Do You Speak Responsible Innovation ?

Elin M. Oftedal (1) Tatiana Iakovleva(2) , Matthias Kaiser (3)
University of Stavanger , Norway (1,2), University of Bergen, Norway (3)
*e-mail: elin.m.oftedal@uis.no

Abstract
To have a fruitful process with multiple and diverse stakeholders, there is a need to develop common visions, identify common challenges, inspire a dialogue and enhance the way we speak about responsible innovation. While business is often driven by the need to optimize the usage of their limited resources, the inclusion of diverse stakeholders in the innovation process might not be perceived as contributing toward firm's competitive advantage. Therefore, in this article, we discuss user inclusion and how stakeholders with different values may communicate. We follow users, firms, regional authorities, and researchers in the healthcare sector. The article utilizes a participatory approach by following the inclusion of different stakeholders in the innovation process as well as in the debate about the future of digital health within the living lab (Norwegian Smart Care Lab) located in the western region of Norway. The living lab in this study is defined as an intermediary between businesses, users and authorizes which facilitates inclusion. The focus of this Lab is on the facilitation of novel digital solutions for elderly people in the health and welfare sector. We base our analysis on the observation of the three stakeholders workshops, one exhibition, and over 30 interviews with different groups of stakeholders (users, firms, authorities representatives and researchers) who participated in such activities over the period of 3 years, from 2020 to 2023. Preliminary findings show that there are values with high and low proximity across the three groups of stakeholders.

Keywords
Responsible Innovation, User Inclusion, value landscape,

Objectives

The concept and discussions of innovation have moved from a profit–making question, to what matters for the survival of mankind on a sustainable planet -frontier discussions (Blok and Lemmens, 2015). Innovations, in themselves, may challenge the current status quo and thus challenge our moral awareness, call for an enhanced moral and ethical expertise, and may tempt or even force us to look for a new morality with a new vocabulary, starting with a reflection on the concept of innovation itself. To fit into this paradigm, innovation can no longer be presented as primarily technological, economically driven, and inherently good for all. One should not ignore the possible boomerang – effects and negative externalities. As a result of such concerns, a discourse on Responsible Innovation (RI) was introduced into the academic debate as well as into policy debate, suggesting that the innovation process should include discourse partners not only designing innovators, but also managers of innovation, policymakers, users of innovation outcomes, and other stakeholders affected. (Koops,2015; Owen et al. 2013; Stilgoe et al. 2013).

However, to have a fruitful process with multiple and diverse stakeholders, there is a need to develop common visions, identify common challenges, inspire a dialogue and enhance the way we speak about responsible innovation. A summary from a symposium called Challenges for Responsible Innovation" (Von Schomberg and Hankins, 2019) discusses the challenges of RI. One of the identified challenges was a communication barrier between academic and industrial disputes about RI. To anticipate possible negative externalities and to eliminate them, the inclusion of different stakeholders is emphasized by RI. While business is often driven by the

need to optimize the usage of their limited resources, the inclusion of diverse stakeholders in the innovation process might not be perceived as contributing toward firm's competitive advantage (Thapa et al., 2019; Iakovleva et al, 2021). On the other hand, different groups of stakeholders – users, customers, bureaucrats, NGOs, and laypersons often do not necessarily identify the value of inclusion into the business innovation process and thus they might be hard to reach for such inclusion. A common understanding of the importance and benefits of the RI principles for the benefits of individuals, businesses and regions is required to solve global challenges facing our society. Thus, RI challenges us is to burst its own bubble by asking how we, as a community, can move from what we currently do to achieve the systemic change needed in society and create a dialogue between stakeholders. In this article, we want to go beyond the normative aspect and look at the values of different stakeholders that drive their language of responsible innovation. Therefore, we ask the question: *How do we facility inclusion through communication across different values?*

Thus, we look at the values of users, firms, regional authorities, and researchers in the healthcare sector. The article utilizes a participatory approach by following the inclusion of different stakeholders in the innovation process as well as in the debate about the future of digital health within the living lab (Norwegian Smart Care Lab) located in the western region of Norway.

Inclusion in Responsible Innovation

As science and innovation have become more globalized, more complex and more dynamic – especially in high-tech disciplines –control measures are insufficient (Owen et al., 2013). RI has emerged due to these issues. RI addresses a lack of early, ethical reflection and inclusive deliberation as a problem in current innovation processes (Owen et al., 2013). RI enriches risk management (Stilgoe et al., 2013), in confirming the innovation process specifically addresses a societal challenge and that it is consistent with societal demands. RI has been defined as 'a collective commitment of care for the future through responsive stewardship of science and innovation in the present' (Owen et al., 2013: 36), as well as 'a new approach towards innovation, in which social and ethical aspects are explicitly taken into account... and economic, socio-cultural and environmental aspects are balanced' (Blok and Lemmens, 2015: 20).

A dominant framework sees RI articulated through four dimensions (Owen et al., 2013; Stilgoe et al., 2013). These include: 1) anticipation, motivation innovators to ask 'what if...' questions, being open to countless possibilities and thinking systematically about possible impacts and futures. 2) reflexivity, which concerns the moral boundaries and roles of innovators, seeking self-critique of assumptions and commitments as well as reflection on how issues are being framed. 3) Inclusion, which requires a wider set of societal actors to engage in dialogue and engagement processes, whilst the 4) responsiveness, which seeks to ensure that innovation processes have the capacity and leadership to respond to the questions and concerns raised through the first three dimensions. This framework offers a basis through which to explore the impacts of co-creation on the consideration of ethical implications of smart farming technological innovations.

A study by Oftedal, Iakovleva, and Foss (2019) suggests that inclusion is a prerequisite for the other dimension to take place. Inclusion ensures that several voices are being heard and thus, reflective processes such as anticipation and reflexivity have a larger foundation to take place. Further, responsiveness hinges on both inclusion and reflective processes. However, inclusion is a generic term that does not consider the large variation within this activity. Inclusion of new voices in the governance of science and technology, engaging in meaningful deliberation, dialogue, and engagement with a wide range of stakeholders and publics on the visions, impacts and broader socio-economic questions associated with research and innovation initiatives.

Partially, such inclusion seeks to simplify the delivery of radical new meanings through debate on the distinctive set of social, economic, political, and ethical questions that a new technology would bring into being, and partially to open the framing of issues that may challenge entrenched assumptions and commitments. There are various forms of inclusion extending from small-group processes of invited public dialogue in the form of focus groups, consensus conferences, deliberative mapping and citizen assemblies – what Goodin and Dryzek (2006) usefully call mini-publics – to innovations in more official governance arrangements in the form of multistakeholder partnerships, citizen forums, the inclusion of lay members on scientific advisory committees, user-centered design and other hybrid mechanisms. (Jarmai et al, 2021). Callon et al. (2009) have offered criteria that represent indicators of good inclusion practice: (1) intensity – ensuring that publics and stakeholders are consulted early in the innovation R&D process; (2) openness – ensuring that a diverse and inclusive array of groups are represented; and (3) quality – ensuring that the discussions and deliberations are conducted in a serious and continuous manner (these criteria are further elaborated in Section 3).

Generally, the expected outcome of the involvement of actors as a feature of a RI process is framed as an opening up of the research, innovation, and development process about issues that contest dominant assumptions, values, and interests. However, the assumption about the positive relation between inclusion of actors and opening has been debated. The assumption of opening being the desirable outcome of a responsible innovation process, can also be questioned.

Involvement by invitation in workshops and similar settings does not automatically help to challenge assumptions underlying scientific choices and normative issues (Mierlo et al, 2020; Jamison and Wynne 1998; Wynne 2007). It is also doubted whether participatory approaches, such as stakeholder involvement, are the only way to facilitate opening up. They are not by definition more effective than traditional expert analyses (Stirling 2008; van Mierlo et al. 2012). Thus, the method of how one opens up the process becomes important. Another challenge (Mierlo et al, 2020) is how the process closes again. As opening up is basically a widening of the problem, the solutions space and/or the governance system, closing down can be understood as reducing complexity and ambivalence. According to several scholars both opening up and closing down are therefore needed to direct change processes towards socially desirable ends. When a process is opened up and the observed results from this process is large and varied, there is a cruciality in understanding how to work with these results to take the process forward. Thus, the key challenge for responsible innovation can be reformulated as identifying ways to combine and balance processes of opening up and closing down (Mierlo, 2012; Voβ, Bauknecht, and Kemp 2006). To create good processes of "opening up and closing down" during inclusion activity, the aspect of developing a common language that refers to responsible innovation is important (Blackburn and Williamsen, 2010)

Communication and values for Stakeholders

Currently there is high interest in stakeholder engagement strategies among scholars and practitioners. This term, like so many others, means different things to different people. However, the meanings all have in common the notion of getting stakeholders more involved with the organization. To understand the underpinnings of different groups, it can be useful to understanding the dominating values. To understand on the relationship of values to action and attitudes, the analysis of human action is described as comprising three essential aspects: (1) the *cognitive* – what we know; (2) the *affective* – what we feel and desire; (3) the *conative* – what we aspire to, what we value. It is therefore important to combine the different drives to action, attitudes and behavioural change (Kaiser, 2022). values relate to each other in terms of proximity; (2) different values may exhibit different intensity (defining peaks in the landscape); (3) each value

acquires various meanings dependent on from where it is perceived (contextuality); and (4) values have an inertia but are malleable over time, particularly in interaction with belief states.

Methods

As an emerging field, there are few empirical studies focused on inclusion within the RI framework. Based on Clarkson (1995) and Yin (2009) we view this to be in line with a phenomenological approach. Following [Remenyi, 1998) phenomenological studies require researchers to go into depth and consider the details of the situation to understand the 'reality'. We thus argue that a qualitative approach and choose a multiple case study Remenyi, 1998; Welman and Kruger, 2002; Zhang and Wildemuth, 2009)] to explore the theoretical framework is needed.

The Context: Norwegian Smart Care Cluster

Norwegian Smart Care Cluster (NSCC) was established as a part of the national "cluster program" and financed over public funds. Their focus are organisations within the e-health area and they now have 290 members and partner from the whole country. They define themselves as a national and international cooperation arena for large and small companies, municipalities, hospitals, public actors, user organizations, academia/R&D institutions and investors.Their focus is "change through smart use of health technology!" and their purpose is to" build the Norwegian health industry by creating sustainable solutions for user/patient and the health service."

The Norwegian Smart Care Lab: An experiment of Responsible innovation

Based on results from previous research projects with the university of Stavanger, showing a need for arenas where several stakeholders meet, a testing lab was set up. This testing lab was focused upon the entire innovation process and planned as a resource center for companies that develop new solutions, and actors who want to use the solutions. It is also an arena for different stakeholders to meet. As such, the lab is an experiment of implementing responsible innovation from the start. The lab especially have different activities to bring together stakeholders. Our data come from some of these activities and is listed below in table 1.

Table 1: Sources of Data

	Description	**Numbers**
User interviews	Interviews with elderly people about challenges and needs.	20
User Cafe	An arena where elderly, industry and public sector come together to talk about technical solution around a coffee and cake. Between 15 – 25 participants on each workshop.	3
Future Literacy Lab	A workshop where we visualize future scenarios with different types of stakeholders. Between 10 - 20 participants on each workshop.	3
User Panels	The lab works to set up a user panel for future testing of technology.	1

The role of the researcher

An interesting part of the research here, is the role of the researcher. The researcher introduces the concept of responsible innovation to the lab, who responds by building up their activities around its principles. Therefore the researcher function as a catalyst for transferring knowledge and guiding the lab in choosing activities and how to work with stakeholders. Further, the lab function as a vessel for understanding and experimenting with responsible innovation in practice.

Main Results (preliminary) : **The Value Landscape**

Individual users

Image and Identify issues

The user struggles between the identity they have formed around themselves during their life and their new health situation and are keen to uphold their image. They tend to avoid stigmatizing technology and rather go for technology that make them seem young. An example of this is a lady of 83 years old telling us that she "*will use hearing aids when she is old*". Another example is that "*walking sticks will be used in my grave*". On the other hand, apple products are flashed in front of peers. Robotized vacuum cleaners and lawn cutters is becoming household items. Some respondents display a certain pride in understanding the new technology and associate it with youth. Others reject new technology and stick to their known ways. However, most display feelings of shame when they do not use or master technology that they are expected to.

Autonomy vs Safety

The dichotomy between autonomy and safety is strong in the data. The users embraced technology that could help them with some of their growing challenges. One such issue is *being mobile and sociable.* Isolation is a consequence of health issues and several of the end users were concerned about losing their social platforms. Some of the end users were helping others that were immoblised to get out and meet others. They therefore valued technology that could enable their social situation. Further, another issue is to involve next of kin in a meaningful way. Elderly do not always want to bother their next of kin, at the same time they are often the only one to help in certain situation. On the other hand, several user voiced technology worries: While many of the end users liked technology that made them more independent, such as electronical communication with their doctor which reduced the amount of physical dr visits, many showed concern over their ability to master the technology, when it came to changes, when it didn't function right or any other problem. *One user said, "my stomach turns into a knot when something is wrong with the technology, because there is nobody to ask*". They appreciated that there would be a human support with technology that could serve as an aid. Further, the need for human interaction is related to feeling safe and would be greater when the end – user is more vulnerable.

Public sector

Simplifying systems

the public sector has several challenges when it comes to technology. First of all, technology should aid employee in doing their job. This is not always the case. Technology can also create

extra challenges and can lead to employees either not using the technology or doing it both traditionally and electronically to make sure this job is done correct.The data also revealed that the public sector has doubts whether industry can solve the challenges ahead.

Society focus

Further, while it for the end users is important to have customized system, the way focus on functions and rather wants one system that fits all. Also, the public sector has a commitment to the whole picture, not individual users. One lady noted that "*one thing is what they want, but another is what they need.*

Technology pessimism and industry doubts

Technological pessimism is the belief that advances in science and technology do not lead to an improvement in the human condition. The public sector can often express both a lack of faith in technology and also about the plethora of solutions that industry can offer. Further, public sector has limited budgets, thus, purchasing new solutions from private actors was not seen as the way to deal with the challenge of the aging population and system crises. Rather, they were talking about educating users to get better self-care and effectivization of already existing systems.

Industry

Technology optimism

The capability of technology to radically transform work is playing out before our eyes. Many organizations flocked to digital solutions to help solve problem. The industry values their ability to understanding and solving challenges. They relate this ability to them being flexible and knowledgeable.

Idealism and user focus

The interesting part of many startups and also established companies in the health sector, is that they were started by someone affected of the health condition that their technology aims to solve. They are so called "patient – innovators (Zejnilovic; Oliveira and Canhao, 2016) which also can involve "next of kind" or other people close to the patient. Therefore, many companies, have a unique insight to users challenges and many values the proximity to the user. However, as company grow and becomes more established, their focus shifts from user to customer, thus from patient to the public sector.

Trust in institutions / stable markets predictability

The industry also values that the public sector are trustworthy and predictable. As, trust is integral to the functioning of any society, firms also initially value trust between public and private sector. However, this trust can sometimes be compromised. Greater public trust has been found to improve compliance in regulations and tax collections, even respect for property rights. It also gives confidence to consumers and investors, crucial to creating jobs and the functioning of economies more broadly.

Discussion: A new way of communicating

Our findings indicate certain challenges on achieving a common understanding of the need and value of inclusion of diverse stakeholders int the innovation development. On the one hand, all stakeholders that were included into this study agrees on the existence of common challenge. This challenge was described as inability of the present healthcare system to provide

good services to citizens due to rapid scaling of aging population. Further, there was an agreement that there is a need to create socially desirable solutions to unload a health system – for example, to help elderly people to stay longer in their houses.

Our study reveals that RI is perceived quiet differently by different stakeholders. Building a dialog and achieving a common understanding is often beyond the capacity and missions of each group of stakeholders. However, without achieving consensus is difficult to create a viable and socially desirable solution that will satisfy society as a whole. Our study contributes to theatrical discourse about RI and suggests that it is time to change focus from normative debate to a deeper understanding of how the consensus can be achieved, and how different stakeholders can come to a common language when they speak about responsible innovation. It also implies that for solving social problems within a national context, a regional and national level of thinking is appropriate to facilitate dialog and common understanding between users, businesses, authorities and researchers. Incentives from the government should be clearly expressed and supported with appropriate resources

It is most effective when created together by the team. Working together to develop common language helps to define clearer goals and ensures that team members have a common understanding which can help to decrease project costs. Specificity helps remove ambiguity.

Real understanding occurs when the parties are 'on the same page'. This is particularly important when people come from different disciplines or backgrounds.[5] Shared language takes time and effort to develop and nurture. It refers to the active process of establishing an understanding that would not have otherwise been present.

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