

# 8 The COMPASS self-check tool

## Enhancing organizational learning for responsible innovation through self-assessment

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### 8.1 Introduction

In an increasingly dynamic, global and complex business environment, companies are continuously challenged to learn and adapt. The capacity to create and absorb new information as well as the ability to translate it into organizational knowledge and tangible outcomes are key strategic issues for companies of all sizes (Balbastre *et al.* 2003; Bennet and Shane Tomblin 2006).

This is particularly visible in the area of innovation management. As a key business function of many companies, innovation is a requirement to stay competitive in light of ongoing digitalization, globalization and rapidly changing markets (Dess and Picken 2000; Crossan and Apaydin 2010; Mone *et al.* 1998). At the same time, the current speed of innovation, in combination with a general drop in trust in societal institutions (Pirson *et al.* 2019), leads many people to be wary of new technologies.<sup>1</sup> This requires companies to develop and maintain internal knowledge and skills, which enable them to anticipate impacts of their actions, respond effectively to concerns of other societal stakeholders and adapt to changes in the business environment.

The concept of responsible innovation provides a framework for companies to balance these competing demands (Iatridis and Schroeder 2016; Martinuzzi *et al.* 2018). It originates in discourses on research ethics in contested emerging technologies (Owen *et al.* 2012) and was initially developed for research organizations and research projects funded through public money. The European Commission has been promoting the concept under the term “Responsible Research and Innovation” (RRI) by supporting research on, and integration of, ethics, gender and diversity, public engagement, open access and science education in research projects through the previous and current European Framework Programmes for Research and Innovation, “FP7” and “Horizon 2020” (see Nwafor *et al.* 2017 for an overview of projects). In the academic literature, agreement about the meaning and key aspects of responsible (research and) innovation has developed in

the form of the four dimensions of anticipation, reflection, inclusion/deliberation and responsiveness (Stilgoe *et al.* 2013). In the business context, the use of the abbreviated term “responsible innovation” has come to prevail.

Based on insights from the discourses on responsible innovation and organizational learning (Fortis *et al.* 2018), this chapter introduces a self-assessment tool tailored to evoke organizational learning for responsible innovation in a corporate setting. The COMPASS self-check tool takes a diagnostic approach and aims to enable learning by translating the concept of responsible innovation into concrete corporate practices and policies, ascribing them to specific business functions. This facilitates the assimilation of information about specific responsible innovation practices as well as the reflection about company strengths and weaknesses in terms of the responsible innovation approach.

The remainder of this chapter is organized as follows: Section 8.2 starts with a brief introduction to organizational learning and then describes the relationship between organizational learning and each of the two components that make up the concept of responsible innovation; namely corporate responsibility and innovation processes and output. Section 8.3 elaborates on the specific role of self-assessment for organizational learning within this field and documents the development process of the COMPASS self-check tool. Section 8.4 presents the structure and contents of the tool and gives a detailed account of how it supports organizational learning. The chapter concludes with an outlook on possible future research as well as on the next steps toward enhancing organizational learning and self-assessment for the establishment of responsible innovation in corporate practice.

## 8.2 Organizational learning and responsible innovation

The literature on organizational learning builds on concepts of learning at the individual level from the realms of psychology and sociology,<sup>2</sup> and applies them to learning at the level of organizational practices and routines. In this sense, organizational learning can be understood as the ongoing process of interpreting and assimilating information that takes place in an organization, and the output of which is organizational knowledge (e.g. Balbastre *et al.* 2003; Lloria and Moreno-Luzon 2014).

Information from within and outside the organization functions as prerequisite for organizational learning by providing new points of view, making connections visible or shedding light on previously invisible meanings. Information can be understood as the input to organizational learning processes, while knowledge is the output. In contrast to information, the knowledge that is created in organizational learning processes is connected to a particular perspective, connected to intention, context-specific and relational (Nonaka and Takeuchi 1995). Organizational learning thus enables the generation of organizational practices and routines, which in turn facilitate the achievement of organizational goals (Balbastre *et al.* 2003).

Argyris and Schön (1978, 1996) coined a distinction between two types of organizational learning that is useful in the context of this text; as will become evident later on. They distinguish between “single-loop” and “double-loop” learning.<sup>3</sup> Single-loop learning is described as the integration of new information into established routines or practices. Learning in this form can increase the effectiveness and efficiency of established modes of action. It is useful for solving problems without questioning underlying mechanisms or assumptions. Double-loop learning occurs when there is a critical review of assumptions, principles or operational procedures. It involves reflection, adaptation and possible abandoning of established concepts in the organization. For this reason, organizations may try to avoid double-loop learning unless they are facing an acute problem, which cannot be solved within existing patterns of action. At the same time, however, double-loop learning creates the possibility for new patterns of behaviour and organizational routines to emerge.

Both types of organizational learning can be beneficial for companies that wish to engage with responsible innovation. Single-loop learning would, for example, allow the company to adapt their stakeholder engagement activities to include additional groups of stakeholder. Double-loop learning would enable a different company to adapt their innovation processes in a way that would make the engagement of external stakeholders a prerequisite in the first place.

### **8.2.1 Organizational learning in innovation processes**

Innovation is frequently cited as one of the key drivers for long-term business success (Schwab 2016), especially in highly dynamic environments. In such environments, companies must innovate to survive, maintain competitive advantage and adapt to the expectations of internal and external stakeholders (Christensen *et al.* 2015; Stata 1994). In order to do this, it is of essential importance for companies to develop and maintain internal knowledge and skills to adapt to these, sometimes rapid, changes (Crossan and Apaydin 2010). This process of continuous organizational learning depends on the effective assimilation of information and creation of knowledge – which is why knowledge is considered a key strategic resource for organizations (Balbastre *et al.* 2003). Referring to the centrality of knowledge in Western modern “knowledge society”, Nonaka (1994) emphasizes the need for a shift in thinking about innovation that specifically considers how organizations process and create knowledge.

Jiménez-Jiménez and Sanz-Valle (2011) conclude that organizational learning can enable an organization to develop capabilities that enhance innovation. Tamayo-Torres *et al.* (2016) likewise describe how organizational learning can be conducive to innovation by enhancing an organization’s capacity to generate new ideas, products, services and processes.

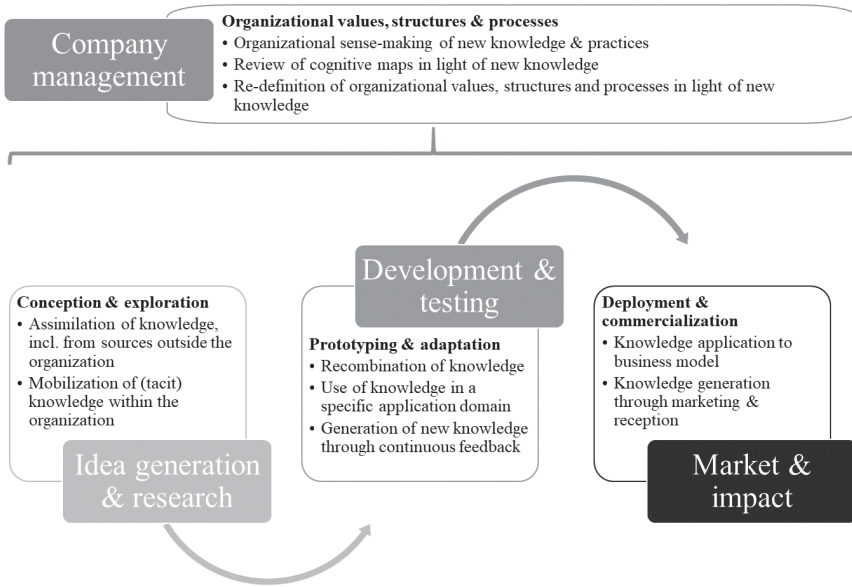


Figure 8.1 Organizational learning in company management and the innovation process.

The relevance of organizational learning for innovation can be illustrated by reviewing the specific types of knowledge-gathering, assimilation and generation activities that happen within each phase of the innovation process (Figure 8.1):

- In the idea generation and research phase (sometimes also called exploration or conception phase), innovators explore innovation opportunities by gathering knowledge on trends, emerging technologies and customer needs. In addition, creativity and problem-solving activities within organizations are used to mobilize existing knowledge (including tacit knowledge) of the innovators to generate ideas for potential new products, services, business models or management innovations.
- Ideas to be pursued further advance to the development and testing phase. In this phase, innovations are prototyped and knowledge on what works and what does not is being generated through continuous testing and adaptation. In this phase, a recombination of the knowledge gathered in the previous phase takes place in a specific application domain. In addition, the continuous feedback and adaptation of prototypes required for development of an innovation is a process of knowledge creation, in which innovators engage in learning by doing and re-doing.

- Finally, mature innovations are deployed in the market where they create impacts on users, generate revenue for the organization and may over time even effect changes in the wider socio-economic system in which they are deployed. Knowledge on the viability of the business model underpinning the innovation as well as the reception of the innovation in the market and in society is fed back to the organization and expands the knowledge base for future innovations.

### 8.2.2 *Organizational learning for responsibility*

Organizational learning has been shown to be an important factor in the adoption of responsibility within companies (Wicki and Hansen 2019). In other words, the process of assimilation of existing knowledge and the generation of new knowledge are key prerequisites for establishing more responsible corporate practices within existing organizational processes. Building on the (sometimes tacit) knowledge already present in companies presents a chance to leverage responsible innovation for organizational learning in two areas that are key to the long-term success of companies, notably innovativeness and responsibility. Regarding the former, responsible innovation offers the potential to bring already existing knowledge in corporate sustainability from the margins into core strategic decision processes, thus achieving a stronger integration of the creation of social value in addition to economic returns (Gallego-Álvarez *et al.* 2011). This may open up previously untapped resources and avenues for innovation. Regarding the latter, responsible innovation connects core business concerns to overarching societal challenges and is therefore considered a promising way for companies to leverage their core competences for the well-being of individuals, communities, countries, regions and global society (Antal and Sobczak 2004; Goodman *et al.* 2017).

When knowledge on responsibility and responsible practices is injected into the innovation process based on existing paradigms and ways of doing things, this corresponds to what is called single-loop learning in the organizational learning discourse. Responsibility is treated as just another issue to consider within the established innovation process. Outcomes of single-loop learning may entail changes to procedures and practices, e.g. wider and more inclusive engagement with stakeholders, yet central tenets of how and why an organization innovates remain unchanged.

However, responsible innovation is concerned with more than the innovation process itself – it adds an additional layer of organizational learning by also addressing the organizational structures and processes underpinning innovation within organizations. In other words, it also addresses company management. Since issues concerning responsibility are often complex and multi-layered, internal organizational sense-making processes are central for giving meaning to responsible innovation and developing a common framework of understanding that can be integrated into company management.

In this interpretation process, existing cognitive maps are reviewed and new ones can be created (Basu and Palazzo 2008; Richter and Arndt 2018; Zietsma *et al.* 2002). Sonenshein (2005) further argues that organizational sense-making enables the constructive voicing of internal social criticism, which helps companies to define their moral standards and ascribe meaning to information and practices regarding responsibility (Fortis *et al.* 2018). This is what is conceptualized as double-loop learning.

### 8.2.3 *The contribution of self-assessment to organizational learning*

Self-assessment can be defined as the process of evaluating an organization along with its achievements, improvements and processes, which is undertaken by members of an organization themselves (Hillman 1994). Similarly, Balbastre and Luzón (2003) conceptualize self-assessment as the comprehensive, systematic and regular review of activities and results of an organization that is contrasted with best practice or organizational objectives. Given their high diagnostic capability (Conti 1997), self-assessments are generally leveraged for organizational learning in emerging or highly dynamic fields to identify improvement potential across the organization. Such benefits are particularly likely when self-assessments are regularly applied and results are shared within an organization, but may remain limited when applied on a one-off basis by individual members of an organization without being widely communicated (Balbaster Benavent *et al.* 2005).

Research into the institutionalization of responsibility in organizations has shown that self-assessment can enable organizational learning (Balbastre and Luzón 2003). However, the type and purpose of self-assessment tools determine the effectiveness of such learning processes in terms of knowledge assimilation and change in organizational practices. Whereas external reporting-focused corporate social responsibility (CSR) assessment tools have been found to yield limited organizational learning effects (Gond and Herrbach 2006; Mitchell *et al.* 2012), self-assessments have been applied as promising tools for organizational learning in the field of quality management (Tarí 2008).

In contrast to third-party assessments, which are generally employed in an audit-like function and with the aim of rating or ranking organizations according to pre-defined quality criteria, the use of self-assessments can be considered improvement-oriented (Conti 1997). The focus on identifying strengths, weaknesses and underlying causes (Conti 1997) makes it possible to reflect on organizational routines and structures in the fashion of what has been called double-loop learning (see above).

In the specific context of innovation, self-assessment can enhance organizational learning with a view to fostering an organizational culture and organizational capabilities for innovation that in turn have a positive effect on innovation performance measures. Through self-assessment, an organization can gather the knowledge needed to build innovation capability

(Lau *et al.* 2010). When self-assessment focuses on responsible innovation, it provides the opportunity to trigger double-loop learning in an organization that might lead to the emergence of organizational routines that support responsible innovation.

### 8.3 Developing a self-assessment tool for responsible innovation

First evidence from the business realm suggests that some companies have implemented practices that already operationalize some aspects of responsible innovation (Auer and Jarmai 2018; Lubberink *et al.* 2017). However, responsible innovation as a concept, in its entirety, or its specific aspects, remains difficult to implement in corporate practice. This is because the principles of responsible innovation have not yet been systematically aligned with corporate processes and innovation management practice (Blok *et al.* 2015; Dreyer *et al.* 2017). Despite a growing corpus of literature on *why* companies (should) commit to responsible innovation, there is still limited knowledge on *how* companies assimilate, institutionalize and translate responsible innovation principles into concrete behaviours and practices.

A few attempts have already been made to operationalize responsible innovation in learning tools for different organizational settings. Lubberink *et al.* (2017) take stock of corporate practices that operationalize anticipation, reflexivity, inclusion, deliberation, responsiveness and knowledge management aspects of responsible innovation. Stahl *et al.* (2017) propose a maturity model to investigate where a company stands with regard to responsible innovation management. In addition, van de Poel *et al.* (2017) also consider company-external factors and firm strategy to assess the contextual, strategic, operational and outcome practices across different product development and life-cycle phases. However, currently proposed models of responsible innovation in a business context do not yet offer an overview of responsible innovation considerations across company management and the innovation process in the form of a self-assessment tool. Concurrently, the discourse on implementing responsible innovation in companies has attracted substantial criticism of the concept. Existing conceptualizations are criticized for using language that is irrelevant to business organizations, for lack of consideration for the specific characteristics of innovation processes (as opposed to research processes) and for misalignment with corporate practices and cognitive frames (Blok *et al.* 2015; Dreyer *et al.* 2017).

The COMPASS self-check tool was developed to address this gap by creating a self-assessment tool that would support organizational learning while avoiding the caveats addressed in the literature. Intended as a self-consulting resource for innovative companies, it aims to facilitate self-diagnosis and monitoring of responsible innovation practices without the need for expert consultation or advice. Its ambition is to go beyond existing learning tools by systematically deconstructing responsible innovation into observable

practices, and thus contributing to better alignment of responsible innovation with business realities and company processes.

The concept, self-assessment questionnaire and accompanying tools were developed in the context of a European Union-funded collaborative project. COMPASS consortium partners involved in the development of the self-assessment included academics with expertise in corporate sustainability, organizational learning, innovation ethics and responsible innovation (Vienna University of Economics and Business, University of Central Lancashire Cyprus, De Montfort University), interactive process design experts (Strategic Design Scenarios), as well as business and innovation support organizations (European Business and Innovation Centre Network, B Lab Europe, La Caixa Foundation).

The COMPASS self-check tool was developed in a four-step process.<sup>4</sup> In the first step, an extensive stocktaking of the elements that make up responsible innovation was conducted, drawing on responsible innovation academic literature (with a focus on responsible innovation in industry), grey literature, existing responsible innovation tools, CSR tools and standards. Based on this stocktaking, an initial scope, concept and structure of the tool were devised by the team of tool authors at the Institute for Managing Sustainability, Vienna University of Economics and Business.

In the second step, the tool was further refined in two workshops involving the COMPASS consortium partners. The first of these two workshops, which took place in Leicester, UK, in June 2017, was dedicated to developing a suitable tool architecture and to defining the contents of the different sections of the tool. At this point in time, an early version of the tool architecture connected the elements of RRI as defined by the European Commission (2012), supplemented by an element focusing on social and environmental effects, with the three main phases of an innovation process, namely idea generation and research, development and testing and market entry and diffusion (Godin 2006; Hansen and Birkinshaw 2007), as well as with two sections concerning the company as a whole. Table 8.1 displays this early tool architecture. In a group exercise, consortium partners identified responsible innovation practices for each section (i.e. each cell of Table 8.1). It was agreed that all practices should have observable, factual actions or policies that are implemented in an organization to operationalize elements of responsible innovation. In this fashion, responsible innovation practices break down the concept of responsible innovation into actionable parts which, in their entirety, represent all elements that constitute the concept of responsible innovation.

At the end of the workshop, individual experts from within the consortium were selected to complement and further develop identified practices into sub-sections for each of the five columns, in collaboration with the team of tool authors.

The second workshop, which took place in Brussels, Belgium, in October 2017, was used to review the tool architecture after work conducted by the



Table 8.1 Early draft of tool architecture

	<i>Company as a whole</i>		<i>Innovation process phases</i>		
	<i>Governance</i>	<i>Employees</i>	<i>Idea generation and research</i>	<i>Development and testing</i>	<i>Market and impact</i>
Gender equality and diversity					
Public engagement					
Science education					
Open access					
Ethics					
Social and environmental effects					

different experts selected from within the consortium. It was also used as an opportunity to cross-check that all elements of responsible innovation as defined by the European Commission (2012) and the so-called AREA framework (anticipate, reflect, engage, act) (Stilgoe *et al.* 2013) were sufficiently represented by the different sub-sections. The different sections and sub-sections (Figure 8.2) were presented to the consortium partners and discussed in plenary. One of the major structural decisions taken at this point was to integrate the two sections covering sub-sections that concerned the whole company.

The tool authors used the input gathered to develop an initial set of questions and answer options. This initial draft consisted of 65 questions in five sections: “company governance” (integrating sub-sections listed under “governance” and “employees” in Figure 8.2), “idea generation and research”, “development and testing” and “market and impact”.

This first complete draft was then shared and discussed with the experts of the COMPASS project’s high-level advisory board in February 2018. The main purpose of this exercise was to receive an external expert assessment of the contents of the tool, ensure its completeness in terms of the responsible innovation concept and to eliminate redundancies and unnecessary components. A content-related change that was implemented based on the advisory board’s advice was, for example, the integration of gender analysis and gender responsibility in all innovation process sections dealing with anticipating impacts, testing products, monitoring innovation effects and stakeholder involvement.

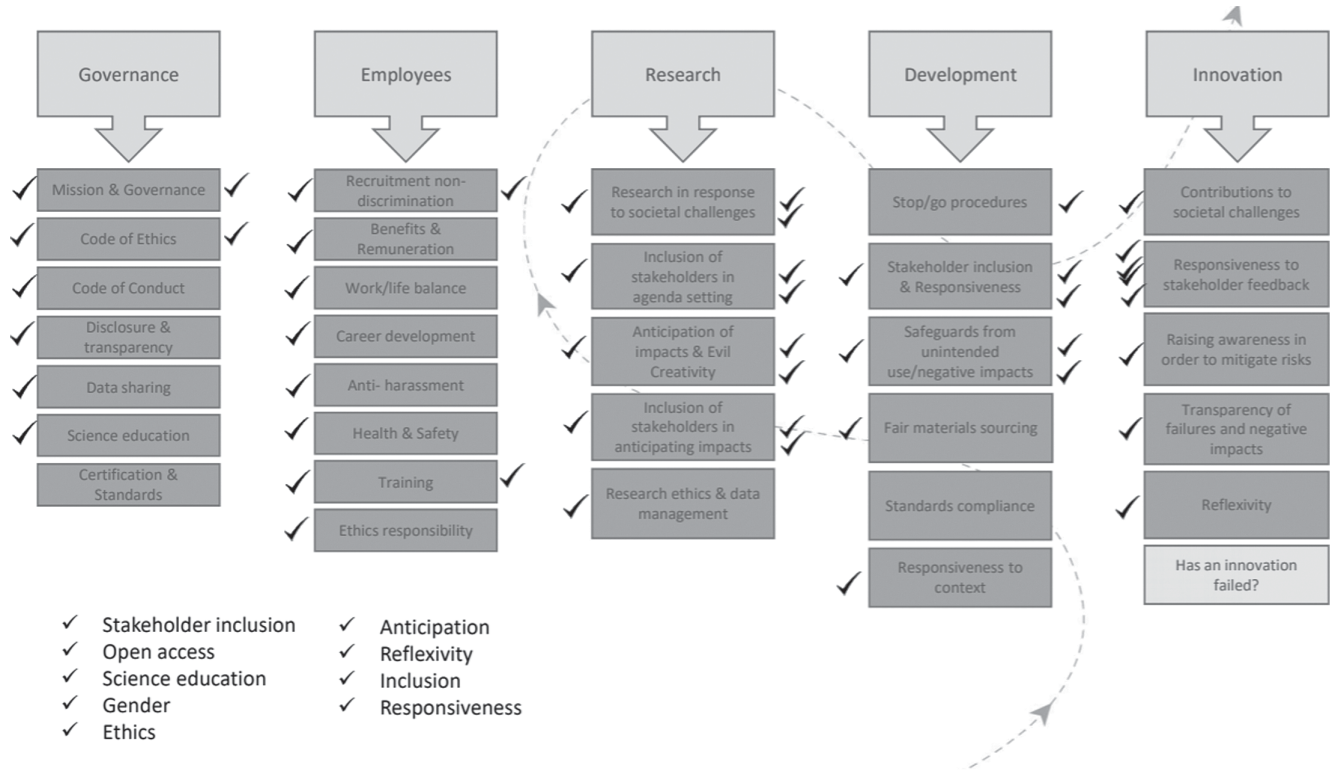


Figure 8.2 Advanced draft of tool architecture.

In the third step, an offline prototype of the envisioned online tool was tested in bilateral interviews or group discussions with 84 individuals representing small and medium-sized enterprises (SMEs), civil society organizations, business support organisations, consultancies, a funding agency and a research organization in the second half of the year 2018. The objective of this round of testing was to receive feedback on general usability and comprehensibility of the questionnaire and to, subsequently, improve wording and terms to maximize understandability and usability for the target group. The collected feedback was diverse and covered comments on the modular approach (which was considered to be a highly valuable and useful approach), to the amount of text in the tool (which was recommended to be reduced) to functional advice (such as e.g. awarding points for each of the four sections in the online tool). The feedback was evaluated by the tool authors in collaboration with the lead testing and piloting consortium partner, European Business and Innovation Centre Network (EBN). Changes were implemented to finalize the questionnaire and develop it into an interactive online tool.

As the fourth and last step of development, a beta version of the online self-check tool was published on the COMPASS project website in February 2019. Another 30 individuals representing SMEs from across Europe provided their feedback on usability of the online tool. Their feedback again concerned diverse subjects, from the length of questions and answer options to the perceived “maleness” of the user icon. Feedback was again evaluated by the tool authors and changes consequently implemented in the final version of the COMPASS self-check tool, which has been available online and free of charge at <https://innovation-compass.eu/self-check/> since March 2019.

#### **8.4 Introducing the COMPASS self-check tool**

The COMPASS self-check tool<sup>5</sup> is a self-assessment tool that guides a user through a questionnaire on responsible innovation practices, explains why these practices are important and illustrates how they can be implemented. It has the purpose of facilitating learning about what responsible innovation is, how the concept applies to company management and innovation processes, as well as how to implement it. As a user goes through the questionnaire, he or she will discover the elements and practices that constitute responsible innovation. Concurrently, users are able to apply these elements to their own company situation by answering the questions. This helps companies to understand responsible innovation and to reflect on their own company practices. At the same time, it provides them with an analysis of their strengths and areas for improvement to instigate change.

For the purpose of the tool, the concept of responsible innovation was operationalized in the broadest sense, utilizing both the AREA framework

prevalent in the academic discourse (Stahl *et al.* 2017; Stilgoe *et al.* 2013) as well as the European Commission's conceptualization (European Commission 2012). Consequently, aspects such as science education or open access that do not play a major role in the AREA framework but are key components of the European Commission's understanding of responsible innovation have been addressed in the tool to ensure a comprehensive approach to the assessment of responsible innovation practices in companies.

The primary target group of the COMPASS project consisted of companies in industries that are characterized by high levels of innovation. The tool has therefore been developed with involvement of nanotechnology, cybersecurity and biomedicine companies; however, it was designed to be applicable by other organizations and in other sector contexts without any adjustments.<sup>6</sup> The COMPASS self-check tool can be implemented by anyone in the company who has a good understanding of how the company operates as well as of the policies and procedures that govern the company's management and innovation process. For larger companies it can be that a collaboration among more people is needed to answer all questions, as one person may not have all the information at hand. A collaboration among a few persons from the same company can also be recommended for smaller organizations to facilitate a discussion. Implementing the tool together and discussing the issues it addresses may yield immediate learning effects and help prioritizing issues and defining actions for integrating responsible innovation in company and innovation management and setting up an improvement plan.

#### ***8.4.1 Aligning company practice and responsible innovation***

The COMPASS self-check tool is structured along key phases of the innovation process (idea generation and research, development and testing, and market and impact) in conjunction with a general company management section that invites reflection about wider organizational structures and practices (Figure 8.3). The focus of the tool is on an organization, primarily a private company and its processes as a whole, rather than an individual innovation project (although the tool's modular approach also allows for using sections of it for a specific innovation project without assessing the whole company).

Each section comprises a number of responsible innovation elements that are applicable to each phase of the innovation process or company management, respectively. Each element is deconstructed into questions and answer options that point to good responsible innovation practice. Keeping in mind that responsible innovation in company settings is still an evolving concept, most questions have an open comment option where users can enter their own approach of how they tackle that specific issue, if this particular approach is not presented as a possible answer option in the multiple choice answers.

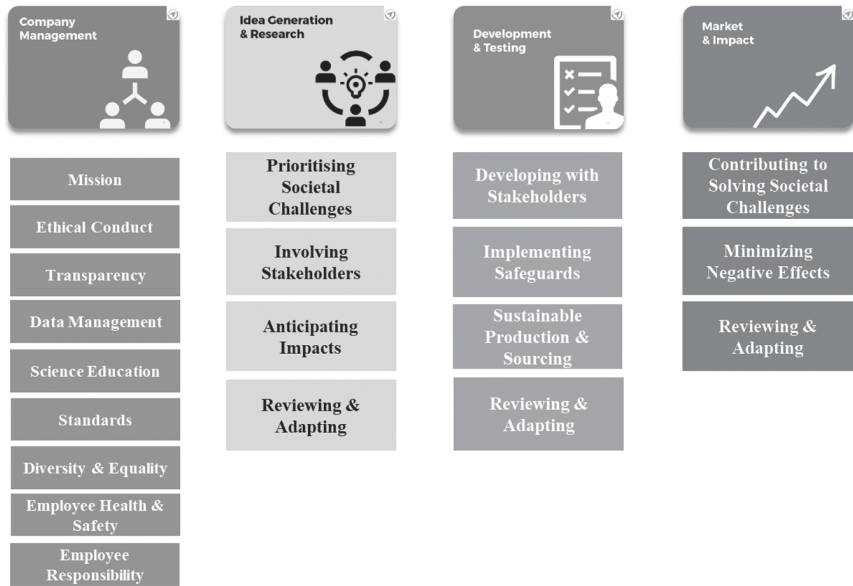


Figure 8.3 Structure and contents of the COMPASS self-check tool.

The four sections of the tool are presented in Figure 8.3 and described below:

1. The *company management* section addresses company practices and procedures that reflect company objectives and values as well as overall strategic orientation as it relates to and affects innovation. It defines the basic rules and conditions for all company activities to take place in, including but not limited to innovation activities. This includes company objectives to create positive societal impact, codes of conduct, commitment to transparency and a certain level of open access to data as well as employee conduct and health-and-safety issues.
2. The *idea generation* section asks about practices that a company has implemented to structure idea generation and selection. This includes questions about if and how the company prioritizes ideas for new products or services that are expected to make a positive contribution to solving societal or environmental challenges, measures to anticipate potential positive and negative impacts of an innovation and circumstances that will lead to adaptation or abortion of further idea development.
3. The *development and testing* section addresses decision-making processes about production, testing and market entry of innovations,

touching upon how these decisions are made and who is involved and consulted in making them. It also deals with the issue of planning for and implementing safeguards against unintended negative impacts of innovations.

4. The *market and impact* section includes questions about practices in the process of launching and evaluating the impact of an innovation. It addresses company strategies for soliciting and integrating feedback and the management of unintended or negative impacts.

The final version of the self-check tool comprises 43 questions and 249 answer options pointing to good practices in responsible innovation. Each question addresses a specific and observable company practice or policy. Answers to the individual questions are scored for verifiable company practices. The questions and the scoring system do not assess the user's awareness, understanding or opinion about specific issues related to responsible innovation in the company, but rather investigate what the company does and does not do (see question examples in Figure 8.4). For example, the COMPASS self-check tool asks about what policies the company has *implemented* for anticipating potential impacts of its innovations, rather than whether the company/user is *aware* of the impacts its innovations may cause. This approach also guides the user to concrete action points or practices, that can help implement and ensure responsible innovation in company processes in the future. In this way, diagnosis and recommendation happen simultaneously.

#### 8.4.2 Actionable results for organizational improvement

There are three main outputs that the tool provides the user with: (1) percentages of total possible points scored in each of the four sections; (2) scores benchmarked against all others who have completed the tool; (3) a summary of questions that the user has marked for follow-up actions for improvement.

The tool is based on a principle of equal weighting of elements of responsible innovation. This is implemented by each sub-section carrying the same weight (same total available points per subsection). In this way, the questionnaire does not prioritize any responsible innovation element over others. All questions within one sub-section can score the same share of points. Two different weighting systems of answer options per question are possible:

1. Each positive response scores an equal fragment of total points available in the question.
2. Any one positive response scores total points available in the question.

By providing an overview of a user's performance across different functions and topics the tool allows for a structured and informed prioritization of

<p>Question example 1:  <i>Who do you involve in the initial idea generation and research stages of new innovations?</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>Shareholders.</i></li> <li><input type="checkbox"/> <i>Customers.</i></li> <li><input type="checkbox"/> <i>End-users/beneficiaries.</i></li> <li><input type="checkbox"/> <i>Supply chain partners.</i></li> <li><input type="checkbox"/> <i>Experts.</i></li> <li><input type="checkbox"/> <i>Governmental agencies.</i></li> <li><input type="checkbox"/> <i>Civil society organisations.</i></li> <li><input type="checkbox"/> <i>Consumer bodies, patient associations or other civil society organisations.</i></li> <li><input type="checkbox"/> <i>Potential future customers from general public.</i></li> <li><input type="checkbox"/> <i>Most of the above – we strive for diverse stakeholder involvement.</i></li> <li><input type="checkbox"/> <i>Other, please specify.</i></li> <li><input type="checkbox"/> <i>None of the above.</i></li> </ul> <p>Question example 2:  <i>In what roles do you involve stakeholders in your company's innovation processes?</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>Being informed of the research and innovation outcomes and/or research processes.</i></li> <li><input type="checkbox"/> <i>Participating in our research through joint-research (e.g. respondents to market research, focus group participants).</i></li> <li><input type="checkbox"/> <i>Providing feedback on innovation processes and the innovation itself.</i></li> <li><input type="checkbox"/> <i>Identifying societal needs and setting the agenda for research and/or innovation.</i></li> <li><input type="checkbox"/> <i>Co-designing with us.</i></li> <li><input type="checkbox"/> <i>Other roles, please specify.</i></li> <li><input type="checkbox"/> <i>We do not consult stakeholders in the initial stages of innovation.</i></li> </ul> <p>Question example 3:  <i>How do you ensure effective, productive and fair stakeholder involvement?</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>We explain stakeholder roles and the objectives of stakeholder engagement prior to starting the process to ensure these are accepted by participants.</i></li> <li><input type="checkbox"/> <i>We are transparent about the tasks and returns for stakeholders participating in consultations.</i></li> <li><input type="checkbox"/> <i>We share all information relevant to the consultation in an understandable format.</i></li> <li><input type="checkbox"/> <i>We use a third party moderator (or alternatives) to ensure that trust is built up and a broad range of arguments, evidence, and views are exchanged.</i></li> <li><input type="checkbox"/> <i>We ensure that diverse views and perspectives of potential stakeholders are considered.</i></li> <li><input type="checkbox"/> <i>Other measures, please specify.</i></li> <li><input type="checkbox"/> <i>None of the above.</i></li> </ul>
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Figure 8.4 Question examples from the COMPASS self-check tool.

which areas of company functions and responsible innovation should be tackled first. As the user goes through the questionnaire he or she can bookmark specific questions as action points for their company. At the results stage, the user can download a list of bookmarked questions for further action.

## 8.5 Discussion and conclusions

Based on insights from the discourses on responsible innovation and organizational learning, this chapter has set out to introduce a self-assessment tool tailored to evoke organizational learning for responsible innovation within companies. Using the high diagnostic capability of self-assessment tools, the COMPASS self-check tool strives to enhance organizational learning

for responsible innovation by aligning corporate innovation processes and responsible innovation.

The COMPASS self-check tool has laid a foundation for operationalizing responsible innovation practices in industry through a comprehensive and organizational change-oriented self-assessment tool. The questions and answer options (i.e. good practices) that the tool proposes reflect the current state of knowledge and practice in business with regard to responsible innovation.

The usefulness of the tool and its effect on organizational learning and practice will emerge as its usage grows. As more users work through the online tool, the benchmark will become increasingly informative for those who have completed one or more sections and would like to see how their company compares to those of other users. In its current form, the tool strikes a delicate balance between keeping the spirit and ambition of responsible innovation, while providing a relevant and actionable assessment of corporate practices.

To increase the body of knowledge about organizational learning for responsible innovation, future research could investigate changes in company practices or policies that can be causally related to one or more company representatives having used the tool to self-assess the company in terms of responsible innovation. To test the hypothesis that self-assessment can trigger double-loop learning, future research could further investigate if tool users have had the experience of “differences, which make a difference” (Bateson 1972), or, in other words, have been surprised by the tool’s question, answer options or scores in the context of how they had perceived responsible innovation or their company’s performance according to responsible innovation beforehand.

The conversations that have led to the development of the COMPASS self-check tool will continue beyond its publication and the tool will need to evolve as more aggregated insights into its use and relevance become available. Areas for improvement might, for instance, include the scoring and benchmarking system, its application at a sectoral level to enable within-sector comparisons, as well as additional incentives for regular application within adopting organizations. These data can then be used not only to inform general insights into the state of responsible innovation in companies but also to provide additional incentives to companies to enhance organizational learning for responsible innovation practices.

## Notes

- 1 For instance, the Edelman Trust Barometer (Edelman, 2017), an annual survey of more than 33,000 respondents across 28 countries, revealed that 51% of respondents were concerned about the pace of innovation. In this context, about two-thirds of respondents did not believe information shared by the CEOs of companies was credible and expect business to lead through action rather than



- words. That is, they are expected to take on responsibility within and beyond the boundaries of their organization that is commensurate with the power they wield over consumers' lives.
- 2 Seminal works include the model of intellectual development in children by psychologist and philosopher Jean Piaget (1896–1980), the concept of cognitive dissonance (Festinger *et al.* 1956) or the concept of “differences, which make a difference” Bateson (1972).
  - 3 A similar distinction was made by Bateson (1972), who differentiated between first-order learning (or Learning I), which corresponds to Argyris and Schön's (1978) single-loop learning, and second-order learning (or Learning II) based on (self-)reflection, which corresponds to Argyris and Schön's (1978) double-loop learning.
  - 4 Development and testing of the COMPASS self-check tool is described in detail in COMPASS project Deliverable 3.1 “Responsible Innovation Self-Check Tool” and Deliverable 4.3 “Review & Recommendations for Revision of the Responsible Innovation Self-Check tool”, which are both available to download at <https://innovation-compass.eu/deliverables-2/>. Deliverable 4.3 also offers detailed accounts of suggested changes and implementation measures taken in all stages of piloting and testing the tool offline and online.
  - 5 The COMPASS self-check tool is described in detail in COMPASS project Deliverable 3.1 “Responsible Innovation Self-Check Tool” ([https://innovation-compass.eu/wp-content/uploads/2019/04/D3.1\\_Responsible\\_Innovation\\_Self-check.pdf](https://innovation-compass.eu/wp-content/uploads/2019/04/D3.1_Responsible_Innovation_Self-check.pdf)).
  - 6 This has been confirmed by company representatives from diverse backgrounds in the tool-testing phase (see Deliverable 4.3 “Review & Recommendations for Revision of the Responsible Innovation Self-Check tool”; [https://innovation-compass.eu/wp-content/uploads/2019/04/D4.3\\_Self-check-tool-testing\\_final.pdf](https://innovation-compass.eu/wp-content/uploads/2019/04/D4.3_Self-check-tool-testing_final.pdf)).

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