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UNIVERSITÀ
DEGLI STUDI
FIRENZE
DISPAA
DIPARTIMENTO DI SCIENZE DELLE
PRODUZIONE AGROALIMENTARI
E DELL'AMBIENTE



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ATMOSPHERE-UMWELT



EUROPEAN
COMMISSION
Horizon 2020
EUROPEAN UNION FUNDING
FOR RESEARCH & INNOVATION

**Workshop
2018**

SERBIA FOR EXCELL, WORKSHOP, 2018

Excellent research through Responsible Research and Innovation

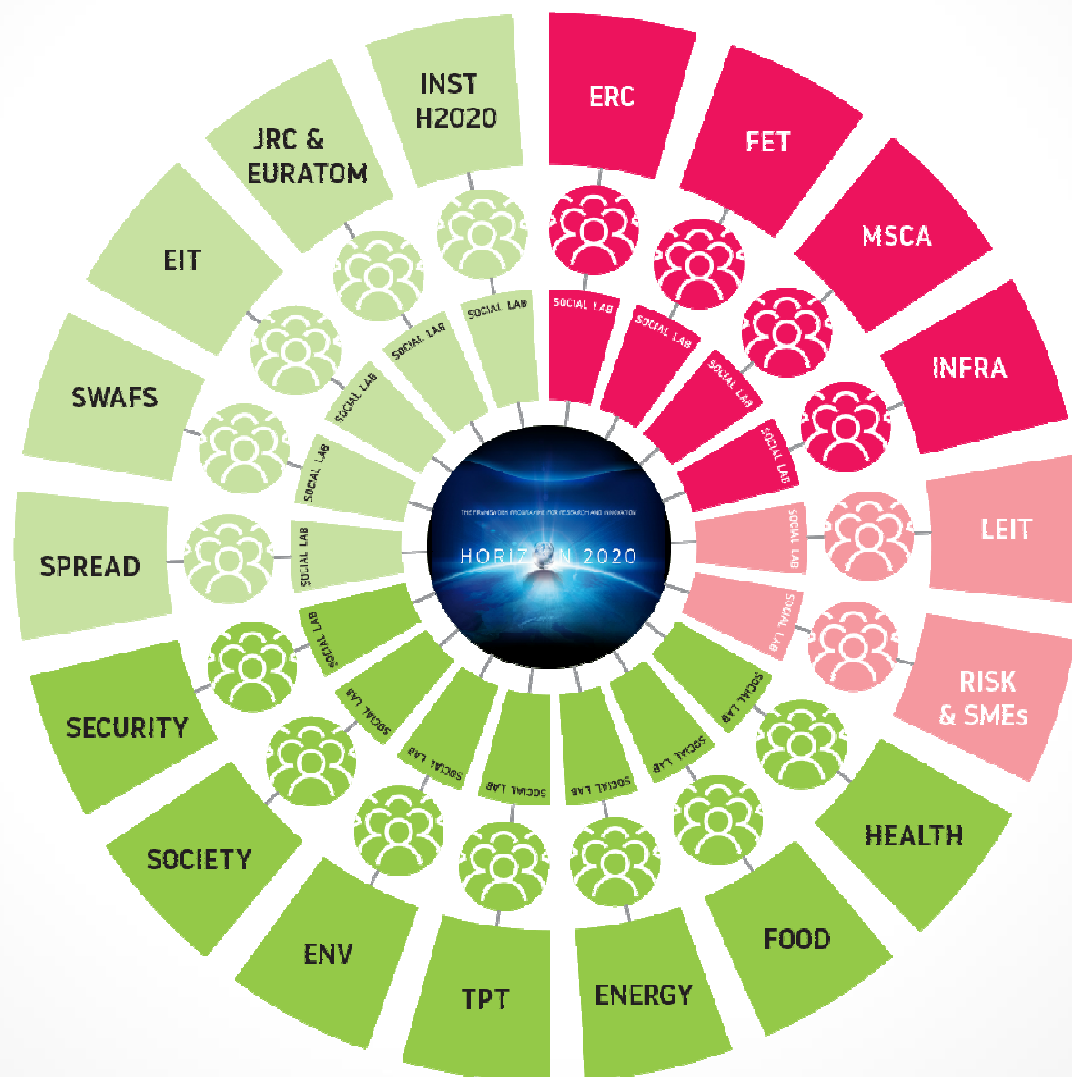
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Tecnalia Research and Innovation, Spain



Introduction to NewHoRRizon



The process consists of three interdependent, iterative activities:

- **Diagnosis of the current RRI practices with H2020.** This results in an understanding of barriers and enablers of embedding of RRI.
- Designing & implementing of **social experiments** to test overcoming the barriers
- Reflect on the outcomes of the experiments & to learn lessons for further experimenting and **future embedding of RRI into R&I policies & funding programmes.**

Social Labs offer spaces that facilitate this process. They enable diagnosis, observation and experimentation to take place at the same time and as part of the same intertwined process.

The ambition of NewHoRRizon

NewHoRRizon seeks to promote a strong integration of RRI into Horizon 2020 (77 billion euros) and national research and innovation funding. Its objectives are to:

- Call together different stakeholders in R&I in 19 Social Labs for each part of Horizon 2020 to co-create social experiments that
- Foster the uptake of RRI
- Develop narratives and storylines on how to implement RRI
- Provide recommendations on how to better integrate RRI into the next European Framework Programme and beyond
- Raise awareness, mainstream best practices and share New-HoRRizon results
- Develop and disseminate a concept of Societal Readiness Levels (SRL) of technology
- Create a sustainable RRI Network and RRI Ambassador Programme.

RRI in a nutshell

Responsible Research and Innovation is:

- **Involving society in science and innovation** in the processes of R&I to align its outcomes with the values of society.
- **A wide umbrella connecting different aspects of the relationship between R&I and society**
- **A cross-cutting issue in Horizon 2020**, the EU Program for Research and Innovation 2014-2020.

RRI Definition

*“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, 2011:9)*

Origin of RRI



- Corporate social responsibility
- Ethical, Legal and Social Aspects of Research
- Research approaches
 - Participatory
 - Transdisciplinary
 - Technology assessment
 - Deliberative governance
 - Public engagement

Why Responsible Research & Innovation?

Society is facing many challenges today...



Health,
demographic
change, and
wellbeing



Food, agriculture
and forestry, and
water



Secure, clean
and efficient
energy



Smart, green and
integrated
transport



Climate action,
environment, and
resources



Europe in a changing
world: inclusive,
innovative and
reflective societies



Secure societies:
freedom and
security of Europe
and its citizens

**RRI tackles these challenges by aligning values, needs and expectations
of all actors involved in Research and Innovation**



EUROPEAN
COMMISSION

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 €)

Challenge - driven research

- A major part of the current EU Research Framework Programme “Horizon 2020” is dedicated to **societal challenges**.
- Challenge-driven programmes are usually interdisciplinary and often cover the **entire innovation chain** from fundamental research to demonstration.
- **Industry** often plays a role in such programmes, but does not – and should not - define their objectives.
- Positioned between **investigator-driven** basic research and **industry-driven research**

Within the R&I system there have been examples of controversies and failures in fulfilling societal expectations:

- GMOs
- fracking
- food safety
- affordable medication among others...

...in part because not all key actors were engaged:



**POLICY
MAKERS**



**RESEARCH
COMMUNITY**



**EDUCATION
COMMUNITY**



**BUSINESS
& INDUSTRY**



**CIVIL SOCIETY
ORGANISATIONS**

And there is also a large consensus that changes are needed throughout the R&I system

Certain key issues (or policy agendas) need to be taken into account:



ETHICS

Research integrity and ethical acceptability of the R&I outcomes



GENDER EQUALITY

Human resources, decision bodies and research dimension



GOVERNANCE

Structural changes to include all these issues in the R&I system



OPEN ACCESS

To results from publicly funded research, privacy issues and even more: open science



PUBLIC ENGAGEMENT
Towards a more open and inclusive R&I



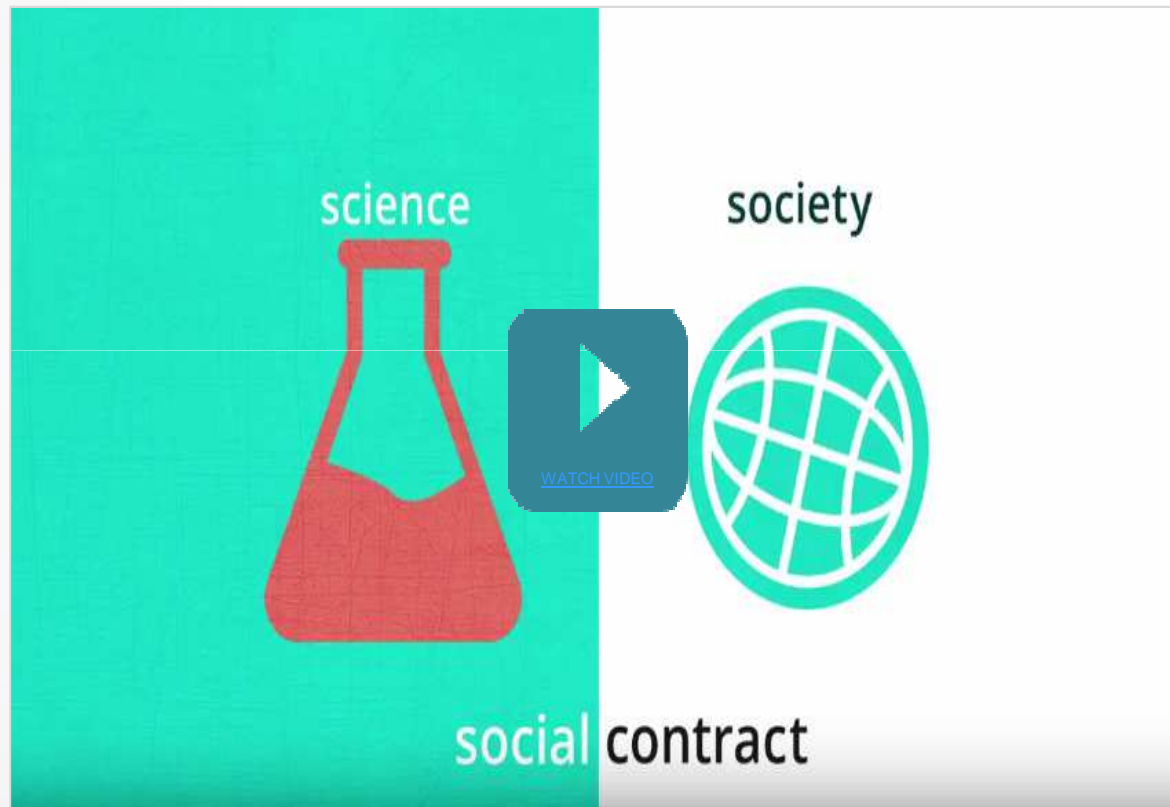
SCIENCE EDUCATION
Provide competences for the responsible citizens society needs

RRI Keys



Fuente: <https://blog.rri-tools.eu>

Why RRI needs you as a member of the Research Community



Researchers, innovators, research managers, public affairs and communication officers, and **all those people who support the diverse aspects of the R&I system** belong to this group.

RRI Keys

- **Engagement:** It implies that societal challenges should be framed on the basis of widely representative social, economic and ethical concerns and common principles on the strength of joint participation of all societal actors - researchers, industry, policymakers and civil society.
- **Gender Equality:** Addresses the underrepresentation of women, indicating that human resources management must be modernized and that the gender dimension should be integrated in the research and innovation content.
- **Science Education:** Faces the challenge 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 process.
- **Open Access:** States that RRI must be both transparent and accessible. Free online access should be given to the results of publicly funded research (publications and data).
- **Ethics:** Requires that research and innovation respects fundamental rights and the highest ethical standards in order to ensure increased societal relevance and acceptability of research and innovation outcomes.
- **Governance:** Addresses the responsibility of policymakers to prevent harmful or unethical developments in research and innovation. The latter is a fundamental basis for the development of the rest of the dimensions.





PUBLIC ENGAGEMENT

Facilitate structures for participation

- Including public interest groups (CSOs, patient organizations, trade unions, citizen panels) in the definition and supervision of R&I (advisory and evaluation boards, research ethics committees...)
- Developing the creation of Science Shops, Living Labs and other related structures aiming at promoting multi-stakeholder dialogue.

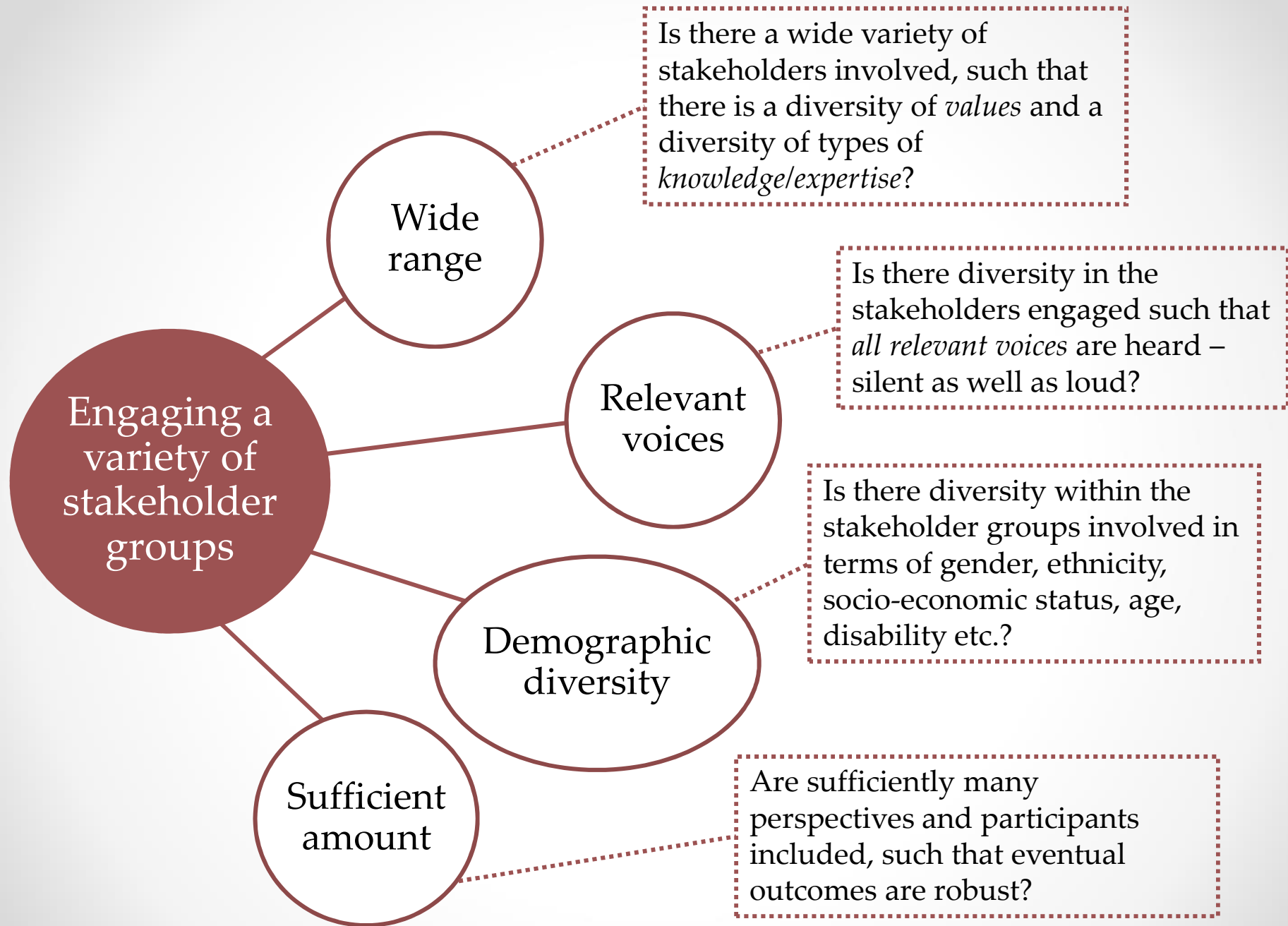
Influence R&I Agendas

- Promoting the use of facilitating deliberations methods to induce citizens participation into R&I policy-making.
- Increasing citizens engagement in monitoring transparency and traceability of outcomes of R&I projects.
- Advancing towards future-oriented decision making.

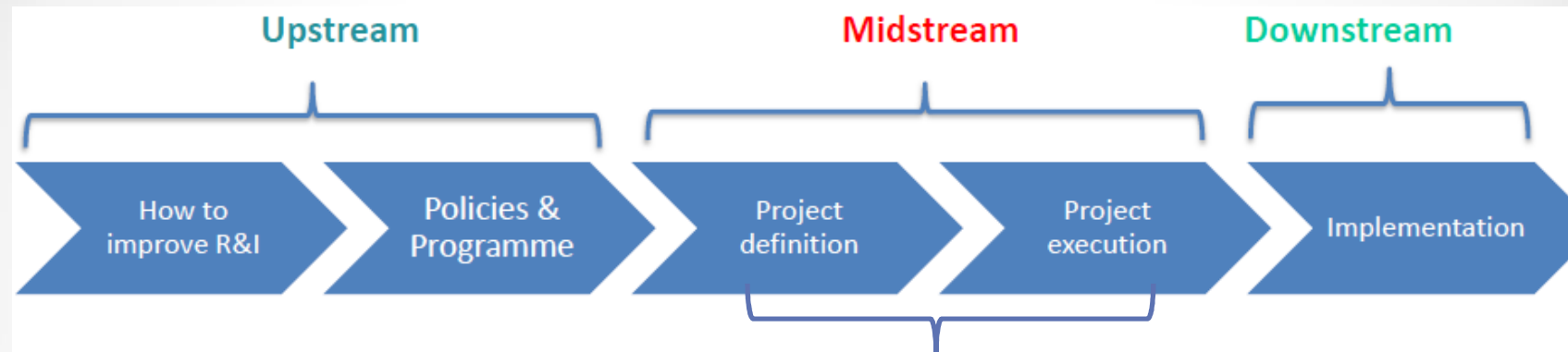
Co-develop and co-decide about R&I

- Fostering research projects with more societally relevant outcomes, implementing participatory research designs in an iterative fashion.
- Promoting community-based research.
- Fostering participatory Technology Assessment.

Source: <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/public-engagement-responsible-research-and-innovation>



Co-creation methodologies



Community Based Participatory Research, Open Innovation, Citizen Science, Living Labs, Science Shops, Science Festivals



Fuente: Malagrida, R. 2017



ETHICS

Facilitate structures for ethical reflection

- Strengthening ethical committees and legislation about critical issues, some of them being the involvement of children, patients, vulnerable populations in research, the use of human embryonic stem cells and research on animals and non-human primates.
- Promoting ethical issues in scientific policy advice

Promote and foster research integrity

- Observing and promoting honesty, reliability, impartiality and independence and objectivity in performing research.
- Avoiding fabrication, falsification, plagiarism or other research misconduct.
- Developing legislation about privacy and data protection issues.

Mitigate and reduce ethics dumping

- Expanding ethical issues in research beyond EU countries.
- Counteracting the application of double ethical standards when low and middle income countries participate in research.
- Rising awareness of insufficient ethical standards when exploiting vulnerable parties in research.

Source: <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/ethic>

GDPR training course



*"This one is really important.
The General Data Protection
Regulation is an EU reg that kicks in
on 25 May 2018 so we've got to get
organised. "*

—Troy Hunt, Instructor

About the Course

Eligible for 1 CPE credit

The EU General Data Protection regulation will be law on May 25, 2018 - changing the landscape of regulated data protection law and the way that companies collect personal data.

What are the requirements? Who will be affected? How does this help protect personal data? Does it only affect companies based in the EU? (hint: no.)

Email [Frank Martinez](#) once you finish the course for a proof-of-completion certificate.

About Your Instructor

Troy is a Microsoft Regional Director, Pluralsight author and world-renowned internet security specialist. He's also the creator of "Have I been pwned?", the free online service for breach monitoring and notifications.

<https://info.varonis.com/gdpr-attack-plan-course?submissionGuid=1a8f8f49-d99b-41e9-9af6-2a06aa1b5660>

GDPR training course



FREE VIDEO COURSE | 1 CPE CREDIT

GDPR Attack Plan: What You Need To Know

Presented by Troy Hunt, Microsoft Regional Director, Creator of HavelBeenPwned

Understanding the European Union

- 508 million people
- GDP of over €15 trillion
- GDPR extends to companies *doing business* in the EU



- 01 - Introduction
- 02 - The Roles of GDPR
- 03 - Understanding Personal Data
- 04 - Territorial Scope

<https://info.varonis.com/gdpr-attack-plan-course?submissionGuid=1a8f8f49-d99b-41e9-9af6-2a06aa1b5660>



GENDER EQUALITY

Gender Balance in decision making

- European Commission aims at 40% of the under-represented sex in expert groups and evaluation panels.
- H2020, however, aims at 50% for the under-represented sex in expert groups and evaluation panels.
- Inclusion of gender experts in expert groups and evaluation panels.

Gender balance in research teams

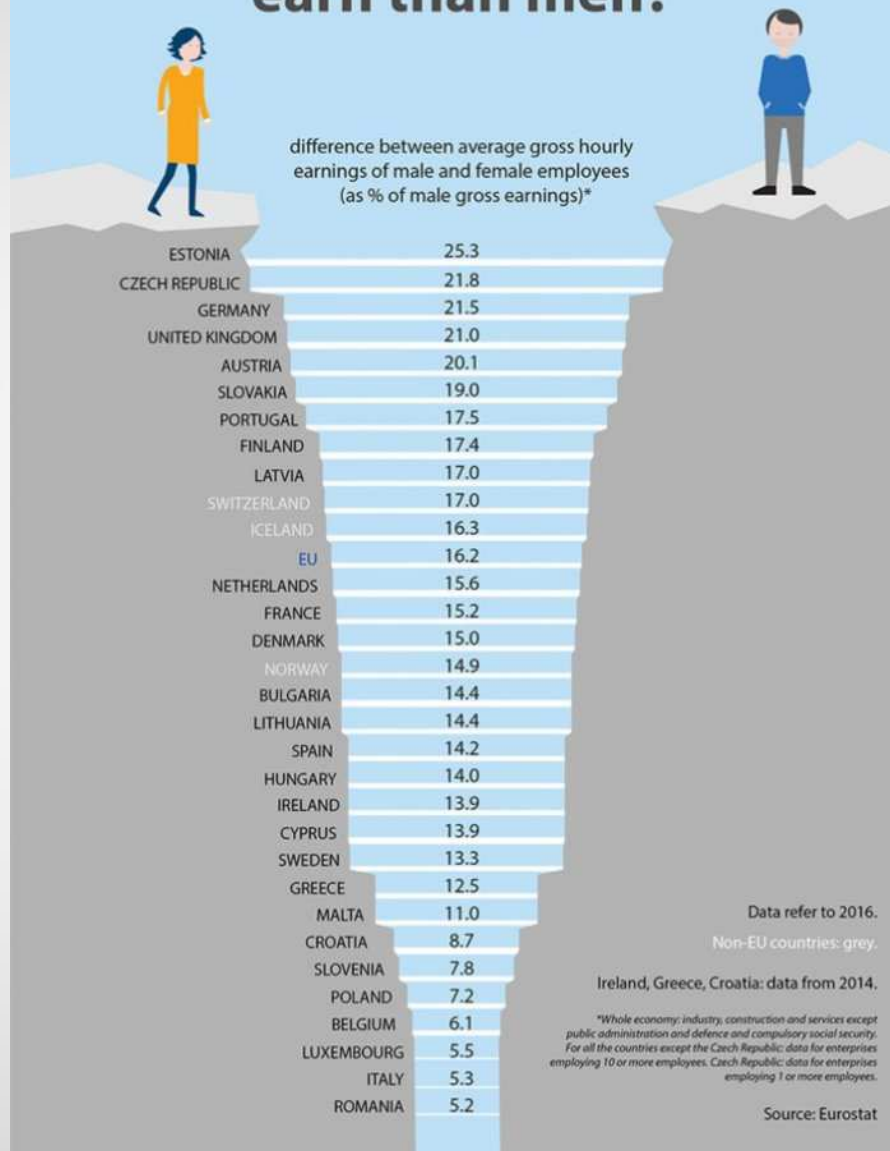
- Funding applications request promotion of gender balance at all levels in their teams and in management structures.
- Commitment to promote equal opportunities between men and women in grant agreements.
- Gender balance is a prioritization criterion.

Gender dimension in the content of R&I

- R&I need to adequately take into account the needs, behaviours and attitudes of both women and men.
- Consider gender-specific research to fill knowledge gaps.
- Gender is an important factor in excellent research.

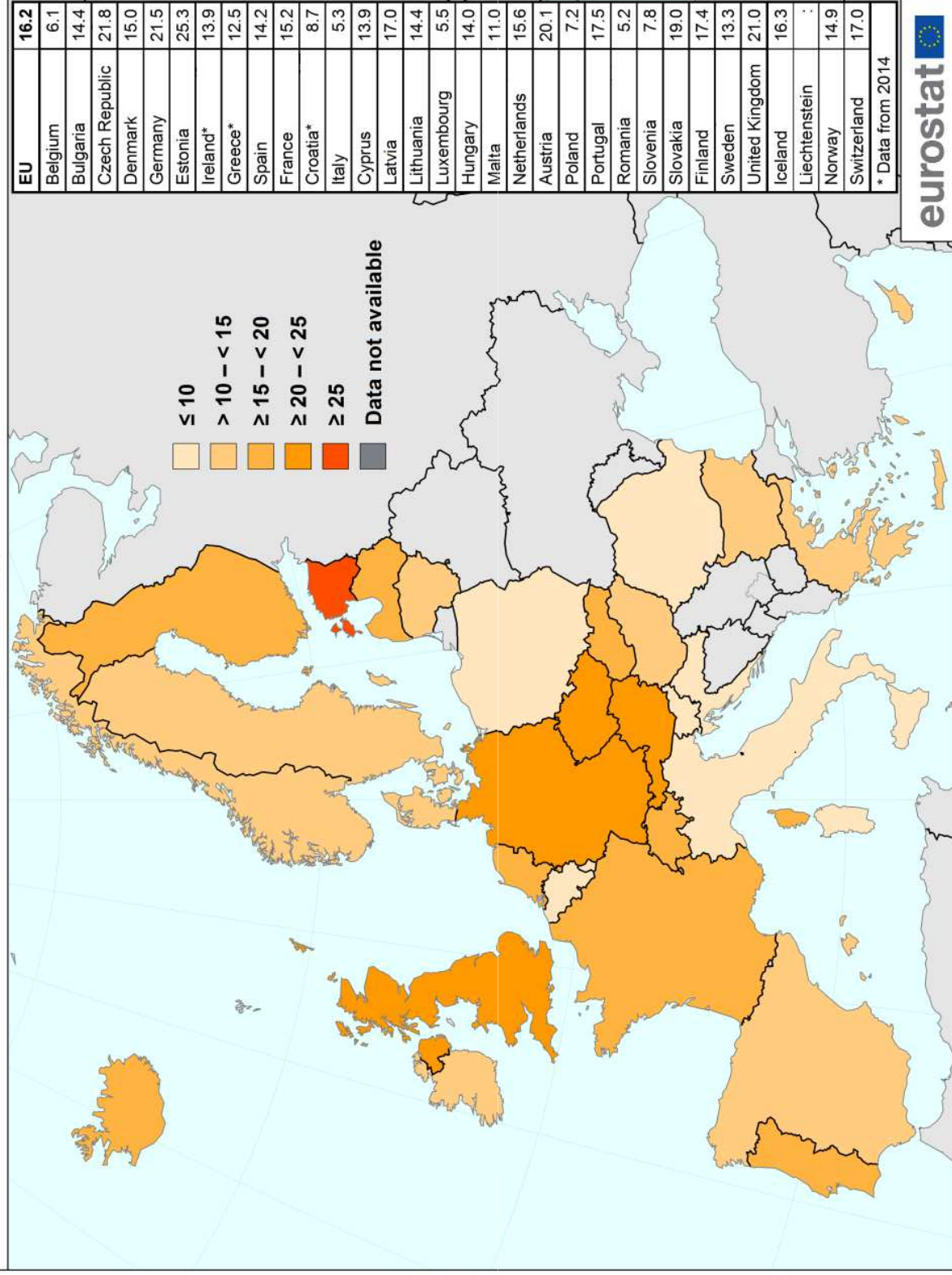
Source: <http://ec.europa.eu/research/swafs/index.cfm?pg=policy&lib=gender>

How much less do women earn than men?



In 2016, the unadjusted gender pay gap stood at just over 16% in the **European Union (EU)**. In other words, women earned on average 84 cents for every euro a man makes per hour. Across Member States, the gender pay gap in 2016 ranged from just over 5% in **Romania** and **Italy**, to more than 25% in **Estonia**, followed by the **Czech Republic** and **Germany** (both almost 22%).

Gender pay gap, 2016



Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat

Cartography: Eurostat — GISCO, 03/2018

Gender Equality: Document recommendation

Vademecum on Gender Equality in Horizon 2020

I. INTRO

The purpose of this Vademecum is to provide the Commission/ Agency staff², potential applicants, the Helsinki Group, NCPs, as well as experts' evaluators and other actors involved in the implementation of Horizon 2020 with practical guidance on the effective application of the new Gender Equality provisions. This means integrating Gender Equality issues at each stage of the research cycle: from programming through implementation, monitoring and programme evaluation.

http://ec.europa.eu/research/swafs/pdf/pub_gender_equality/vademecum_gender_h2020.pdf

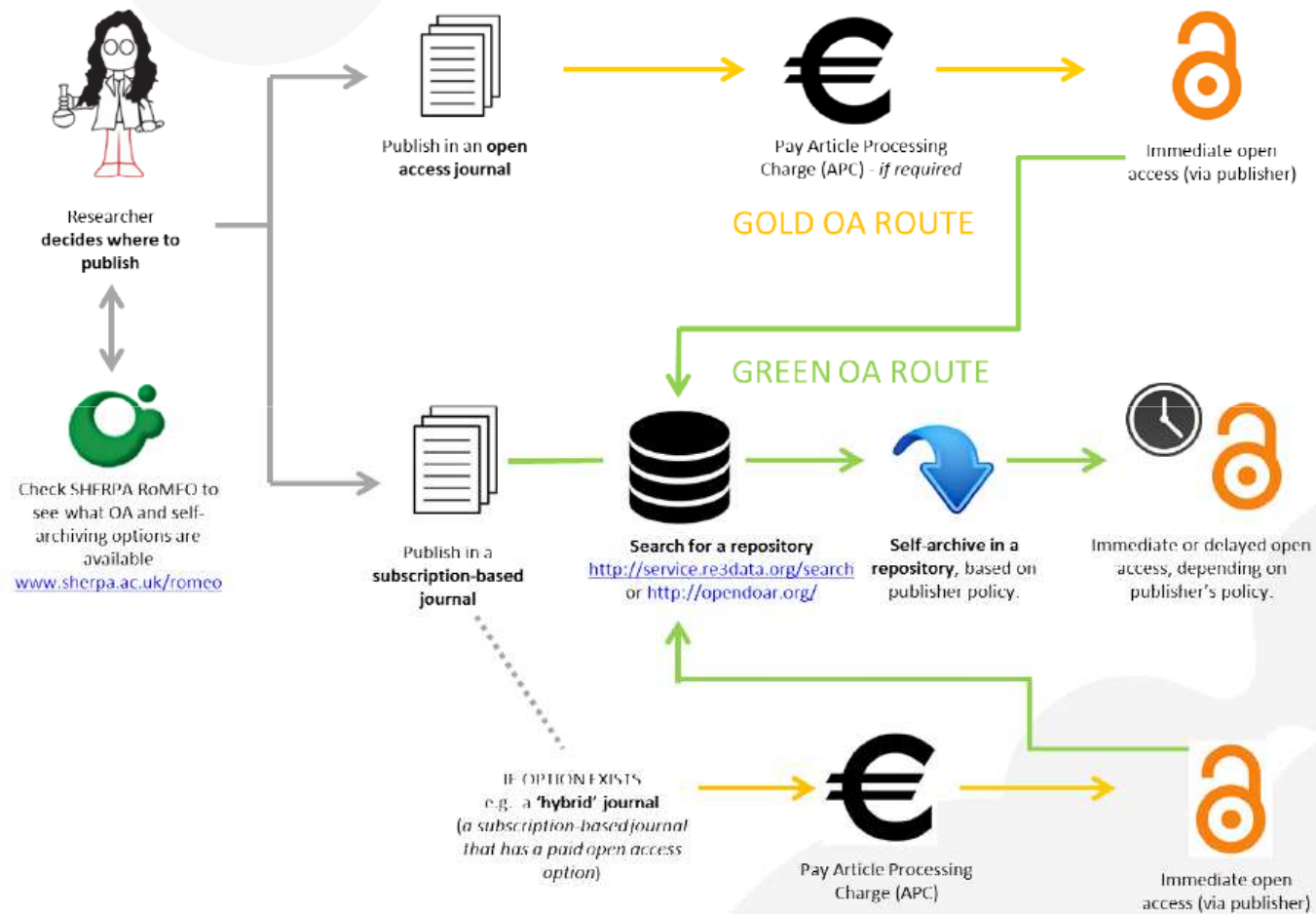
Gender Equality: Evaluation

The following approach will be applied successively for every group of *ex aequo* proposals requiring prioritisation, starting with the highest scored group, and continuing in descending order:

- (i) Proposals that address topics not otherwise covered by more highly-ranked proposals, will be considered to have the highest priority.
- (ii) These proposals will themselves be prioritised according to the scores they have been awarded for the criterion *excellence*. When these scores are equal, priority will be based on scores for the criterion *impact*. In the case of Innovation actions, and the SME instrument (phases 1 and 2), this prioritisation will be done first on the basis of the score for *impact*, and then on that for *excellence*.
- If necessary, any further prioritisation will be based on the following factors, in order: size of budget allocated to SMEs; **gender balance among the personnel** named in the proposal who will be primarily responsible for carrying out the research and/or innovation activities.

OPEN ACCESS

H2020 Open Access Mandate



OPEN ACCESS

Horizon 2020 Open Access Mandate:

All beneficiaries must deposit their peer-reviewed publications to ensure Open Access

What to deposit?

► A machine-readable electronic copy of the published version

OR

► a final peer-reviewed manuscript accepted for publication.

Where to deposit?

Researchers should deposit in a repository for scientific publications of their choice.

Find out if your institution has one
www.openaire.eu/participate or use
www.zenodo.org.

When to deposit?

Each beneficiary must deposit as soon as possible and at the latest on publication.

When should Open Access be provided?

Each beneficiary must ensure Open Access to the deposited publication — via the repository — at the latest:

- **on publication**, if in a Open Access journal, or
- within **6 months** of publication (**12 months** for publications in the social sciences and humanities) in any other case.



GOVERNANCE

Incorporate future-oriented governance

- Promoting foresight analysis in a multi-stakeholder basis including public interest groups (CSOs, patient organizations, trade unions, citizen panels) to incorporate RRI principles in all phases of R&I.
- Facilitating frameworks for RRI implementation throughout all stages of R&I process.

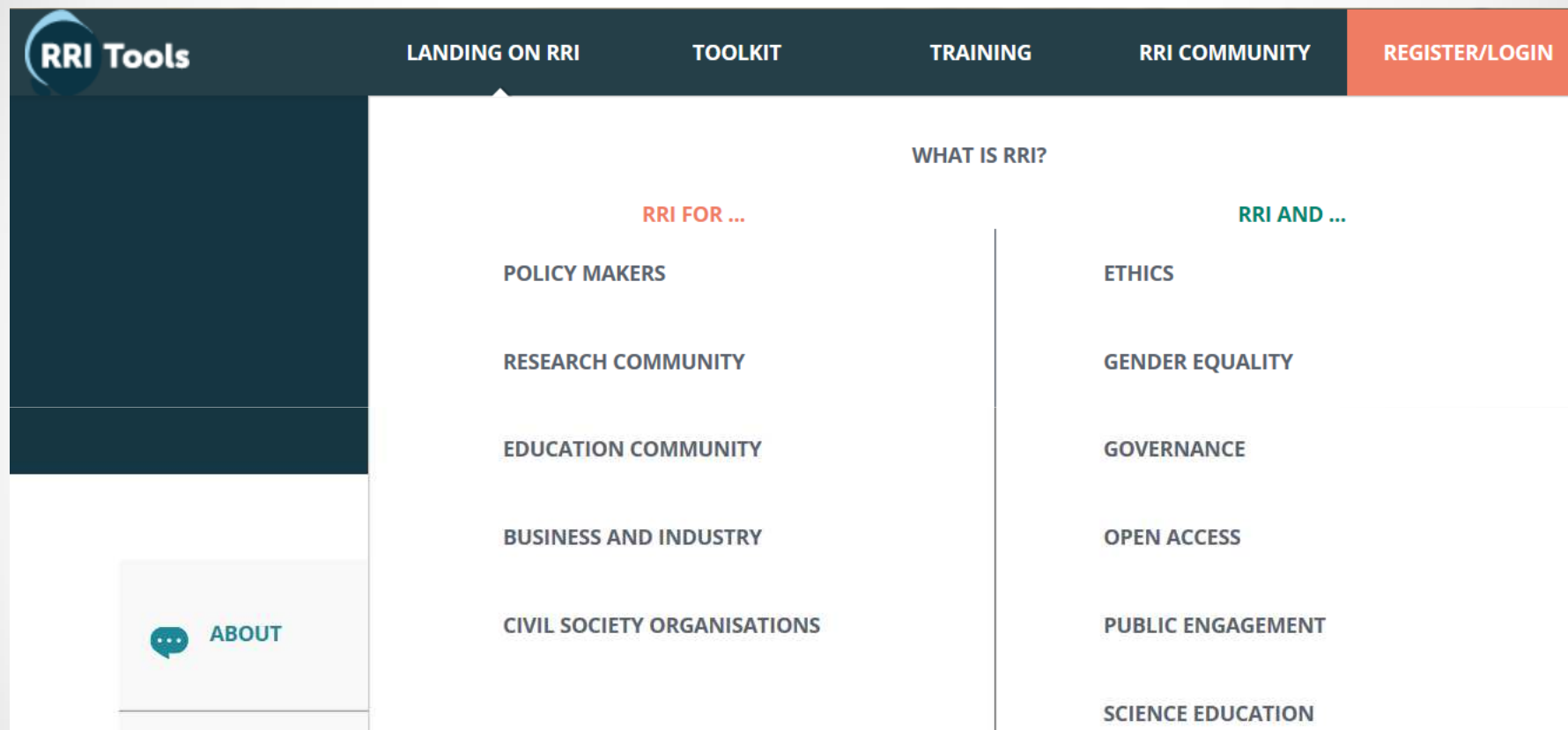
Incentivize RRI from institutions

- Embracing recognition systems of RRI implementation, such as labels, rewards and indicators.
- Setting up funding calls for research that take into account RRI issues.
- Measuring the impact of mainstreaming and standardising RRI.

Foster participatory governance

- Promoting the use of facilitating deliberations methods to induce multifactor participation into R&I policy-making.
- Including public interest groups (CSOs, patient organizations, trade unions, citizen panels) in the supervision of R&I (advisory and evaluation boards, research ethics committees...).

RRI Tools Project



<https://www.rri-tools.eu/research-community>

RRI products and processes

RRI can be understood as:

- Responsible **impacts and outcomes** of the R&I process
- **Process requirements** of responsible R&I processes

RRI Outcomes & Impacts

Citizens empowered with competences to engage in RRI process effectively

Learning outcomes

- Engaged Publics
- Responsible actors
- Responsible institutions

Actors think and act according to principles of RRI

RRI process institutionalized in academia and other relevant organizations

R&I outcomes

- Ethically acceptable
- Environmentally sustainable
- Socially desirable innovations



Societal impacts

Contribute to solving societal challenges

e.g. 7 Grand Challenges (EU)

RRI Process Requirements

Variety of researchers from different disciplines and broad range of stakeholders identified

All relevant stakeholders invited to participate

Imagining plausible and desirable futures and technology paths

ANTICIPATION & REFLECTION

Open to needs of others

RESPONSIVENESS & ADAPTIVE CHANGE

Ability to change process and paths

Meaningful, addressing purpose and context

DIVERSITY & INCLUSION

OPENNESS & TRANSPARENCY

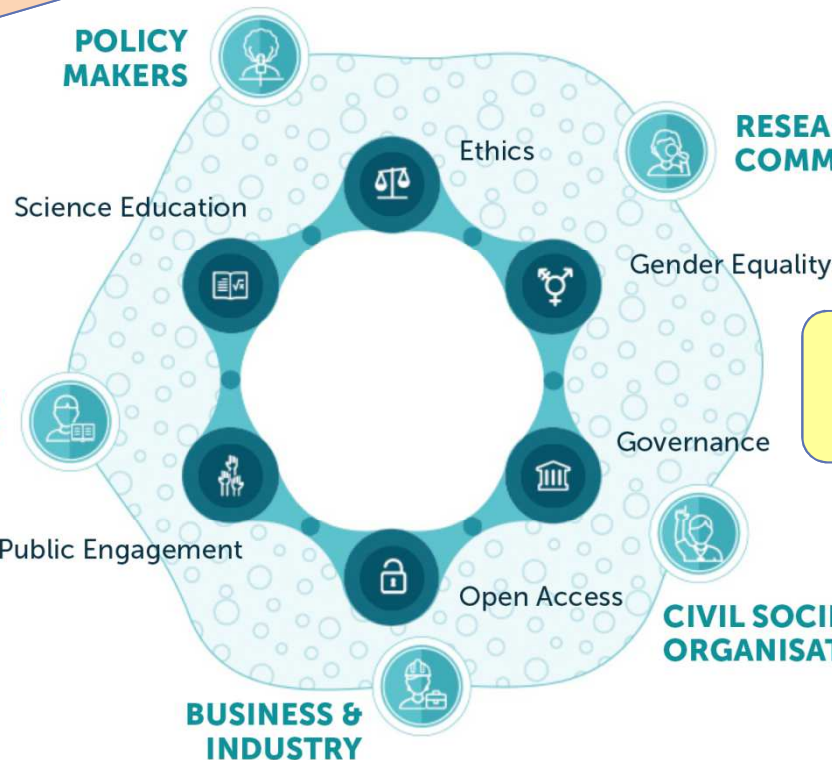
POLICY MAKERS

RESEARCH COMMUNITY

EDUCATION COMMUNITY

CIVIL SOCIETY ORGANISATIONS

BUSINESS & INDUSTRY



RRI can empower science communities to bond with society in solving our world's challenges, providing:



A whole new framework: new thinking, new principles, new processes

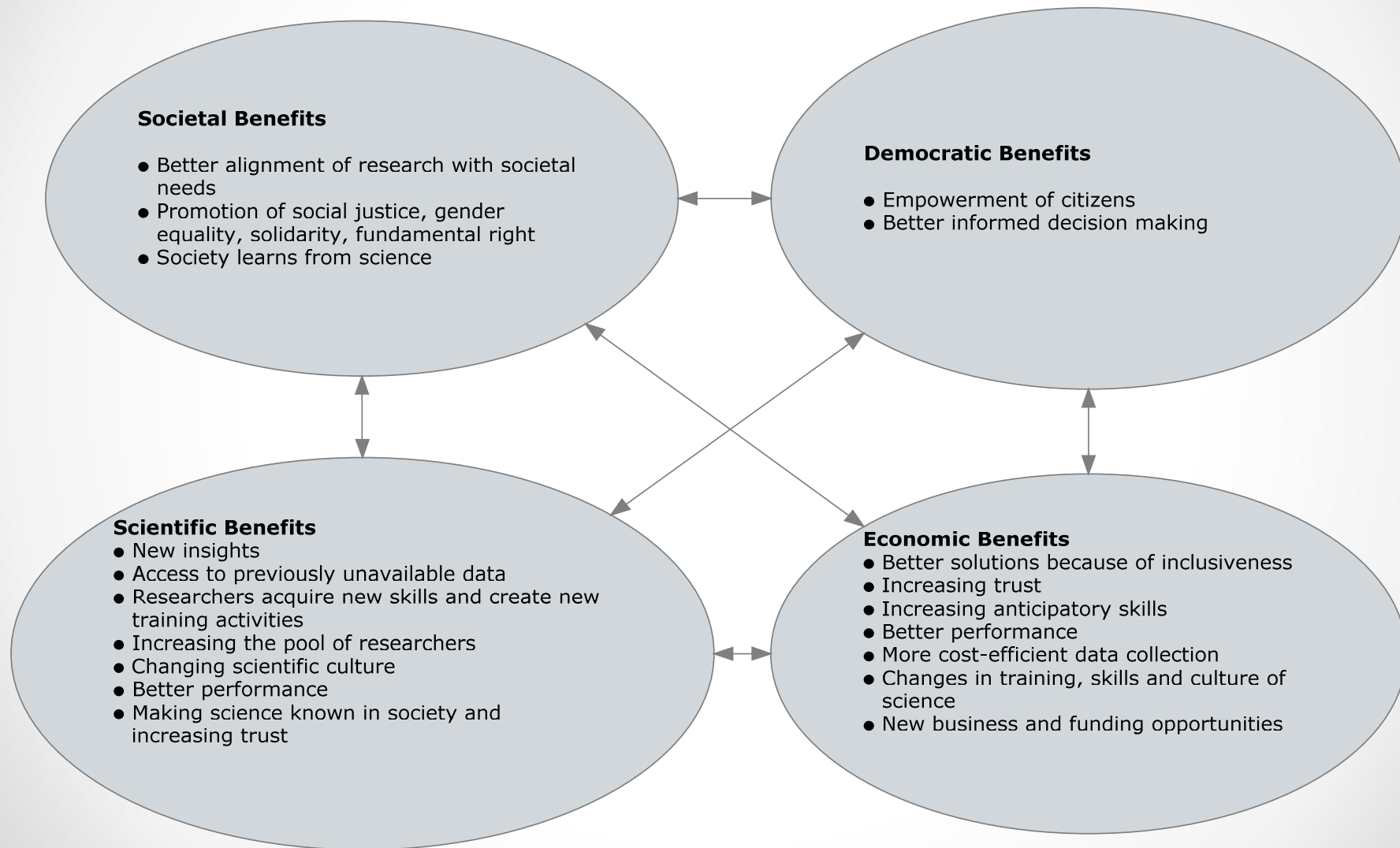


A more society-centered Research and Innovation



New funds through the EC's R&I programmes (Horizon 2020...)

Benefits of RRI



HEIRRI video: A future scenario on Ageing

<https://www.youtube.com/watch?v=geM3uCh4qYM>

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