EPINET

Funded under FP7-SiS-2011-1.1.1-4
Grant Agreement 288971

Deliverable D8.3-1 (delivery date, month 36)

Observations and Reflexivity

Responsibilising Interdisciplinarity and Integration
Summary of findings and policy recommendations

Rapporteur: Kristrún Gunnarsdóttir
k.gunnarsdottir@lancaster.ac.uk

Partners:

Lancaster University, UK	Kristrún Gunnarsdóttir (rapporteur); Brian Wynne
Vrije Universiteit, Brussels	Niels van Dijk; Serge Gutwirth; Mireille Hildebrandt

This policy report is based in Epinet WP2 and complements WP1 reporting on the ***EPINET Integrated Assessment Framework as a Tool for RRI***. We present key findings from the empirical research we conducted and was designed to be an instrument of observation and reflexivity in reference to the interdisciplinary innovation assessment cases conducted as part of the Epinet project. In particular, we report on the procedural conditions in carrying out these cases as the basis on which our policy recommendations rest.

Objectives and aims of the study

Work Package 2 was designed to be an agency of ***observation*** and ***reflexivity*** in reference to the interdisciplinary innovation/technology assessments, i.e., the case studies conducted for EPINET.[1] We attended workshops and meetings and analysed documents produced by the study teams. We also conducted interviews with team members to hear about their expectations and reflections on the experience of working on those assessments.[2] Our focus has centred on the ***procedural conditions in carrying out this work***, conditions we take to be indicative of ***the kinds of things that can and should be expected*** in bringing together expertise across disciplines and professions, not to mention, geographical locations. More specifically, we observe these conditions in reference to **interdisciplinarity and integration** being called upon to improve the culture of innovation and accountability in Europe.

Shaping the objectives and aims of this study:

The Horizon 2020 programme is ***mainstreaming*** *Responsible Research and Innovation* (**RRI**)

RRI directives require that research projects funded by the programme embed actions on gender, ethics, science education, open access and public engagement.

RRI directives require ***interdisciplinarity*** and ***integrated solutions***, conducive to better and more balanced assessments of science, technology and other societal innovations.

Interdisciplinarity and integration are treated as pre-given in accounts of what the **RRI** approach is in practice.

The Epinet project proceeds against a backdrop of recent implementations and mainstreaming of approach to innovation governance, referred to as *Responsible Research and Innovation* (**RRI**).[3] This is evident in directives requiring that research projects funded by the Horizon 2020 programme embed actions on gender, ethics, science education, open access and public engagement. It is evident in calls for institutional change to foster more inclusive and sustainable innovation. For example, the RRI approach is anticipating greater involvement by *all* societal actors throughout the entire research and innovation process: researchers, innovators, policy-makers, businesses, citizens and CSOs. It calls for interdisciplinary solutions and integrated frameworks, conducive to better and more balanced assessments. However, little if any attention is paid to the practical and procedural conditions of realising such goals.

---

1 We refer here to **WP3**, wearable sensors for health and self care, fitness and wellbeing; **WP4**, autonomy in robotic systems for care and companionship; **WP5**, synthetic/in-vitro meat, **WP6**, the future smart grid; plus, the cross-cutting case of Data Protection Impact Assessments (**DPIA**).

2 We thank and phrase our colleagues for their bravery in playing along with this exercise and us here—to engage a self-critical and all-round critical reflection for the greater good by providing us with important clues to mutual learning and reflexivity.

3 See https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation .

The EPINET cases were comprised of various combinations of expertise, including:

- Ethics (situated/communicative)
- Knowledge assessment (pedigree analysis)
- Law (legal analysis, legal concepts)
- Media and digital cultures (media analysis)
- Multi-scale integrated assessments
- Risk and uncertainty analysis
- Socio-technical evaluation (ethnography/document analysis)
- Vision assessment (document analysis)

They proceeded on the bases of common assumptions observed in the discourses on responsible innovation.[4] Those discourses focus on the ***turn toward futures*** and futuring, and what to expect of ***visions as key considerations*** in assessments. They focus on the ***integration of different groups and networks***, of coming together to ***produce reflexive***, ***responsive*** **and** ***anticipatory outcomes*** for deliberation. They ***evaluate institutions*** as part of their assessments, e.g., if structural and/or procedural changes are needed. And, they proceed on the assumption that efforts to govern complex systems should ***not be deterred by complexity***.

We highlight below the areas in which our research has been focussed in observing the work on these cases, and we present key findings as the bases for policy recommendations. Implications for policy are focussed in two topical domains:

1. The organisational and working conditions under which to orchestrate different disciplines and study traditions, expertise and experience, to improve upon the practices of evaluating new-emerging domains of innovations.
2. The current political climate in which European innovation policies proceed and preside, where choices are made about the constitution of advisory bodies, about relevant methods of assessment, where innovation priorities are defined and pursued.

These topics are directed at the Commission's **DG Research**, **DG-Connect**, and other relevant directorates, innovation and research funds/agendas/programmes – and their advisory bodies – in matters of ***Responsible Research and Innovation***.

Key policy considerations:

What actually happens when we get down to the business of bringing people together across disciplines, institutions and national borders in an attempt to achieve interdisciplinarity and integration in assessing new-emerging domains of innovation?

What are the novelties engendered by interdisciplinarity as a response to the intensifying demands that new-emerging innovations should be integrated with societal affairs?

4 See Owen, R., Bessant, J. and Heintz, M. (eds) (2013). ***Responsible Innovation. Managing the responsible emergence of science and innovation in society***. John Wiley & Sons Ltd; ***EPINET Integrated Assessment Framework as a Tool for RRI***. We also discuss elsewhere so-called Responsible Innovation (RI) and RRI, among other *works-in-progress* approaches that aim to encourage greater responsibility and accountability in innovation practices and networks (see Gunnarsdóttir, K. and Dijk, N. van, in preparation).

Policy considerations

1. **Interdisciplinarity and integration are taken for granted in accounts of what the RRI approach is in practice.**

   Explanation/findings: **Interdisciplinarity and integration** are treated as pre-givens in mandates to implement and mainstream RRI, and in RRI/RI-type targeting of policy developments that prioritise innovation objectives and funding. Very little is said however, about what to expect of bringing disciplines together and integrating methods and approaches. The definitional looseness of these two terms and the fact that they are not qualified in Horizon 2020 documents, encourages idealisations and risks raising unrealistic expectations.[5] For example, one can argue that interdisciplinarity stands for *collaboration* (narrowly conceived), or that it approaches a *radical recasting of disciplines* (method, approach, output). One can argue that integration is achieved when one thing is loosely combined with another. It can also suggest a merger, a mash-up, a sense of homogeneity and consensus. There is a lot of interpretative leeway, but our findings show that interdisciplinarity – in some form or to some degree – is the result of hard labour, not a pre-given. What is achieved within a team in terms of interdisciplinarity is typically fragmented and partial, involving disciplinary boundary work, identity politics, labour divisions, short-term entanglements, all of which achieve some level of interdisciplinarity and integration and, importantly, produce novel insights. In short, we observe disciplinary approximations *and* distantiations which require diligent attention and care in ongoing teamwork and in the leadership of that work.

   Recommendation: *Develop pathways towards much clearer understandings of what is meant by interdisciplinarity and integration—of what is sufficient and adequate in that respect in the work of 'interdisciplinary' advisory bodies and research teams who are asked to deliver interdisciplinary solutions and integrated frameworks for better and more balanced innovation/technology assessments*.

2. **Interdisciplinarity and integration are responsibilised without adequate attention to procedural conditions or provisions (requirements, supports) to improve those conditions.**

   Explanation/findings: The first thing to encounter when people are brought together across disciplines and geographical distances, are the procedural conditions endemic in getting work done. Therefore, we argue, potential shortcomings and complications should be expected and prepared for. There are ***limits to participation***. Personal and inter-personal, professional and institutional dynamics will test those limits (contracts, funds, accidents, availability, etc). There are ***barriers to communication***, the *stress text of resilience*, we argue, when team members are rarely co-present and grappling with communication hurdles to achieve a degree of disciplinary approximation and dynamism in keeping a shared study

---

5 Gunnarsdóttir, K. and Dijk, N. van (in preparation). Responsibilising Interdisciplinarity and Integration in Horizon 2020: Teamwork, Leadership and the 'Sufficient Assessment'. Journal article for submission in *Journal of Responsible Innovation*. (EPINET Deliverable D8.6, April 2015). http://neicts.lancs.ac.uk/pdf/Responsibilizing-Interdisciplinarity-and-Integration.pdf (May 2015).

Dijk, N. van. and Gunnarsdóttir, K. (2014). *Documentation of case study progress with focus on disciplinary orientations and method, and interdisciplinary approximations and distantiations*. (EPINET Deliverable D2.2, Dec 2014). http://neicts.lancs.ac.uk/pdf/EPINET-WP2_D22.pdf (Dec 2014).

Gunnarsdóttir, K., van Dijk, N. (2013, discussion paper). Disciplinarity and value commitments: Interdisciplinary approach to knowledge and innovation assessment (Based on EPINET working paper, Deliverable D2.1, Dec 2012). http://neicts.lancs.ac.uk/pdf/Disciplinarity-and-Value-Commitment.pdf (Feb 2013).

environment alive. Expectations of ***interdisciplinarity*** are manifested in the many ways in which a journey of working together, tests the limits of learning, knowledge creation and sharing in a ***process of integration***, and in dealing with organisational, interpersonal and communicational phenomena that ***can be described and explained effectively but are not very predictable***. Consequently, any team crossing disciplines and national borders will have to find adequacy and sufficiency in and through ***a test of the imagination***, i.e., of ***working with others intellectually as exploratory action***. Against that, we observe that it is in the actual execution of teamwork and leadership – which has been set up to achieve an idealistic goal of interdisciplinarity and integration – that know-how can come up short in building and sustaining momentum because ***crucial details of guidance are missed***.

Recommendation: *Develop criteria and minimal requirements for leadership and procedural design in order to support and improve upon logistics and mediation in teamwork. The following is suggestive of prominent areas to be mindful of in this respect, not a complete index:*

- *Are provisions in place that require and support **structural leadership** with built-in processes of time-lined commitments?* (e.g., always knowing when a team is meeting next, what needs doing in-between, who is following up on what and when they will be in touch about it)
- *Are provisions for **face-to-face meetings** adequate?* (e.g., sustained and/or frequent co-presence, especially in the early stages of teamwork, is crucial for a deepening of relationships and intellectual investments)
- *Are provisions for **innovative uses of ICTs** adequate for sustained long-distance communication?* (e.g., structured, regular teleconferencing, online bulletins, blogs and tweets help cultivate a sense of participation and belonging)

Recommendation: *Encourage built-in tools of observation and reflexivity to support the cultivation of new relationships across disciplines, professions and other actors involved in interdisciplinary integration projects, while guarding academic and intellectual freedoms.*

- *Are adequate provisions in place to **accommodate professional commitments and academic expectations**, alongside the requirement of interdisciplinarity in H2020-funded research and innovation governance?* (e.g., joint panels at conferences help develop and sustain momentum and necessary dynamism to engender novel thinking about shared questions and concerns; Joint academic writing deepens the intellectual development and helps cement interdisciplinarity and integration of some scope or degree).
- *Are adequate provisions in place to **explicitly observe and reflect upon disciplinary approximations and convergences** necessary to achieve some degree or form of interdisciplinarity and integration?* (e.g., to use built-in agreements of *common concern* to work against and follow up on, or build-in *'moments in reflexivity*' with a team as a mutual learning environment).

3. Innovation policies on the integration of ELSA expertise should address issues of disciplinary inclusion/exclusion and other imbalances in interdisciplinary practice [6]

Explanation/findings: We observe that a carefully considered orientation to practice and disciplinarity is strongly suggestive of pathways towards not only better teamwork and leadership but more balanced assessments. A key learning is ***how selectively and pragmatically experts learn*** in approximating other disciplines and there remains ***a sense of unease with unfamiliar scholarly and methodological terrains***. However, a committed engagement in an interdisciplinary exercise in innovation/technology assessment – which is by definition *exploratory* – will also help in developing a sustained dialogue with innovators and research leaders, whose visions and products that team is evaluating—ideally, *with them*. The point of the exploratory exercise is to state the obvious perhaps, that if we confront the fact that the making of contemporary technologies navigates multiple sites, then gaining a good sense of the nature and the extent of this multiplicity is better facilitated by engaging with people across the relevant disciplines, occupations and experiences. It cultivates thinking about the material at hand in multi-dimensional ways that can lead to new and inspiring insights as long as this work is adequately facilitated in the sense referred to above. We argue that the novelties engendered here by achieving some degree or scope of interdisciplinarity are key in responding to the intensifying policy demands that new-emerging innovations should be integrated with societal affairs, and should be brought to the source of choosing and prioritising innovation objectives as part of an anticipatory approach to innovation governance.

Recommendation: *Develop criteria and requirements for a **much broader disciplinary and experiential base of existing advisory bodies** to innovation policy or in creating new such bodies.*

Recommendation: *Develop criteria and requirements for **policy impact assessments** that appreciate the value of exploratory action in order to put to the test **different constitutions of actors, method and approach** in providing policy advice; Develop proactive tools of mediation to mitigate and curb foreseeable power-struggles in the execution of the work of such bodies.*

Policy Impact Assessment ?

What is the impact on innovation futures of different *models of providing policy advice*?

What could be achieved with *refigurations* of actors, method and approach?

6 The history of advisory bodies indicates tendencies toward a rather narrow disciplinary and professional focus. One example here is the role of the advisory group ISTAG over the past two or so decades in advising on where to spend the money and what to prioritise in matters of ICT-based innovations. Another example is to look more critically at the development of industrial policy and the promises of innovation, in particular, in relation to addressing and solving the 'societal challenges'. These advisory activities are now integrating to some extent ELSA and related orientations but should be thoroughly infused with a much broader disciplinary and experiential base.