?**
- 2. Cóm RRI? RRI Tools.**
- 3. Futur de la RRI**

Què és la Investigació i innovació responsable (RRI)

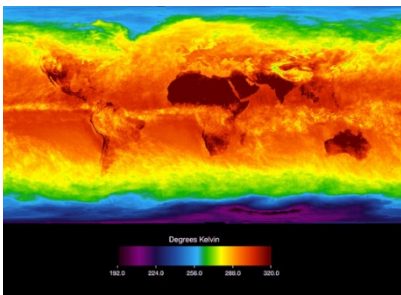
"Responsible Research and Innovation is a **transparent, interactive process** by which societal actors and innovators become **mutually responsive** to each other with a view to the **(ethical) acceptability, sustainability, and societal desirability** of the innovation process and its **marketable products** (in order to allow a proper embedding of scientific and technological advances in our society)"

Von Schomberg definition, 2011



Recerca i innovació responsable a Horitzó 2020

- *Europe's ability to respond to **social challenges**. (EC)*
- Promou processos de recerca i innovació basats en un **diàleg permanent** entre els diferents actors: investigadors, innovadors, indústria, societat civil i entorn educatiu cercant la **co-responsabilitat**.
- Promou **l'acceptibilitat ètica, la sostenibilitat i la desitjabilitat social** dels processos d'innovació i dels seus productes.
- Es un ampli paraigües de diferents polítiques que tenen a veure amb la relació entre la ciència i la societat com **l'educació científica, la igualtat de gènere, l'ètica a la recerca i l'accés obert als resultats**.
- Un concepte clau a Horitzó 2020.





RRI across Horizon 2020



Engagement



Gender Equality



Science Education



Ethics



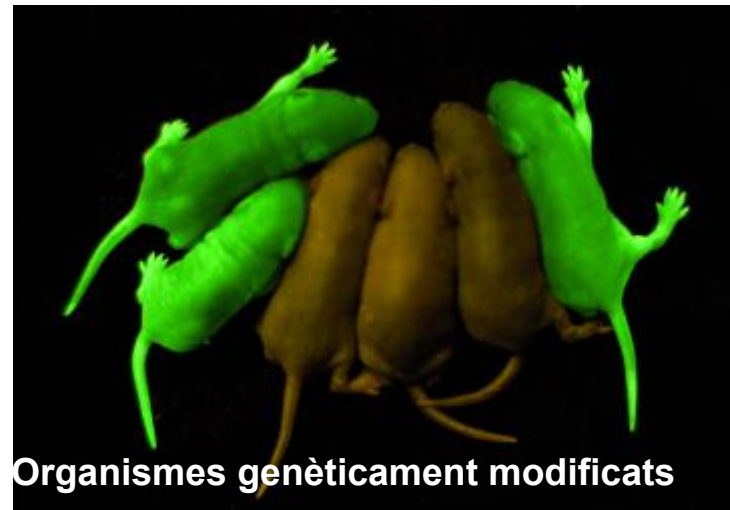
Open Access

Europe's ability to respond to **social challenges**.

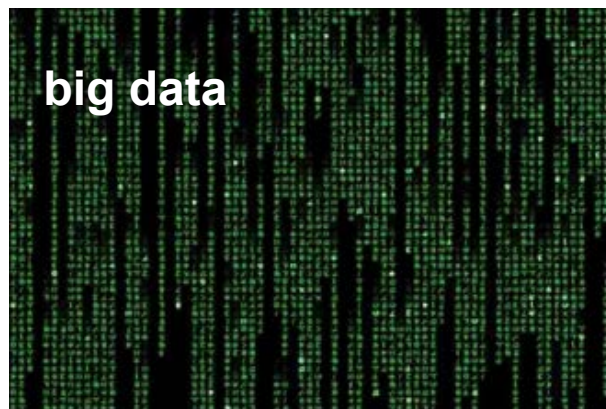


La ciència i la tecnologia
aporten innovacions que
milloren la qualitat de
vida i ens ajuden a
enfocar els grans **reptes
socials**





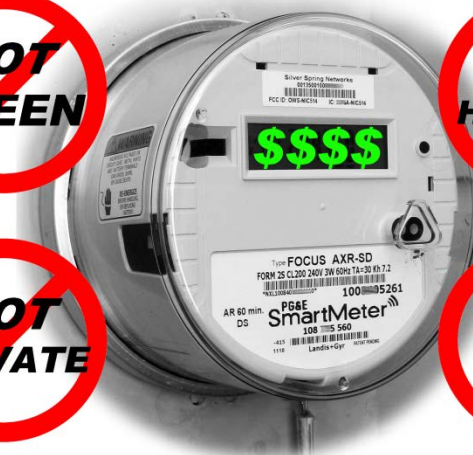
**Però algunes
innovacions fallen,
tenen
conseqüències
negatives o son
controvertides**



Acceptabilitat ètica i desitjabilitat social:



**SMART METERS
DANGER**
Microwave Radiations



Sostenibilitat... La major part de recerca farmacèutica mundial es dirigeix a malalties del món "ric"

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 reserach and development of new drugs

Less than

10%

of this is spent on

90%

of the world's health problems

Newdrugs are needed for: sleeping sickness, dengue fever, malaria, schistosomiasis, tuberculosis, chagas disease, lymphatic filariasis, leishmaniasis, leprosy, onchoceriiasis.

Diàleg permanent... la societat vol participar de les decisions de la ciència

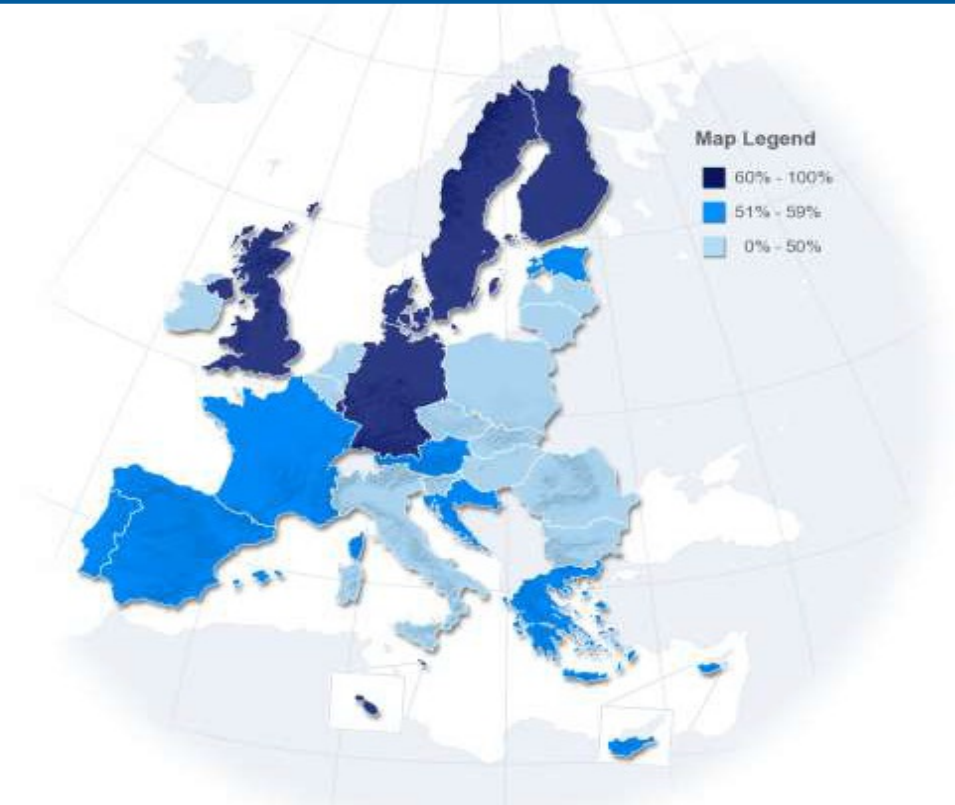
77% of Europeans believe that science and technology have a **positive impact** in society

62% agree that science makes our way of life **change too fast**

- **55% think that public dialogue is required when it comes to decisions made about science and technology**

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%

What is the level of involvement citizens should have when it comes to decisions made about science and technology?
Answer: Public dialogue is required (Req: 55% - Not Req: 37%)



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

Diàleg permanent ...

Associacions de
pacients pioneres





2.- Cóm RRI?



www.rri-tools.eu

COORDINATOR	"la Caixa" Foundation	WP2 LEADER	
DEPUTY COORDINATOR	IrsiCaixa Institut de Recerca de la Sida	WP4 LEADER	
HUBS COORDINATOR	Ciencia Viva	WP5 LEADER	
WP1 LEADER	VU UNIVERSITY AMSTERDAM	WP6 LEADER	

everis <small>an NTT DATA Company</small>	NETWORKS	European Schoolnet		WILA BONN	efc EUROPEAN FOUNDATION CENTRE
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fondazione cariplo	King Baudouin Foundation <small>Working together for a better society</small>	FNP <small>Foundation for Polish Science</small>				
mobilis	science animation	Techmania Science Center		Experimentarium		

Budget: 6,9 Milion €. Funded by the EC under the 7th FM Program

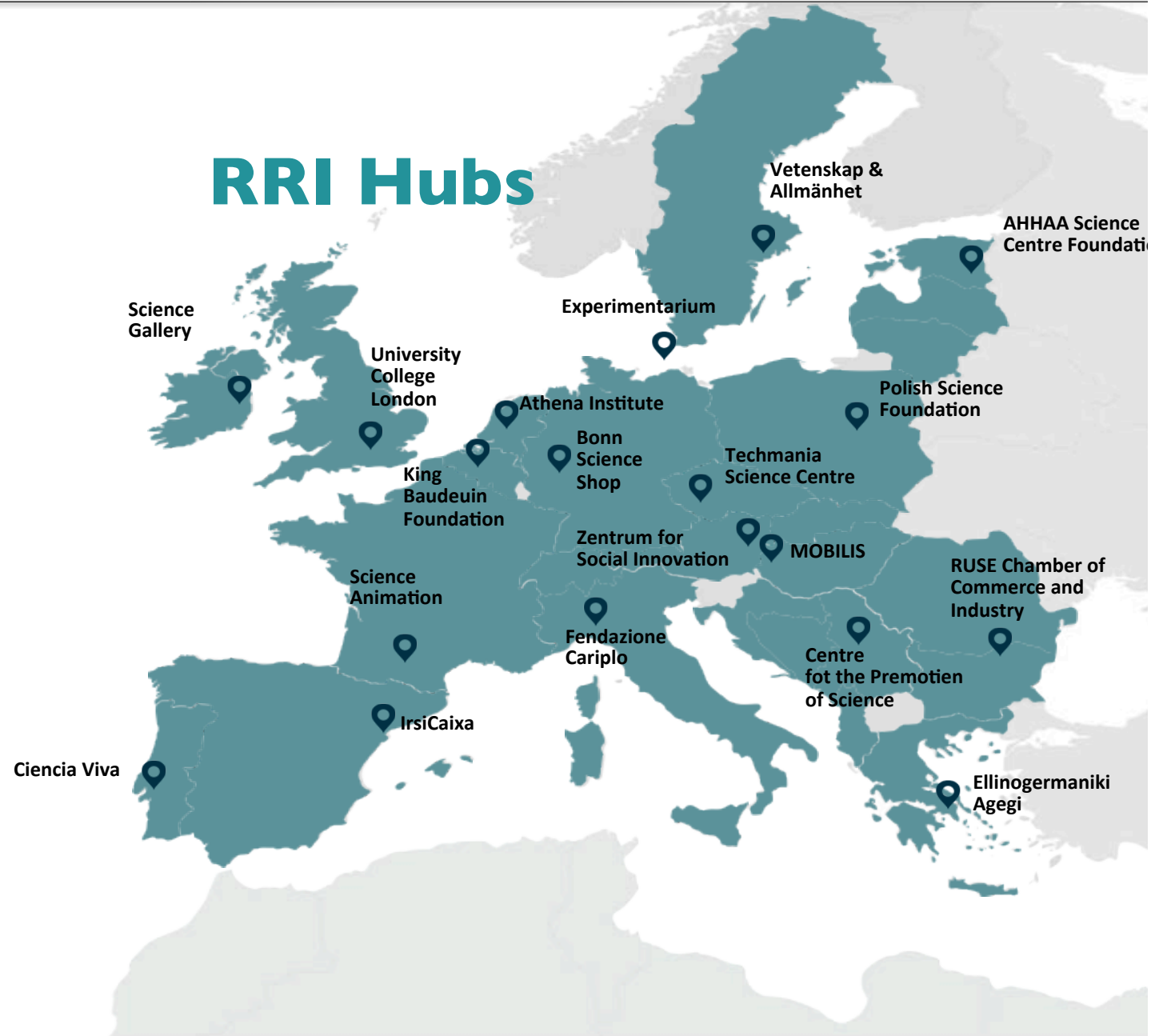


**INNOVATIVE
TOOLS**

**TRANSFORMATIVE
TRAINING**

**WIDE
DISSEMINATION**

RRI Hubs

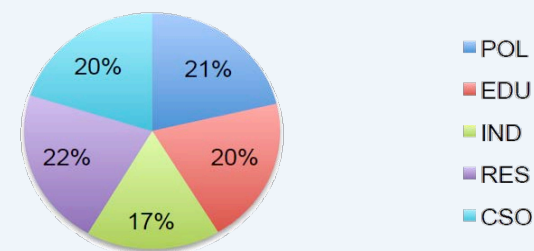


Analysis Phase: Consultation workshops

411 Participants – 27 Workshops covering 30 countries



Workshop attendees by stakeholder group



Workshops methodology designed by Athena (Free University Amsterdam) and ECSITE
Data analysis by University College, London(UCL) ,UK

OPPORTUNITIES for RRI

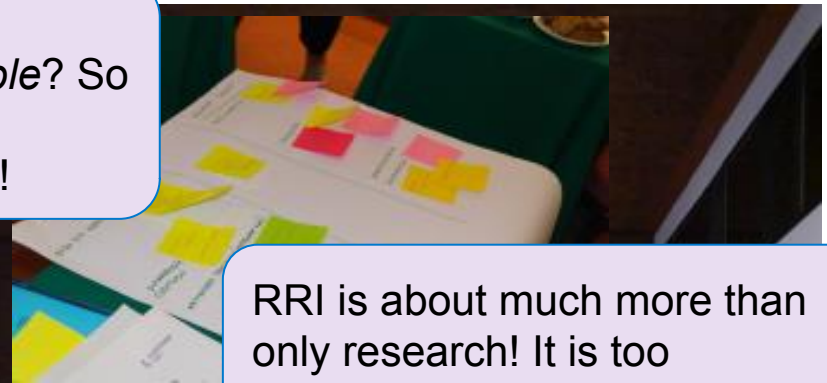
- The chance to bring **science and society closer** and avoid future controversies
- Improving the culture of science and scientific careers by **expanding the role of scientists in society**
- Creating **better innovations**, new markets and increased competitiveness and creativity through wider input, problem focus and new networks
- **Democratic benefits from more engaged citizens**
- Improved learning by connecting research and practice

Workshops in 30 countries > 400 participants

RRI is the end of 'true' science!!



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



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

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



We first need to educate citizens before they can participate!



Necesidad de

- una definición clara del concepto de RRI
- herramientas de evaluación
- recursos, guías y casos para la aplicación práctica de la RRI
- espacios de diálogo entre las diferentes comunidades
- diseminación y posibilidades de *training*

1.- Definición práctica Investigación e innovación responsable

Son las 6 agendas políticas de la EC suficientes?



ETHICS



GENDER
EQUALITY



GOVERNANCE



OPEN
ACCESS



PUBLIC
ENGAGEMENT



SCIENCE
EDUCATION

Son condiciones para poder hacer RRI, en algunos casos de carácter normativo, pero no son suficientes...



GENDER
EQUALITY

Igualdad de género en los comités de selección en investigación, en los RRHH de las instituciones y en el contenido de la investigación.



ETHICS

Research Integrity, Plagiarism, Ethics Education as part of research training, ethics of scientific policy advice, Role of Ethics Committees...



OPEN
ACCESS

Vía verde, vía dorada, nuevo programa piloto de la EC de *data management plan*.



PUBLIC
ENGAGEMENT

Un elemento crucial de la RRI

Impulsores activos de investigación

- Science shops, organizaciones de pacientes, ONG's

Financiadores de investigación

- *crowdfunding*, organizaciones de pacientes

Establecen agendas de R&I

- - ONG's, organizaciones de pacientes, *trade unions*, *citizen meetings*

Supervisan la R&I

- Comités asesores comunitarios, ONG's, organizaciones de pacientes y de consumidores, empleados en *workplace innovation*

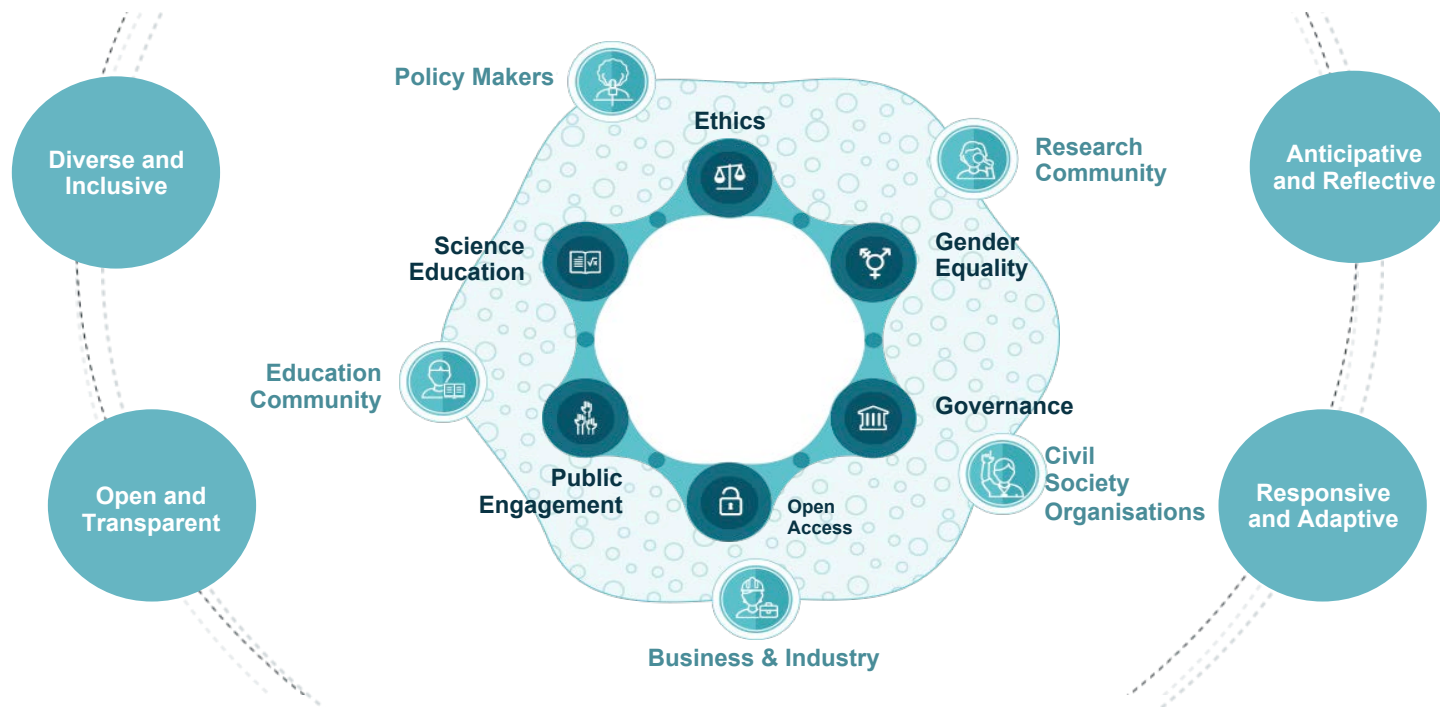
Recogen datos (*citizen science*)

- En astronomía, ornitología, monitoreo ecosistemas....

Diseminan los resultados de la R&I

- Periodistas, museos...

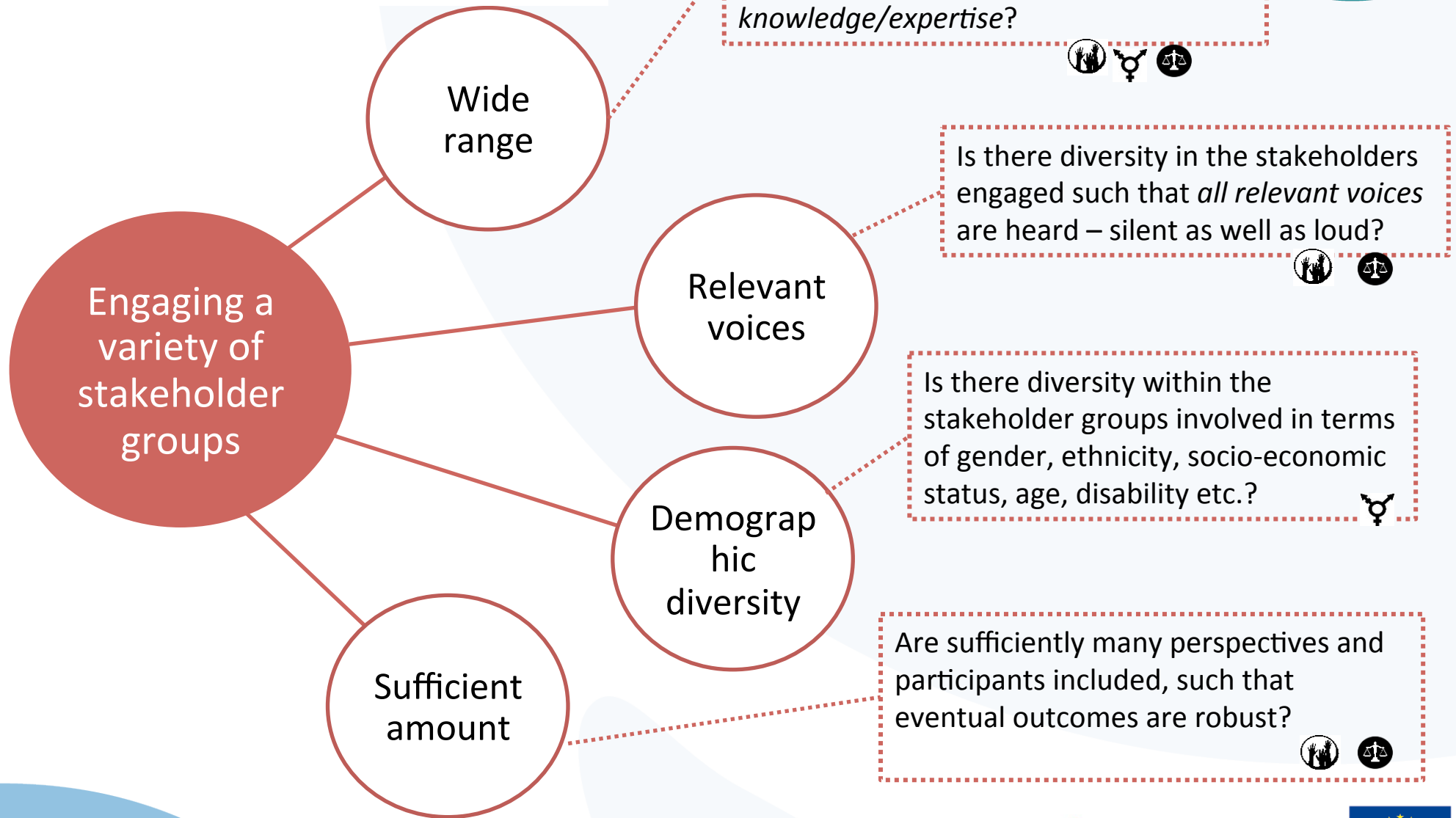
**RRI is about including all actors,
considering specific key issues and integrating some
process dimensions in the R&I practice**



Working together towards ethically acceptable, socially desirable and environmentally sustainable products and services



This is not a checklist, but a thinking tool!



Toolkit /

RRI Toolkit

Built with and for the Community of Practice

3.- Plataforma con recursos

Select between...

Resources Users

I am looking for...

Type here what you are looking for

SEARCH

Inspiring Practice Business & Industry

UPLOAD A RESOURCE

showing 12 results

Sort by: Most recent

Filter resources by:

Type:

- Inspiring Practice
- Library Element
- Project
- Tool

Useful for:

- Business & Industry
- Civil Society Organizations
- Education Community
- Policy Makers
- Research Community

Address:

- Ethics
- Gender Equality
- Governance
- Open Access
- Public Engagement
- Science Education

more filters

By expertise required:

- Beginner
- Master
- Practitioner

By language:

By category:

- Inspiring Practice
- Organization
- Other
- Programme
- Project
- Tool
- Library Element
- Article
- Blog/Opinion

Resources:

- Knowledge for Climate (Kennis voor Klimaat)** - Inspiring Practice
- EuroBioAct** - Inspiring Practice
- UNI AKTIV** - Inspiring Practice
- FORSCHUNGS WENDE** - Inspiring Practice
- Bürger schaffen Wissen** - Inspiring Practice
- SoScience!** - Inspiring Practice
- changing diabetes** - Inspiring Practice
- INN+** - Inspiring Practice
- homoresponsabilis** - Inspiring Practice

La meva universitat necessita un pla d'igualtat de gènere i un còdi d'integritat a la recerca



Necessito una guia per implementar la RRI a la meva proposta de recerca per Horitzó 2020

Com puc integrar la RRI al meu pla de negoci?





Diseño de campos de aerogeneradores marinos en Holanda (Siemens – U Delft)



EPSRC

Engineering and Physical Sciences
Research Council

Anticipate, reflect, engage and act (AREA)

Plan de co- gestión del sonso

Premio Mérito a la
Conservación 2013
de WWF





- **31% market potential of the asset**
- **26% valorization project**
- **29% implementation capacity**
- **14% del peso evaluación en impacto social e innovación responsable**

1-2	3-4	5-6	7-8
<p>Mapping of different social stakeholders not done. Different social voices are taken into account.</p>	<p>Mapping of different social stakeholders affected by the innovation is done and social implications are considered.</p>	<p>Mapping of different social stakeholders affected by the innovation is done. Broad social voices are taking into account, also usually less heard voices.</p>	<p>A fully responsible innovation process: Different social voices are taken into account, also usually less heard voices. Mapping of different social stakeholders affected by the innovation is done. Participation of stakeholders in reflection processes for anticipation of social needs and consequences is planned and developed.</p>



Conclusions, futur.

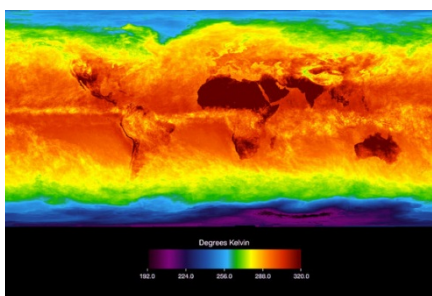
RRI

La capacitat d'Europa per respondre als grans reptes socials des del coneixement

Involucració de la societat als processos de R+D

Governança participativa, gestió del risc

Responsabilidad compartida, aceptabilidad ética





**Higher Education Institutions
& Responsible Research and Innovation**

RRI a Universitats

COMPASS

RRI a Industria

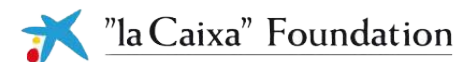


Avaluació de RRI i impacte social

Búsqueda de nuevos casos prácticos

The European Foundations Award for Responsible Research and Innovation

- Initiative of a consortium of European Foundations:)
- Preliminary planning:
 - ✓ Sept-Dec 2015: application
 - ✓ Jan-Sept 2016: selection process
 - ✓ Autumn 2016: award ceremony
- 60.000€ in Awards for best practices in RRI



Robert Bosch **Stiftung**

LUNDBECK FOUNDATION



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 scientific results and their implications should be **communicated more effectively to a wide range of stakeholders**,*

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

OECD Daejeon Declaration on Science, Technology, and Innovation Policies

*AGREE that science, technology and innovation are changing the way scientists work, collaborate and publish; increasing the reliance on access to scientific data and publications ("**open science**"); **opening new avenues for public engagement and participation in science and innovation ("citizen science")**; facilitating the development of research co-operation between **businesses and the public sector**; contributing to the transformation of how innovation occurs ("**open innovation**").*

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**.*

**“...the best science *for* the world and not just
the best science *in* the world”**

*Morten Østergaard. Danish former Science Minister
“Science in Dialogue Conference”.
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