

## **The collision of incentive structures of actors and proposed mechanisms for responsible research and innovation (RRI)**

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The concept of responsible innovation has become increasingly visible in nanopolicy, particularly at EU level but also elsewhere (Ferrari, 2010). While responsible innovation started out at the level of policy discourse, it has been extended to 'responsible research' (Robinson, 2010) as in the EU Code of Conduct for Responsible Nanoscience and Nanotechnologies Research. Promoters of responsible research and innovation (RRI) seek to extend scientific responsibility to include future societal impacts of technological development (Fisher and Rip, 2013). Explicit in the RRI rhetoric is the distribution of responsibility across the actors (to be) involved in the development and deployment of nanotechnology enabled products (inviting and/or actively encouraging the contribution of scientific researchers and industrial actors).

Government agencies and policymakers incentivise elements of RRI by requiring the inclusion of ELSA/ELSI in nanoscience and nanotechnology research funding programmes, through provisions in codes of conduct, and so on. While there may be willingness on the part of research and industrial actors to actively "do" RRI, there is caution/hesitation up to reluctance to apply RRI, due to perceived conflicts with actors' everyday responsibilities (Shelley-Egan, 2011) and relevance structures linked to their institutional setting. Researchers and industrial actors act in their own worlds and relevance structures which provide incentives to act in a certain way and disincentives to act in other ways. Thus their response to the pressure for RRI should be explored through the 'lens' of these particular world perspectives. Certain incentive structures will guide their behaviour and responses to RRI.

Supporting mechanisms and incentives for RRI may not always 'fit' with the incentive structures of these actors, implying that RRI may not be operationalised in line with those elements which are widely seen as being desirable, i.e. RRI as being anticipatory, deliberative, reflective and responsive (Owen et al., 2012; von Schomberg, 2013). It is this observation that forms the departure point for our paper which aims to make a contribution to the burgeoning literature on RRI by exploring the operational challenges of implementing RRI where proposed mechanisms for RRI and incentive structures collide. We do this by eliciting the incentive structures that guide specific groups of actors and exploring whether they match, overlap or mismatch the principles and operational aspects of responsible research and innovation. Given our observations, we ask whether 'fit' or 'stretch' strategies (cf. Hoogma, 2000) should come into play, i.e. should effort be put into stretching the element of RRI and the incentive structure in question or should one be made to fit the other? Our aim is to translate our observations into proposed action points for further investigation into certain elements of RRI which may be found wanting in this regard.