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Responsible innovation in industry and the importance of customer orientation: introduction to the special issue

Special issue: Responsible innovation in the agri-food sector

EDITORIAL

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1. Introduction

Due to increased spending on food products in consumer markets, the agri-food sector has become more global with food production and distribution occurring over longer distances and more varieties of food becoming available for a large consumer base. These increased demands open avenues for new food product innovations, supply chain innovations but also for poor practices that are detrimental to the sector due to adverse effects on food security, food safety and public health.

Various definitions of food security exist (Maxwell and Smith, 1992) but many studies measure food security in terms of food deficit, which is measured in terms of access to calories. These food security and safety issues are often put in the context of developing countries, such as sub-Saharan countries where 26.8% of the population was undernourished in the period 2010-2016 (Porter *et al.*, 2014). Although part of the debate on food security deals with availability of food in emerging and developing countries, when it comes to western economies, food security also deals with the diversity of food and the effect of fortified food, functional foods and urban food (Dixon *et al.*, 2009). These discussions are related to food safety which focuses on the health risks of food and the appropriate sanitary standards (Wilson, 2000). The World Trade Organization has articulated an Agreement on Sanitary and Phytosanitary Standards to ensure that member countries use

common standards nationally and internationally. When organizations do not meet specific requirements concerning these Standards, they may be banned and cannot import their goods. Public policy today is much concerned with the debate of how regulatory costs for exporters can be covered by higher revenues from the value of their goods when they do meet the higher sanitary and phytosanitary levels (Otsuki *et al.*, 2001). Hence both quality and safety of food are central issues in today's food economics, though many research questions remain to be addressed (Grunert, 2005).

Agri-Food companies are also often portrayed as major causes of animal welfare issues and public health issues, with their impact on lifestyle diseases like type 2 diabetes and obesity. In his book, Larry Olmsted addresses for instance the issue of fake food. He describes it as the food we are actually getting is 'fake food' or what he describes as 'a massive industry of bait and switch, where you get something other than promised' (Olmsted, 2016). Although many corporate actors may be seen as primarily profit driven, even at the expense of public health, the food industry is struggling with these issues. There are good examples of agri-food firms that take their responsibility seriously and proactively innovate to produce healthier food products and introduced food labels to guide consumer choice and increase the credibility of the food they produce (Tempels *et al.*, 2017). These labels represent the responsibility the sector takes to warrant safe and secure food (Blok *et al.*, 2017).

Food production also has potentially significant environmental and societal impacts. For instance, agriculture is a significant producer of greenhouse gas emissions, responsible for 19-29% of global emissions if pre- and post-emissions are included (Smith *et al.*, 2014). Agri-food producers are facing increasing pressures from consumers and society to develop new products and processes that reduce these impacts and improve working conditions. As such, the impact of consumption itself is also a recognisable driving force of innovation processes in industry.

The development of the industry towards a more transparent and responsible way of organizing their processes is under pressure due to the small margins in the food industry. This addresses one of the research questions that has been tackled by Grunert (2005). It concerns how to increase credibility and allow for more responsibility among the actors in the food industry while the gains of these actions are uncertain. Moreover, the increased costs associated with a more responsible approach may negatively affect the margins on products sold and as such the competitiveness of the organizations pursuing such strategies. While those who refrain from their responsibility remain invisible in the complex food systems.

These value chain issues and how the role of innovation relates to the responsibility of individual companies in the food industry can be conceptualized in light of the emerging concept of responsible innovation. Responsible innovation seeks an innovation governance approach that strongly reflects the ethical acceptability, sustainability and societal desirability of the innovation process and outcome (Von Schomberg, 2013). First initiated by the European Union, it calls on all actors involved to consider ethical and social aspects of innovation. The underlying idea is that, by considering social ethical issues in innovation, technological innovations will be developed that are not only economically profitable but also more sustainable, socially desirable and ethically acceptable (von Schomberg, 2013).

Because technological innovations can contribute significantly to the solution of societal challenges like food security, food safety and public health, but can also have negative societal consequences, it is assumed that social and ethical aspects should be considered during the innovation process. This view on Responsible Innovation as a process underscores the relevance of a learning orientation among organizations to respond and adapt to the feedback they receive from stakeholder engagement. Stakeholder engagement is the involvement of stakeholders in a positive manner in business activities (Greenwood, 2007), and in particular the stakeholders who may be affected by the decision of the company to ensure they can express their voice, benefits and concerns regarding the firm's operations and innovation process (Von Schomberg, 2013). By involving multiple stakeholders in innovation processes at an early stage, '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' (von Schomberg, 2013:63). In this respect, the concept of responsible innovation expresses the ambition to address societal needs, next to the more traditional objectives of innovation like economic growth, profit maximization, competitive advantage, etc.

The applicability of the concept of responsible innovation in the business context is, however, questionable: first, grand challenges like public health are heavily contested issues, which will limit the ability of actors to find a common understanding of what is ethically acceptable and societally desirable. Second, stakeholder engagement and deliberating with them about the innovation is at odds with the idea that innovations are based on information asymmetries in the market. Of course, while responsible innovation requires a more transparent innovation process in which the stakeholder feedback is systematically embedded in the innovation process of the company. While this to a certain extend resonates with the key activities of innovative organizations to absorb external information and use it for commercial purposes (Scholten and Van der Duin, 2015), it does also require organizations to engage stakeholders who may not be relevant to the innovation as such but are affected by the innovation (Blok, 2018). In particular with respect to private organizations, this will put constrains on the extent a private organization can allocate money and time to activities that do not immediately increase the return on investment. Moreover, private organizations are reluctant to be transparent about their innovation plans. They focus on their own interests instead of building mutual understanding and consensus (Blok and Lemmens, 2015). Third, it is difficult to conceptualize responsibility in relation to the destructive companies and markets that are the side effect of innovation as creative destruction (Blok and Lemmens, 2015).

2. The responsibility of firms

The responsibility of business in society has a long history. In an early work, Caroll (1979) made an overview of studies that included a social contract of business and in particular the role of the executives within private firms. These viewpoints have led to the conceptualization of the social and economic role that companies have (Wallich and McGowan, 1970). Later, in 1987, the ideas found ground when the UN report 'Our Common Future' was published. This report is better known as the Brundtland Report, which addresses the importance of developing a policy for 'sustainable development'. The ideas were further articulated into managerial spheres thanks to Elkington's notion of the Triple Bottom Line (1997) and the Corporate Social Responsibility agenda of organizations. However, more recently, in 2001, the European Commission supported these views when it declared that corporate social responsibility (CSR), 'being socially responsible means not only fulfilling applicable legal requirements, but also going beyond compliance and investing 'more' into human capital, the environment and relations with stakeholders' (European Commission, 2001: 8).

Although the notion of CSR can to a certain extent inform the concept of responsible innovation in industry, it at the same time seems to concern a different area in business. CSR is often not part of the primary process of the company and concerns the creation of shared values and the social role of a company as a whole, whereas responsible innovation in fact concerns the primary process of the company, the so-called money-making machine. The firm's strategy regarding responsible innovation consists of a method aimed at helping it to become more responsible by taking a different approach to the conduct of their business operations, via the processes by which they produce their services and goods as well as the services and goods themselves. One of the main elements of this strategy is a process for monitoring impacts of the company or innovation project on social, economic and environmental performance. This performance is monitored and tested throughout the development of the innovation to ensure previously estimated and unforeseeable impacts are taken into account and suitable action is taken accordingly.

While responsible innovation has been receiving increasing attention in scientific research, and resulted in various edited volumes and a Journal of Responsible Innovation, interest in the particular field of responsible innovation in industry is of a more recent date (Lubberink *et al.* 2017). In an earlier special issue, Scholten and Blok (2015) discussed the role of responsible innovation in the private sector more at the conceptual level. These insights are further developed in a number of empirical studies in this present special issue.

In the meantime, another special issue of the journal 'Sustainability' on responsible innovation in industry appeared.

A call for papers was published for a special track under the bi-annual Wageningen International Conference on Chain and Network Management (WICaNeM) conference which was held in Aarhus University, Copenhagen 2016. It raised the following research questions that are of special interest:

- Nowadays, it is widely acknowledged that only a few firms have all the necessary resources and networks available to innovate in isolation. Most firms innovate in networks and/or together with their supply chain partners. This raises the question of how collaborating firms share the responsibility for the innovation they work on. It is precisely innovation in chains and networks which is underrepresented in current research on responsible innovation.
- Although all industries and sectors can be involved in responsible innovation, sector specific differences are not taken into account in current research and some sectors are underrepresented. It is precisely the agri-food sector which is underrepresented in current research on responsible innovation. Nanotechnology and ICT for instance are fields of research which are often mentioned in the responsible innovation literature, but in biotechnology, medical technology and food technology we observe issues concerning health and/or privacy. Insights from several industries and sectors can help to develop a better conceptualization of responsible innovation and to distinguish sector-specific characteristics of its application.
- Through the concept of responsible innovation, the focus of innovation processes shifts towards societal challenges. These are converted into business opportunities to create new concepts, business models and ways of operating, as well as more efficient approaches to resource exploitation and energy consumption. These opportunities require a different approach to problem solving which diverts significantly from the way we think about solutions, technologies and applications today. The question is to what extent Small and medium-sized enterprises (SMEs) and start-ups can benefit from these opportunities for responsible innovation, assuming that they are not constrained by a dominant logic, existing heuristics and current practices to problem solving (Scholten and Van der Duin, 2015).
- Responsible innovation presupposes that business decisions with regard innovation activities are at least partly ethically motivated with strong concerns for others over their own interests of the company (Blok *et al.*, 2017; Garst *et al.* 2017; Jones *et al.*, 2007). However, the responsibility of a business decision exists only if there is 'a clear and directly foreseeable return on investment' (Waldman and Siegel, 2008:119). Consequently, the question is raised how companies, especially SMEs, make decisions and organize their innovation process to the extent it is considered more responsible?

This special issue is a collection of some of the selected works that the track contained and an effort to address part of the research agenda. All articles are contextualized in the current debate about responsible innovation, and can be read as contributions to responsible innovation in industry. While the first article can be read from the perspective of the first point on the research agenda, concerning the compatibility of open innovation and responsible innovation, article two to five can be read from the perspective of the second point on the agenda, concerning sector specific efforts to implement responsible innovation. Of particular interest is the focus on consumer perspectives on responsible innovation, which is a central topic in several of the contributions to this special issue.

3. The contributions to this special issue

The first article by Long and Blok takes a holistic view on the development of innovations in the agri-food sector. Based on semi-structured interviews with sustainable entrepreneurs in the agriculture sector, the authors investigate how open innovation and responsible innovation can complement each other. They broaden the scope of open innovation by including the role of stakeholder engagement with a wider set of societal actors. The inclusion of a wider set of societal actors brings a stronger focus on ethical aspects of the implementation of innovation, which accordingly requires a stronger orientation among the innovators for responsible innovation. This view is further articulated in a theoretical framework that combines the open

innovation approach with the dimensions of responsible innovation. Researchers can benefit from using this framework to better understand how firms can address societal issues by implementing commercial innovations that draw on ethical thinking.

The article by Dalziel *et al.* carrying the title 'Rewarding responsible innovation when consumers are distant from producers: evidence from New Zealand', addresses the factors that influence the extent to which a firm can export its goods over larger distances. The study builds on the critical reflections on responsible innovation in industry by Blok and Lemmens (2015) and argues that even though firms fully acknowledge the importance of responsible innovation, their efforts to align their business operations with the publics values is dependent on customer preferences, which is influenced by the geographic and cultural distance between production and consumption. The study draws on a sample of middleclass consumers in the markets of China, India, Indonesia, Japan and the United Kingdom to evaluate the expected responsibility of producing firms in New Zealand in the meat, diary, vegetables and wine industry. Based on their research, it is argued that firms, while recognizing the relevance of responsible innovation, need to consider the associated costs which may not result in increased value of their products for customers, and can even make their products less attractive for customers because of the increased costs of production and distribution. Despite this restriction, it was found that consumers from developing countries value the credibility of the food products more than those consumers in more developed countries. The paper discusses these findings and provides further recommendations for producers in New Zealand of how to include responsible innovation in their business operations.

The third article by Lees and Lees has a focus on the competitive and sustainable sheep diary industry in New Zealand. The article investigates the attention that the industry pays to Responsible Innovation and makes a comparison with the sheep diary industry in France. Based on interviews with experts from each industry they argue that the dairy industry in New Zealand could improve its competitive position by differentiating from other markets and by emphasizing more the responsiveness to healthy, natural and environmentally sustainable food. Inclusion of a responsible innovation approach is considered key to pursue that differentiation strategy and warrant a continued flow of food products. In following the differentiation strategy, the sheep diary industry in New Zealand can contribute to a more ethical and environmental friendly supply chain and alleviate food safety and security.

The management of perishable food products is key to maintain quality levels high and uphold food security. A customer centric approach is considered to contribute to a more responsive approach in which the value that is created for customers is sustained. The Fourth article by Jiménez Guerrero *et al.* follows the strategic alignment school (Gattorna *et al.*, 1991; Hjort *et al.*, 2013) to develop differentiated supply chain strategies by developing specific segments with a clear customer orientation. When analysing the customer satisfaction, the authors argue that besides the importance of Supply Chain Management, the Responsible Innovation approach is key to identify and meet the shopping preferences of customers. While the Supply Chain Management activities contribute to a lean and continuous supply to keep quality of perishable products at high levels, the responsible Innovation activities are important to increase of the value of the goods and be able to implement a differentiation strategy. In particular the transparency of information throughout the supply chain is important to improve collaboration among the various actors in the supply chain.

The fifth article by Purwins *et al.* focusses as well on customer orientation, now in terms of market orientation. Based on the case of a retailer-owned meat brand, they show the drawbacks of stakeholder engagement and argue for positive word-to-mouth communication and experimental research in order to convince actors in the agri-food sector to take their responsibility for animal welfare.

With this special issue, we hope to further stimulate research on responsible innovation in industry in general, and in the agri-food sector in particular. At the same time, the collection of articles clearly shows that research in this area has just started. In addition to the proposed research agenda, the various contributions lay out the ground for further research in the future.

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