

The emergence of 'responsible research and innovation' in european union policy

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ABSTRACT

'Responsible Research and Innovation' (RRI) is a policy framework for science, technology and innovation in the European Union which emerged during the development of the Horizon 2020 research funding programme. It reflects the general trajectory towards greater transparency and inclusion of citizens in the decision-making activities of the European Commission, including the governance of science and technology. However, there has also been some question as to whether RRI will be able to retain its deeper goals of aligning innovation with social values and needs, against an ever-increasing demand for short-term economic growth.



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'Responsible Research and Innovation' (RRI) is a policy framework for science, technology and innovation in the European Union. It emerged during the development of Horizon 2020, the funding instrument for research which replaced the Framework Programmes in 2014, and reflects a general trajectory towards greater transparency and inclusion of citizens in the decision-making activities of the European Commission. Although RRI is a relatively new term in policy, the concept of 'responsible innovation' builds on longstanding approaches such as technology assessment and anticipatory governance, on research on public engagement in science, and in particular on discussions of responsible development originating in the field of nanotechnology.

The connection between research, innovation and economic growth at European policy level was strengthened through the 1995 *Green Paper on Innovation*, which argued that Europe was suffering from the outsourcing of manufacturing labour to low-wage countries, and from an inability to translate its excellence at research into innovation which could make use of the single market. Growth could be restored through increasing the percentage of GDP directed towards research and development (R&D) in each member state to 3%, closer to that of the United States and Japan, driving a transition to a knowledge-based economy. This would require development of a European Research Area (ERA), so that researchers and knowledge could circulate freely, in the same way the common market guaranteed free circulation of workers, capital and goods. The creation of the ERA became a central pillar of the Lisbon strategy which was launched in 2000, to be built through voluntary co-operation by individual member states.

At this time, the macro-economic outlook for Europe was considered good. However, by its mid-term review in 2005, the Commission judged the Lisbon strategy to have failed to improve competitiveness, partly through inaction in completing the ERA. It subsequently re-focussed its objectives away from long-term goals and towards a stronger emphasis on making Europe 'the most dynamic and competitive knowledge-based economy in the world' by 2010. In the wake of the 2008 financial crisis, this goal was not achieved. However, innovation continues to be seen by the Commission as not simply a major driver of the economy, but *the* pathway back to economic growth. This narrowing of emphasis throughout the years that the Europe 2020 policy structure was developing is most clearly seen in the Innovation Union flagship initiative launched in 2010, which aimed to promote the completion of the ERA as a means of stimulating public and private investment in innovation for jobs and growth. However, at the same time, a sovereign debt crisis was building in the Eurozone, and since 2010 even relatively healthy European economies have continued to advocate a policy of economic austerity, including severe cutbacks to universities and national research funding schemes as part of reducing the public service sector. Thus, rather than increasing research intensity to 3%, some member states have *reduced* investment, while others have remained at levels below 1%, sparking intense discussion of ways in which to maintain an adequate level of funding for European R&D in the new Framework Programme due to launch in 2014.

These events also coincided with an overall shift in emphasis from top-down communication to more inclusive ways of engaging EU citizens in the activities of the Commission, beginning when a Danish referendum rejected the Maastricht treaty in 1992, triggering what has been referred to as a 'crisis of legitimacy' in the EU. Referenda in the Netherlands and France in 2005 also rejected the planned *Constitution for Europe*, which eventually became the *Lisbon Treaty*, and was in turn rejected by the Irish in 2008. Thus, there has been a continuous call for the development of tools which allow European citizens to feel more involved and represented in decision-making at EU level. This has included new ways of including the public in structures for risk assessment and developing more reciprocal forms of public engagement with the trajectory of scientific research.

In May 2011, a workshop organised by Rene von Schomberg and other members of the European Commission's Directorate-General for Research and Innovation (DG Research) brought together a carefully selected group of academics, research funders, and consultants to discuss how these concepts could inform a new policy for 'Responsible Research and Innovation', rooted in the European values expressed by the *Treaty of Lisbon*. Although there was still considerable emphasis on involving the public in order to ensure that innovation would be

successfully received by the market, there was also a strong emphasis, particularly from practitioners of constructive technology assessment, on promoting mutual responsiveness between innovators and society, anticipating both positive and negative outcomes, and directing innovation towards solutions for the 'grand societal challenges' - complex problems such as climate change, food security and aging populations, which require a global response. A more comprehensive high-level conference, *Science in Dialogue - Towards a European Model for RRI*, took place the following year in Odense, Denmark, broadening and deepening the discussion through involvement of a larger group of stakeholders, mainly representing science policy, industry and academia.

The 2011 workshop formed the basis of what has now become the six 'pillars' of RRI, reflecting the commitments of the Lisbon treaty, as well as the goal of European economic growth. These have been laid out in the pamphlet *Responsible Research and Innovation: Europe's Ability to Respond to Societal Challenges*, which aims to explain RRI's goals to the general public: inclusive engagement, gender equality, more science education, ethics as shared values reflecting fundamental European rights, open access to data, and new models of governance. Some of these aspects, in particular gender equality, have carried variable weight as the RRI framework is adapted to national R&D contexts. However, there is a general agreement that 'responsible innovation' describes an environment where all sectors of society, including the public, are expected to work together throughout the whole of the research and innovation process to shape new technologies towards outcomes which are beneficial to societal needs. As well as now being a requirement for all projects bidding for EU research funds through Horizon 2020, RRI is also a cross-cutting issue with its own research programme aimed at developing better tools, testing these in different sectors, and improving its integration into the full scope of R&D activities through the ERA.

However, there has also been some question as to whether RRI, enacted as part of Innovation Union, will be able to retain its deeper goals of protecting the interests of society and the environment through focussing innovation on technologies with a beneficial purpose while embedded within a flagship policy aimed at stimulating short-term economic growth. In part, this has been the result of separating discussion of RRI, and science and technology policy more generally, from discussion of the increasingly instrumental demands of the political economy in which research and innovation is carried out. RRI's deployment through policy structures which are legally bound to the economic goals of the European Council, may therefore raise new problems of focus, motivation and implementation of innovation that will prove equally difficult to solve.

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