Institutionalizing Responsible Research and Innovation: Case Studies

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Abstract: Increasingly, people working in innovation projects need to engage in Responsible Research and Innovation (RRI), 'an approach that anticipates and assesses potential implications and societal expectations' (European Commission). It is relatively easy to conduct one RRI initiative but difficult to institutionalize RRI, i.e. to embed RRI in an organization's structure and culture, so that it can have sustainable and positive impact. We present two case studies, related to Societal Engagement and Ethics, which are conducted within TNO (a Dutch research and innovation organization). Our research question is: What are the barriers and enablers for institutionalizing RRI? We focused on the following themes: combining formal (structure) and informal (culture) interventions; involving change agents and middle management (combining different logics); the need to create room for reflexivity and to tap into people's intrinsic motivations 'to do good' and to strive for 'excellence' (and watch out for compliance overload and capricious management).

Keywords: Organizational Change; Responsible Innovation; Corporate Social Responsibility; Societal Engagement; Ethics.

Problem

Increasingly, the people working in innovation projects need to engage in Responsible Research and Innovation (RRI), 'an approach that anticipates and assesses potential implications and societal expectations' (European Commission). RRI encompasses a wide range of themes, e.g., Societal Engagement, Ethics, Gender, Open Access, and Science Education, and it is currently mainly associated with the European Commission's Horizon 2020 Framework Programme (Rip 2016). RRI is seen as desirable, not only by the EC but also e.g., by national funding agencies, like the Dutch NWO, or by global funding agencies, like the Gates Foundation. Moreover, RRI is likely to gain momentum also in the industry, e.g., under the umbrella of Corporate Social Responsibility or Creating Shared Value, and the EC actively promotes this through projects like responsible-industry.eu, rri-prisma.eu, and innovation-compass.eu.

The problem that we want to focus on, is the *institutionalization* of RRI, i.e. the process of introducing and implementing RRI practices within an organization. It is relatively easy to have one initiative for one theme, e.g., to talk to several societal stakeholders about strategy, to write a paragraph on ethics in the annual report, or to organize a one-off initiative for gender equality or diversity. It is, however, more difficult

to institutionalize RRI so that such initiatives become embedded in the organization's structure and culture, and can have sustainable and positive impact.

Current understanding

First, it is important to distinguish between RRI (in upper case) as a policy instrument of the European Commission (and sometimes relatively abstract) and 'de-facto responsible research and innovation' (rri in lower case) as the more tangible, incumbent practices within an organization. We will focus on the latter, similarly to what was done in the case studies of the RES-AGorA project (Randles et al. 2015).

Second, we propose that institutionalization involves the following (based on Randles 2016: 4): the *internalization* of specific societal values and their embedding in practices, e.g., a value like democracy is internalized and embedded in organizing workshops with citizens to co-create innovations; the *transformation* towards specific normative goals, e.g., a goal like 'x % of management should be female' helps to transform various practices in HRM; the *alignment, integration and interconnection* of multiple governance tools, processes and structures ('forms of agency'), i.e. the opposite of isolated or ad-hoc activities.

We define institutionalization as the process of embedding practices—in our case: rri-practices—in an organization; we recognize that this is a process of growing maturity. Maturity levels are widely used in the industry, to assess progress of some desirable organizational change, and typically encompasses the following levels: 1) initial, ad hoc, e.g., personal actions); 2) repeatable, e.g., documented); 3) defined, e.g., part of a regular business process); 4) capable, e.g., managed with metrics; and 5) efficient, e.g., including measures for continuous improvement. On higher maturity levels, RRI has become an integral part of the organization—its identity, structure and culture—and is no longer dependent on specific people and their efforts (e.g., on change agents, see below).

Research question

Our goal is to better understand the difficulties that people encounter when they attempt to implement and institutionalize RRI in their organization, and to learn which approaches work well. Our first (and mostly practical) research question is: ***What are the barriers and enablers for institutionalizing RRI?*** This question is primarily aimed at providing practical support to people who are involved in implementing and institutionalizing RRI.

We also have a second (and more theoretical) research question: ***What processes are at play when people work on institutionalizing RRI?*** We speculate that there will be different 'logics' at play at the same time, e.g., the logic of serving a client, the logic of doing good for society, the logic of making money, and that the negotiation and integration of these logics will require processes of sensemaking and translation. Moreover, we assume that different logics can be, and would need to be, combined. It is often possible, e.g., to serve a client, do good and   produce positive financial results.

Research design and context

We approach these questions both theoretically and practically, and follow an Action Innovation Management approach (Guertler et al. 2017), which involves and indeed aims to integrate: practically solving problems; generating knowledge; and learning and competence building.

We built on the available knowledge (see above) and studied the institutionalization of RRI in practice: while working on initiatives to boost RRI within TNO, a research and innovation organization where the authors work. TNO (www.tno.nl) is an organization for applied research in The Netherlands, with some 3000 people working in diverse domains: buildings and infrastructure; industry; traffic and transport; circular economy and environment; energy; information and communication technology; defence, safety and security; and healthy living. Moreover, the paper is based on the work of the authors in the JERRI project (www.jerri-project.eu). This project aims to institutionalise Responsible Research and Innovation (RRI) in Research and Technology Organizations—more specifically, it aims to 'foster RRI transition … by developing and testing good RRI practices in pilot cases' within Fraunhofer and within TNO.

We are aware of the reflexivity that this dual role requires: the authors work at TNO and in the JERRI project, and at the same time study the practical implementation and institutionalization of RRI within TNO through their efforts in the JERRI project. The authors' involvement can be seen as an advantage; it gives them access to phenomena that would otherwise be difficult to study. Their involvement can also be seen as a challenge; the authors will need to create and maintain some level of detachment. This is integrated in the JERRI project through peer reviews (between TNO and Fraunhofer) and the participation of Manchester Metropolitan University (MMU) and Institute for Advanced Studies (IHS)—they keep track of theoretical issues and research objectivity.

Practically, our research involved the organizing of meetings and making of observations during these meetings, the collaborative writing of documents and analysis of these and other documents, and 'investigator triangulation' for preserving objectivity (in collaboration with researchers from Fraunhofer, MMU and IHS). We also drew (loosely) from appreciative inquiry, in that we start with appreciating what goes well, and used the STAR method to reflect on practices (Situation; Task; Actions; Results).

Case studies

Our work in the JERRI project coincided with the restructuring of TNO as per 2018, which involves the creation of 9 new Units (which bring together a focus on a specific market and the expertise relevant for this market), to replace the current matrix organization (which had perpendicular structures for 5 application domains and numerous expertise groups working for different application domains). We view this restructuring as an opportunity for positive change.

In the first half of 2017 we made plans to boost RRI within TNO; we articulated and initiated approx. 15 activities or interventions (roughly 3 for each of the five themes: Societal Engagement, Ethics, Gender, Open Access, and Science Education). In this paper, we will focus on two of these initiatives:

- The initiative to include also societal organizations, e.g., NGOs, in the 9 newly to be created Strategy Advisory Councils of TNO; these Strategy Advisory Councils are

currently positioned in line with the former 5 Themes, and consist mainly of people from industry, government and academia; they will need to be re-organized anyway, in order to position them for the new structure with 9 new Units;

- The initiative to introduce a Societal and Ethical Impact Toolkit within TNO to help people in Business Development roles and Project Management roles to identify, discuss and 'solve' societal and ethical issues more explicitly, systematically and carefully in the early stages of projects or programmes. Such issues are currently addressed in relatively implicit and ad-hoc manners.

In October 2017 we started working on these initiatives, e.g., by organizing a series of interviews and workshops, to identify the barriers and enablers for their implementation. In January 2018 we continued to work on the implementation of these initiatives. It is worthwhile to note that several authors have relevant responsibilities in TNO: Joram Nauta is Corporate Social Responsibility Officer; Reijer Gaasterland is Integrity Officer; and Suzanne Ogier works at Corporate Strategy. In other words, they have key roles within the organization which enables them to work on the barriers and enablers 'from the inside' and to act as change agents.

Findings (tentative)

Our study involved observation of meetings (partly organized by us) and analysis of documents (partly written by us). We did our study as as objectively as possible, e.g., by documenting specific situations, our roles and actions and the results of that. We are currently (May 2018) in the process of working on the initiatives and documenting this. The findings below are therefore tentative. So far, we identified the following barriers and enablers for institutionalizing RRI (in random order):
- Awareness and sense of urgency or priority (or lack of ~)
- Time and money (or perception of ~), e.g., coordinated and continuous efforts
- Leadership (especially in terms of trust vs. control)
- Willingness to take risks (or lack of ~)
- Willingness to take responsibility (or lack of ~)
- Clarity of roles, tasks and responsibilities (or lack of ~)
- Clarity of processes and structures (or lack of ~)
- Competence, e.g., for critical reflection or reflexivity (or lack of ~)
- Perceived discretionary space to do what serves the organization best (or lack of ~)
- Status of change agents, e.g., (not) having access to the Board of Management
- Collaboration between change agents (e.g., in different themes) (or lack of ~)
- Alignment of RRI with other concerns within the organization (or lack of ~)

In addition, and in line with current knowledge on (innovation or strategic) management, we found that a combination of 'hard' measures (structure; e.g., clear roles and responsibilities, available budgets, SMART goals) and 'soft' measures (culture; e.g., servant leadership, internalizing values, creating space for reflection) is needed.

Furthermore, looking at the processes that are at play when people work on implementing and institutionalizing RRI, it looks like the visions of executives (board of management) and the motivations of employees (on the shop floor) *can* be rather similar

(although they can also change and vary). Executives can talk about 'doing good' and 'serving society' when they talk about their strategies. Employees can talk about 'doing good' and 'serving society' when they talk about their projects. See the figure below.
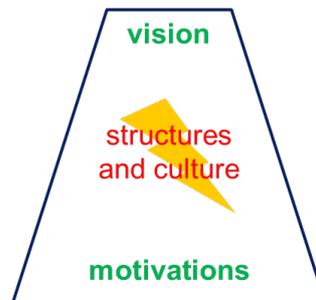
However, the people in the layers in-between need to make all sorts of translations and negotiations, to go from strategy to project and vice versa. As a consequence, they can, unintentionally, function as barriers to RRI. E.g., people in (middle) management roles typically need to translate messages from top management to the shop floor, and vice versa. Furthermore, there are structures and cultures in these in-between layers, which are meant to combine conflicting interests, some of which imply a preference for focusing on short-term financial issues (such as monthly financial reviews of each department), which can also be barriers to RRI.

We have not yet studied this sufficiently to draw any conclusions, and will need to continue our study in order to better understand the ways in which structure and culture help or hinder the institutionalization of RRI.

Moreover, we found that 'change agents' (including the authors), supported by board level or top level executives, are key in getting things in motion and keeping things moving. Repeatedly, we found that when we try to 'sell' RRI, people are not so eager to 'buy'. But if we find ways to align RRI to their concerns, then they are more likely to buy. This is in line with Otto Scharmer's (2016) advice to ask: *What are your concerns and goals? And how can I contribute to your concerns and goals?*

Possibly unsurprisingly, we found that we (the authors, from our positions within TNO, while working in JERRI) were instrumental in promoting enablers and mitigating barriers—a role rather similar to a role of 'product champion'. A key requirement for successful institutionalization of RRI is therefore the involvement of effective change, i.e. change agents that have strong formal or informal status within the organization.

Feedback: Which areas/questions do you want feedback on at the event?

First, we are interested in whether you recognize the barriers and enablers we found? E.g., did we miss some barriers or enablers?

Second, we are interested in your views on: combining 'hard' and 'soft' measures; on the role of structure and culture (in-between level); and the role of change agents.

Third, we are interested in your views on other processes of sensemaking and translation that would be needed to facilitate the institutionalization of RRI.

References

Guertler MR, Kriz A, McGregor C, Bankins S, and Bucolo S. 2017. *"And Action!": Rigour Meets Relevance in Action Innovation Management (AIM)*. Paper presented at The XXVIII ISPIM Conference, Vienna, 18-21 June 2017.

Randles S. 2016. *Advanced concept on deep institutionalisation of RRI (D1.2)*. JERRI project.

Randles S, Gee S, and Edler J. 2015. *Governance and Institutionalisation of Responsible Research and Innovation in Europe: Transversal lessons from an extensive programme of case studies (D3.6)*. Res-AGorA Project.

Rip A. 2016. The clothes of the emperor: An essay on RRI in and around Brussels. *Journal of Responsible Research and Innovation*, 3 (3): 290-304.

Scharmer, O. 2016. *Theory U: Leading from the Future as it Emerges (2nd Edition)*. San Francisco, CA; Berrett-Koehler Publishers.