Responsible Research and Innovation

From Concepts to Practices

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10 Challenging the ideal of transparency as a process and as an output variable of Responsible Innovation

The case of "The Circle"

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Introduction

In the literature on responsible (research and) innovation (henceforth abbreviated as RRI or RI), it is self-evidently assumed that transparency will help to enhance responsibility throughout the innovation process (von Schomberg, 2013; Owen et al., 2013); transparency enables multiple stakeholders to reflect and deliberate on emerging innovations in our society, assess their possible risks and, in the end, contribute to the determination of the goal of these innovations (Owen et al., 2013). This assumption is embedded in a broader perspective on transparency as one of the most celebrated ideals in our society and as a solution to the social and political problems society currently faces (Roberts, 2009).

Originally, objects were called transparent if light could shine through them, for instance in the case of a picture painted on glass or thin cloth. Likewise, organizations are considered to be transparent if their strategies and operations are open and publicly visible. This openness and visibility of organizations is found in their ability to provide information about their strategies and operations to their stakeholders, whether or not in order to hold the organization accountable. According to Christensen and Cheney (2015), transparency is nowadays "a common synonym of good governance in all sectors and an umbrella term for an important set of practices in most organizations, including financial disclosure statements, open meetings, reporting regimes, budgetary reviews, audits, dialogue forums, consistency policies, and so on" (Christensen and Cheney, 2015; cf. Florini, 2007). The ideal of transparency bears witness to the ambition for good governance through new regimes of openness, visibility and legibility (cf. Garsten and de Montoya, 2008), regarding, for instance, the societal acceptability and ethical acceptability of research and innovation outcomes. By being transparent about decisions, policies and actions, actors become increasingly accountable to their stakeholders (cf. Christensen and Cornelissen, 2015; Fox, 2007).

According to the European Commission, transparency is also a prerequisite for responsible research and innovation (Sutcliffe, 2011: p. 17). The applicability of

the ideal of transparency in private sector innovation practices has been criticized, however. Transparency involves the reduction of information asymmetries among actors, while an innovative company survives precisely because of remaining and increasing information asymmetries (Blok and Lemmens, 2015). Nevertheless, the intuition that we need at least some degree of transparency in order to enhance stakeholder deliberation about the future impacts of innovations, increase responsiveness towards societal needs and secure societal goals of future innovations seems to be legitimate.

While in the current RRI literature transparency is often seen as a characteristic of the innovation *process* (Owen et al., 2013; Blok et al., 2015), it can also be seen as the *outcome* of responsible innovation. Thus the civil movement which is known in Europe under the name *Piratenpartei* calls for transparency and direct democracy, i.e. free access to public data and free access to publicly funded research and development, in order to prevent corruption and other irresponsible behaviour. From this perspective, the movement's efforts to institute an electronic petition system in order to secure and enhance direct democracy can be seen as responsible innovation that enhances transparency (cf. Eickhoff, 2011).[1] Although in a less radical way, the European Commission also sees transparency as a process and as an outcome variable of responsible innovation. In the MATTER report on RRI, the engagement of researchers and industries, gender equality, future-oriented science education, ethical considerations, open access to the results of publicly funded research and harmonious governance models are defined as aspects of RRI (Sutcliffe, 2011). In the case of engagement of researchers and industries, transparency can be seen as a necessary condition for a responsible innovation process. Sutcliffe mentions open access to the results of publicly financed research as an example of a responsible innovation. In this case, transparency is seen as an outcome of RI and as part of the process of RI.

In this paper, we explore the opportunities and limitations of the ideal of transparency in responsible (research and) innovation, by consulting the virtual case of "The Circle", a company which appears in Dave Eggers' recent novel *The Circle*.[2] The Circle is a high-tech company that provides services like Google and Facebook. The mission of The Circle is to end the anonymity of the internet – which only leads to excesses like pornography, cheating and violence – and to develop a human community in which mutual understanding, community and sharing are central themes. To this end, this innovative company develops technology and software that enhance transparency. The fundamental intuition of *The Circle* is that transparency prevents corruption, war and other bad habits, and promotes ethical behaviour. In this, the company echoes "the modernist conviction that more and better information reduces uncertainty, increases knowledge, and provide a bulwark against corruption, fraud and inefficiency" (Christensen and Cheney, 2015). Because *The Circle* furthers this ideal of transparency to the extreme – all information has to be public and there should be no privacy at all – we can reflect on the advantages and the limitations of the ideal of transparency as an *outcome* of responsible innovation based on this case. Because it concerns

a privately owned company, the case also enables us to reflect on the advantages and the limitations of the ideal of transparency as characteristic of industrial-responsible innovation *processes* in this chapter.

In section one, we provide more detailed information about the company and its products. We will elaborate the purpose, products and processes of the company itself and the most important innovations that they developed. In section two, we analyse the innovations of The Circle as an *outcome* of responsible innovation processes: transparency as an outcome of responsible innovation. In section three, we apply the different dimensions of responsible innovation in order to analyse the innovation *processes* of The Circle: transparency as a characteristic of the process of responsible innovation. In section four, we draw conclusions regarding the ideal of transparency in RI.

The Circle: Its mission and its innovations

The Circle is a high-tech company with the main purpose of being responsive to societal needs. They want to eradicate unethical behaviour in society, enhance public health and make a positive impact on the environment. They do this by developing innovations themselves and by bringing in innovations developed by other actors in society. The word "they" is used because The Circle is both a community and a company at the same time. It was originally started by one engineer, and later on, two other "wise men" joined as leaders of The Circle, known together as the "three wise men". They are assisted by "the gang of forty" which functions as a board consisting of the forty most important employees of the company. The rest of the company consists of thousands of other employees. Everybody within the community basically shares the same vision, values and perspectives.

The original innovation that led to the start of the company is the so-called *TruYou*. This is an information technology that combines "users' social media profiles, their payment systems, their various passwords, their e-mail accounts, user names, preferences, every last tool and manifestation of their interests" and turns it into "one account, one identity, one password, one payment system, per person" (Eggers, 2013: p. 21). It requires people to use their real identity when signing up, which means that the identity of users is fully transparent to other users and can no longer be hidden by aliases. On the one hand, it is expected that users will no longer be involved in unethical behaviour when it is no longer possible to hide or conceal their identity. On the other hand, it is expected that an increasing number of users will provide full transparency about their identity, because this transparency is a necessary condition for using the innovations that are developed by The Circle. In the end, *TruYou* is expected to turn into a sort of social security number. This will then be used for a civil registration system where one can vote via his or her *TruYou* account. One cannot use any other services of the *TruYou* account until one has voted in order to reach 100% participation. The ultimate goal of The Circle is to reach full democracy and transparency by its innovations for transparency.

Another important innovation is *SeeChange*. This is a camera the size of a large thumb. This camera is affordable to everybody and is extremely durable and can record people's behaviour all over the world. The advantage of this camera is that one can access the recordings from everywhere and, in case of unethical behaviour – beating up peaceful protestors at the Tahrir Square in Istanbul, for instance – *Seechange* enables instant accountability for people conducting any kind of unethical behaviour. Because it is so small and hard to detect, one can never be sure that one is not being recorded. It is expected that this "not-knowing" will prevent abuses of power in the future (cf. Foucault, 1977).

A third example of an innovation is the *ChildTrack/TruYouth*. Children get a chip in their bodies so they can be tracked at all times. This should prevent children from getting kidnapped. If they do get kidnapped, the authorities can locate their whereabouts immediately and (hopefully) prevent bad things from happening.

Although we use The Circle as a virtual case, a quick search on the internet shows that there are real-life companies and innovations that are heading in the same direction as the virtual innovations of The Circle. In 2010, Facebook founder Marc Zuckerberg argued that the age of privacy is over. According to Zuckerberg, the social norms regarding sharing of information has evolved over time, and "we view it as our role in the system to constantly be innovating and be updating what our system is to reflect what the current social norms are" (Zuckerberg, 2010). miicard can serve as a real-life innovation which shares some of the characteristics of the TruYou. The general public should: "Think of miiCard as your virtual driver's license or digital passport that lets you prove your real identity online. […] miiCard is a free service that puts you in control of your identity, taking the trust you already have with your online bank and the protection of strong authentication, to help you do everything from shopping, to proving your social accounts, trading on eBay and even buying a house – entirely online" (www.miiCard.com). There are also real-life innovations that are similar to the Seechange. For example, the vision by NGO "witness.org" is that video as a medium is key to registering and fighting against unethical behaviour. They have a special initiative, the "cameras everywhere leadership", which is about using the power of the public to record violations of human rights (http://www3.witness.org/cameras-everywhere). Also, the increase in privately owned drones with high-quality cameras is a step in the direction of a "cameras everywhere world" where people feel that they might be recorded and therefore be held accountable for their actions. Police departments also believe in the power of (video) recording. By wearing body cameras, they want to become more transparent as they (and others) can be recorded, controlled and therefore be held accountable for their actions. Although we will focus on the virtual innovations of The Circle in this chapter, the real-life examples of innovations do show that reflecting on the idea of responsible innovation and the concept of transparency is now more relevant than ever.

In all three cases of innovations by The Circle, transparency is enhanced in order to prevent unethical behaviour. The question now is: Can these innovations be considered as *responsible* innovations?

Transparency as an outcome of responsible innovation

Innovation can be considered as a process and as a product. In the literature on responsible innovation, there is no consensus yet regarding the conditions of responsible processes and products. Even though most theories on responsible innovation stress the importance of collective decision-making on the norms that innovation practices govern, there are different approaches to how these norms are defined (Pellé and Reber, 2013).

One stream of literature adopts a responsible innovation approach where the values and value systems are already (democratically) agreed upon beforehand. This is considered a substantive approach where agreement on the normative horizon is already achieved. An example of this substantive approach can be found in the definition of responsible innovation by von Schomberg (2013). With regard to the outcome of responsible innovation, he argues: "Responsible Research and Innovation is a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)". But according to von Schomberg, responsible innovation is not only achieved by embedding it in a transparent and interactive process, because we can make an appeal in this to *normative targets* which can be found in the European Treaty as the latter is democratically agreed upon in the EU context. Examples of these normative anchor points are sustainable development, high quality of life, competitive social market economy, social justice, equality and solidarity and, finally, the promotion of scientific and technological advancement. Innovating with a view to ethical acceptability, sustainability and societal desirability, as von Schomberg proposes, should thus cover such anchor points.

Innovations that substantiate these norms in new products and services can be considered "responsible" according to the substantive approach of responsible innovation. In the innovations for transparency of The Circle, transparency can be considered as such a pre-given norm. The necessity of transparency in order to prevent unethical behaviour is agreed upon beforehand within the company, and for this reason, the enhancement of transparency can be seen as the company's mission. Normally, transparency concerns the transparency of a window; a transparent window means that we can look through the glass without any hindrance. In the case of organizations, transparency can be defined as the attempt to make available "all legally releasable information – whether positive or negative in nature – in a manner that is accurate, timely, balanced, and unequivocal, for the purpose of enhancing the reasoning ability of publics and holding organizations accountable for their actions, policies and practices" (Rawlins, 2009: p. 75; cf. Christensen and Cheney, 2015). In the context of corporate innovation, transparency means, then, the *visibility* of their motivations, interests and actions (Menéndez-Viso, 2009).

In order to assess whether The Circle's innovations for transparency can be considered responsible, we have to answer the question of whether transparency as an outcome covers such pre-given norms. We will reflect on this question by

considering three requirements of responsible innovations which are mentioned by von Schomberg; sustainability, societal desirability and ethical acceptability.

Sustainability

Sustainability is a so-called "big word", meaning that it has a positive connotation but in reality lacks definition and clarity. It gives some direction but its contents are flexible and open (Bos et al., 2014). When we look at sustainability as environmental friendliness or the balancing of people, planet and profit, we can say that it does play an important role for The Circle.

First of all, one can argue that the *SeeChange* cameras enhance sustainability. Their primary function, namely to identify and track down unethical behaviour, can easily be extended to environmental issues and social injustice, for instance in the case of child labour and sweatshops. But the innovation itself is also sustainable, since one of its main achievements is, for instance, its durability and the sustainability of its energy consumption. A second example of the sustainability of the innovations of The Circle comes from a smaller invention, which is called the *Homie*. This innovation is able to scan your home and assess what inventory is running low, and then restock it. The main advantage of this product is that it prevents the buying of too many unnecessary goods, and prevents pre-use disposal, and thus enhances sustainability within the household. A third example of an innovation addressing sustainability is a bracelet that tracks the health status of users. This device enables the prevention of diseases and injuries instead of their curing. The idea behind this is that prevention is better (cheaper) than curing. The bracelet provides full information so there are no knowledge gaps at the root of medical issues. This device thus enhances sustainability and public health. This is linked to the concept of "the quantified self", where people use technologies for measuring and improving their health and behaviour. Barrett, Humblet, Hiatt and Adler (2013) argue that this can even be expanded to communities and institutions, leading, in the end, to improved collective health driven by data. There are even social movements that live according to this principle. This shows that the virtuous case of The Circle is implemented in the real world in some cases.

We can conclude that the innovations for transparency meet the requirement of sustainability, because they focus on the improvement of public health while keeping their environmental impact as low as possible.

Societal desirability

The ultimate goal of The Circle is to reach 100% full transparency in the world, which is impossible without any societal desirability. In first instance, it is a free choice of people to accept and embrace the products and services of The Circle, who invest resources in keeping current customers happy and in raising awareness about the dangers of privacy. This very effort aims at a "transvaluation of values" as privacy, or "the right to be left alone", which is traditionally considered a cornerstone of liberal ethics and politics. Furthermore, the enormous increase in

users who are willing to give up their privacy is, at least according to The Circle itself, an indication of the societal desirability of their innovations. This reflects the justification that social media like Facebook and Google routinely offer for their commercial practices (see the example of Facebook in the previous section). However, as José van Dijck critically remarks, the services delivered by social media may be nominally "free", but they are actually "'paid for' not in actual money but in users' attention as well as their profiling and behavioural data" (Van Dijck, 2013: p. 169). Or as another critic, Jaron Lanier, puts it, even more bluntly: "it has become commonplace to expect online services […] to be given for free, or rather, in exchange for acquiescence to being spied on" (Lanier 2014: p. 6). In their eagerness to benefit from such online services, users hardly take the trouble to reflect on the conditions of the bargain and may find out later that they have given up much more of their privacy than they thought they had bargained for.

One can even argue that The Circle is responsive to the desires of society at large. Society wants a transparent government and the innovations for transparency offered by the Circle enable society to achieve this goal. For example, the *SeeChange* camera gets adopted by some politicians to enhance their transparency, and with this, the Circle contributes to increasing trust among society. Furthermore, The Circle's responsiveness to societal desirability becomes clear in the product presentation of *SeeChange* by the CEO: "I agree with the [international court of justice] in The Hague, with human rights activists all over the world. There needs to be accountability. Tyrants can no longer hide. There needs to be, and will be, documentation and accountability, and we need to bear witness." (Eggers, 2013: pp. 67–68). In this case, The Circle stresses the demands of society and makes clear that their innovations for transparency are responsive to societal needs.

This doesn't mean that everybody in society supports the actions, strategies and values that the Circle pursues. However, the Circle seems to follow a utilitarian approach where the greatest good for the greatest number of people should be attained. Small groups of people who resist transparency in their lives and do value their privacy more still exist, but have to adapt to the majority. In fact, The Circle argues that these people are basically old-fashioned, narrow minded and conservative. The early resistance against previous innovations – think of the invention of the car, the computer, the internet etc. – faded away over time and The Circle expects that the resistance against their innovations for transparency will disappear as well in the future. In the end, the ultimate goal of a 100% transparent world without unethical behaviour justifies the means of giving up privacy, according to The Circle.

This especially holds as the majority of the users favour the former over the latter. We can conclude that the innovations for transparency meet the requirement of societal desirability.

Ethical acceptability

The innovations for transparency should lead to moral behaviour by all actors within society. But is it also ethically acceptable to pursue this end of securing

ethical behaviour by means of giving up privacy? In the world we live in, there is a continuous discussion about whether privacy should be given up in favour of transparency in order to secure ethical behaviour. For instance, Eric Schmidt, executive chairman of Google, argues: "If you have something that you don't want anyone to know, maybe you shouldn't be doing it in the first place". This discussion seems to become stronger with the introduction of big data and the terrorism debate. More important, however, is that the ethical acceptability of the innovations for transparency is dependent on the ethical perspective one takes.

According to Adam Smith, for instance, everyone acts out of his or her own interest and because we only have limited knowledge about the consequences of our actions, behaviour is ethically acceptable only when it serves the freely chosen interests of the decision-maker. Seen from this perspective, one could argue that the innovations for transparency of The Circle are ethically acceptable as long as they serve the interests of the users who have freely chosen to use these applications. A politician is, for instance, concerned about the trust of society. If he or she freely decides to use *SeeChange* in order to become fully transparent to society, this may increase his or her reputation as a politician and, in this respect, serves his or her interest. One can argue whether all users were really "free" to use *SeeChange* in the case of The Circle – all kinds of pressures on and manipulations of politicians are mentioned in the book – but this is not due to the innovation itself but to the offensive marketing strategy of the company (we will come back to this issue in section 3). From the perspective of Smith, we can conclude that the innovations for transparency are ethically acceptable as long as actors are really free to choose the product in order to serve their own interests. In general, this seems to be the case in The Circle. In the transparent world envisioned by The Circle, everyone would use the information for his or her own interest; a disabled person will be able to "experience" mountain biking via *SeeChange*, a student will use information and fora about the financial system to prepare for his exam, a researcher will use the health data of users to search for patterns and generate research output. One can argue, however, that this approach does not consider the indirect consequences: "As more people embrace this track-and-share mentality, those who refuse to participate in this great party will bear the brunt of the social costs" (Morozov, 2014: p. 242).

From a utilitarian perspective, the ethical acceptability of innovations for transparency is dependent on their contribution to the greater good. One can argue, for instance, that the ethical behaviour of people is dependent on personal characteristics (e.g. age, gender, culture, integrity or personal values) and situational factors (moral intensity, moral framing, authority, rewards) (Crane and Matten, 2010). In cases where these personal characteristics and situational factors of individual actors are transparent to society, we can expect a change in people's actual ethical behaviour (Bentley, O'Brien and Brock, 2014). This seems to be the assumption in The Circle as well; *if* everyone *could* be watched, "it would lead to a more moral way of life" (Eggers 2013: p. 292). If all information about a person is public, unacceptable behaviour will decrease while acceptable behaviour will increase. Because of this impact of the innovations for transparency on the greater good

by more ethical behaviour in our society, one could argue that these innovations are ethically acceptable from a utilitarian perspective. The Circle's plea for full transparency as a means to prevent socially harmful behaviour reflects the same approach that informs the so-called Situational Crime Prevention (SCP) movement: the way to suppress crime is to create an environment which makes it virtually impossible to commit crimes in the first place, e.g. by installing cameras everywhere and also by maximally exploiting the opportunities offered by social media. However, critics argue that this would not only suppress crime but also the possibilities for people to grow into genuinely honest and moral citizens (Morozov, 2014: pp. 190–199).

A Kantian perspective provides another assessment of the ethical acceptability of the innovations of The Circle. According to Kant, people should act on principles that can be seen as universally valid, and in which humanity is treated as an end in itself instead of a means. From this perspective, people should act out of a sense of duty or principle and not only in their own interest or because of an external cause. This Kantian perspective qualifies, first of all, the importance of transparency of the actual behaviour of moral actors, because more weight is given to the moral principles one embraces. From a Kantian perspective, one can expect that full transparency of ones behaviour will not cause a change in ethical behaviour; this change is only caused by embracing universal principles. Moreover, one can argue that the innovations for transparency are ethically unacceptable from a Kantian perspective, because they treat humanity not as an end but as a means. Furthermore, one can question whether The Circle acts on principles that are universally valid. They would like their principles to become universally valid and eliminate people who oppose their principles. But at the start of the company, it is not universally held that "privacy is theft" by society.

The dependency of the ethical acceptability of the innovations for transparency on the ethical perspective one takes makes two things clear. First, that these innovations are in fact acceptable from some ethical perspectives. Second, that the applicability of the criterion of ethical acceptability is problematic to assess whether an innovation can be considered responsible or not (cf. Rene von Schomberg, 2013). The Circle assumes a utilitarian perspective, as we have seen, and in this respect, we can understand why, at least according to the company itself, their innovations for transparency are ethically acceptable.

Conclusions regarding transparency as an outcome of responsible innovation

If we look at transparency as an outcome of innovation, we can conclude that it can indeed be considered "responsible". It addresses, at least to a certain extent, sustainability; it is societally desirable and it is ethically acceptable according to the utilitarian perspective. But although The Circle makes a strong case for transparency as a hallmark of responsible innovation, most people will feel uncomfortable with this conclusion. And this intuition is legitimate: it provides a first indication of the insufficiency of the substantive approach of RI. The primary

point we wanted to make clear in this section is that the application of the three criteria for more responsible innovations at the product level is at least insufficient to assess whether an innovation deserves to be qualified as fully "responsible". We therefore agree with Stilgoe, Owen and Macnaghten (2013) that the discussion about the normative ends of responsible innovation is important, but that the focus should be more on the means governing the innovation *process*. Let us therefore move on to another approach which is more process oriented.

Procedurally responsible innovation

In the previous section, we showed that the substantive approach of responsible innovation can lead to "good" outcomes, if we look at sustainability, societal desirability and ethical acceptability, but can still be considered "controversial". This subsequently raises the question of whether a procedural approach can lead to better results. Examples of authors that rely on deliberation, such as Habermas (1984) and Rawls (1971; 1993), embrace such a procedural approach (Pellé and Reber, 2014). In the procedural approach, the norms of responsible innovation are not predetermined. On the contrary, they ensue from the communicational capacities of the actors involved and from the process of deliberation itself.

Pellé and Reber (2014) mention the framework of Owen et al. (2013) as an example of such a procedural approach in responsible innovation, in which the capacity to change and shape the direction of the innovation is based on the responsiveness of actors to public demands and changes in the environment. This capacity to be responsive can be achieved by including societal actors in the innovation process and by fostering deliberation among them. This is also beneficial for anticipating future impacts and (negative) outcomes of the innovation process. Being responsive then results in a continuous reflexive decision-making process that enables an "informed incremental response" (Guston and Sarewitz 2002).

In this section, we will discuss whether the procedural approach of responsible innovation is present in the case of The Circle, by analysing whether the four dimensions of Owen et al. (2013) – anticipation, reflexivity, inclusion and deliberation and responsiveness – can be recognized in the case of The Circle. This helps us to analyse and assess whether their innovations can qualify as being responsible according to this approach.

Anticipation

Anticipation in responsible innovation means to consider the impacts, both intended and unintended, that an innovation can have. The scope of anticipation in RI theory thus goes beyond what could be (un)intended or (un)desirable impacts that are related to the function of an innovation, but also which effects it could have in economic, social and environmental domains (Owen et al., 2013). Proper anticipation requires innovators to take an approach that forces them to consider and reflect on an innovation and various scenarios that might play out in the future. It is not possible to predict the effects of an innovation in a future

world, but it calls for a systematic way of thinking that leaves room to reconsider negative aspects of an innovation and, in the end, to abandon a project altogether (Owen et al., 2013).

Methodologies like foresight, constructive technology assessment and scenario thinking can be used, while simultaneously asking questions like: "What if" and "what else might happen?". However, these answers should not be used for prediction but more for exploration and discussion. As such, it is a useful input for reflexivity (Owen et al., 2013). But proper anticipation can be hard for companies. This can be due to the fact that organizational routines are often based on interpretations of the past, rather than on anticipations of the future (Velamuri and Dew, 2010). Difficulties can also ensue from a technology push or policy pull, neglecting ethical principles or lacking precautionary measures (Owen et al., 2013).

But to what extent is The Circle engaged in anticipating future impacts during their innovation process? The answer is that they are rather inconsistent regarding the assessment of future impacts of their own innovations and activities. An example of how they did not anticipate negative impacts is when an employee tested her own innovation, the *Pastperfect*. This is a program that has the ability to go through your family tree and cross-reference it with every document, photo or video that exists about your family to see what they did and who they were, as far back as the archives go. The employee is devastated when finding out that her ancestors were slave owners and that her parents refrained from helping a man drowning in front of their eyes. This information would become public in the next day. It seems ironic, in a sense, that she is the one to suffer from the consequences of not identifying the risks of the program at an earlier stage. It is safe to say that the board members of The Circle do not anticipate negative impacts. In fact, they are focused on meeting the right impact – total transparency – but do not think about negative or problematic events or circumstances that might affect the road leading to total transparency. Furthermore, one can question whether they engage in certain processes for doing the right thing or whether it is just for attaining customer satisfaction. The founding father of the first innovations by The Circle finally says that it was never his intention to achieve total transparency by the innovations developed in his firm. He just wanted to know whether his first invention was able to work (Eggers, 2013: p. 485). It is precisely this type of behaviour of engineers, who may be more interested in whether a new technology actually *works* than in its societal consequences in the future, that the call for anticipation and technology assessment is legitimized.

While scenario-thinking about future impacts is not included in the innovation process, the testing of customer satisfaction is widespread. Some evaluations and tests are done during the product presentation with employees or customers outside the campus of The Circle. However, it remains unclear whether this is done for customer satisfaction purposes alone or whether it is also done for reaching the right impacts. All in all, however, it is safe to say that there is a lack of attention to possible negative impacts at The Circle. If they do notice negative impacts, they are neglected or seen as "collateral damage". In other situations, they do anticipate well, but from a business perspective – assessment of customer

satisfaction – and not from a responsible innovation perspective, i.e. anticipating possible negative social or ethical impacts together with stakeholders inside and outside the firm.

Reflexivity

Where anticipation is more focused on the object of innovation – i.e. the product and outcomes of the innovation – reflexivity is more about the subject who is innovating (i.e. the firm, the RandD department or employee). Reflexivity describes the need for organizations to not only consider their activities as integral to the organization, but to take a wider perspective on their role in society and consider their activities as part of society (Owen et al. 2013). Theory says that a company should hold a mirror to its own activities, commitments and assumptions, while acknowledging that certain goals are not universally held (Owen et al. 2013). Reflexivity also requires an awareness of the limits of one's knowledge. Organizations do not have access to all the information necessary and have to be aware that the knowledge within the firm is subjective. In order to innovate responsibly towards society, companies should reflect upon the values and motivations underlying their activities (Owen et al., 2012).

Gianni and Goujon (2014) go more into detail regarding the concept of reflexivity. They argue that the actor's cognitive framing (certain pre-conceptions and visions of the world) affects how they conceive situations and subsequently determine their decisions when facing ethical issues. They state, therefore, that "at a cognitive level, in order to conceive in a more appropriate way our relation to the context, we need to introduce the possibility for the agents to be reflexive and to revise not only their judgments, but also the way in which they size and understand the problem" (Gianni and Goujon, 2014: p. 72). This reflexivity consists of two parts, namely a part that is primarily about reflecting on one's own actions, strategies and decisions (first-order thinking) and a part that is about reflection on one's principles, values and value systems that determine the way we act (second-order thinking). In other words, the second-order reflexivity determines the first-order reflexivity.

Therefore, next to the fact that we look at The Circle and try to understand to what extent they reflect on their own strategies, actions and decisions, we also look whether they are aware of the way their values and principles frame and affect their own strategies, decisions and actions. "Actors [should] not only reflect on the adequacy of their norms and values, but also on the way in which they construct these norms and values. These norms and values can be focused on what is right – or false- (epistemic norms) or what is good, just or evil, unjust" (Gianni and Goujon, 2014: p. 73).

To what extent, then, is The Circle reflexive? The Circle engages (to some extent) in first-order reflexivity but does not engage in second-order reflexivity. An example is the case where an employee is being criticized for not sharing an experience. This is an example of first-order reflexivity, because they reflect on the ethical impact of employee behaviour: the deprivation of opportunities for

others (a disabled person for instance) to experience (the experience of canoeing for instance). They reflect on the question of why they should share such information. When the company has to deal with negative impacts of its innovations (people fleeing from the transparent world they help to create, employees suffering from the innovations of the company etc.), however, they say that the end justifies the means *without any further reflexion on the topic*. Only by the end of the book, in the phase in which full transparency is almost reached, the founder of the firm reflects and says: "I didn't expect any of this to happen. And it is moving too fast [...] it is far beyond what I had in mind when I started this" (Eggers, 2013: p. 485). However, at that point, it is already too late and he has already lost control over his innovation.

With regard to second-order reflexivity, we can say that reflexivity is not part of the innovation process of The Circle. Gianni and Goujon (2014) say that actors should become aware of the fact that their knowledge is subjective and that their actions, decisions and views also result from the way they frame reality. It seems that The Circle only looks for technological innovations that need to fix ethical issues. This can be due to the fact that the frame of The Circle is narrowed by the fact that it is a technological company. Their world view is that technologies that enhance transparency will solve the problems of unethical behaviour in the world. In situations in which they are, in fact, reflexive, they primarily seem to justify their actions, decisions and world views, instead of taking a critical stance towards these issues. But we cannot claim that The Circle does not reflect on future impacts. Based on their utilitarian perspective on the innovations of The Circle, they do reflect and justify their decisions and actions. If we do not accept this position as "responsible", we should argue that being truly reflective does not only involve "reflection" but also a critical view towards oneself (cf. Blok, 2014). Incorporating different and even opposing views can help to develop such a critical stance. This is key in the dimension of inclusion and deliberation, which is explored in the next section.

Inclusion and deliberation

One of the most important aspects of responsible innovation is the inclusion of societal actors in the innovation process. Inclusion moves beyond involving just stakeholders and is about including the wider public as well. Blok (2014) mentions three reasons why inclusion of societal actors is essential for responsible innovation. First is because of the high complexity of the problems that innovations address and the uncertainties of the future impact of these innovations. Active involvement of stakeholders with conflicting interests and value frames is demanded in order to better understand these challenges and the risks and uncertainties involved (cf. Bellucci et al. (2002); Bulkeley and Mol (2003); Chilvers (2008)). Second, stakeholder engagement enables actors to learn from each other, which helps them to achieve shared objectives and decisions, and to set desired directions for future technology developments (cf. Andriof and Waddock (2002); Bulkeley and Mol (2003); Chilvers (2008); Gould (2012)). Third, because the

responsibility and resources to deal with the grand challenges are allocated to different societal spheres – government, civil society and the private sector – the solution of these grand challenges requires the active involvement of multiple stakeholders (Blok 2014).

Deliberation is about opening up visions, purposes, questions and dilemmas through processes of dialogue, engagement and debate with multiple stakeholders (Owen et al. 2013). Companies can make more deliberative choices, which benefits responsible innovation. Where inclusion is about involving societal actors in the innovation process, deliberation is about the exchange of quality arguments and opinions and becoming conscious about the different frames that actors have. Pellé and Reber (2014) mention that there are two ways of exchanging information, opinions etc., namely consultation and co-construction. The consultation approach argues that "the legitimacy of technological development comes from the possibility for social actors to express their values and value systems. To avoid market failures and the backlash of innovation, consulting end-users and other stakeholders is an essential step" (Pellé and Reber, 2014: p. 38). It allows the public to co-manage the risks but still places the implementation of the responsible behaviour with experts. On the other hand, the co-construction approach calls for participation and deliberation to co-produce technology where innovators "are responsive towards social actors' value whereas the latter understand and take into account the imperatives and constraints of innovators and researchers" (Pellé and Reber, 2014: p. 39). Moreover, it allows for "incremental adjustment of science and innovation to address social norms and values, as science and innovation actually occur" (Owen et al., 2013: p. 41). Inclusion and deliberation are thus two different aspects and combining the two can be hard to manage. Furthermore, it is hard to manage deliberation when there are actors with opposing interests, and different power and epistemological backgrounds (Blok and Lemmens, 2015).

The Circle is highly engaged in inclusion activities and involves an incredible number of actors in their innovation processes. For example, they involve politicians in their innovation process by testing prototypes. Employees also test similar technologies. One can think of the health bracelet for keeping track of medical data, which results in the prevention of health issues instead of their cure. Not only employees, but also their friends and family members, are involved in testing the new technologies. However, innovations are also tested on societal actors who are unaware or not willing to participate. In all cases, however, The Circle determines under which conditions actors are involved. And people are mainly involved in tests in order to assess the market acceptance and/or product failures, rather than for the reasons found in the stakeholder engagement for responsible innovation literature.

Next to the question of who is included in the innovation process, it is also important to look at when they are included. Literature suggests that this has to be achieved already from the start of the innovation process (von Schomberg, 2013). However, this is certainly not the case in The Circle. Furthermore, most employees are not even aware of their company's own innovations, since they are notified

on the day of launch most of the time. The Circle is therefore only inclusive at the final stages of the innovation process, mainly with the purpose of assessing market acceptance instead of the co-construction of innovations together with society. The difficulty with this is that the shape and direction of innovation processes are then hard, if not impossible, to adjust.

The Circle does a tremendous job in announcing its latest product launches by organizing Dream Fridays, which are broadcasted across the globe. The general public has the opportunity to respond in real time to the latest innovations by The Circle by sending messages and/or "smiles/frowns", which is similar to the "likes" of Facebook. However, the purpose of this seems more to receive feedback on innovation adoption than to open up The Circle's vision, purpose, questions or dilemmas. In this respect, the involvement of employees and other actors can be considered as market intelligence activities, rather than aiming for inclusion and deliberation. Therefore, it is safe to say that deliberation is absent during the innovation process of The Circle. Moreover, because of the sheer volume of data that is being created on a daily basis in the fictional world of The Circle, critical arguments can quickly become a voice in the wilderness. In this respect, the way that The Circle responds to its customers does not promote a balanced discussion. An example of this is related to the implementation of TruYou: "TruYou changed the internet, *in toto*, within a year. Though some sites were resistant at first, and free-internet advocates shouted about the right to be anonymous online, the TruYou wave was tidal and crushed all meaningful opposition" (Eggers, 2013: p. 22). There is a problematic distribution of power between the involved stakeholders where The Circle can individually decide how to deal with critics and stakeholders who want to deliberate. These power imbalances affect the deliberation and decision-making regarding responsible innovations (Blok and Lemmens, 2015). This can be one of the reasons why reflexivity is lacking and negative (un)expected impacts are neglected or seen as "collateral damage". The company lives in their own bubble of "doing good" while neglecting critical voices.

Responsiveness

Responsiveness in terms of RI refers to the idea that the corporation has the capacity to "change [the] shape or direction in response to stakeholder and public values and changing circumstances" (Stilgoe et al., 2013: p. 5). In that sense, responsiveness uses the aforementioned dimensions as a basis to act upon and sets "the direction and influence the subsequent trajectory and pace of innovation" (Owen et al., 2013: p. 38), while being aware of insufficient knowledge and control at the same time (Stilgoe et al., 2013). To be truly responsive, this process should be an iterative and open one that stimulates learning and adaptation (Owen et al. 2013). Responsiveness is "an encompassing yet substantially neglected dimension of responsibility" (Pellizzoni, 2004: p. 557, cited in Stilgoe et al., 2013). One should be able to adjust the courses of innovation while at the same time being aware that there can be insufficient knowledge and control.

The founder of The Circle, one of the current board members, says, in the end, that he had not intended the ideal of total transparency to be realized and that he had lost control over the process. This shows that the inventor of the innovation does not have the capacity anymore to be responsive at a certain moment. However, this is different from responsiveness of the company itself. The Circle is a rich company with dynamic capabilities. They have the capacity to be responsive from a resource-based view of the firm. However, when there is no deliberation, and thus no opening up of visions, purposes or dilemmas, it is hard to be responsive to other values and changing environments. Furthermore, they do not identify, and in some instances even neglect, negative outcomes. Therefore, it seems that The Circle does not see the need to be responsive to other, sometimes opposing, views and opinions. It also shows that a lack of engagement in other dimensions makes it impossible to be truly responsive.

Conclusion

In section 2, we studied the substantive approach to responsible innovation. There, we concluded that The Circle meets the requirements regarding the outcomes of responsible innovation, at least to a certain extent, while at the same time, one feels unease about certain activities they undertake. We subsequently looked into a procedural approach on responsible innovation in section 3 in order to determine whether The Circle innovates in a responsible way.

Although the outcomes of their innovation process seem to be sustainable, desirable and ethically acceptable, and in that sense can be considered "responsible", we conclude that The Circle does not meet the requirements for a proper responsible innovation process. Even though their innovation process is inclusive (in its later stages), The Circle does not reflect upon their cognitive frame which influences their decision-making regarding actions to be taken and strategies to follow (second-order reflexivity). This closely relates with the fact that they do not foster deliberation and they do not allow critical voices in their innovation process. Their reflexivity is not accompanied by a critical stance toward their own values, visions etc. This also means that they are not responsive toward societal actors who hold different views. In this respect, we can conclude that the innovation process of The Circle is highly in-transparent and therefore, highly ir-responsible.

There is a huge discrepancy between the outcomes of the innovations of The Circle (achieving full transparency) and the process of their innovations, which is not transparent at all. On the one hand, one can expect that increased transparency during the innovation process can help to embed responsibility in the innovation process itself. On the other hand, it is exactly the lack of transparency during the innovation process, and with this the lack of reflection, deliberation, inclusion etc., which makes the innovations of The Circle irresponsible. In case the outcomes of the innovation process of The Circle were legitimized by a transparent process of deliberation and inclusion, these innovations would really be "responsible". In this respect, the virtual case of The Circle clearly shows, first, that the

substantive approach of responsible innovation is insufficient and should at least be extended with a procedural, transparency-increasing approach in order to render innovations that can really claim to be responsible.

At the same time, it will be clear by now why increasing transparency can be a perilous task for companies. Although the business model of The Circle is not elaborated upon in the book, we can understand why The Circle is not able to become fully transparent about their motives and strategies, as they invest heavily in the development of technologies and therefore need profits to cover these investments. Being transparent threatens to turn information asymmetries into information symmetries, and with this, the company's reason for existence (Blok and Lemmens, 2015). For a company, it is much easier to develop transparency-enhancing products that are sustainable, societally desirable and ethically acceptable than to develop a transparent process in which stakeholders are included. This is confirmed by research by Blok et al. (2015), who show that food companies are in fact engaged in responsible innovation for healthy food at product level, but are hesitant to engage stakeholders during the innovation process. The case of The Circle shows, second, that this difficulty may not seduce us to focus on output variables of responsible innovation alone without engaging stakeholders in a transparent and interactive innovation process (Blok et al., 2015). Although it is precisely this procedural, transparency-increasing approach that makes responsible innovation a perilous task for private companies, responsible innovation requires a combination of the substantive and procedural approach in order to claim to be responsible.

One particular way to deal with the difficulties of transparency in the private sector is to reflect on the concept of transparency itself. The presupposed concept of transparency in much of the literature is highly naïve, as scholars like Christensen and Cheney (2015) have already shown. They showed that the pursuit of transparency is often counteracted by new types of opacity and conditioned by our epistemic insufficiency. This means that the ideal of transparency or information symmetry can never be reached. On the one hand, structural information asymmetries may exactly *encourage* companies to engage stakeholders during the innovation *process*. On the other hand, structural information asymmetries will prevent these information asymmetries from turning into information symmetries and threaten the competitive advantage of innovative companies. However, the further elaboration of a proper concept of transparency and its role in responsible innovation in the private sector is beyond the scope of this chapter.

Notes

1 See www.sunlightfoundation.com for a US-based example of an organization that seeks to make governments and politics more accountable and transparent.

2 In this, we follow another strategy to eminent scholars like Christensen and Cheney (2015). While they criticize a naïve concept of transparency because it neglects the existence of ambiguity and opacity and argue for a better-informed concept of transparency that acknowledges these ambiguities, we 'accept' this naïve concept in this chapter in order to assess the opportunities and limitations of this ideal in the context of responsible innovation.

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