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Limits of decentered governance in science-society policies

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ABSTRACT

This article addresses the practices of implementing science policies that involve science-society relations, such as funding policies on ethical, legal, and social aspects (ELSA) and Responsible Research and Innovation (RRI). I examine how R&D actors translate such science governance. In particular, the paper focuses on possible tensions when scientists juggle competing policy demands. The paper draws mainly on interviews with scientists within biotechnology and nanotechnology in Norway. It shows that scientists try to accommodate rather than enact ELSA and RRI. They employ coping strategies of 'following rules', 'dismissing', and 'contesting through talking the talk'. Thus, science-society policies fail to enter as a counter-logic to the hegemonic public management governing regime. The main argument is that RRI does not take hold because of a failure of meta-governance. Successful science-society policies should not focus only on encouraging scientists to adopt responsible behaviors, but on creating possible conditions for new practices.

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Introduction

For many years, scholars and policy actors have requested new democratic structures in science governance that would provide citizens with better opportunities to scrutinize critically the direction of technoscientific developments and to contribute to respective decision-making (Callon, Lascoumes, and Barthe 2009; Felt et al. 2013; Felt and Wynne 2007; Irwin 2006; Nowotny, Scott, and Gibbons 2001; Stengers 1999). Conflicts within biotechnology were an important driver for these developments (Gottweis 1998; Jasanoff 2005). Since then, greater public consultation has been conceived as necessary in order for the public to accept emerging technologies (Irwin 2006), and this request for democratization has been implemented through policies that focused on societal dialogue and on the ethical, legal, and social aspects (ELSA) of technosciences (Hilgartner, Prainsack, and Hurlbut 2017; Zwart, Landeweerd, and van Rooij 2014). Recently, the science policy concept of Responsible Research and Innovation (RRI) has replaced ELSA and gained ground as a way to make science more responsive to societal concerns (de Saille 2015;

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Owen et al. 2013). RRI proposes that scientists collaborate with other societal stakeholders in order to deliberate on social and ethical concerns and to actively align research with societal values and needs. Hartley, Pearce, and Taylor (2017) identified RRI as an opportunity to counter the general trend toward depoliticization in science governance, that is, as an opportunity to highlight that decisions about the direction and purpose of science are not value-free but political questions about the public good that deserve public scrutiny and deliberation (ibid.: 361–362).

In its focus on citizen involvement with science, RRI follows a well-established ‘participatory turn’ in science governance (Braun and Könniger 2018; Felt and Wynne 2007; Gottweis et al. 2008; Irwin 2006). A particularity of the ‘participatory turn’ in science governance is that state agencies (e.g. the Research Council of Norway, or RCN) push for increased participation by others. Indeed, administrators encouraging those affected by decisions to participate, as a means of strengthening democracy in this manner, is a promising development for which Warren (2009) introduced the concept of ‘governance-driven democratization’. With this concept, Warren includes all participatory developments (e.g. public hearings, stakeholder engagements, participatory budgeting, and citizen juries) within the domain of nonelectoral institutions of government (e.g. agencies and courts). RRI bears many characteristics of governance-driven democratization. However, the policy as promoted by the RRI framework (Owen et al. 2013) and adopted by, for example, the RCN, does not address participation in institutions such as the Ministry of Research and Education or even the RCN itself. Instead, ELSA and RRI situate the locus of doing responsible science governance within *scientists’* conduct of research practices. Scientists are ascribed an active role as governance actors that shall ensure social responsibility in the research process by increasing reflectivity and involving others in the process (Stilgoe, Owen, and Macnaghten 2013). This raises the question of how scientists exercise these active governance roles.

Therefore, this paper elicits how scientists translate science policies that address science-society related concerns (such as ELSA and RRI). I study how such science policy ideas work on their specific addressees, namely the scientists and their research practices. Considering its quite recent emergence, research assessing how science policy ideas such as ELSA and RRI translate into actual research practices is still relatively limited (Davies and Horst 2015; Glerup, Davies, and Horst 2017; Hartley, Pearce, and Taylor 2017; Kjølberg and Strand 2011; Van Hove and Wickson 2017). Felt (2017) observed that New Public Management (NPM) and RRI cannot coexist on a systems level, identifying the need to ‘better understand how individual researchers or research groups can navigate and cope with the complex realities of contemporary research environments and the new demands that are expressed through RRI’ (54). The current paper’s contribution is to analyze whether ELSA and RRI policies in fact are effective ways both to tackle democratically the challenges of new, enabling sciences and technologies and to counter depoliticization within a context of NPM.

The case study is Norway, which is of great international relevance because it is one of few countries that early on adopted concrete measures at a policy level to actually implement ELSA and RRI. After terminating its longtime ELSA program (Nydal, Myhr, and Myskja 2016), the RCN since 2014 has required that, in applying for research grants in selected funding programs¹, scientists provide accounts of how they will conduct their research according to four RRI dimensions of an RRI framework (RCN

2014): anticipation, reflection, engagement, and responsiveness. At the same time, ELSA and RRI policies are not the only policies relevant to scientists' 'epistemic living spaces' (Felt 2009). Scientists applying to RCN for funding often work at publicly funded universities. In recent decades, such institutions underwent several structural reforms marked by a demand for efficiency that introduced management by objectives, measurable output indicators, and result orientation (Sørensen 2010b, 116). In such an NPM regime, metrics are crucial; for example, the number of students graduating, the amount of external funding generated, and publications (Aagaard, Bloch, and Schneider 2015). Accordingly, scientific employees significantly raised their production in all areas (Sørensen 2010a, 57f). Indeed, the number of publication points rose 82% from 2004 to 2012, whereas the number of employees rose only 5% (Aagaard, Bloch, and Schneider 2015, 109f). These statistics reflect unbalanced growth, probably based on unpaid overtime work (Sørensen 2010a, 64). Overall, this configures the situation in which ELSA and RRI is implemented and makes studying how Norwegian scientists within bio- and nanotechnology implement RRI requirements a highly relevant and valid starting point to investigate the interplay between science policies and scientists' response to such policies, particularly regarding science-society related concerns.

Problematizing situated practices of decentered governance

In approaching the questions outlined above, the research presented in this paper draws on critical policy studies (CPS) (Fischer et al. 2015) and science and technology studies (STS) that share a focus on situated meaning-making and practices. In contrast to traditional policy studies, CPS extends analysis beyond traditional institutional layers of the state and public administration (Hajer and Wagenaar 2003). From this perspective, science policies that address science-society relations can be understood as entailing a form of decentered governance (Griggs, Norval, and Wagenaar 2014). Such governance involves multiple actors and sites included in contemporary governing, ranging from collaborative dialogues over informal policy networks to public-private partnerships and self-governance, such as scientists' self-conduct in relation to collective norms or objectives. It is easy to see RRI as part of these developments regarding how policy-makers ascribe social responsibility to scientists and try to stimulate scientists' self-governance toward citizen involvement.

Evaluations of the implementation of science policies that address science-society relations often tend to examine only plans, frameworks, and guidelines. For instance, RCN's general implementation of RRI in the research project portfolio was evaluated as a case of best practice for international funding bodies (Angelis, Swenning, and Håkansson 2017, 4). Similarly, benchmarking exercises on RRI tend to commend the establishment of an RRI unit in a research center or the adoption of RRI guidelines (D'Andrea, Berliri, and Marta 2018). Nevertheless, such evaluations do not tell us how RRI is actually realized in specific, and situated, research practices. A world of decentered governance needs interpretive, practice-oriented analysis (Wagenaar 2011, 230). The question then is what do scientists do when they do ELSA or RRI?

By asking this, I seek to elicit information on policy implementation, which I understand as a process of translation (Clarke et al. 2015; Freeman 2009). That is, when policy interacts with so-called recipients, it undergoes changes. Policy cannot simply be

transplanted from one place to another; the policy is reassembled in the new locale and made to mean something in new, messy ways. In other words, it is translated into practice. In this regard, the paper is grounded in the practice turn in policy studies that draws attention to meaning-making practices and to the locally situated enacting and reassembling of policy ideas (Freeman 2009; Freeman, Griggs, and Boaz 2011; Griggs, Norval, and Wagenaar 2014; Wagenaar and Cook 2003). Importantly, we cannot study individuals' actions without considering how they are embedded in a particular historical and political context (Griggs, Norval, and Wagenaar 2014, 13). Further, the choices that individuals make depend on how they interpret what they are doing and how they set out to conduct themselves based on those interpretations (Wagenaar 2011, 92). In fact, previous research showed that actors might hold conflicting interpretations of RRI (Hartley, Pearce, and Taylor 2017).

Thus, studying RRI's translation needs an approach that considers the situated nature of scientific practices, the importance of meaning-making, and the underlying conflicts implied in contested interpretations. This draws analytical attention to what actors in governance practices actually do and who they are, and it requires that analysts understand governance actors and governance practices very broadly. Scientists certainly belong to this category of actors. For example, the RCN has both policy-executing and policy-advising mandates.² But in terms of RRI, the RCN acts as a policy-maker, casting scientists as the individuals tasked with putting RRI policies into practice. RCN's RRI governance framework (RCN 2014) wants scientists to increase their reflexivity, anticipate consequences, include other actors, and adapt their own research accordingly. But how does that work in practice?

The question is how those subjected to these governance demands through RRI, namely scientists, carve out space to work. Scientists' translations of science governance have received little attention in the scholarly debate so far, making this focus a valuable contribution to science policy studies. Previous research on enacting RRI in research practices argued that the successful implementation of RRI depended on whether or not academic employees acknowledged their general responsibilities to society (Hartley, Pearce, and Taylor 2017) and depended on what 'responsibility' (Glerup, Davies, and Horst 2017) and 'good science' (Van Hove and Wickson 2017) meant to scientists. Departing from the assumption that RRI can politicize science governance, Hartley, Pearce, and Taylor (2017) conducted interviews at one British university to identify different meanings attributed to RRI in practice. They found that interviewees thought that RRI constituted stakeholder engagement, interdisciplinary involvement, public outreach, and training. However, the authors found that engaging with these themes did not necessarily lead to any change in science-society relations. Often, RRI in practice did not politicize science governance, because science practices remained focused on business as usual, outreach, and occasional business-interest stakeholder engagement. Hartley, Pearce, and Taylor (2017) posited that this deficient implementation of RRI resulted from scientists not sufficiently acknowledging their general responsibilities to society and from their holding values that differ from the values informing RRI. Glerup, Davies, and Horst (2017) studied how scientists in three countries experienced and articulated social responsibility in their daily activities. They found that scientists articulated many practices of 'bottom-up responsibility,' although paradoxically those same scientists considered RRI irrelevant to their own practices. The authors concluded that RRI as a policy discourse

did not align well with scientists' interpretations of responsibility. As potential explanatory factor of the lack of referring to RRI in practice, Glerup, Davies, and Horst (2017) mentioned academic capitalism, but they did not show in depth how such narratives played out in the various contexts in which their study was conducted. Van Hove and Wickson (2017) showed through interviews and ethnographic observations in nanotoxicology laboratories that scientists' interpretations of the meaning of RRI aligned with common threads of understandings of RRI (e.g. public outreach, ethical conduct, anticipation, critical reflection, transparency, social utility, and stakeholder collaboration). However, scientists were unable or unwilling to enact these in their own practices (ibid.: 225). Van Hove and Wickson (2017) mentioned that this might be due to practical barriers, but they found cultural and normative differences to be more relevant.

While I agree that meaning-making and values are important explanatory elements, these significant scholarly contributions need to be complemented by an approach that highlights the situatedness of practices. It is unlikely that how RRI translates into practice depends solely on R&D actors' interpretations of the RRI concept, their values, or whether or not they acknowledge their general responsibilities to society (Hartley, Pearce, and Taylor 2017). Rather, I would subscribe to Griggs et al.'s statement that 'we cannot limit ourselves to identifying or examining the self-interpretations of actors' (2014, 13), if we are to understand why RRI is enacted or not, because '*not every practice is necessarily possible in any given situation*' (ibid., emphasis added). Previous studies of translating science-society policies took insufficient account of the specific context in which scientists work. For example, Glerup, Davies, and Horst (2017) did not account for how the differences of the three country contexts of their interviews matter for the responsibility practices of their interviewees. The practice perspective inherent in the approach to decentered governance (Griggs, Norval, and Wagenaar 2014) locates individuals and their actions in the focus of analysis, but at the same time it considers that individual agency is part of and reproduces social structure and culture (Reckwitz 2002, 256). That is, practices do not exist if they are not performed. However, their performance happens not in isolation but in interaction with and in relation to other practices (Rouse 2007, 646). For example, scientists exercise RRI within the boundaries of their work situations that are situated within institutions that are in turn shaped by science policies and governance processes. Therefore, a decentered governance perspective that zeroes in on practices is appropriate to the research problem outlined above. It will enhance our knowledge of the implementation of policies such as RRI, and of possible obstacles to such implementation.

Method

The aim of a decentered study of political phenomena, such as RRI, is to generate a 'multifaceted picture' of what various actors are doing (Wagenaar 2011, 93) when they conduct R&D to meet science policy requirements, how they understand the situation they are part of, and whether there are conflicting interpretations. My analysis draws on data generated in two projects: 'Performing ELSA. Governance of and governmentality in nano- and biotechnology research [PERFORME]' and collaborative research in the 'Center of Digital Life Norway (DLN).' In order to generate a multifaceted picture, the research strategy of the PERFORME project encompassed 37 qualitative, semi-structured interviews with scientists within bio- and nanotechnology in Norway, an analysis of relevant policy

texts, and a secondary analysis of relevant literature. Interviewees were selected based on a search in RCN's project databank, a mapping of Norwegian universities' nano- and biotechnology research activities, and a media analysis of the medialization of bio- and nanotechnology in Norway. As for DLN, it should be mentioned that my research and the center are not isolated from each other. For three years, I was the work group leader for RRI in this national biotechnology center, and I am the principal investigator in a concomitant research project in DLN's project portfolio. In DLN, all research projects were funded under a scheme requiring commitment to RRI principles, and through participating in the center's leadership I gained insight into the projects' efforts to translate these RRI demands.

At the core of the analysis that informs this paper are the interviews my colleague Gisle Solbu and I conducted in the course of the PERFORME project. Chronologically, we conducted interviews for PERFORME in the year before DLN started, but, as the Norwegian biotechnology landscape is small, there is also a certain overlap of the interviewees of the PERFORME-project and of those who later became researchers in DLN. Most interviewees were full professors, many of them principal investigators in externally funded projects, because these interviewees had the most experience regarding our research questions. We also interviewed nine early career scientists, including two PhD students. Most interviews were in Norwegian; we translated their statements into English for this paper. Conducting interviews rather than shadowing scientists in their work in order to determine practices is challenging but possible, and it offers advantages that a sole focus on participatory observations cannot. Building on Weiss's (1994) advice, our interviews asked for concrete incidences, for interviewees to walk us through discussions, and for them to recount in detail the writing of a proposal or paper or the composition of a research team. In addition, our insights resulting from the interviews were supported by our long-term collaborations and participatory observations in natural scientists' research projects. In the interviews, we endeavored to explore how scientists experienced the effects of science policies that address science-society relations on their daily practices and how they translated governance demands. After 37 interviews, we reached saturation with respect to new information. For the governance analysis that informs this paper, I manually coded the interview transcripts in Atlas.ti with a focus on practices and processes, and I discussed interpretations with other members of the research group.

RRI is not defined in a straightforward manner; it can instead be considered a flexible set of governance arrangements. However, this interpretive flexibility (Hartley, Pearce, and Taylor 2017) does not necessarily foster its democratic potential or make it easy for scientists to relate to it. For example, the difference between ELSA and RRI is anything but clear for scientists, and their confusion is not eased by a substantial personal overlap of SSH scholars from the former ELSA community who now receive their funding through RRI.³ In addition – and as previous research shows (Glerup, Davies, and Horst 2017) – most interviewees engaged in RRI practices under a label other than RRI. Our interviews did not make a point of first explaining RRI before asking questions, because RRI itself can only be developed in the context of research projects (Delgado and Åm 2018). However, we conceptualized science-society policies in the interview guide by covering the dimensions of the RRI framework (Owen et al. 2013; Stilgoe, Owen, and Macnaghten 2013), and the EU's six keys (EC 2012), and by asking for ethical, legal, and social concerns. That is, we asked how interviewees imagined the positive and negative impacts of their research on

society and how they endeavored to translate their research into societal benefits or toward solving so-called societal challenges. We further inquired into public engagement, imagined publics, gender equality, and open access. Other questions addressed how interviewees shaped their research, what shaped their research, and what responsibility meant for them. We also inquired about their experiences with ELSA and RRI concepts, specifically what they wrote in the respective paragraphs in their project proposals, and how ELSA and RRI parts played out in the research project when the proposal was funded.

Overall, it is clear from the interviews that the scientists – independent of ELSA or RRI requirements – aspired to follow regulations and established safety procedures; they were eager to present themselves as reflexive and as committed to being useful to society, as well as committed to producing sound results for the scientific community. In contrast to these general aspirations of social responsibility (Glerup, Davies, and Horst 2017), the following empirical analysis addresses specifically how scientists enacted attempts of governing research through the use of ELSA and RRI. The remainder of the paper analyzes how scientists enacted these science governance demands.

Empirical analysis

Performing ELSA and RRI

In general, we identified no consistent pattern of engagement in learning about science-society integration and no consistent knowledge of RRI. Those scientists who were most positive and who sought to translate science policies that addressed science-society-related concerns sought knowledge about RRI to familiarize themselves with unusual demands, and they then engaged in these knowledge-gaining practices with open minds as well as willing and curious attitudes. Apart from online research of RRI documents, these scientists sought information about RRI by attending seminars offered by the RCN, by seeking assistance from scholars in the social sciences or humanities (SSH), or by participating in SSH scholars' ELSA and RRI events. For example, interviewee 20 registered and participated in a 'walkshop' organized by SSH scholars (Wickson, Strand, and Kjølberg 2015) to 'learn what RRI is about' because he saw that the RCN increasingly demanded RRI in research proposals.

In the research proposals of DLN, where RRI was explicitly demanded, scientists wrote that they would do the following to translate RRI: include SSH scholars in advisory boards, include an SSH scholar as the RRI work package leader, fund a PhD student within SSH, send PhD students to an RRI course, participate in RRI courses, engage in RRI reflections in project meetings, organize workshops on ethical, legal, or social issues, perform public outreach, industry inclusion, stakeholder mappings, or user panels with patient groups. But did they end up doing any of these things? As the second round of projects only started last year, it is too early to make absolute conclusions; further, it is important not to lump all projects together, as their efforts in translating RRI differ and some are very engaged. However, with one year already ended, we are identifying tendencies to postpone RRI activities to the end of the project period or to not follow up on *all* the promises from the research proposals.

In terms of enacting RRI demands in research practices, it is important to note that only research projects with integrated SSH scholars attended explicitly to RRI in project work.

Such SSH-led RRI activity often involved creating space for reflection in the project, for example through workshops, by employing questionnaires, or by interviewing other participants in the project. One scientist within nanomedicine told us about a questionnaire that the ELSA partner in an EU project required the project partners to fill out:

There was a collaborator from the social sciences in this EU project who attended all the meetings, and he made a very nice survey that he sent to all partners. Our group assembled in the meeting room and put up the questions on the big screen. We went through and discussed all the points. [...] When we sat there, we realized that there were things we did well but also that there were things that we had not really thought of and where we should improve. So, this was in a way a wake-up call. (IW 22)

In a similar vein, a nanoscientist told us about a record on responsible choices that SSH collaborators asked his group to maintain:

We have a living document recording the choices we make in the project showing responsible technology development. This is operated by the ELSA partner. For example, we write down that we use water instead of organic solvents. By the end of the project, we will have a document showing all the decisions we have made and what the pros and cons of these choices were. (IW35)

Concerning public engagement, very few interviewees had experience with it, but in general they were not dismissive of the idea that publics should have a say in matters concerning R&D (Solbu 2018).

In sum, the ‘rule-following’ strategy, when scientists tried to perform ELSA and RRI was a starting point for some of them to become genuinely interested in science-society questions, but ELSA or RRI never constituted more than a brief add-on-activity set apart from the core of scientific work. The interviews also revealed that it was important to integrate SSH scholars to stimulate ELSA or RRI activity and to create space for reflection. The few research projects that attempted RRI without SSH engagement most often organized RRI workshop as the main RRI activity and then invited SSH scholars to speak at or even organize these workshops. However, this RRI work allocation to SSH also bears the risk that the scientists maintained a boundary between RRI work and their actual research, something I return to below. Still, when scientists first participated in concrete RRI activities, they occasionally described them as surprisingly meaningful experiences. Overall, ELSA and RRI occasionally stimulated explicit reflective practices; however, Solbu’s analysis shows that the public engagement and inclusion dimension does not seem to have caught on (Solbu 2018), and my observations in DLN confirm this.

Dismissing RRI

In general, few scientists in the PERFORME interviews devoted much energy to living up to RRI. Many interviewees’ stories showed that they largely dismissed RRI requirements because they had difficulty identifying any specific social concerns related to their research. In this case, they would write in the RRI section of their research proposals that there were no negative social consequences of their proposed research. This does not mean that the scientists considered RRI to be a bad idea, but, in their interpretation, RRI had no relevance for *their* research. For example, interviewee 12 said:

We write that there are no ethical concerns regarding what we do. We just use already established methodology. There is no risk. If I were to integrate RRI more directly, I wouldn't change one bit of my operation and way of thinking. But, that being said, in the proposals I mention that we conduct open science. (IW 12)

Such responses need to be interpreted against the background that many interviewees saw themselves as intrinsically occupied with being useful. In interviewees' reasoning, they conducted their research projects because they had identified a problem that needed to be solved for society. Thus, they dismissed demands for RRI because they thought that they were already doing RRI.

Everything we do is for the good. We are working on cancer treatment. This in itself is responsible research. (IW 6)

For many it was hard to see how their work specifically required additional attention to 'responsibility'. Often, they accompanied this line of response by placing responsibility on other actors, such as regulatory agencies or industry:

Industry who buys our laboratory products needs to know the regulations and how to handle materials properly. (IW 26)

Some interviewees, including IW 35, complained about what they experienced as administrative overload from the RCN, attributable to the RRI requirement:

I must say that I experience the RCN's demands for RRI as problematic. We are doing this anyway. Why should we document it? (IW 35)

It is relevant that these dismissive answers were related to interviewees often interpreting RRI as synonymous with Health, Safety, and Environment (HSE) aspects or ethical guidelines when they pondered RRI in the course of the interviews. Thus, they dismissed RRI, probably without actually knowing what RRI is or how it is supposed to be enacted. A key finding was that they had not yet heard about the active role in governance that RRI attributes to scientists or about the inclusion of societal actors. Many interviewed scientists were not aware of science policies, and they also were unfamiliar with policy discussions on responsibility and public engagement. However, this does not imply that interviewees were not engaged in solving social challenges, and indeed some were quite active in science communication. Such practices could provide a point of departure for more explicit RRI practices. In sum, the dismissive strategy, as described in this section, showed that current RRI discourse risks estranging scientists.

Talking the talk but not walking the walk

What scientists most often related could be described as a strategy of 'talking the talk but not walking the walk'. Most interviewees did not outrightly dismiss RRI demands, but they appropriated the established language in ways that contested the underlying strategies. Because something about RRI (or, earlier, ELSA) must appear in their proposals, they often incorporated what amounts to an obligatory paragraph in the research proposal form. IW 34 explained:

If you are forced to think about the topic, we are able to squeeze out something. In the last proposal, we ended up saying that we would do an RRI workshop. However, RRI is not with

us in the daily work of the project. This is our status quo regarding RRI. The reason for this is that we are deeply immersed with basic research in our daily life. (IW 34)

Other scientists reported that they mentioned uncertainties or the need for ecotoxicological research in the RRI section. Some interviewees, particularly those who had previously worked with ELSA scholars, would solicit help from the social sciences and humanities (SSH). Interviewee 22 commented:

Often, the ELSA or RRI component is being taken care of by an ELSA or RRI scholar. These poor people are called upon in the last minute, and ultimately that person is shoehorned rather than fully integrated into the project and gets little budget. This is mostly playing to the gallery. (IW 22)

Finding somebody ‘to do the RRI’ was a frequent coping strategy for meeting RRI requirements in research proposals without integrating this more fully into the original proposal or into the research questions. Such outsourcing strategies are frequently described in previous research and are a great frustration for social scientists (Calvert 2015; Delgado and Åm 2018; Hartley, Pearce, and Taylor 2017, 9; Viseu 2015). In the most positive interpretation possible, these disciplinary tensions might be due to natural scientists’ misunderstanding of both RRI and the role of SSH; the outsourcing strategies also highlight the need for SSH competence and for interdisciplinarity to implement RRI. In any case, those scientists who accounted for RRI in their research project (proposals) continued to place RRI in separate work packages despite RCN’s wish that RRI be implemented as an underlying principle of how the science was conducted. Frequently, writing the RRI paragraph in the proposal was the sole attention that scientists would devote to RRI over the entire course of the project:

We talk about RRI when we discuss what to write in the paragraph in the proposal. But we keep it short because we want to say as much as possible about our actual research. (IW 10)

A key consideration here is that scientists are not trivializing RRI because they are nerdy, arrogant, or narrow-minded. Most interviewees offered reflective accounts of ethical, legal, social aspects related to their research (Åm 2019). Interviewees agreed that ELSA-related questions needed to be discussed and reflected upon, but no one experienced that they themselves would have to *perform differently* because of such reflections. Some interviewees said that they directly challenged the focus of RRI, which they considered to be misplaced in research practices. IW 10 commented:

Most societal challenges are much more about political and practical problems that concern equality and the distribution of resources rather than [they are] about research practices. (IW 10)

IW 10 here presents a powerful critique that challenges the fundamental approach of RRI. In addition, interviewees who criticized RRI demands suggested that the RCN, RRI scholars, and other publics misunderstood the nature of research and scientists’ daily work:

Regulations should be based on very comprehensive discussions about what is doable and what not. My impression is that the problem isn’t that there isn’t enough ethics around, but that there isn’t enough understanding of what scientists actually do around. (IW 31)

In practice, the strategies of ‘following rules’, ‘dismissing’, and ‘contesting through talking the talk’ differ only in nuances. Overall, my findings are that scientists tried to accommodate science policies that address science-society relations rather than to engage with them.

Where and how to make room for science-society integration?

There are various reasons that science-society-related policies translate only with difficulty into situated research practices. As the paper shows, the current way of requiring RRI to be an integral element of grant proposals risks estranging scientists, also because the concept of RRI remains unclear to them. Scientists may experience the very suggestion that they should do RRI as an implied allegation that their research is not responsible. As also previous research showed, scientists engage in various ‘bottom-up social responsibility’ practices and many research projects are anchored in solving a societal challenge (Davies and Horst 2015; Glerup, Davies, and Horst 2017). ‘Bottom-up social responsibility’ practices (Glerup, Davies, and Horst 2017) are practices that are inherent in the daily work of scientists and encompass practices of caring for others; caring for good, robust, and meticulous science; and an interest in solving societal challenges. This means that many existing practices adequately cover RRI dimensions. The concept is a useful reminder that scientific communities are heterogeneous groups, that alternative practices coexist, and that norms are continuously renegotiated. The paper shows that not recognizing these existing practices may cause resistance to a productive engagement with the concerns underlying the current RRI discourse.

Nevertheless, these practices of ‘native ELSA’ or ‘bottom-up social responsibility’ do not fully meet RRI’s endeavor for democratization of science-society questions through increased engagement with societal actors. A fundamental value conflict may be part of the explanation: Some scientists might follow a ‘demarcation rationality’ (Glerup and Horst 2014); that is, they assume that science as a profession should have a high degree of autonomy and that it best regulates itself along ethical guidelines. In contrast, the ‘contribution’ and the ‘integration rationality’ (ibid.) implied in RRI discourse assumes that science should be better aligned toward working for the public good and that actors from science and society need to work together as equal partners. In acknowledging such profound political tensions, the attitudes of some scientists and research culture have been suggested as important explanatory factors (Glerup, Davies, and Horst 2017; Hartley, Pearce, and Taylor 2017; Van Hove and Wickson 2017) for the discrepancy between RRI policy and practice. Indeed, ELSA and RRI problematize the current way science is working in and for society based on the presumption that there is a mismatch between R&D and society. Not all scientists might concur that there is a problem concerning social control of technology and societal benefits of science.

In this discussion, however, rather than speculate on attitudes and value conflicts, I prefer to retain my focus on situated practices. A remaining question deserving attention is this: even if we would assume that all scientists, who already engage with bottom-up social responsibility, had a positive attitude toward ELSA and RRI, shared science policy’s problem definition, and endorsed a societal integration of science and society perspective, what would enacting ELSA or doing RRI mean in the context of their research practices? My contention is that actors’ ability to redirect their course of action critically depends on the ‘maneuvering room’ that resources, institutional arrangements, and infrastructural settings provide (Loeber et al. 2007, 91). RRI is currently implemented in Norway through the RCN demanding that individual research projects do RRI. These research projects are situated within institutions, such as universities, that are part of larger political regimes of science governance. In the following, I relate the difficulty of

translating RRI to two problems, both of which concern the maneuvering room in which actors currently seek to implement RRI.

First, Felt (2017) reflected on the responsibility conditions that scientists experienced in contemporary knowledge culture that shaped the ‘epistemic living spaces’ in academia. Earlier research (Fochler, Felt, and Müller 2016; Sigl 2016) found that scientists – particularly those who are young – tended to align all their activities ‘to succeed in competition based on productivity in terms of acquiring internationally accepted and transferable tokens of academic quality, that is, indexed publications, grant money and recorded citations’ (Fochler, Felt, and Müller 2016, 196). In a similar vein, Glerup, Davies, and Horst (2017) drew attention to how academic capitalism shaped practices of responsibility. In our setting, we observed that scientists struggled to see their potential for agency because they articulated RRI-related demands to other science policy demands confronting them. Their ways of problematizing the situation related to the following three intertwined themes: generating revenue, the professional values of what counts as good science, and time constraints and temporariness.

Our interviewees engaged continuously in writing proposals, managing new funding, participating in more meetings, traveling more, and performing assessment, evaluations, and supervision. This constrained not only their capacity to respond to RRI requirements but also more profoundly their capacity to do the research they originally wanted to do. Experienced project leaders might simultaneously be part of 15 or more research projects. More than a few stated that (lab) research, writing, or reading was done in the weekends or not at all. Interviewee 34, a renowned authority in his field, said:

We have been so much pushed by leadership to get money from the EU and the RCN and to start our companies, now we do almost only that. [...] At the end of my career, I will stop applying for all these projects, because I tend to get them, and then I have to spend all my time on these projects instead of joining students in the laboratory and discussing interesting stuff with them. (IW 34)

Overall, the established competition-based practices in science governance as experienced by our interviewees do not prepare the ground well for RRI, which then contributes to coping strategies.

Second, a related finding is that science governance directs R&D practices through a singular focus on research projects and tries to implement RRI by making it the task of individual research project leaders to implement it. Thus, the work of translating the abstract and vague science-society policies falls to scientists applying for research grants. Rephrasing this somewhat provocatively, science governance casts science-society integration as a do-it-yourself activity (DIY) for scientists. This approach overlooks the issues of a lack of competences and tools to do so, but more profoundly it overlooks the multi-sited assemblages, narratives, and discourses that shape scientists’ practices. For example, quite concretely, it overlooks the academic institutions, the RCN itself, the Ministry of Education and Research, and industrial companies that are not directly addressed. In this regard, the setting of program priorities in RCN’s funding strategies would present an alternative opportune moment for ELSA and RRI-like interventions. In addition, current science-society policies overlook contemporary transformations in academia that were not to the better from a science-society point of view. For instance, elderly scientists report that 40 years ago academia was much more interdisciplinary and open, and

that there was time to reflect and discuss. Arguably, ELSA and RRI could be seen as corrective attempts to reestablish such a reflective regime. However, at the present time, science-society policies enter research practices as yet another demand rather than as a counter-logic to the hegemonic public management governing regime.

Conclusion

RRI ideas could provide important science policy momentum, but our study indicates that it does not generate any radical change, such as new democratic structures or a foregrounding of politics, at least not yet. The main argument of the paper is that RRI does not take hold because of a failure of meta-governance. That is, policy makers do not sufficiently accommodate science-society policies within competing logics of the various governing regimes, such as professional, institutional, and funding regimes. Warren (2009) cautions that the democratic potential of governance-driven democratization necessarily is limited due to the narrow domain in which it is pursued. Still, he hopes that governance-driven democratization is part of a wider positive transformation of democracy. While I share his hope, this article shows that RRI with its current focus on the level of research project has little democratic potential. Thus, RRI is not yet a terribly effective way to tackle the challenges of new, enabling sciences and technologies democratically.

Importantly, generating more guidance for proposal writers on how to implement RRI must *not* be adopted as a quick fix to the problems outlined. RRI needs to remain open and adaptable to specific contexts (Delgado and Åm 2018; Felt 2017, 65). The findings of this paper indicate, however, that offering general training in the body of academic knowledge underpinning the RRI concept, namely Science and Technology Studies (STS) and the history, philosophy, and sociology of science, may be necessary prerequisites before one can demand ELSA or RRI from natural scientists. They need to understand the thinking that underlies science-society integration policies. These policies do not make sense unless one is familiar with theories that science and technology development are neither deterministic nor value-free and unless one knows why engagement with society is called for.

Most important however, successful science-society policies should not focus only on encouraging scientists to adopt responsible behaviors; rather, policies need to create possible conditions for new practices. RRI could aim at opening a space that allows scientists to deal with the problems that shape their experience of not having any 'room to maneuver'. The RRI discourse does not take hold because RRI does not help the scientific community with their problems; rather, it adds more tasks (such as organizing stakeholder workshops). If scientists are to incorporate science-society integration as core value and engage in implementing it, they need to develop a sense of ownership to the concept. For this to happen, science-society policies on the project level must translate and connect to scientists' practices and work conditions. This paper shows that it would be important for RRI to address more explicitly the hegemonic regime governing the R&D sector on institutional level instead of focusing on individual research projects.

Notes

1. Nanotechnology and biotechnology were the first two research programs required to do this. They were also important programs in the RCN's ELSA program.

2. RCN statutes, https://www.forskningsradet.no/no/Forskningsradets_rolle/1138785796497.
3. The author of this paper being no exception.

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