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PERSPECTIVES

Slow Innovation: the need for reflexivity in Responsible Innovation (RI)

Marc Steen

TNO, The Netherlands Organisation for applied scientific research, The Hague, The Netherlands

ABSTRACT

In this essay, the author reflects on several personal experiences in projects and advocates *Slow Innovation* as an alternative to the putative need for speed, the primacy of efficiency and the assumption that faster is better. Yes, RI does take time. Let us wear *Slow Innovation* as a badge of honour. Let us promote *reflexivity*: make time for uneasy questions, vulnerable experiences, awkward moments and uncertainty. The essay closes with an example of how this may support a human-centric approach to Artificial Intelligence.

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'Can we move on, please? We don't want to spend our time on endless philosophizing.' 'Ethics is vague and rather subjective. Let's focus on facts and on getting our technology to work.' 'I don't think we should spend time talking to citizens. They don't understand our technology.' 'Those iterations are pointless. And they hinder progress.'

Such utterances are not uncommon in professional technology development and innovation settings, notably in Europe. Sometimes people tend to believe that RI takes a lot of time, that it is a waste of time, and that it hampers innovation.

I understand RI broadly, as an intellectual and scholarly set of visions and practices rather than as a policy approach only; and I look at RI as a practitioner. I've worked for some 20 years in technology and innovation projects, in various roles; as researcher, designer, consultant, and project manager. I've practiced and advocated *Human-Centred Design* (HCD) (Steen 2012), where researchers and designers put potential users' experiences centre stage in their projects, *Participatory Design* (PD) (Steen 2013b), where project team members collaborate with potential users, throughout a project's iterative phases, and *Value-Sensitive Design* (VSD) (Steen and Van de Poel 2012; Royakkers and Steen 2017; Hayes, van de Poel, and Steen 2020), which entails organizing a process in which stakeholders express their values and integrating these in the project; with special interests in the ethics inherent in design practices (Steen 2015) and in organizing innovation processes that aim to promote wellbeing (Steen 2016).

I view HCD, PD and VSD as *avant la lettre* ways to facilitate RI 'on the ground,' on the micro-level of organizing innovation projects. Let me try to support this claim on the

CONTACT Marc Steen marc.steen@tno.nl

basis of four key dimensions of RI: *anticipation*, *reflexivity, inclusion*, and *responsiveness* (Stilgoe, Owen, and Macnaghten 2013). Approaches like HCD, PD and VSD help to envision and *anticipate* future users' experiences, 'to ask "what if. . .?" questions' (Stilgoe, Owen, and Macnaghten 2013, 1570); to organize multi-disciplinary and iterative processes and dialogues for *critical reflection,* 'holding a mirror up to one's own activities, commitments and assumptions' (Stilgoe, Owen, and Macnaghten 2013, 1571); to *include* potential users and other stakeholders in innovation processes, which 'inevitably force consideration of questions of power' (Stilgoe, Owen, and Macnaghten 2013, 1572); and in which stakeholders' values can be explored and *taken into account*, so that a project can 'change shape or direction in response to stakeholder and public values and changing circumstances' (Stilgoe, Owen, and Macnaghten 2013, 1572). In other words, I have been engaging with key dimensions of RI, on the micro-level of organizing projects, for a while. Such methods can help researchers and developers to identify and engage with the societal dimensions of their efforts, and influence their work (Fisher 2007). Furthermore, efforts are needed also on the macro-level, e.g. in international and national legislation and policies, and on the meso-level of institutions and corporations, e.g. in sustainable procurement and business models. Below, I will reflect on several personal experiences and propose several ideas that may support the further development of the field of the field of RI practice.

Slow innovation

In one of my first larger projects, I suggested that we organize interactions with potential users. We were a project team of ten researchers and developers, working on mobile telecom services for police officers and for informal carers. My suggestion was that each of us spend a day with a police officer, on the street, to better understand their task and context, or to visit an informal carer, to better understand their experiences of providing care to somebody with dementia – often a loved one. People in management roles believed it would be a waste of time and questioned what we would learn from these people. But we proceeded. And the exercise proved to be very meaningful; in the course of the project the team members involved kept referring to these interactions and their experiences.

We need to talk about the elephant in the room. *RI does take time.* Doing things with care takes time. Field trips, interviews, round tables and all other interactions that you may want to organize – all take time. Pioneering RI takes time. Convincing people to engage in RI takes time. Getting RI funded takes time. Making the team diverse, e.g. in terms of gender, age, culture and expertize takes time. Creating relationships with partners and stakeholders takes time. And all this slowness is at odds with the putative need for speed, the primacy of efficiency, and the seemingly ubiquitous assumption that faster is always better.

Why not turn it around? Let us embrace slowness.

You may have heard of *Slow Food*: an organization established in Italy in 1986 to promote alternative ways of growing and preparing food. As an alternative to *fast food.* They promote sustainable and organic ways to produce food, by local, small businesses, and ways to cook and eat food with care and *gusto*. They prioritize quality over quantity. *Slow Food* sparked a wider interest in slowness (Honoré 2004). Please

note that the adjective 'slow' must *not* be understood as an attempt to slow things down for the sole purpose of slowing down. Rather, it is meant to draw attention to values other than speed or efficiency (Vogt 2016, Woodhouse 2016).

I propose to use the term *Slow Innovation* to draw attention to the need to promote *anticipation*, *inclusion*, *reflexivity* and *responsiveness – all of which does take time to do well*. Let us *celebrate* slowness, taking inspiration from Slow Food. Yes, we work with local ingredients. We organize workshops with citizens to learn about their concerns; we believe that they have relevant expertize and that we can engage in mutual learning. Yes, we cherish traditional recipes. We read books and bring Aristotle, J.S. Mill and Amartya Sen into the discussion.

We feel that sitting around a table and enjoying healthy and delicious food in good company is a blessing. Not something that needs to be done quickly or efficiently. In RI we take time to explore and deliberate uneasy questions. We believe that, e.g. organizing societal engagement workshops with citizens, or engaging in ethical deliberation and dialogues with stakeholders, is *time well spent*. Without some space, time and opportunity for such participation or deliberation the possibility of RI practically would be closed off.

Reflexivity

In one of the last meetings of the JERRI project (2016–2019; https://jerri-project.eu) we reflected upon three years of working to further develop and institutionalize RI within two Research and Technology Organizations: TNO and Fraunhofer. One of our efforts was making TNO's *Strategy Advisory Councils*, key vehicles for organizing societal engagement, more diverse and inclusive (Steen and Nauta 2020). Looking back on our efforts, we concluded that in particular *reflexivity* – out of the four key dimensions of RI (Stilgoe, Owen, and Macnaghten 2013) – had been a critical factor in promoting and cultivating RI. We did create and facilitate occasions in which we – the project team members, and also the people we collaborated with within our organization – were able to ask uneasy questions, to share vulnerable experiences, to have awkward moments and to tolerate uncertainty.

I understand *reflexivity* as 'a type of reflection on practices in which one is actively involved and on one's own involvement in these practices' (Steen 2013b, 958). Moreover, reflexivity enables people in research or innovation projects to 'account for their own value-ladenness' (Strand 2019, 58). Similarly, philosophy professor Preston Stovall saw 'professional self-awareness,' a synonym for *reflexivity*, as 'a sort of master virtue that fosters the reflective deliberation necessary for a professional to pursue their work in an aspirational frame of mind' (2011, 110). That sounds worthwhile. But how can we promote reflexivity?

Carl Rhodes, a professor of organization studies, proposed an 'ethical response to reflexivity … that asks questions rather than provides answers; … that generates possibilities rather than prescriptions; that seeks openness rather than closure' (Rhodes 2009, 667). *Slow Innovation* requires creating time for uneasy questions, vulnerable experiences, and uncertainty. For the purpose of being responsible for the innovation project one works in, that project's potential and realized impact in the world, and one's own role in this project.

At the start of my career, I used to organize focus groups to discuss and evaluate ideas for future products or services. I vividly remember one particular focus group. The client, of a leading telecom operator, had asked me to find out what people thought about this idea for a new mobile phone service and, based on that, to provide advice for further development. Halfway through the discussion one participant turned to me and said: 'I do understand. They try to make teenagers addicted to this service. So they spend all their money. But you don't care of course. You work for them.' This was an awkward moment for me. As a parent, I did empathize with the concern he expressed. As a paid-for consultant, I felt caught red-handed. And as a researcher, I wanted to know more. It took me a couple of seconds to collect my thoughts and feelings. Then I chose to be honest about matters being complex. Yes, I am all these roles: parent, consultant, researcher.

> Okay. Well. I sympathise with your remark. I am also a father. And yes, I work for the telecom operator. They pay me. And they asked me to do this research. And I choose to do this from a position of curiosity and honesty. Not as a sales person. So, please, do tell me about your concerns and worries and I will relay them to the telecom operator.

It was a moment of reflexivity and responsiveness, and also of perplexity.

Slow Innovation can very well start from perplexity (Steen and Dhondt 2010). Pragmatist philosopher John Dewey advocated organizing processes of enquiry that start from experiences of perplexity (Dewey 1938, 101–119): to start from an 'indeterminate situation,' a situation that one experiences as problematic, but with little clarity yet; and to further explore the problem and try-out possible solutions (Steen 2013a). Preferably via a participative and iterative process (although Dewey did use other terms). Moreover, Dewey had a lifelong drive to bring about positive societal change, like many people in RI.

To more fully realize the benefits of such participative and iterative approaches, RI needs to combine various disciplines, through *transdisciplinary* innovation (McPhee, Bliemel, and van der Bijl-Brouwer 2018). It can gain a lot by connecting to fields like HCD, PD and VSD, which shares lots of similarities with RI (e.g. Doorn et al. 2013; Lubberink et al. 2019; Von Schomberg and Hankins 2019).

Now, what might we gain by embracing and celebrating slowness, by promoting reflexivity, and by organizing participative, iterative and transdisciplinary processes? What is the good that we could aim for through *Slow Innovation*? Besides becoming better at RI?

A European approach

One goal could be to cultivate a European approach to innovation – as an alternative to innovation driven by industry and commerce, like we can see in the United States, and as an alternative to innovation driven by the state and control, like we can see in China.

Slow Innovation can be an alternative to the speed of Silicon Valley and its 'Move fast and break things' ethos (which Facebook used until 2014), and to the speed of China, with its incredible growth of economic and political power. I am certainly not the first to propose such a European approach (e.g. van Oudheusden 2014; Ahrweiler et al. 2019). A similar notion has been behind the recommendations of the European

Commission's *High-Level Expert Group on Artificial Intelligence* (2019); to promote a 'human-centric' approach to the design and usage of Artificial Intelligence (AI), as an alternative to the US' company-driven AI or China's state-driven AI. Some do promote Europe's 'tech sovereignty' (Kelly 2020), 'greater independence from US and Chinese technology,' in which RI can play a key role.

Methods like HCD, PD and VSD can contribute to this 'human-centric' approach: by putting citizens' experiences with AI centre stage, e.g. assessing AI's impacts on their daily lives; by involving citizens in design and deployment phases, in more active and creative roles than they commonly have; and by inviting societal stakeholders to express their values and taking these into account when weighing between different parties' values. All of these things must happen within a wider context of policies and legislation that promote such a human-centric approach.

I would very much welcome 'human-centric' online services in Europe, based on values or principles like human dignity, freedom, equality, solidarity and justice. I can envision a series of online services, developed by public-private partnerships in EU member states, in a spirit of diversity and collaboration – *not* of competition; in line with Virginia Dignum (2019), who argued that 'firstly, there is no race and secondly, if there was, it would be the wrong race to engage in.' Using imagination and hope I can imagine the following online services: a *gründlich* German search engine that gives *reliable* information and flags disinformation, an *agréable* French social network that promotes *face to face encounters*, instead of online rage and polarization, a *duurzame* Dutch navigation service that promotes using public transport, bikes and car sharing, an online *supermercado diverso* with roots in Spain, which pays fair salaries and allows workers to unionize, and a *säker* Swedish video communication platform that is both safe and easy to use, where safe refers both to mental wellbeing and cybersecurity. These services can be paid-for, possibly a handful of euros per month. Instead of 'free,' where you pay by giving away your personal data, your attention and your time.

Slow Innovation is committed to protecting and honouring fundamental rights and following the rule of law, which forms the *background* for RI, and to promoting societal engagement, ethical deliberation, diversity and openness, which are key ingredients for *practicing* RI.

Many different initiatives, on different levels, are needed to further implement and develop and grow RI: on the level of policy and legislation, like the work of the *High-Level Group on Artificial Intelligence*; on the level of funding, where engaging the broader public is an increasingly important criterium (Mazzucato 2018); on the level of organizations and companies, which need to move towards more sustainable business models; on the level of professional organizations, like the *IEEE's Global Initiative on Ethics of Autonomous and Intelligent Systems*; and on the level of professionals, who need to cultivate virtues like justice and courage (Steen, Sand, and Van de Poel 2021). These examples are from the domain of tech, but readers may think of other examples, in other domains, like sustainable development.

Slow Innovation has the potential to improve RI not only on the level of process, but also on the level of content. If we want innovation to contribute positively to our world, we will need to slow it down; make it follow the slower tempos of ecological and social processes.

Obviously, this will not be easy. Many organizations focus on speed and on growth, and many people are not inclined to slow down or to engage in reflexivity, believing it to be a 'waste of time.' Nevertheless – or, precisely *because* of this focus on speed, my wish for the next decades of RI, is that we continue to re-invent RI (Fisher 2020) and cultivate forms of *Slow Innovation* so that it can become a badge of honour that we choose to wear with pride.

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No potential conflict of interest was reported by the author.

Notes on contributor

Marc Steen works as a senior research scientist at TNO, a Research and Technology Organization in The Netherlands. He earned MSc, PDEng and PhD degrees in Industrial Design Engineering at Delft University of Technology. His mission is to support organizations in using technologies in ways that help to create just societies and promote people's flourishing.

ORCID

Marc Steen http://orcid.org/0000-0001-7915-5459

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