Track 1 Transformations in the research and innovation system and Mission Oriented research and innovation

(Alexander Myklebust, NTNU; Christian Wittrock, OsloMet; Ellen-Marie Forsberg, NORSUS)

Wednesday 28th 13.30-15:30 – Session 1 – Transformations in the research and innovation system

Wednesday 28th 17:00-18:15 – Session 2 – Mission oriented research and innovation

Abstracts session 1

De-institutionalising growth-driven innovation: theories and practices of post-growth innovation

Mario Pansera, Universitat Autonoma de Barcelona, Spain

De-institutionalising growth-driven innovation: theories and practices of post-growth innovation The concept of endless economic growth is undergoing increasing scrutiny from scholars and activists, prompting a reevaluation of alternative economic models to ensure sustainability and well-being for present and future generations (Kallis, 2018). Despite this, there remains a notable gap in the literature regarding the role of innovation in a post-growth era (Pansera & Fressoli, 2021). This presentation addresses the imperative for organizations to innovate for survival and expansion, often encapsulated in the "innovate or die" mantra. However, it critically examines how this mindset perpetuates assumptions such as technological determinism and productivism, which overlook the socially constructed nature of technological development and its implications for societal equity and justice (Robra et al., 2023).

The presentation argues for the necessity of disentangling innovation from growth to envision a post-growth era effectively. It advocates for expanding the scope of innovation beyond technological advancements to encompass cultural and institutional changes, thereby redefining social order. Furthermore, it explores how organizations, particularly capitalist enterprises, serve as both proponents and perpetuators of the growth discourse, yet also present opportunities for challenging and developing alternatives to growth ideology. The presentation draws on the application of institutional theory to the field of responsible innovation (Owen et al., 2021). Addressing questions rarely posed by scholars in innovation, management, and organizational studies, the presentation delves into the potential characteristics of organizations in a non-growth paradigm. By drawing of a case study conducted at the Joint Research Centre of the EU at ISPRA, our contribution investigates the conditions required for science, technology, and innovation to flourish without dependence on perpetual growth, considering the implications for technological

complexity, policies, infrastructures, and organizational structures. By tackling these questions, the presentation seeks to stimulate critical discourse and pave the way for transformative thinking in the field of innovation and organizational studies.

References

Kallis, G. (2018). Degrowth. Agenda Publishing.

Owen, R., Pansera, M., Macnaghten, P., & Randles, S. (2021). Organisational institutionalisation of responsible innovation. Research Policy, 50(1), 104–132. https://doi.org/10.1016/J.RESPOL.2020.104132

Pansera, M., & Fressoli, M. (2021). Innovation without growth: Frameworks for understanding technological change in a post-growth era. Organization, 28(3), 380– 404. https://doi.org/10.1177/1350508420973631

Robra, B., Pazaitis, A., Giotitsas, C., & Pansera, M. (2023). From creative destruction to convivial innovation—A post-growth perspective. Technovation, 125, 102760. https://doi.org/10.1016/j.technovation.2023.102760

Governing science through networks – the introduction of RRI as an example of governance

Anders Torgeir Hjertø Lind, NORCE, Tromsø, Norway

The implementation of Responsible Research and Innovation (RRI) requirements in research projects funded by the Research Council of Norway (RCN) can be understood as research policy expanding into new areas. This shift can be analyzed through the framework of governance, described by Rhodes (2007) as "a new process of governing; a changed condition of ordered rule". I argue that network governance provides a fruitful perspective for understanding processes behind the implementation of RRI in Norwegian research.

From a "narrow" focus on research methodology, themes, and scientific impact, issues of social responsibility, such as inclusion and responsiveness, have been widely introduced through RRI. RCN describes the introduction of RRI in large-scale technology programs as "based on a paradigm shift in the fundamental understanding of the relationship between research and society", and a move "from linear models to interactive models" (Research Council of Norway, 2015b). This view is reiterated in its strategy (2015-2020) where research and innovation are described as a 'society-transforming' power and societal responsibility is underlined (Research Council of Norway, 2015a). Key staff describe the increased dependency between research and society, leading to weakened arms-length steering. RRI as a realization of systemic interdependency between research and society, and the need to steer research for the good of society (Gulbrandsen & Rynning, 2016).

Policy networks, as defined by Rhodes (2007, pp. 1246-1247), involve formal and informal institutional linkages between governmental and other actors. Within these networks,

organizations are interconnected, relying on resource exchange to collectively pursue their goals. While not structured as a hierarchy, dominant coalitions within networks have the capacity to employ strategies within the rules of the game, to influence the process of exchange. Variation in actor discretion is a product of goals and actors power potential, defined by resources, rules of the game and the process of exchange. The Norwegian system of research can be understood as such a network. While research funding competition exist, the overall research system is better described as a network operating on trust and cooperation. Notably, van Hove and Wickson (2017, p. 225) identify an ambiguity in the acceptance of RRI among researchers stemming from a normative discrepancy between RRI and 'good science'. Furthermore, Åm et al. (2021, p. 282) highlight two challenges of social responsibility in research identified by RCN: a deficit in addressing societal challenges, and a knowledge deficit among researchers on science-society relations and consequences. These findings point to a dominant coalition driving RRI implementation.

Taking as a point of departure that research constitutes complex policy networks with different actors vying for influence over the process of exchange (system of research funding). How then can we understand the implementation of RRI?

While Owen and Pansera (2019, p. 26) describe RRI as "policy driven", Mejlgaard et al. (2016, pp. 18- 19) finds that some RRI researchers fear "RRI-washing", cosmetic adoption of RRI to tick-boxes rather actual change, can constitute a barrier for implementation. In contrast, Rip (2014, p. 9) argues "scientists will continue to be prudentially acquiescent", but more often held to account. These courses of actions can be understood as game-like interactions in network governance. Box-ticking and acquiescing as less powerful actors responding to the more powerful, while account holding signify efforts of dominant actors to enforce compliance.

I argue that implementation of RRI can be understood through the lens of governance as a process driven by the dominant coalition utilizing their resources (influence and agenda setting capabilities) to implement RRI within the rules of the game (existing research funding scheme). A better understanding of the structures surrounding implementation can illuminate the process and provide key insights for practitioners.

Bibliography:

Gulbrandsen, E., & Rynning, H. (2016). Ansvarlig forskning og innovasjon i Norges forskningsråd. Forskningspolitikk.

Mejlgaard, N. B., Ivan, Elias, N. S., i Giralt, M. C., Griessler, E., Hansen, L. S., Lang, A., Marusic, A., de la Poza, G. R., Strand, R., & Wuketich, M. (2016). State of the Art Review: Higher Education Institutions & Resonsible Research and Innovation.

Owen, R., & Pansera, M. (2019). Responsible Innovation and Responsible Research and Innovation. In D. K. Simon, Stefan, J. Stamm, & W. Canzler (Eds.), Handbook on Science and Public Policy (pp. 26-48). Edward Elgar Publishing.

Research Council of Norway. (2015a). Forskning for innovasjon og bærekraft - Strategi for Norges Forskningsråd 2015-2020. Oslo: Norges Forskningsråd

Research Council of Norway. (2015b). A framework for Responsible Innovation - under BIOTEK2021, IKTPLUSS, NANO2021 and SAMANSVAR v1.0. Oslo: Norges Forskningsråd

Rhodes, R. A. W. (2007). Understanding Governance: Ten Years On. Organization studies, 28(8), 1243- 1264. https://doi.org/10.1177/0170840607076586

Rip, A. (2014). The past and future of RRI. Life Sci Soc Policy, 10(1), 17-17. https://doi.org/10.1186/s40504-014-0017-4

Røiseland, A., & Vabo, S. I. (2016). Styring og samstyring : governance på norsk (2. utg. ed.). Fagbokforl.

van Hove, L., & Wickson, F. (2017). Responsible Research Is Not Good Science: Divergences Inhibiting the Enactment of RRI in Nanosafety. Nanoethics, 11(3), 213-228. https://doi.org/10.1007/s11569-017-0306-5

Åm, H., Solbu, G., & Sørensen, K. H. (2021). The imagined scientist of science governance. Soc Stud Sci, 51(2), 277-297. https://doi.org/10.1177/030631272096257

The Transformative Force of Action Research and Social Innovation Across Local Health and Welfare Services

Trude Senneseth, HVL / Helse Bergen, Bergen, Norway

Fragmented health and welfare services threaten patient safety, health, well-being, and participation in society for mental health patients. Despite several national reforms addressing the problem, it persists, and a lack of mutual understanding between actors from different contexts is one the main challenges (Vik, 2018).

Action Research (AR) is suited to create transformations by addressing problems that exceed organisational borders and levels (Bradbury et al., 2019), and can be understood as the collaborative production of scientifically and socially relevant knowledge, transformative action through participatory processes (Wittmayer & Schäpke, 2014). This research method aligns with the intentions of Social Innovation (SI) to facilitate sustainable systemic change through "change in social relations involving new ways of doing, organising, knowing, and framing" (Avelino et al., 2019, p. 145). Networks and temporal organisations can be used to create SIs, as they allow flexible and ad hoc organising between actors, providing opportunities for realigning and disentangling normative and cultural elements of institutions, exploring knowledge complementarities, assigning meanings, and collective sense-making (Söderlund & Sydow, 2019; Strambach & Pflitsch, 2020; Winch et al., 2023). This also offers low-risk opportunities for the actors to secure dimensions described for responsible innovation (Stilgoe et al., 2013).

Against this background, we propose the research question for this study: How can a portfolio of Social Innovation projects contribute to transformation across local public health and welfare services for mental health patients?

Design: This case study is part of an AR project aiming at transformation to provide coherent services for joint end users across four local public health and welfare organisations. A portfolio of SI projects and processes were conducted, and created new spaces for action and reflections for systemic learning through temporal organisations allowing multi-sector and multi-level involvement of actors in co-creative learning processes. To generate qualitative data for this study, we conducted longitudinal multistage focus group interviews Abstract for AFINO International Conference 2024 (n=6) and collected archival data. The analysis followed principles of reflexive thematic analysis (Braun & Clarke, 2022).

Results: We found that the portfolio of SIs projects contributed to transformative change concerning three themes. 1) From 'master and servant' to 'equal partners' concerned the change in power balance between the actors, 2) Transformation from ignorance to awareness of interdependence concerned the change in knowledge about the context of others, initiating change in practises, 3) Transformation from blaming to a sense of community and hope for the future described how the actors switched from blaming others for joint shortcomings, to see themselves as empowered parts of a local 'health community' and expressed a narrative of expectations to do collective problem-solving for the future.

Conclusion: This AR project demonstrated that it is possible to transform local health and welfare services for mental health patients on the micro level where the service delivery is practised. Using AR principles of participation and systemic reflection for planning and learning from actions, empowered local actors to cocreate new understandings of interdependence in joint tasks for transformative change across organisations. Transformation can be developed by facilitating extensive, but not too costly, social innovations, meaning change in relations and new ways of doing, organising, knowing, and framing between local actors in temporal organisations and networks.

Impact: This study presents knowledge that can be significant in transforming services for patient groups left behind, such as mental health patients, young patients, the frail elderly, and patients with chronic illnesses. It also contributes new knowledge to the broader question of co-governance of transformation across silo organisations in the health and welfare services.

References:

Avelino, F., Wittmayer, J. M., Pel, B., Weaver, P., Dumitru, A., Haxeltine, A., Kemp, R., Jørgensen, M. S., Bauler, T., Ruijsink, S., & O'Riordan, T. (2019). Transformative social innovation and (dis)empowerment. Technological Forecasting and Social Change, 145, 195–206. https://doi.org/10.1016/j.techfore.2017.05.002 Abstract for AFINO International Conference 2024

Bradbury, H., Waddell, Steve, O' Brien, K., Apgar, M., Teehankee, B., & Fazey, I. (2019). A call to Action Research for Transformations: The times demand it. Action Research, 17(1), 3–10. https://doi.org/10.1177/1476750319829633

Braun, V., & Clarke, V. (2022). Thematic analysis: A practical guide. SAGE.

Söderlund, J., & Sydow, J. (2019). Projects and institutions: Towards understanding their mutual constitution and dynamics. International Journal of Project Management, 37(2), 259–268. https://doi.org/10.1016/j.ijproman.2019.01.001

Stilgoe, J., Owen, R., & Macnaghten, P. (2013). Developing a framework for responsible innovation. Research Policy, 42(9), 1568–1580. https://doi.org/10.1016/j.respol.2013.05.008

Strambach, S., & Pflitsch, G. (2020). Transition topology: Capturing institutional dynamics in regional development paths to sustainability. Research Policy, 49(7), 104006. https://doi.org/10.1016/j.respol.2020.104006

Vik, E. (2018). Helseprofesjoners samhandling – en litteraturstudie. Tidsskrift for Velferdsforskning, 21(2), 119–147. https://doi.org/10.18261/issn.2464-3076-2018-02-03

Winch, G. M., Brunet, M., & Cao, D. (2023). Research Handbook on Complex Project Organizing. Edward Elgar Publishing.

Wittmayer, J. M., & Schäpke, N. (2014). Action, research and participation: Roles of researchers in sustainability transitions. Sustainability Science, 9(4), 483–496. https://doi.org/10.1007/s11625-014-025

Which type of responsibility is needed to realize the ambitions of RRI?

Giovanni De Grandis, NTNU, Trondheim, Norway

Many proponents of RRI have stressed the inadequacy of the prevalent conception of responsibility, which is individualist and retrospective (Adam & Groves, 2011; Owen et al., 2013; Spruit et al., 2016; Von Schomberg, 2007; Wäscher et al., 2020). Some have stressed the need for developing a collective model of responsibility (Grinbaum & Groves, 2013; Owen et al., 2012, 2013; Von Schomberg, 2007; in a slightly different vein Spruit et al., 2016 have argued the duty to unionize to build collective agency) and some have stressed the need to develop a prospective or forward-looking model of responsibility (Grinbaum & Groves, 2013; Owen et al., 2013; Pellé & Reber, 2015; van de Poel & Sand, 2021). I believe that both these dimensions of responsibility are central for a conception of responsibility which meets the ambitions of transformative RRI. The case that stresses the limits of retrospective responsibility has been made quite strongly by von Schomberg (2007), Adam and Groves (2011), Pellé and Reber (2015), and (with some qualifications) by van de Poel and Sand (2021). So, I take it as well established that while individual retrospective responsibility is not irrelevant for RRI, it is insufficient to achieve its ambitions. However, van de Poel and Sand (2021) have argued that a properly understood prospective individual responsibility is all that is needed for RRI and Grinbaum and Groves (2013) also give a substantial role to

individual prospective responsibility. Both papers end up emphasising a virtue-based or care-based conception of responsibility.

My presentation contributes to the discussion of responsibility in the context of RRI by developing two arguments. First, I show that conceptions of individual responsibility as those developed by van de Poel and Sand, and by Grinbaum and Groves are inadequate to achieve the transformative goals of RRI and impose an unfair burden on individuals that lack power, resources and incentives for expanding their responsibility in the way suggested by these authors. Second, I outline the formal conditions for the construction of a joint responsibility among a set of collective authors. I claim that if RRI has the ambition of effecting a transformation of the research and innovation system, this kind of joint responsibility is necessary. The challenge is that this joint responsibility has to be built among a set of collective agents somehow linked but not having a shared decision-making mechanism. It follows that first it is necessary to show that some important gains can be achieved through an increased coordination and a willingness to change established practices. Second, an equilibrium point needs to be identified that constitutes a reasonably eligible option for all involved actors. Finally, a stabilizing mechanism that promotes compliance and mutual trust needs to be established. Because these conditions are difficult to meet in many circumstances, I conclude that the transformative ambition of RRI needs a type of joint responsibility that is unlikely to be achievable in many circumstances and therefore the systemic transformation is unlikely to happen. On the other hand, I suggest that the proposed formalisation of the conditions needed for building joint responsibility among a set of collective actors has much wider relevance than RRI and may help in building value-chains that are more responsive to ethical and social demands, something which is very needed to address the grand challenges of our times.

References

Adam, B., & Groves, C. (2011). Futures Tended: Care and Future-Oriented Responsibility. *Bulletin of Science, Technology & Society*, *31*(1), 17–27. https://doi.org/10.1177/0270467610391237

Grinbaum, A., & Groves, C. (2013). What Is "Responsible" about Responsible Innovation? Understanding the Ethical Issues. In R. Owen, J. Bessant, & M. Heintz (Eds.), *Responsible Innovation* (1st ed., pp. 119–142). Wiley. https://doi.org/10.1002/9781118551424.ch7

Owen, R., Macnaghten, P., & Stilgoe, J. (2012). Responsible research and innovation: From science in society to science for society, with society. *Science and Public Policy*, *39*(6), 751–760. https://doi.org/10.1093/scipol/scs093

Owen, R., Stilgoe, J., Macnaghten, P., Gorman, M., Fisher, E., & Guston, D. (2013). A Framework for Responsible Innovation. In R. Owen, J. Bessant, & M. Heintz (Eds.), *Responsible Innovation* (1st ed., pp. 27–50). Wiley. https://doi.org/10.1002/9781118551424.ch2

Pellé, S., & Reber, B. (2015). Responsible innovation in the light of moral responsibility. *Journal on Chain and Network Science*, *15*(2), 107–118. https://doi.org/10.3920/JCNS2014.x017

Spruit, S. L., Hoople, G. D., & Rolfe, D. A. (2016). Just a Cog in the Machine? The Individual Responsibility of Researchers in Nanotechnology is a Duty to Collectivize. *Science and Engineering Ethics*, *22*(3), 871–887. https://doi.org/10.1007/s11948-015-9718-1

van de Poel, I., & Sand, M. (2021). Varieties of responsibility: Two problems of responsible innovation. *Synthese*, *198*, 4769–4787. https://doi.org/10.1007/s11229-018-01951-7

Von Schomberg, R. (2007). From the ethics of technology towards an ethics of knowledge policy & knowledge assessment. *Available at SSRN 2436380*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2436380

Wäscher, S., Biller-Andorno, N., & Deplazes-Zemp, A. (2020). "I Don't Want to Do Anything Bad." Perspectives on Scientific Responsibility: Results from a Qualitative Interview Study with Senior Scientists. *NanoEthics*, *14*(2), 135–153. https://doi.org/10.1007/s11569-020-00365-5

Complex policy concepts and organizational anchorage: the case of RRI

Christian Wittrock[1], **Ellen-Marie Forsberg**[2]
[1]Oslo Metropolitan University, Norway; [2]NORSUS, Norway

Complex policy concepts and organizational anchorage: the case of RRI The modern world is characterized by an increasing number of grand challenges, new geopolitical conditions, and new technologies, driving political attention towards finding novel solutions to increasingly complex problems. Responsible politicians face a choice of devising increasingly complex policies instead of resorting to the simplistic solutions offered by populism or rejecting the existence of complex issues altogether. This may drive the development of policy concepts that are both difficult to understand due to their complexity and equally difficult to implement. The European Commission's framing of RRI as keys may be one such complex policy invention.

In a European context, complexities regarding the consequences of new research and technology was picked up forcefully by the European Union in the seventh Framework Programmes for Research and Technological Development and found its perhaps clearest expression to date in the subsequent Horizon 2020 programme (Owen et al., 2021). Building on previous concerns about Ethical, Legal and Social Aspects (ELSA) of science and technology, European Commission (EC) policymakers now pushed an agenda of "Responsible Research and Innovation" (RRI) (Rip, 2014).

Towards the end, the EC conceptualized RRI as comprising of six and later five keys (Forsberg et al., 2018); open access, gender, ethics, science education and public engagement. Through the Horizon 2020 programme many research projects tracing the prospects for the implementation of RRI in European research and innovation were funded, partly in efforts to spread RRI in and beyond higher education institutions. Quickly, a major concern became that the research establishment found RRI difficult to understand (Rip, 2016). Likewise, the disparate character of the five RRI keys means that there was no common best or promising

practices for the implementation of the entire concept signified by the RRI label (Forsberg & Wittrock, 2023). In addition, studies tracing RRI implementation document that an often cited barrier is a lack of institutionalization (Tabarés et al., 2022), including a lack of dedicated organizational units responsible for the individual keys (Wittrock et al., 2021).

Conceptualized policies such as RRI may in themselves be seen as innovations (Strang & Soule, 1998). We know from innovation research that innovations that are difficult to understand and that appear complex to potential users do not spread easily (Rogers, 2003). Moreover, we know from organizational theory that implementation of policies, such as RRI, takes place in organizations which may––or may not––be accommodating of the policy (Pressman & Wildavsky, 1973) and which may have an interest in keeping silent about potential implementation issues (Brunsson, 1989), as well as giving the public impression that new policies are both endorsed and followed in the face of non-adoption (Meyer & Rowan, 1977). The dynamic of RRI as a complex policy concept in response to grand challenges thus deserves more attention than it has been given.

Drawing on data from a largescale Horizon 2020 project, tracking prospects of RRI implementation in 23 organizations in 12 countries, we show that a full-fledged implementation of RRI appears to require up to 14 organizational anchorages for its full institutionalization, and that this anchorage is mostly missing. Building on (Van de Ven, 1986, p. 604) suggestion that "an innovation or creative idea does not become an innovation until it is implemented or institutionalized" we suggest that there may be more effective ways of addressing grand challenges than devising and funding research on complex and disparate policy concepts such as the European Commissions' RRI concept building on 'keys'.

References

Brunsson, N. (1989). The organization of hypocrisy: Talk, decisions and actions in organizations. John Wiley & Sons.

Forsberg, E.-M., Shelley-Egan, C., Ladikas, M., & Owen, R. (2018). Implementing Responsible Research and Innovation in Research Funding and Research Conducting Organisations—What Have We Learned so Far? In F. Ferri, N. Dwyer, S. Raicevich, P. Grifoni, H. Altiok, H. T. Andersen, Y. Laouris, & C. Silvestri (Eds.), Governance and Sustainability of Responsible Research and Innovation Processes (pp. 3-11). Springer. https://doi.org/10.1007/978-3-319-73105-6_1

Forsberg, E.-M., & Wittrock, C. (2023). The potential for learning from good RRI practices and implications for the usefulness of RRI as an umbrella concept. The Learning Organization, 30(6), 687-712. https://doi.org/10.1108/TLO-09-2021-0104

Meyer, J. W., & Rowan, B. (1977). Institutionalized Organizations - Formal-Structure as Myth and Ceremony. American Journal of Sociology, 83(2), 340-363. https://doi.org/Doi 10.1086/226550

Owen, R., von Schomberg, R., & Macnaghten, P. (2021). An unfinished journey? Reflections on a decade of responsible research and innovation. Journal of Responsible Innovation, 1-17. https://doi.org/10.1080/23299460.2021.1948789

Pressman, J. L., & Wildavsky, A. (1973). Implementation : how great expectations in Washington are dashed in Oakland : or, why it's amazing that federal programs work at all : this being a saga of the economic development administration : as told by two sympathetic observers who seek to build morals on a foundation of ruined hopes. California University Press.

Rip, A. (2014). The past and future of RRI. Life Sciences, Society and Policy, 10(1), 17. https://doi.org/10.1186/s40504-014-0017-4

Rip, A. (2016). The clothes of the emperor. An essay on RRI in and around Brussels. Journal of Responsible Innovation, 3(3), 290-304. https://doi.org/10.1080/23299460.2016.1255701

Rogers, E. M. (2003). Diffusion of Innovations (5th (pbk.) ed.). Free Press.

Strang, D., & Soule, S. A. (1998). Diffusion in Organizations and Social Movements: From Hybrid Corn to Poison Pills. Annual Review of Sociology, 24(1), 265-290. https://doi.org/10.1146/annurev.soc.24.1.265

Tabarés, R., Loeber, A., Nieminen, M., Bernstein, M. J., Griessler, E., Blok, V., Cohen, J., Hönigmayer, H., Wunderle, U., & Frankus, E. (2022). Challenges in the implementation of responsible research and innovation across Horizon 2020. Journal of Responsible Innovation, 9(3), 291-314. https://doi.org/10.1080/23299460.2022.2101211

Van de Ven, A. H. (1986). Central Problems in the Management of Innovation. Management Science, 32(5), 590-607. http://www.jstor.org.ezproxy.oslomet.no/stable/2631848

Wittrock, C., Forsberg, E.-M., Pols, A., Macnaghten, P., & Ludwig, D. (2021). Implementing Responsible Research and Innovation: National and Organisational Conditions. Springer Nature. https://doi.org/10.1007/978-3-030-54286-3