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RRI in European member states: the case of Germany

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The term “Responsible Research and Innovation (RRI)” as such is not widespread in Germany. Three years of monitoring “RRI-Trends” show that only very few actors in Germany have taken ownership of this term, originally coined by the European Commission (see Chapter 4), and explicitly used it as is the case in the UK and the Netherlands. However, many aspects of the RRI discussion do exist in Germany. Some are reflected in established values, norms and activities or procedures whose origins date back to 30 years ago, while others are emerging issues triggered by similar considerations and problem perceptions that have already triggered the RRI debate at European level.

In essence, RRI means to strive for research and innovation activities and impacts being aligned with societal values and demands (cf. von Schomberg 2011, Stilgoe et al. 2013: 1570, Walhout et al. 2013). Thus, RRI is an explicitly normative concept. Some proponents specify normative directions such as sustainability and ethical acceptability quasi exogenously, while others explicitly or implicitly assume that normative directions of research and innovation (R&I) are a result of the dialogues and negotiations taking place within research and innovation

systems. While there is some agreement that collaboration between research and innovation actors requires a basic consensus about normative directions, in principle, the RRI concept is pluralistic and not meant to exclude innovation paths from the outset. The argument in favour of multiple-solution pathways to a societal problem is based upon the uncertainty associated with the chances, risks and impacts of emerging technologies – and it is this uncertainty which constitutes the collective responsibility of all stakeholders in research and innovation according to the RRI proponents’ point of view.

Although the European-level academic and political debate about RRI is not a reference point for the large majority of actors in Germany, it has served to define our research strategy. The research on RRI-Trends is aimed at understanding how the institutions and actors perceive their roles in the national R&I systems, how they derive and define their responsibilities, and how they translate this responsibility into action. The potential fields of action considered in this study include the dimensions specified in the European Commission’s RRI agenda: public engagement (PE), gender equality (GE), science education (SE), ethics, open access (OA), as well as governance as a meta-category. RRI governance models at national or organisational level are yet to be defined. As a practical

¹ <http://www.rritrends.res-agera.eu/>.

approach to our empirical work, we searched for systematic routines in organisations or R&I processes designed to serve responsibility and normative goals.

This chapter aims to give an overview of the state of affairs regarding RRI in Germany. We summarise the results of our study in the light of substantial aspects (Section 10.1: understanding of RRI) and procedural aspects (Section 10.2: RRI activities), for selected key actors in Germany's R&I landscape in the following sectors: research councils, private funding agencies, research performing organisations (RPO) including higher education institutions (HEI), the business sector and Civil Society Organisations (CSO). We used document analysis and interviews to address these actors and complemented this by systematic reviews of relevant policy documents.

10.1 Understanding of RRI in Germany

We only find rare examples of the explicit use of the term RRI in the R&I policy discourse in Germany as well as in the R&I landscape here. CSOs such as the German civil platform "Forschungswende"² that advocate RRI thinking in R&I policy, or the "Wissenschaftsladen Bonn (WILA Bonn)"³ (Bonn Science Shop), which has more than 30 years practical experience of public engagement in research, refer explicitly to RRI on their websites and in documents, and engage in RRI projects at European level. And the Fraunhofer-Gesellschaft, one of the four major public research organisations in Germany,⁴ has recently established a small "RRI" unit to perform participatory R&D processes (Goos and Lindner 2015).

However, the discourse about "responsibility to society" exists in Germany without explicit references to RRI, and has a long tradition. Different actors have their own interpretations and have already made a commitment to it. Some actors are not only reluctant to use the term RRI, but also to share the conceptual ideas behind it. They regard the primacy of normative directions as a critical restriction on the freedom of research. This debate has recently received

² <http://www.forschungswende.de/>.

³ <http://www.wilabonn.de/en/>.

⁴ Max Planck Society, Helmholtz Association of German Research Centres, Fraunhofer-Gesellschaft, Leibniz Association.

new impetus from two contributions from the German Research Foundation (Deutsche Forschungsgemeinschaft [DFG], Strohschneider 2015) and the German Council of Science and Humanities (Wissenschaftsrat [WR] 2015), which signal the intention to overcome the perceived antagonism between excellence and societal relevance.

Looking at the national R&I policy, there have been recent signs of a shift towards *addressing the Grand Societal Challenges (GSC)*. The German government's High-Tech Strategy (HTS) (BMBF 2014), the latest version of which was launched in 2014, is the most important strategic process in this field. It aims at innovative solutions to "find creative answers to the urgent challenges of our time⁵ [...]" (BMBF 2014: 3). This kind of challenge-oriented R&I policy began in 2010 and can be viewed as a reaction to the Lund declaration in 2009 (Daimer et al. 2012). It is worth noting that the concept of innovation has been expanded in the latest HTS to include not only technological innovation, but also social innovation. On top of that, *public participation processes* have become more important (BMBF 2014: 4, 6–7).

The major stakeholders, i.e. the German Research Foundation, the German Council of Science and Humanities, the German Rectors' Conference, and the German Academies of Science had not made major contributions to this strategic orientation for a long time,⁶ but this changed in 2015.

The DFG, which is the most important German research funding organisation, believes its essential task is to fund and support excellent (basic) research. The DFG reinforces this commitment to basic and quality research by "rejecting other possible criteria such as funding quotas for specific regions or fields, societal relevance or economic expediency".⁷ The criterion of "scientific merit" is assigned the highest priority in its funding practice. Although there

⁵ Examples mentioned in the document are "sustainable urban development, environmentally-friendly energy, individualised medicine and the digital society".

⁶ The German Rectors' Conference has contributed to the role of HEIs (higher education institutions) in sustainable development with a focus on education (HRK-DUK 2009). Several academies of science have published position papers in the context of technology acceptance and science communication and highlighted the role of dialogue with society (Acatech 2011 and 2013, Leopoldina et al. 2014).

⁷ The DFG's Funding Strategy. From DFG website: http://www.dfg.de/en/dfg_profile/history/funding_past_and_present/actually_strategy/index.html (accessed 02 March 2015).

have been some changes in its funding strategies over the years in response to social and political circumstances,⁸ the research governance mode applied by the DFG has remained competition-based, and observers now describe a strongly "orchestrated competition" (Zürn and Schreiterer 2011). However, there are some recent indications that this kind of governance mode is being re-examined. In his 2015 New Year's Address, the President of the DFG explicitly mentioned the tension and balance between *research autonomy* and *research utility* for society. The DFG views the link between science and society as: "Freedom for the intrinsic dynamics of scientific knowledge processes is essential to the ability of research to provide new answers to social questions" (Strohschneider 2015). DFG believes that its "Excellence Initiative" will continue the transformational dynamics that have shaped and enhanced the research system and that a balance between these two poles can be achieved.

The *Council of Science and Humanities*, one of the leading science policy advisory bodies, published its position paper "Grand Societal Challenges as a Topic for Science Policy" in early 2015. From the viewpoint of WR, the GSC are compatible with other objectives of science policy such as basic research and innovation funding. "The importance of other objectives [...] will not be reduced by adding the tackling of Grand Societal Challenges as a new goal" (WR 2015: 30).

In comparison, *private funding organisations* such as the Volkswagen Foundation, the Robert Bosch Foundation, or the Stifterverband have always been close to the basic ideas of RRI because their self-conceptualisation builds on strong links between science and society (e.g. Stifterverband 2010). For example, the Volkswagen Foundation not only supports research for its own sake, even though funding focuses very much on basic research and natural sciences, but also considers:

⁸ DFG has modified its funding strategies from the "response mode", i.e. reacting to research proposals on any topic, to actively promoting national and international research infrastructure (e.g. networking), as well as discipline-specific funding initiatives under the principle of "competition". With the adoption of the "Excellence Initiative" in 2005, the DFG has become a system-defining institution and has a growing influence on developments at German universities.

1. which social implications could induce relevant research topics,
2. which mutual influences evolve between society and the sciences and
3. *the responsibility science has towards society.*

In practice, the Foundation has been consistently applying a forward-looking approach to support future-oriented, challenge-oriented and path-breaking research projects.

There is a broad spectrum of interpretations concerning "social responsibility" among different *research performing organisations*. Among the four major public research organisations and several hundreds of higher education institutions, it seems that public assertions about conducting research oriented towards societal challenges are more frequently made by applied research-oriented RPOs (e.g. the Fraunhofer-Gesellschaft, the Universities for Applied Sciences and technical universities) than in universities which have their main focus on basic research. Some RPOs embed their claim to conduct research directed towards societal needs in the broader concept of *sustainable development*.⁹ In fact, there have been essential changes made to the framework conditions of German universities since the end of the 1990s which have assigned more weight to societal aspects in their strategic actions. The Framework Act for Higher Education defined "knowledge and technology transfer" as a third task for universities in 1999. In addition, national policies aiming to trigger either scientific excellence or technology transfer, cooperation with business, and integration into local innovation environments together with an increasing autonomy of universities have influenced their targets and behaviour. Today, there is a growing focus on the economic, regional and societal contributions of HEIs (Schubert and Kroll 2014, Kroll et al. 2015).

Corporate Social Responsibility (CSR) is a mainstream trend, and sustainability reporting, which has its roots in the environmental reporting made since the 1980s, is standard for German *DAX companies* (Blanke et al. 2007). In parallel, an increasing number of *SMEs* publishes annual sustainability reports and engages in CSR as well. CSR can

⁹ For example, the University of Luneburg and the Fraunhofer-Gesellschaft publish an annual sustainability report which features many elements related to RRI.

encompass RRI, and sustainability reports document the commitment of firms to applying the highest ethical standards when developing new products which shall serve the “current and future needs of society” e.g. “resources, environment and climate, food and nutrition, and quality of life” (BASF 2015: 22), or “digital transformation, globalization, urbanization, demographic change and climate change” (Siemens 2015: 215). Companies are positive about societal challenges, because they view them as chances that can provide future business opportunities. However, at the same time, environmental product regulations and sustainability documentation obligations represent limitations to entrepreneurial freedom, which increases the risk of “greenwashing”, as the recent scandals in the automotive industry have reminded us.

Science shops are highly relevant CSOs supporting RRI. Like many other science shops, WILA Bonn was founded long before the emergence of today’s RRI discussion back in the 1980s, a period characterised by social movements. WILA Bonn defines its “social responsibility” as contributing to social benefits by means of mediation, communication and networking between research, society and policy. Above all, WILA believes that basic research topics can also be derived from societal needs. The Science Shop is concerned with examining where the two systems complement each other, i.e. freedom of research on the one hand, and research with citizen participation on the other. According to WILA, the element of “public engagement” should be further advanced as an important instrument to realise RRI.

10.2 RRI activities in Germany

As the term RRI has not (yet) been enforced in Germany, explicit RRI activities are scarce as well. However, there are many activities which are *de facto* RRI activities in the sense of the above discussed understanding of RRI. Many have a long tradition in Germany and serve to secure the quality of research such as (institutionalised) technology assessment, ethics commissions, codes of conduct and (legal) measures to support gender equality (GE). Others such as foresight processes or advisory boards serve to improve the capacities to anticipate social and political change. Many recent activities have been introduced to

address the GSC like specific funding or collaboration programmes.

In RRI-Trends, we looked at the activities of a few key actors in Germany in order to give an illustrative account of the current situation.¹⁰ If the RRI activity fields proposed by the European Commission are used as a structuring device, we find a well developed set of activities in Germany with the exception of public engagement (PE). GE and ethical standards are firmly established in standards, codes of conduct and procedures (e.g. ethics commissions’ reviews). However, in GE the focus is on promoting female participation and female leadership in R&I organisations. The issue of “gendered innovation”, i.e. integrating gender sensitivity in the content of R&I, is rarely emphasised in the strategic documents of organisations. Open Access as a relatively new topic is supported by many actors who signed the “Berlin declaration”, as well as some concrete programmes. Science education, in particular, the aspect of the transfer of knowledge to non-academics is being followed up by various activities of a broad set of actors. It is remarkable that PE is still a relatively “new” issue for most of the investigated actors. And most of the current activities do not make use of the full potential of PE. When applied in a systematic manner, PE can help to increase mutual understanding between academics and non-academics and integrate non-academic knowledge into research and development processes. The Science Shop’s activities stand out in this regard among the activities investigated in Germany.

At the same time this approach clearly demonstrates that many activities identified in the course of the RRI monitoring cannot be captured by the five dimensions specified by the European Commission. Instead, they fit into the meta-category of governance, introduced in this chapter as “systematic routines in organisations or R&I processes designed to serve responsibility and normative goals”. We found the national innovation strategy and its implementation projects, or the challenge-oriented funding programmes of the Volkswagen Foundation reflect important elements of what could develop into RRI governance in the future. Likewise, many strategic processes in universities

¹⁰ The reports including the range of activities can be found on the RRI-Trends website at <http://www.rritrends.res-agera.eu/reports/>.

triggered by the need to perform their “third role”, or by the excellence initiative, are important preconditions to raising awareness for RRI within the organisations. The Fraunhofer RRI unit or CSR instruments in companies are examples of starting points for RRI governance within organisations.

10.3 Conclusion

Although the term RRI is rarely used in current R&I policy debates and activities in Germany, we find that many aspects of the *RRI concept* are indeed present. Most of them have not been triggered by RRI as such, but rather by the (long-standing) discourse on the quality of research, the 30-year old environmental and social movements in Germany, or the debate about Grand Societal Challenges. The national innovation strategy is mission-oriented, and major stakeholders have started to contribute to discourses about the responsibility and societal relevance of research. Moreover, there are grassroots initiatives, for example by CSOs. At the *level of activities*, we find many that account for individual aspects of RRI like gender equality, ethics and science education. Beyond that, there are other types of activities, e.g. strategy-building and organisational routines that seem to be highly relevant for realising RRI. As they are structured and systematic approaches, they appear to be forerunners of a future RRI governance.

Given that all the German stakeholders investigated in the RRI-Trends have RRI-related discourses and activities, there is good reason to believe that the essential ideas of RRI will become more important and there will be growth in the relevant activities in the future. At the same time, we find that the majority of these discourses and activities are uncoordinated. Up to now, R&I stakeholders have not launched any major initiatives to coordinate their understanding of responsibility in R&I, or their activities. And although recent contributions to the debate can be regarded as bridge-building initiatives, there are still fundamental differences concerning beliefs about the compatibility between excellence-driven research and societal relevance. This heterogeneity and the large size of the German R&I system indicate that developments in RRI will continue to take place in a decentralised way.