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'Science and Innovation Policy: Dynamics, Challenges, Responsibility and Practice'

Session proposal on Responsible (Research and) Innovation:

'Understanding and Addressing the Governance Challenges of RRI'

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Session Convenors

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Responsible research and innovation (RRI) is a topic of growing interest and is becoming an increasingly important ambition in science and innovation policy practices. Yet, while a number of new initiatives are being deployed, notably in the European Horizon2020 program, the contours of the concept of RRI are still in a formative stage, and a broadly accepted definition is lacking. The proposed session intends to (1) contribute to the development of an improved analytical understanding of the complex governance challenges posed by the emerging concept of RRI in the field of STI, and (2) seeks to discuss promising approaches, instruments and methods with which the identified governance challenges can be addressed.

Problem orientation

At the moment, RRI can be best characterized as a hybrid concept linking (a) normative aspects (such as societal objectives, values and ethics) with (b) systemic factors of research and innovation systems and (c) procedural arrangements of R&D policy (public engagement mechanisms, forms of stakeholder participation and deliberation).

In essence, RRI aims at improving the alignment of research, technology and innovation with societal objectives and values. In order to provide the necessary guidance of what constitutes desired or "responsible" research and innovation the concept is intrinsically

normative to a high degree. RRI particularly focuses on so called “emerging technologies and innovations” that are associated with a high potential of societal benefit but also risk, conflict and societal transformation.

Currently the European Commission as well a number of national governments are promoting the evolving concept of RRI to ensure that their considerable investments in research and technology development will be contributing to a set of (politically) defined goals, typically encompassing the so-called grand challenges in health and wellbeing, food and agriculture, energy and resource efficiency, climate action, mobility and secure societies. Science and technology can offer some solutions to these complex and interdependent problems, but at the same time will most likely create new inequities, uncertainties and controversies. In this context concepts of responsible (research and) innovation are being proposed, which emphasize the need for transparency, responsiveness, inclusive interaction and anticipation.

Session focus

The proposed session addresses the particular governance challenges posed by the emerging concept of R(R)I. The governance of STI already takes place in a complex set of co-existing and often intertwined actor arenas which produce at different levels inter alia regulation and government intervention. The implementation of RRI on national and European levels will most certainly add considerably to this already existing complexity. In order to accomplish the ambitious objectives of RRI, at least four interdependent areas need to be addressed:

1. Guidance by normative principles: a set of shared values is needed in order to provide some initial guidance with regard to what is considered to be the “right” impacts of innovation. Such a set of values will, however, always be interpreted and weighed differently and most likely be contested in the situations at hand, especially when impacts are uncertain, ambiguous or unequally distributed. The challenge here is to identify values guiding the organization of research and innovation at an overarching level.
2. Deliberation and participation: involving a wide array of publics and stakeholder groups fulfils several key functions in RRI, including deliberation on social benefits, creating acceptance, legitimizing public research spending, and involvement of citizens as co-innovators. Yet, the effectiveness and legitimacy of participatory approaches is being contested. How to proceed with the deliberative and participatory experiments in STI governance?
3. Anticipation: development and improvement of existing methods and their application to better anticipate problems and assess risks and opportunities of emerging technologies, and to realize integration of anticipatory practices throughout STI areas.
4. The simultaneous pursuit of the above three governance challenges comes with a fourth challenge of establishing a combination of adaptive and reflexive governance arrangements (including hard and soft law) in order to address the challenges effectively and at the same time remaining responsive to new, unanticipated developments and insights.

The central question integrating the various contributions on above challenges is the quest for an appropriate analytical understanding in relation to what would constitute adequate approaches to RRI governance. At this level the issues that have to be taken into account are

the broad range of different research fields to which RRI can be applied as a cross-cutting conception; the level of transformation needed, up to a 'culture change' amongst all relevant stakeholder groups (scientists, innovators, academia and funding agencies); and the fact that heterogeneous and polycentric governance arrangements already exist which implicitly deal with important elements of RRI (expert and participatory technology assessment, foresight exercises, ethics committees, codes of conduct, safety regulation, Corporate Responsibility schemes etc.). How can RRI governance approaches be effectively integrated in, combined with or built on these existing *de facto* governance arrangements?

Expected contributions

The concept of RRI brings together different disciplines of social scientists working at the interface of the development of new and emerging technologies and society, and policy-makers and practitioners in the field of science, technology and innovation policy. Therefore, papers from a wide range of disciplinary backgrounds are welcome, particularly from economics of science and innovation, entrepreneurship, evaluation studies, policy analysis and implementation studies, political science, policy studies, public administration, research management, science and technology studies, sociology, and technology assessment.

The session organizers encourage contributions that conceptually, methodologically and/or empirically address the governance of RRI.

Themes for paper contributions may include, but are not limited to:

- New governance approaches, instruments and mechanisms to enhance reflexivity and anticipation in STI
- Approaches to broaden the range of inputs into the governance of science and innovation
- Dealing with contestation:
 - context conditions, strengths and weaknesses of general systems of interest intermediation (e.g., statism, pluralism, corporatism, network governance)
 - procedures and approaches addressing competing normative claims and conflicting interests
- Policy integration, policy coordination and policy coherence in the context of RRI
- Analyses of organizational change and institutional re-structuring (including transformations driven by institutional entrepreneurs) geared towards embedding goals and values of RRI
- Comparison and assessment of (emerging) governance frameworks for RRI at different levels
- Measuring and evaluating RRI (e.g., in terms of effectiveness, legitimacy etc.) / searching for suitable indicators