Responsible Research and Innovation

Europe's ability to respond to societal challenges

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Responsible Research and Innovation

The Directorate-General for Research and Innovation of the European Commission is determined to bridge the gap between the scientific community and society at large. In 2001, the 'Science and society' action plan was launched to set out a common strategy to make a better connection between science and European citizens. In 2007, under the seventh framework programme for research and technological development (FP7), 'Science and Society' became 'Science in society (SiS)' with the main objective to foster public engagement and a sustained two-way dialogue between science and civil society. This effort is pursued under part V 'Science with and for Society' of Horizon 2020.

Since 2010 the focus of SiS has been to develop a concept reconciling the aspirations and ambitions of European citizens and other research and innovation actors: a framework for responsible research and innovation (RRI). 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.

Responsible research and innovation means that societal actors 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 European society. RRI is an ambitious challenge for the creation of a research and innovation policy driven by the needs of society and engaging all societal actors via inclusive participatory approaches. RRI is now a cross-cutting issue of Horizon 2020.

The responsible research and innovation framework consists of six dimensions.

'Choose together'

The first dimension, multi-actor and public **Engagement** (PE), is about co-creating the future by bringing together the widest possible diversity of actors, including researchers and innovators, industry and SME, policymakers, non-governmental organisations (NGOs), civil society organisations and citizens, that would not normally interact with each other, on matters of science and technology, in particular to tackle the grand societal challenges that lie before us. PE implies a two-way, iterative, inclusive and participatory process of multi-actor exchanges and dialogues (also involving minorities, considering gender and multiple generations). Public engagement in research and innovation fosters more societally relevant, desirable, and creative research and innovation actions and policy agenda, leading to wider acceptability of science and technology outcomes.

'Unlock the full potential'

The second dimension is **Gender Equality**. Engagement means that all actors

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— women and men — are on board. The under-representation of women must be addressed. Research institutions, in particular their human resources management, need to be modernised. The gender dimension must be integrated in research and innovation content.

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'Creative learning fresh ideas'

The third dimension is **Science Education**. The world is changing rapidly and the responsibility for addressing societal challenges needs to be shared through the engagement of all societal actors across Europe. However, the key for co-creation within the research and innovation process is one of enabling sustained dialogue. But before this can happen, the language and tools of science need to be available to everyone. Science education is essential to making this happen. Children and young people enter the education systems with natural curiosity and creativity; recognising and nurturing this will require changes in both the values and governance of science education.

'Share results to advance'

Science has always been open, unlike the processes for producing research and diffusing its results. It is widely agreed that making research results more accessible contributes to improving research and innovation. As new challenges need to be addressed, we move decisively with this fourth dimension from **Open Access** into the broader landscape of **Open Science**.

'Do the right "think" and do it right'

The fifth dimension is **Ethics**. European society is based on shared values. In order to adequately respond to societal challenges, research and innovation must respect fundamental rights and the highest ethical standards. Beyond the mandatory legal aspects, this aims to ensure increased societal relevance and acceptability of research and innovation outcomes. Ethics should not be perceived as a constraint to research and innovation, but rather as a way of ensuring high quality results.

'Design science with and for society'

Policymakers also have a responsibility to anticipate and assess potential implications and societal expectations with regard to research and innovation, with the aim of fostering the design of inclusive and sustainable research and innovation. Through this last dimension we will develop harmonious **Governance** models for responsible research and innovation that also integrate public engagement, gender equality, science education, open access/science and ethics.

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'The dialogue between science and the rest of society has never been more important.

As the Europe 2020 strategy makes clear, to overcome the current economic crisis we need to create a smarter, greener economy, where our prosperity will come from research and innovation. Science is the basis for a better future and the bedrock of a knowledge-based society and a healthy economy.

After 10 years of action at EU level to develop and promote the role of science in society, at least one thing is very clear: we can only find the right answers to the challenges we face by involving as many stakeholders as possible in the research and innovation process. Research and innovation must respond to the needs and ambitions of society, reflect its values, and be responsible. To my mind, there are a number of keys to doing this'.

MÁIRE GEOGHEGAN-QUINN, European Commissioner for Research, Innovation and Science
Message delivered at the conference *'Science in Dialogue — Towards a European Model*
for Responsible Research and Innovation'
Odense, Denmark, 23–25 April 2012

Science with and for Society website:
http://ec.europa.eu/research/swafs

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