

Developing and implementing “Responsible research and innovation” in Europe

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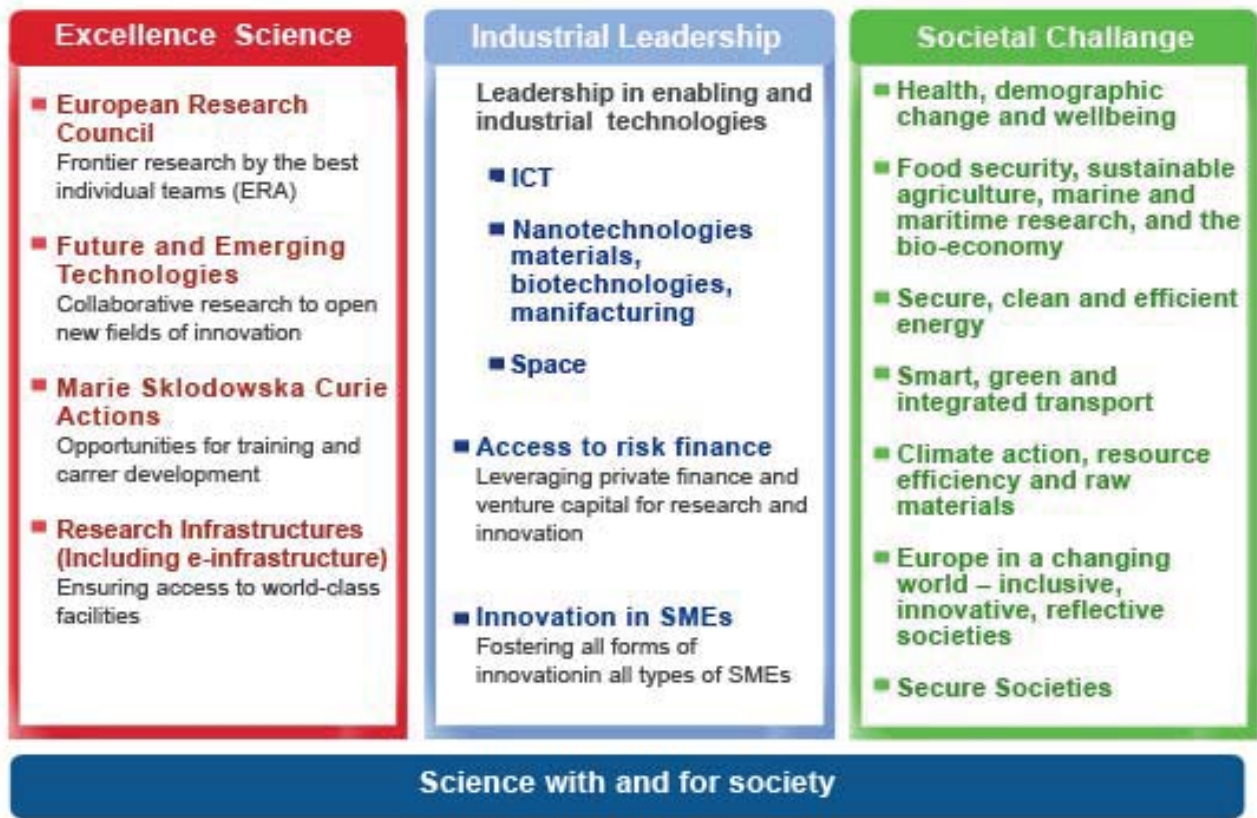
Science and society are deeply entangled

- Contemporary societies are meeting multiple important challenges => science and technology are expected to contribute to finding solutions;
- the European Union organises its research in “Framework Programmes”
- the current program runs until 2020 and carries the name “Horizon 2020”
- “Innovation Union”



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Grand Challenges as identified by the European Union

- Health, demographic change and wellbeing;
- Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy;
- Secure, clean and efficient energy;
- Smart, green and integrated transport;
- Climate action, environment, resource efficiency and raw materials;
- Europe in a changing world - inclusive, innovative and reflective societies;
- Secure societies - protecting freedom and security of Europe and its citizens



Science is under scrutiny

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- there is no place in modern societies from which science and innovation are absent
- But: What kind of science/innovation should be fostered and by whom? What voice should societal actors get in all that?

A cross-cutting programme line: Science with and for Society

“The ‘Science with and for Society’ programme will be instrumental in addressing the European societal challenges tackled by Horizon 2020, building capacities and developing innovative ways of connecting science to society. It will make science more attractive (notably to young people), increase society's appetite for innovation, and open up further research and innovation activities.”

<https://ec.europa.eu/programmes/horizon2020/en/h2020-section/science-and-society>

Responsible Research and Innovation

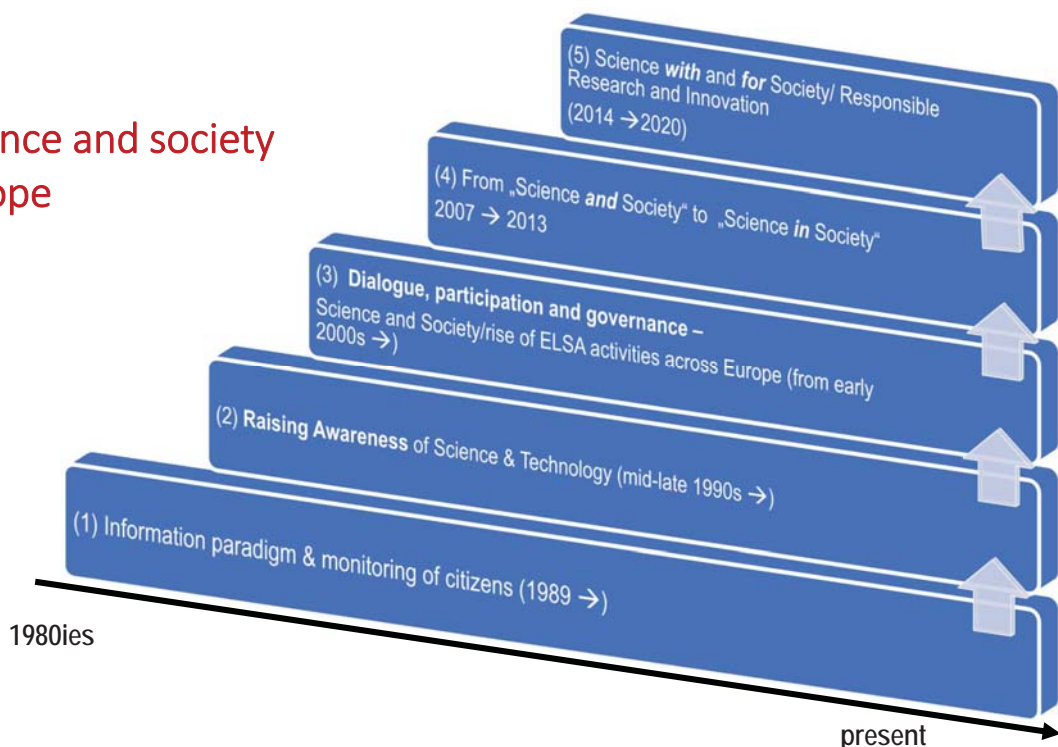
RRI is an inclusive approach to research and innovation (R&I), to ensure that societal actors work together during the whole research and innovation process. It aims to better align both the process and outcomes of R&I, with the values, needs and expectations of European society.

The grand societal challenges that lie before us will have a far better chance of being tackled if all societal actors are fully engaged in the co-construction of innovative solutions, products and services.

(https://ec.europa.eu/research/swafs/pdf/pub_rri/KI0214595ENC.pdf)



A history of science and society relations in Europe

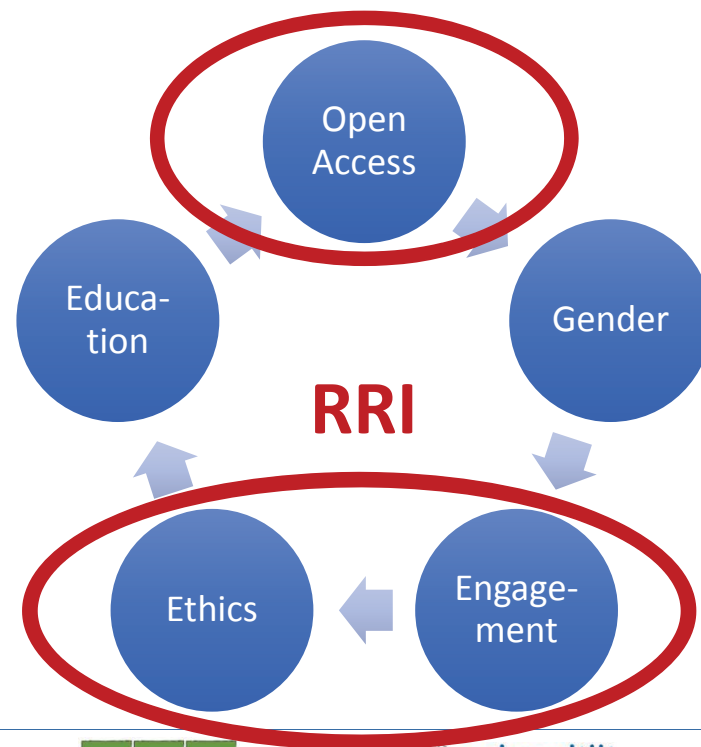


Dimensions of RRI

RRI implies anticipating and assessing potential implications and societal expectations with regard to research and innovation.

RRI has the following dimensions:

- engage society more broadly in its research and innovation activities,
- take into account the ethical dimension
- promote formal and informal science education
- increase access to scientific results,
- ensure gender equality, in both the research process and research content



Engaging society — posing value related questions (ethics)

- Importance of values
 - Inclusive and diverse
 - Open and transparent
 - Reflexive and anticipatory
 - Responsive and adaptative

... when it comes to develop science and innovation for and with society

=> RRI should support “those prospective, forward-looking dimensions of responsibility, (notably care and responsiveness) which allow consideration of purposes and accommodate uncertainty, a defining feature of innovation” (Owen et al., 2013, p. 29).



Engaging society — posing value related questions (ethics)

- Open up the innovation processes to values => from value of innovation to the values in innovation
- inject differing perspectives in the research process and thus produce innovative solutions
- co-create research and innovation (e.g. citizen science)
- Participatory justice => be more attentive to who gets voice



Some hurdles — Do we have good responsibility conditions?

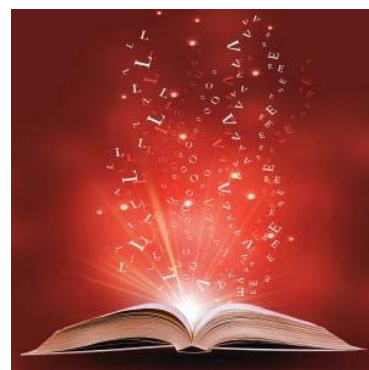
- Difficulty to make space for engagement in a research and innovation environment that is very competitive
- Reward systems do not consider engagement; they are too often focusing on classical indicators
- Funding agencies need to foster RRI related components (e.g. the Dutch programme*)

* <https://www.nwo.nl/en/research-and-results/programmes/responsible+innovation>



Open access

- Seen as **needed transformation of the research system** for a better integration with society
- Hope that such a transformation will increase the circulation and exploitation of knowledge
=> **open access to publications as a first step**
- Basic rule for all Horizon 2020 funded projects: publications should be open access; many national funding agencies followed this policy



Open access

- EC senior policy officer reported that by mid-2017: 61-68% of publications produced with Horizon 2020 funding were open access (most of them green open access with an average embargo period of 11 months)
- Different modes of open access:
 - most widely spread is green open access;
 - gold open access is in many cases a too expensive option
- Negotiation of “big deals” with the most powerful publishing houses; however there are also quite some conflicts arising



Challenges of turning to Open access/open science

- the shift from “pay to read” to “pay to publish” is not as easy as it sounds (poses in part the question of who can publish)
- Encouraging the development and establishment of scientific recognition and research assessment systems
- intellectual property rights and copyright policies for various outputs, including publications, research data, learning materials have to be clarified
- Considering alternative and sustainable OA business models as there are quite emotional battles with the big publishers as OA does often not reduce costs
- establishment of comprehensive standards for institutional OA policies concerning research publications and teaching materials



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A balancing act