National Stakeholder Workshop on Responsible Innovation

Location: Engineering and Physical Sciences Research Council (EPSRC), Polaris House, Swindon, 3/3/2017

The roundtable stakeholder workshop was organised by the Exeter University RRI-Practice research team and hosted by the Engineering and Physical Science Research Council (EPSRC) at their offices in Swindon. The EPSRC is the main case study of the RRI-Practice project in the UK. The workshop was held under the Chatham House Rule[1]. The discussions were recorded, verbatim transcribed and analysed. This report represents initial findings from the analysis. RRI has largely been termed 'responsible innovation' in the UK and as such will be referred to as RI in this report.

Executive summary

Fourteen key stakeholders from the UK Research Councils, Innovate UK, academia and civil society came together to discuss the past, present and future of responsible innovation in the UK and how it is being translated into practice. The academic community and Research Councils in the UK have been key to the development and translation of the RI discourse, which has had three broad phases. The first of these (between 2008-2010) saw the emergence of RI as a term, pilot studies and public dialogues which laid the foundations for a second phase in which EPSRC commissioned work leading to the development of a RI framework. This was adopted as EPSRC policy in late 2013 and RI has since become a feature of research funding calls there. Principally this has occurred in key thematic areas such as synthetic biology, ICT, and more recently quantum technologies. The third and final phase post 2013 has then seen a policy of selective RI mainstreaming, with purposeful embedding of RI within some directed programmes where EPSRC has felt RI should be signposted to or required. As a result a number of RI initiatives have commenced across UK universities which can be viewed as RI experiments in practice. The EC RRI keys, while important, were not seen as directly relevant to the RI discourse in the UK, although it was acknowledged that certain keys such as gender were useful entry points.

The changing political environment for research and higher education in the UK, including Brexit and the forthcoming transition of the UK Research Councils transition into a new body (UK Research and Innovation) were seen as significant factors that could influence the future of RI in the UK. This is set in the context of an overwhelming political imperative for economic growth at a government policy level, for example within its Industrial Strategy.

RI has multiple meanings which have constituent impacts on practice and role responsibilities. Uptake of RI has varied considerably across universities. While experiences of RI initiatives also varied, it was clear that RI risks a process of 'RI simplification', becoming synonymous with e.g. public engagement or established codes of ethics. RI needs to maintain its ambition for transformational change and be imaginative and a creative resource for innovation that is viewed as being part of research excellence and quality. There are significant institutional and cultural barriers to RI. Disciplinary norms, approaches to epistemology, institutional expectations, incentives and research evaluation criteria are hindering uptake and practice of RI. Without changes to these, proper resourcing and sustained and committed leadership, RI as an inter and transdisciplinary endeavour faces major challenges. The rising impact agenda in the UK presents an ongoing vehicle for continued engagement with RI. However, overall it was felt that while the UK academic and research council communities have played a major contributing role in the development of RI in concept and practice, and while RI was considered important and of value as a guiding principle, it was acknowledged that it is a fragile discourse encountering significant institutional barriers and uncertain political times.

[1] www.chathamhouse.org/about/chatham-house-rule

1. Setting the Scene: A brief history of RI in the UK

The workshop began with a reflection on the history of the RI discourse between 2008 and 2016. Although RI has foundations extending back many decades, as a formal term it has had three broad phases: an initial phase of building foundations and the case for RI between 2008 and 2010, which saw the emergence of RI as a term, a public dialogue on nanotechnologies[2], a pilot study at EPSRC in the area of nanotechnologies[3], the publishing of a major public dialogue on synthetic biology by sister research council Biotechnology and Biological Sciences Research Council[4] (BBSRC) and iterative discussions concerning RI at EPSRC's advisory Societal Issues Panel. This led to a second phase in which EPSRC committed to RI, funding two projects which culminated in a framework for RI[5] which was formally adopted as EPSRC policy in late 2013[6] (the AREA framework) (see Owen, 2014[7] for a more detailed history). The EPSRC has been the first, and only, research council to formally introduce a policy framework for RI to date. This period also witnessed the requirement for RI by the UK's main innovation agency (Innovate UK) in funding calls in the specific area of synthetic biology (2012)[8]. The third phase since 2014 has seen a drive towards RI embedding and selective mainstreaming at EPSRC, raising awareness to academics (e.g. via Portfolio Managers) and mandating RI in certain calls. An analysis of proposals and awards made between 2010 and 2016 and presented at the workshop showed that RI has steadily grown in prominence in funding calls made by EPSRC in key thematic areas (principally synthetic biology, ICT and more recently quantum technologies) and in its Centres for Doctoral Training. In these calls RI policy has been specifically referred to and EPSRC has encouraged the consideration of RI. Where RI has not been referred to in the call document responses to the 2013 policy have been small in number. The ICT theme (and quantum technologies area) have continued to be a specific focus for RI activity, with the recent funding by EPSRC of an observatory for RI in ICT (ORBIT)[9].

As a result of these directed calls a number of RI initiatives have been initiated at some Universities, for example within the Synthetic Biology Research Centres[10], which can be viewed as a process of RI experimentation. There has been only limited reporting of experiences of RI practice in these to date[11]. Stakeholders noted that while themes such as gender equality were extremely important, the EC RRI keys in themselves have not been relevant to the RI discourse in the UK. That said, later discussions revealed these keys to be useful entry points for engaging with RI.

2. *Current and future policy context for RI in the UK*

The scene setting presentation was followed by reflections on the current and future context for RI in the UK. Stakeholders restated RI's value, importance and its potential to reshape science, innovation and society relations in a positive way. It was also clear that the EPSRC policy had started a significant debate in the UK and that it remains committed to the principles of RI and wishes to continue mainstreaming this, including

---

[2] Jones R. (2008).When it pays to ask the public. *Nature Nanotechnology* **3**, 578–579.

[3] Owen R., Goldberg N. (2010) Responsible Innovation: A Pilot Study with the UK Engineering and Physical Sciences Research Council. *Risk Analysis* 30 (11): 1699-1707

[4] TNS-BMRB (2010) *Synthetic Biology Dialogue*. London: Sciencewise

[5] Stilgoe J., Owen R., Macnaghten P.M. (2013) Developing a Framework for Responsible Innovation. *Research Policy* 42 (3) 1568-1580

[6] www.epsrc.ac.uk/research/framework/

[7] Owen R. (2014). The UK Engineering and Physical Sciences Research Council's Commitment to a Framework for Responsible Innovation. *Journal of Responsible Innovation* 1(1) 113-117

[8] http://webarchive.nationalarchives.gov.uk/20130221185318/www.innovateuk.org/_assets/responsible_innovation.pdf

[9] www.orbit-rri.org/

[10] e.g. www.synbio.ed.ac.uk/responsible-research-and-innovation

[11] Hartley S., Pearce W. and Taylor A (2016) Against the tide of depoliticisation: The politics of research governance. *Policy and Politics. July 2016* dx.doi.org/10.1332/030557316X14681503832036

through its theme planning and strategy development. This is reflected in a reaffirmation of its commitment to RI in its 2016 -2020 Delivery Plan[12]. However it was also evident that RI had not been prominent in internal discussions at the Council over the last two years and had lost some visibility. At Innovate UK, beyond early investments within the synthetic biology domain, RI had appeared to have lost prominence. In other organisations, such as BBSRC, while RI did not have visibility as a specific, formal policy, a number of activities were highly relevant. A policy of 'openness' reflected an institutional commitment to 'being participative, being accountable and being transparent' with a focus on achieving an organizational culture based on those three principles and reflected in projects aimed at fostering collaboration between NGOs, civil society and industry.

Stakeholders noted the rapidly changing political context for RI in the UK, which includes uncertainties and potential challenges posed by Brexit, one of which is the future funding of the UK RI community itself. Two additional key factors were discussed as being significant context for the future of RI in the UK. The first of these was the focus for UK Government on *economic growth as the political imperative*. This was evident in the UK Industrial Strategy and in its 'prosperity agenda', and the national plan to achieve a 'Resilient, Healthy, Connected and Productive Nation', again reflected in the EPSRC's Delivery Plan. As one stakeholder stated *"Well [the industrial strategy] is all about how to create a post-Brexit economy, it's not creating a better world. That is why it's there… we identify the challenges that would prevent future economic growth. There is no argument about that and there is no embarrassment. It's not the only investment, the problem [for RI] is it's the only one that people are talking about now.*" In this respect stakeholders discussed the potential for RI to be perceived as a process of slowing down innovation. This seemed to chime with experiences in the RRI Tools project where one stakeholder noted it had been ''very difficult to engage with policy makers across Europe about RRI in the context of growth, anything that seems to interfere with this wonderful engine that is creating money for us was not received particularly well.''

The second factor was imminent *changes to the structure and governance of the Research Councils* themselves, which will transition to a new UK Research and Innovation body in 2018. While the concepts embodied by RI would likely continue to be important in this transition, there was some uncertainty concerning whether RI as a specific term in policy ''would make this transition''.

3. RI in practice: understandings, role responsibilities and the institutional challenges for RI

Stakeholders then discussed experiences of putting RI into practice at an institutional level in Universities and research centres, for example in the ICT theme, Quantum Technology Hubs and more broadly in Universities (e.g. see [10] above). It was clear that from the discussion that while RI has an ambitious conceptual imaginary, RI has multiple meanings and remains insufficiently understood across the higher education landscape. In general, experiences to date suggested that while there have been instances of good practice, there was a lack of imagination concerning RI activities, with many researchers still understanding RI in terms of public outreach / communication, public engagement, risk analysis and research integrity. In general, many researchers have little institutional incentive for, and find it difficult to understand and apply, RI in its broader framing (e.g. the AIRR framework) in part because of the challenges RI's epistemological approach presents in practice. Extant disciplinary norms (e.g. disciplinary publication strategies and outlets), institutional expectations, promotion criteria and associated research evaluation metrics (e.g. the periodic national Research Evaluation Framework or REF[12]) drive behaviour (personal, institutional) and role responsibilities (i.e. what 'being responsible' in their work implies to them and their employers.) While the need to demonstrate the potential for social and economic impact of research as a condition of funding had become significantly more important in recent years, norms of research integrity, research codes of conduct

[12] www.epsrc.ac.uk/newsevents/pubs/epsrc-delivery-plan-2016-17-2019-20/ (page 5)

and ethics and ad hoc public engagement approaches continued to provide the predominant framing for RI and associated perceived researcher role responsibilities.

While experiences across universities varied, stakeholders observed significant challenges to RI as an embedded, reflective, inter and transdisciplinary endeavour in institutional settings. Many researchers do not routinely or systematically engage in the sorts of questions RI poses about their research for a number of reasons. These include lack of time (RI is perceived as an additional burden), perceptions of science and technologies as being agnostic and the perceived need to keep values out of science in the pursuit of truth, the need for scientific autonomy and independence, the envisaged applications of fundamental and societal impacts as being too elusive to predict, that values can only be identified within a context of use, the perceived division of labour between doing science and understanding impacts (who does what), and, pragmatically, the lack of incentives and training: they 'simply don't know what to do'. Clear criteria for a RI framework, guidance, support and training and the inclusion of RI as a new component in the Impact evalution within the REF[13] were viewed as important facilitators. Stakeholders discussed the need to more purposefully mandate RI in research calls, noting the weaker response where mandating has not happened to date (and emphasizing the influence of research funders in this respect). They also stressed the need for institutional culture change.

4. *Insights and recommendations*

The discussions drew together learning from experiences to date in the UK to identify some initial insights concerning the translation of the RI discourse in the UK and how this could be promoted in the future.

1. **RI in the UK is encountering a rapidly changing external political context, including Brexit, where economic growth is the political imperative. In this new political reality RI may be losing momentum at a policy level in the UK and has an uncertain future.**

   ''ultimately the final direction is to contribute to UK prosperity''

   '' the concept is what matters… as an entity I think it's very hard to see at the moment where it's going to land in terms of future funding. I think even though we are still committed I don't know whether it will continue as a thing called RRI''

   While societal challenges provide a framing for policy, research and innovation, the current political context places *an <u>imperative for economic growth and productivity</u>*. The participants agreed that RI will continue to encounter resistance if it is at odds with this imperative and that at a policy level *RI <u>needs political will and political leadership</u>.* Maintaining the RI narrative and visibility is key in order to prevent sidelining and de –prioritization of RI as a policy priority. RI as a term faces an uncertain future in the UK, although the thinking and concepts behind it are likely to survive.

2. **While there have been significant RI initiatives, uptake across universities has varied considerably**

   ''we discovered quite a political resistance within the university. There was some people, researchers, staff who seemed to benefit from the status quo and were quite reluctant to take this change on.''

   ''We embedded [RRI] in the curricula, we reflect when we were wrong…this is seen as an advantage….the ideas around RRI and ethics in research is a selling point''

[13] www.ref.ac.uk/

There has been *considerable variation in uptake of RI* in and across institutions, and in some instances *resistance*. In other cases RI has been seen as central to the DNA of the institution and a source of *competitive advantage*.

3. **RI has multiple meanings which are important for how it is being performed in practice. It must be an imaginative, creative process synonymous with high quality research and innovation. RI needs to maintain it ambition**.

'' RRI has multiple meanings which matter for practice in universities… these meanings intersect with actors' acknowledgement of their general responsibilities to society, shaping pathways for RI which may open up (politicise) or close down (depoliticise) science''

''everything gets conflated with talking to the public''

'' we seem to sense a lack of imagination about RRI or whatever we call it could be and do as a creative resource for innovation''

'' I think that RI should become part of what it means to do high quality excellent research. It seems to be a separate thing, but it should be part of the whole''

'' I hope that by 2031 RRI will be in the REF and excellent research will overlap with RI''

RI is interpretively flexible with multiple meanings, and how it is being interpreted has consequences for how it is being realized in practice. In general experiences suggest it *lacks imagination* in practice and is synonymous to many researchers with public engagement, risk analysis, research integrity and complying with established codes of research ethics. There was a lot to be gained by institutions learning from the past and bringing together relevant work around RI e.g. around public engagement. However there had to be caution concerning what was described as the potential for '*RI Simplification*', where RI was being considered simply as public engagement or research integrity (ethics). Here the EC RRI Keys posed a risk, as institutions may be happy to state they are 'doing RI' around individual keys such as gender quality or open access, for which most institutions have well established policies[14] and practices in the UK.

RI needs to build on these to *be imaginative, maintain its focus on systemic transformation* and *create opportunities* for different disciplines to come together as a valued and *creative endeavor*. RI needs emblematic *exemplars of best practice*. RI challenges extant definitions of research quality and needs to become *synonymous with high quality research and innovation*, *a resource and vehicle for creativity* and a *valued process* that opens up opportunities for new forms of creative interaction and provides a competitive advantage for Universities. RI also needs to be *embedded* in educational curricula at all levels, and in particular target early career researchers where experience shows that there appears to be a latent sensibility towards RI.

[14] /www.ecu.ac.uk/equality-charters/athena-swan/;www.rcuk.ac.uk/research/openaccess/

4. **There are deeply engrained cultural and institutional barriers to RI. Overcoming these needs changes to role responsibilities organizational culture, approach to epistemology, disciplinary norms, resources, incentive structures and evaluation criteria**

''it's threatening for them [scientists, technology developers]… and this is linked to some of the fundamental ideas on science they have. They never had to engage with public at this level. It's threatening their perception of scientific autonomy''

'for researchers building a career, this is not a high priority, competing with other activities which will enhance their career prospects. They will need to develop a portfolio of publications, produce some demonstrable results, help to secure more funding, and the other things which are well regarded in academia''

'' taking part in RI activities is not rewarded''

Perceived role responsibilities imply a division of labour between science / innovation on one hand and reflecting / anticipating / deliberating on societal dimensions / impacts on the other. Impacts can be perceived as being too difficult to predict without knowing the context of use. RI may be perceived as posing a *threat to extant norms and role responsibilities*, and adding a burden to these which is not rewarded. RI, like ethics, may be seen as an *obstacle to autonomy, freedom to innovate and gain funding.*

RI needs *resources and changes to organizational culture, including incentive structures, promotion criteria and the way research excellence and impact is evaluated*. This goes to the very heart of the mission of Universities and their purpose, national systems of research evaluation (e.g. the REF) and definitions and measures of research excellence and quality. Stakeholders noted that excellent research was not always synonymous with responsible research. *Current disciplinary norms,* publication strategies and, overall, approaches to *epistemology* pose significant challenges to RI as a reflective, deliberative, inter and trans disciplinary approach to research and innovation.

5. **RI needs committed leadership with agency**

''*One of the real lessons here is leadership is everything, without it you have nothing… it [RI] literally fell apart as soon as he [the RI Champion at the University] went… the institutionalization of [RI] disappeared… there was nothing*''

RI needs *committed, effective and sustained institutional leadership*. Stakeholders were able to identify issues, obstacles and actions to foster RI but pointed to a lack of agency to enact those actions. *Who has the agency* at different organisational and political levels was an important question. Experiences in the UK have demonstrated that RI as process of culture change needs leadership at the highest level that is committed and which has the power and resources to effect change. In the UK context, the research councils (and EPSRC in particular) were seen as being key actors in this respect, stimulating political action and being well- placed to engender the institutional response needed in universities. RI requires motivated individuals within institutions who serve as *RI change agents*. Where RI has succeeded in institutions to date (in research funders of research performing organisations) it is clear this has been in no small part due to committed individuals who have had some measure of agency. Conversely, stakeholders noted that when such individuals moved on or to new roles RI as an institutional activity became highly vulnerable and risked losing momentum.