SiS.net Factsheet
‘Responsible Research and Innovation’

WHAT IS RESPONSIBLE RESEARCH & INNOVATION

RRI is an approach which implies that societal actors, such as researchers, citizens, policy makers, companies and civil society organisations work together in 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. (Definition: see European Commission website)

Why RRI

Science and technology are transformative forces that have granted humans the capacity to alter ecosystems, the Earth’s climate, and even the building blocks of matter and life itself. R&I have improved our world and our lives in many ways, and will most likely continue to do so.

But Research and Innovation will inevitably create new risks and new ethical dilemmas as they have done so in the past. Over the last decades efforts have been made to decrease the distance between science and society.

In Horizon 2020 RRI seeks to bring issues related to research and innovation closer to the public, in order to anticipate their consequences, and to involve society in discussing how science and technology can help create the kind of world and society we want for generations to come.

But also for the next framework programme ‘Horizon Europe’ RRI will stay important because engaging and involving citizens, civil society organisations and end-users in co-design and co-creation processes and promoting responsible research and innovation will improve trust between science and society, as well as the uptake of scientific evidence-based public policies and innovative solutions.

RRI key components

The European Commission has identified 6 key components for RRI. These are policy agendas that each have their own potential to realize RRI processes and outcomes. In Horizon 2020 these 6 RRI elements should be addressed – not all of them always together - in each and every project.

1. Ethics: focuses on (1) research integrity: the prevention of unacceptable research and research practices; and (2) science and society: the ethical acceptability of scientific and technological developments notably those related to Artificial Intelligence and their potential societal impact.

2. Gender equality is about promoting gender balanced teams, promoting women in scientific careers, ensuring gender balance in decision-making bodies, and considering always the gender dimension in R&I to improve the quality and social relevance of the results.
3. **Governance**: arrangements that lead to acceptable and desirable futures have to (1) be robust and adaptable to the unpredictable development of R&I (de facto governance); (2) be familiar enough to align with existing practices in R&I; (3) share responsibility and accountability among all actors; and (4) provide governance instruments to actually foster this shared responsibility.

4. **Open access**: addresses issues of accessibility to and ownership of scientific information (especially Open Access to Data) but also issues of research reproducibility and integrity. Free and earlier access to scientific work might improve the quality of scientific research because open data will enable saving time and budget by using trustworthy databases. Open access will provide a larger database, which will enrich the information each researcher has in cases of small samples. Also, will open access facilitate fast innovation, constructive collaborations among peers, and productive dialogue with civil society.

5. **Public engagement**: fosters R&I processes that are collaborative and multi actor: all societal actors work together during the whole process in order to align its outcomes to the values, needs and expectations of society.

6. **Science education**: focuses on (1) enhancing the current education process to better equip citizens with the necessary knowledge and skills so they can participate in R&I debates; and (2) increasing the number of researchers (promote scientific vocations).

**Outcomes of RRI**

The outcomes of Responsible Research and Innovation are divided into three categories:

1. **Learning outcomes**: RRI leads to empowered, responsible actors across European Research and Innovation systems (researchers, policymakers, businesses and innovators, CSOs, educators). Structures and organisations should create opportunities for and provide support to actors to be responsible, ensuring that RRI becomes — and remains — a solid and continuous reality.

2. **R&I outcomes**: RRI practices strive for ethically acceptable, sustainable, and socially desirable outcomes. Solutions are found in opening up science through continuous, meaningful deliberation to incorporate societal voices in R&I, which leads to relevant applications of science.

3. **Solutions to societal challenges**: Our societies face several challenges, which the European Commission has formulated as the seven “Grand Challenges” — one of the three main pillars of the Horizon 2020 Programme. In order to support European policy, the EC requires R&I endeavours to contribute to finding solutions for these Grand Challenges. But RRI is a cross-cutting issue in Horizon 2020 so also in the LEIT (Leadership in enabling and industrial technologies) part of pillar 2 Industrial leadership from Horizon 2020 the RRI aspects need to be addressed.

**Useful info**

- More information about what [RRI and all its components](https://sis.net) entail can be found on the website of SIS.net, the network for National Contact Points for Science with and for Society 2020.

- [RRI success stories](https://sis.net) on the SIS.net website.

- [Policy briefs](https://sis.net) for the different elements of RRI.

- [Toolkit](https://sis.net) to check if your organization comply to the standards or RRI.

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