

D4.3

Review &

Recommendations for

Revision of the

Responsible

Innovation Self-Check

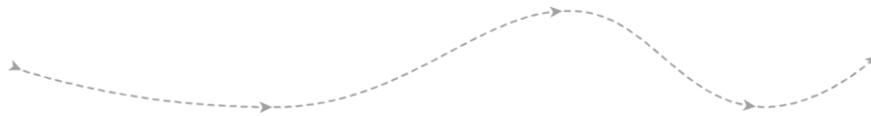
tool



RESPONSIBLE INNOVATION
COMPASS



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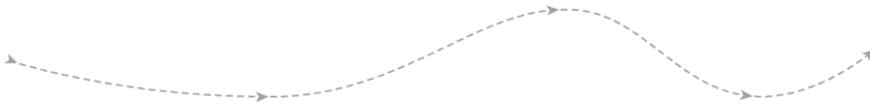
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Acronyms

BSO: Business Support Organizations
 EBN: European BIC Network
 RI: Responsible Innovation
 RRI: Responsible Research and Innovation



SME: Small and Medium-Sized Enterprise

TTO: Technology Transfer Office

WU: Vienna University of Economics and Business (WU Vienna)



1. Introduction

The Responsible Innovation COMPASS (710543) aims at guiding European high-tech SMEs in the definition and adoption of responsible innovation approaches that can benefit their business strategies and society as a whole. Three sectorial RI roadmaps, a diagnostics Self-Check Tool, a co-creation method kit for the development of sectorial roadmaps, as well as additional targeted evidence and resources focusing on benefits, incentives and business models for Responsible Research and Innovation (RRI) in the industrial context, have been developed with and for SMEs by COMPASS (710543) partners.

Over the last 10 months, tools and methodologies have been made available for Responsible Innovation experts, European SMEs and Business Support Organisations interested in making the RI concept an operational framework. These players have been involved into a first piloting phase aimed at validating the usability, clarity, and relevance of the RI COMPASS components.

This document describes activities and output of Task 4.3. It focusses on the feedback and recommendations received with regards to the Self-Check Tool for industry which specifically aims at:

- Helping SMEs understand RI and its key elements through best practices.
- Helping SMEs find where their individual strengths and weaknesses are with regards to RI implementation at company management level and R&I process level.
- Helping SMEs prioritise which aspects of RI are critical to improve on in each case.

The tool is available at <https://innovation-compass.eu/self-check/>. For a detailed description of its purpose, design and development, please refer to Deliverable 3.1 Responsible Innovation Self-Check.

Before the final version of the Self-Check Tool is made available online, it was key to test it with a representative group of stakeholders to ensure proper usability of the tool once online and accessible to all during the public consultation phase.

The testing of the Self-Check tool focussed on two main aspects:

- I. **Comprehensibility, understandability and relevance** (content: questions and structure);
- II. **Feasibility** (online interface/ user-experience).

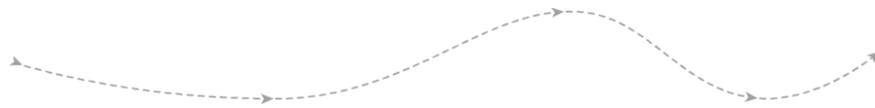
The test has been carried out at different stages of the tool development, with different methods and with different target groups:

STAGE 1: Experts Review, involving consortium partners and the Advisory Board.

STAGE 2: Users Testing, involving individuals representing SMEs, CSOs, BSOs, a funding agency, a research organisation and consultancy firms.

STAGE 3: Open Consultation, involving SMEs and BSOs across Europe.

The document builds on the testing notes (including recordings and digital comments) on the different versions of the Self-Check Tool questionnaire's structure and content, the testing protocols filled in by testers, the feedback received from COMPASS Advisory Board,



European SMEs, and experts representing business support organizations, funding agencies, a research organisation and consultancies.

Collection of these inputs was carried out either during face-to-face meetings or online sessions, and written notes are stored at WU and EBN who have been carried out the above-mentioned interactions. Testing notes have been consolidated in a summary document presenting procedures, outcomes and recommendations collected from different players at different stages of development of the tool, while ensuring testers' privacy and anonymity.

The report also includes feedback gathered in March 2019 via an online public consultation aimed at engaging with a wider group of companies at EU scale. This last part of the piloting process was mainly aimed at assessing the online interface and user-experience, while we did not expect any change in terms of structure and content which have been already tested and consolidated during the first two testing phases.

2. STAGE 1: Experts Review - Feedback from COMPASS Advisory Board

Testing purpose: Assess contents of the Self-Check Tool; Ensure completeness in terms of RRI; Eliminate redundancies and unneeded components.

The objective of this first phase was to get a feedback on the relevance and clarity of the proposed questions, and the consistency of the questionnaire structure and its comprehensiveness in terms of operationalising the concept of responsible innovation. Based on the experts' feedback, WU reviewed the questionnaire before creating a beta version for users' test (stage 2).

2.1. Procedure

The complete draft questionnaire of the Self-Check Tool was sent to the COMPASS (710543) Advisory Board for feedback prior to the second Advisory Board teleconference on February 21, 2018. They received the complete draft of the COMPASS (710543) Self-Check Tool as Word document. The questionnaire itself was preceded by an introduction to the purpose and the structure of the tool.

At that time, the questionnaire was organised according to 5 management sections and 30 thematic subsections. Each subsection had between one and eight questions investigating company Responsible Innovation practices. Advisory Board members were asked to provide their feedback and comments in tables that were provided after each subsection; their inputs were organised around two main questions:

1. What had you expected to see in this section and did not?
2. What, in your opinion, is not relevant to RI in this section?

To streamline feedback and reduce the effort for the Advisory Board, WU suggested a particular focus for each board member (see list below), while inviting everybody to comment on a more general level as well.

Suggested foci for feedback:

- Roger de Keersmaecker – focus on applicability to ICT sector and small and medium enterprises
- Klaus Leisinger - specific focus on “2.1 Governance” and “2.5 Market and Outcomes” sections
- Sanja Popovic-Pantic – focus on applicability to SMEs and alignment with innovation management practice
- Virginia Robano – focus on “2.5 Market and Outcomes” section as well as specific sections dealing with effects on society and the environment (namely 2.3.1., 2.3.3., 2.4.4.)
- Maurizio Salvi – focus on the European Commission perspective on RRI
- Mahmud Samandari - focus on applicability to SMEs and start-ups
- Londa Schiebinger – focus on gender and diversity perspective in responsible innovation
- Charlotte Wagenaar – focus on applicability to health and biomedical sectors, and companies outside of Europe.

Comments from the Advisory Board were processed, structured and used as a basis for discussion in the teleconference on February 21, 2018. Six of the eight COMPASS (710543) Advisory Board members were present and provided general comments and suggestions as well as comments with regard to a particular RRI element (see sections 2.2 and 2.3). Written feedback from before the call as well as the discussion during the call was analysed and broken down into key action points (see section 2.4). These were shared with the Advisory Board in a follow-up e-mail to the teleconference.

2.2. Advisory Board's comments and suggestions

In accordance with the Advisory Board's recommendations concerning the project's Stakeholder and Multiplier Engagement Strategy (D5.1), **the Advisory Board recommends developing the Self-Check Tool for companies with a genuine pre-existing interest in responsible innovation.**

The Advisory Board agrees that the scope and length of the Self-Check Tool could be a challenge for companies, therefore targeting companies that are willing to learn is key as well as **making the language more crisp, simple and less theoretical to the extent possible.** In this way, incentives are not so important, it is important to make the tool and its results useful for companies and pleasant to engage with.

The Advisory Board emphasizes the following difficulties and obstacles that should be taken into consideration when continuing developing the Self-Check Tool questionnaire:

- ④ The structure of the Self-Check Tool needs to be reconsidered, clear explanation of the process structures chosen is needed as well as a clear explanation of how the elements of responsible innovation, as proposed by different framings, are integrated into the tool.
- ④ Some parts of the questionnaire seem to be repetitive; duplication should be avoided.
- ④ The final document has to be written in an engaging manner, perhaps engaging a writer would be helpful.
- ④ How sections and answers will be weighted and how weighting effects the final result of the Self-Check Tool is confusing as things currently stand and will need detailed explanation in a separate technical annex.
- ④ Financial aspects of funding sources and financial costs of RI have not been considered. It was agreed to address the question on financial structures at user registration rather than the questionnaire since it would be out of scope.
- ④ It would be reasonable to split the document into two documents (a guiding document and technical annex & the questionnaire).

2.2.1. Recommendations regarding specific sections of the Self-Check Tool questionnaire

Gender & Diversity

The Advisory Board agreed that gender and diversity were not sufficiently addressed in the Self-Check Tool questionnaire and issued the following recommendations:

- ④ At this point the questionnaire is mostly about gender equality. One very important aspect is missing: gendered responsible innovation. The tool should ask: is the service/product provided gender responsible? Does it create gender norms that lead to gender equality? Gender analysis for innovation could be useful to be included (see Londa Schiebinger's paper).
- ④ Pay attention to the terminology and discrimination categories (gender is confusing to a non-expert).

- ⑦ Be aware that **all aspects of inclusion and diversity (gender, age, ethnicity, etc.) are important.**
- ⑦ All questions and answers concerning stakeholder involvement should be checked for gender issues. Dividing answer options into subcategories (gender, minorities, etc.) could be an option.

Open access

The concept of open access can result in a conflict between open access and the company's economic health for most companies. The aim for companies must be 'as open as possible and as close as necessary'. The current way the Self-Check Tool conceptualizes the issue is a move in the right direction.

The Advisory Board stresses that **open access is not only about intellectual property but also about transparency about consequences of companies' innovations. This topic should not be left to be handled by regulations: companies know more about their sectors, products and potential negative consequences than regulators.** Therefore, the Self-Check Tool should include company communication (level of transparency) about potential negative consequences.

Science education

Science education is a difficult matter as companies often do not regard educating the public as their responsibility. The Advisory Board agrees that it nevertheless **should be on the companies' agenda in order to promote the understanding of their products and make the public use them right.** However, their responsibility for science education is limited to their products only.

Secondly the Advisory Board also emphasizes that **science education should be a two-way road – communicating to the public as well as letting the public engage with companies** - and comes up with the following recommendations:

- ⑦ Encourage SMEs to send their researchers to conferences and empower them (by providing resources) to interact with the public.
- ⑦ Make room and facilitate for the public to engage with SMEs; e.g. invite a young audience into companies' facilities.

Key points:

- ⑦ Look for companies with genuine interest in responsible innovation.
- ⑦ Pilot testing: Explain main aims and next steps to test audience.
- ⑦ Distinguish between guiding documents, questionnaire and technical annex.
- ⑦ Create an online infrastructure that is clear and intuitive and allows users to choose when to start and end.
- ⑦ Write questions and answers in a less theoretical, crisp manner.
- ⑦ Include gender analysis or gender responsible innovation in its entirety.
- ⑦ Include open access with a view to be 'as open as possible and as closed as necessary'.
- ⑦ Science education: a two-way road with the public.

2.3. Summary and actions taken based on Advisory Board feedback

Table 1: Stage 1 Feedback

Feedback	Actions taken by WU
General feedback	
Including gender analysis and gender responsibility	<ul style="list-style-type: none"> – integrated in all innovation process sections dealing with anticipating impacts, testing products, monitoring innovation effects and stakeholder involvement.
Scoping science education in more limited manner	<ul style="list-style-type: none"> – implemented in line with Advisory Board's recommendations.
Splitting questionnaire, guidance, technical sections	<ul style="list-style-type: none"> – these will be separate parts on the online platform. Word document serves only as a deliverable for project reporting.
Rewriting for more attractive language	<ul style="list-style-type: none"> – copy editor review. – consortium review. – test with user groups.
Shortening length of tool	<ul style="list-style-type: none"> – users will be able to choose the scope of questions to be answered, when to start and end the questionnaire. – attractive online platform is to be developed. – intermediary results to be provided for users to motivate completion of questionnaire.
Checking and removing duplications	<ul style="list-style-type: none"> – completed, will be further reviewed in further testing rounds.
Developing attractive online platform and presence	<ul style="list-style-type: none"> – in development with web designers.
Prioritising RRI practices by must-, ought to- and can dimensions	<ul style="list-style-type: none"> – to be reflected in scoring. – users can decide dimensions themselves and prioritise practices.
Reviewing and providing a reasoning for tool structure	<ul style="list-style-type: none"> – to be done with consortium and tested with users. – scientific justification is to be documented and provided.
Developing a clear, effective and transparent scoring system	<ul style="list-style-type: none"> – to be developed with consortium partners experienced in sustainability self-assessment tools for SMEs.

Providing referencing	– to be provided in an annex document.
Defining tool users	– to be explained in user guide and FAQs.
Suggestions for additional tool features	
Reporting aggregated user data in a publication	– to be done at end of project, as a report or publication.
Providing a benchmarking option	– to be developed. Will be activated when enough user's data gathered for meaningful benchmarking.
Following up with users to see impact after period of time	– out of scope and timing of project.
Creating user discussion groups on RRI implementation	– to be implemented if technical development if budget allows.
Providing useful tools and resources to help implement challenging practices	– to be implemented.
Offering visibility for tool user companies	– users will be offered to be featured on website upon their explicit consent. Individual results will not be made public since no verification is ensured.
Creating indications of costs for setting up a responsible innovation process	– beyond scope of project. Only difficulty of practices will be reflected in the scoring system to an extent possible.
Developing guidelines and criteria for sharing data	<ul style="list-style-type: none"> – certain guidelines integrated into questionnaire. – open access will be positioned as “as open as possible and as closed as necessary”. – aspects of transparency about negative aspects to be integrated.

A second screening of the Self-Check Tool was carried out by project partners; they were provided with a Word document presenting the full set of questions and were asked to provide comments about content and structure of the questionnaire in track changes.

Main comments insisted on the importance of talking the “SME’s jargon” and to make the tool modular so to better fit each single user experience.

3. STAGE 2 – Users Testing: feedback from pilot SME, third-party experts, BSOs and SMEs (including SMEs that joined the roadmap testing phase).

Testing purpose: Pilot testing to test general usability and comprehensibility of the questionnaire for SME representatives, Business Support Organisations (BSOs) and third-party experts such as research centres.

The second piloting phase of COMPASS Self-Check Tool consists of testing with potential end users the clarity of the proposed questions (and related answers) and the usability of the tool.

The exercise involved more than 80 users among experts, BSOs and SMEs. COMPASS (710543) partners offered the opportunity to test the tool to SMEs (including those who took part in the RI Labs, the ones involved in the Mentoring scheme and others that didn't take part in previous RI COMPASS activities), and BSOs, research institutes and other relevant stakeholders.

Table 2: Organizations that joined stage 2 of COMPASS Self-Check Tool piloting

Type of organization	Country	#of testers
SMEs	Austria, Belgium, France, Italy, Netherlands, Norway, Spain, UK	15 companies 23 individuals
BSOs	Croatia, Czech Republic, Germany Hungary, Ireland, Italy Poland, Slovakia, Slovenia	37 individuals
Experts	Austria, Finland, France, Germany, Greece, Ireland, Italy, Romania, Spain	24 individuals

3.1. Testing with pilot SME (Dutch company)

The beta version (updated version after Advisory Board's and consortium partners' review) of the Self-Check Tool was officially released at the XXVII EBN Congress in Esch-sur-Alzette (Luxembourg), 6-8 June 2018.



Figure 1: COMPASS stand at EBN Congress 2018

Here the Responsible Innovation COMPASS (710543) project had a stand where participants were invited to learn about and test the Self-Check Tool which was made available in form of coloured cards, which served as the offline version of the online questionnaire.

While several people spent some time on the stand to get some general information about the tool and how it is going to work (without going through it), a Dutch SME did take some time to sit with partners and complete a first pilot testing exercise. This company received a travel voucher to attend the EBN Congress

and join COMPASS sections there (Self-Check Tool test session and COMPASS workshop on the RI co-creation method kit).

The company is active in the transport and logistics sector. It counts 5 employees. The interviewee is the company founder and owner; a physicist and entrepreneur. For the past ten years, the company had been working with one main client. Today, it seeks to diversify its offer by exploring new sectors and understanding new markets and possible clients, while investigating new approaches to innovation processes and management. In this regard responsible innovation practices and approaches are interesting for the company itself and for potential clients.

After a short introduction about the project and the tool, the tester was invited to select the starting point and was guided throughout the process. Partners collected comments, feedback and recommendations, and took note of the answers provided so to make them available as soon as the tool will be released online.

Pilot company comments and recommendations

The tester easily processed the different questions and possible answers and had no problems understanding what is being asked.

He started with section “Market & impact” (quote: “...because this is what you need to consider first and it is where the actual impact is”) and went through all questions in this section in numerical order. He then proceeded with “Idea Generation”, “Development & Testing” and finally “Company Management”. In each section, he responded to all questions in numerical order. He continuously commented on questions and answer options and sometimes paused to ponder them. He had no difficulties understanding the different issues and alternately reacted with approval, slight surprise about or clear rejection of answer options.

The interviewee expressed his interest in Responsible Innovation as follow:

- It might be better for all of us to go beyond profits and team development → it is much more beneficial to also **increase employees’ pride and responsibility**.
- Inclusion in the work environment and of different stakeholders is key.
- Motivation and value-driven mission in a company is key.

Overall, the tool is perceived as a useful guidance throughout the different dimensions of Responsible Innovation.

3.2. Testing with third party experts

After updating the Self-Check Tool questionnaire based on feedback from the COMPASS (710543) Advisory Board and the pilot company, WU met with experts from three Austrian organisations to receive their feedback on contents and usability of the tool.

Moreover, the tool was presented by EBN during the Responsible Innovation Summit 2018 in Dublin, where feedback on the overall approach and methodology was collected during round tables and during the MARIE project mid-term workshop.

Experts were again presented with the latest version of the questionnaire in form of a set of cards and given the freedom to choose their own starting point and order of questions to look at. Feedback was integrated between each of these three meetings and after the last one.

Testing purpose: Receive experts’ feedback on usability and value of the tool for promoting Responsible Innovation, supporting companies in improving their impact on society and the environment, and informing funding decisions for business innovation programs.

3.2.1. Testing with the Centre for Social Innovation (ZSI)

ZSI is a private non-profit institute for applied social sciences based in Vienna, Austria. ZSI implements research and application projects on the social embedding and impact of all types of innovations and contributes to the design and diffusion of socially accepted and sustainable innovations to meet global challenges. On August 7, 2018 the WU team met with Ilse Marschalek, Maria Schrammel and Elisabeth Unterfrauner to receive their feedback on the tool itself and the questionnaire. The three colleagues from ZSI had been involved in three other RRI projects; namely RRI-TOOLS, Smart-Map and NewHorizon. They had participated in developing the RRI-TOOLS Self-Reflection Tool and were thus highly knowledgeable about the discourse on RRI in general, the current discussions on RRI in companies as well as design and usability issues of RRI assessments.



ZSI comments and recommendations

In addition to comments on specific questions, the colleagues from ZSI provided the following general suggestions:

- **The modular approach is very important** and might prove very successful.
- Currently, there is still a lot of text → Try to shorten answer options wherever possible.
- Possible to award points per section? If so, do so.
- Process overview for user: if possible, show both percentage of points and percentage of completed questions.
- Would it be possible to connect to “how tos” from RRI-TOOLS project? → Would need adaptation of RRI-TOOLS output to business context.
- Possible to put a “light version” of the tool online; either by trimming down answer options or by hiding some of the subcategories?

Overall, they considered the approach taken by the tool (i.e. modular, based on tangible company practices, online, scoring and – potentially – benchmarking, strengths and weaknesses, learning function) to be very promising.

3.2.2. Testing with EcoBusiness Vienna

EcoBusiness Vienna was launched in 1998 by the Municipal Department for Environmental Protection on behalf of the Vienna City Administration. The purpose of EcoBusiness Vienna is to help enterprises generate "green and clean" profits through ecological management practices that benefit both the environment and the enterprises, ensuring high quality and financial benefits in each company. To date, 1,041 enterprises have participated in EcoBusiness Vienna, implementing more than 11,000 environmental projects and actions. Through appropriate environmental management practices, these enterprises have been able to generate substantial cost savings totaling about EUR 121.4 million. The success of EcoBusiness Vienna illustrates that the voluntary move to apply quality standards that exceed legal requirements can create significant financial benefits. Thomas Hruschka is an expert on CSR, sustainable development, participation processes and communication, and has been a consultant for EcoBusiness Vienna for 15 years. On August 27, 2018 he met with the WU team to provide his feedback concerning the self-check tool's potential to support companies in improving their impact on society and the environment.

EcoBusiness comments and recommendations

In addition to comments on specific questions, the colleague from EcoBusiness emphasized a range of **sustainability aspects** (e.g. re-usable packaging, circular economy, land use) to be included in answer options to questions across the four sections. He further suggested to scale down the use of the term “innovation” throughout the whole questionnaire.

Overall, he was interested in the tool and the information contained in it and asked for a brief introduction in German to send to the companies that receive consultancy through EcoBusiness Vienna. WU provided him with this introduction in October 2018.

3.2.3. Testing with the Austrian Research Promotion Agency (FFG)

The Austrian Research Promotion Agency (FFG) is the national funding agency for industrial research and development in Austria. As a "one-stop shop" offering a diversified and targeted programme portfolio, the FFG gives Austrian businesses and research facilities quick and uncomplicated access to research funding. Philipp Aiginger-Evangelisti is an expert in strategy and business development at FFG and has recently initiated the implementation of the Impact Innovation Programme, which he now manages. On September 17, 2018 he met with the WU team to provide his feedback with regard to the self-check tool's potential to inform the Impact Innovation Programme and other funding programmes for business innovation programs.

FFG comments and recommendations

In addition to comments on specific questions, the colleague from FFG pointed out the following suggestions for making the questionnaire more useful for SMEs:

- Keep questions as much to the point as possible and vary their wording so users don't feel like they have already seen the same question before.
- Scoring system: on questions with ascending scores per answer option, it should not be possible to score more points by ticking one answer (e.g. the one that scores most points) than by ticking more than one of the others.
- Whenever possible, **work with examples as answer options to increase learning effect.**
- Try to reduce number of questions and text in general as much as possible.
- Consider starting with three sections that users can enter: “Company”, “innovation process”, “market and impact”.

While the colleague warned the WU team that he would not have the patience to go through all questions at the beginning of the meeting, he did in the end work through and comment on each question of the questionnaire. Afterwards, he declared himself satisfied because he had received new information that he could implement in his funding programme and asked for a PDF of the tool. WU provided him with this document after implementation of feedback in October 2018.

3.2.4. Testing at the Responsible Innovation Summit 2018

EBN participated in the Responsible Innovation Summit 2018 (<https://responsibleinnovation-summit.com/>), held in Dublin on October 16th. The event aimed at exploring new dimensions of innovation, identify key factors which are shaping the next generation of innovations and investments. Approximately 100 leading professionals from different sectors shared ideas on how inevitable trends are here to stay towards responsible investments, value-driven consumer expectations and major economic changes driven by new technologies and emerging global challenges.

In this framework, EBN joined the “Ethic business canvas” round table, where introduced the Self-Check tool to a group of 10 participants all interested in tools and methodologies supporting start-ups and SMEs refining their business strategies according the Responsible Innovation framework. In this group the “ethic” dimension was particularly addressed, and positive feedback was received about COMPASS holistic and pragmatic approach – particularly, participants liked the fact that the tool was built around RI best practices.

Moreover, EBN was one of the 5 EC funded projects invited to present during the MARIE project (MAInstreaming Responsible Innovation in European S3, <https://www.interregeurope.eu/marie/>) workshop “Mainstreaming Responsibility into Innovation Policy”, organised in the framework of the Responsible Innovation Summit 2018. Approximately 20 people attended the session, most of them representing policy makers from different European regions (report and PPTs are available online, <https://www.interregeurope.eu/marie/news/news-article/4673/marie-mid-term-event-report-on-line/>).

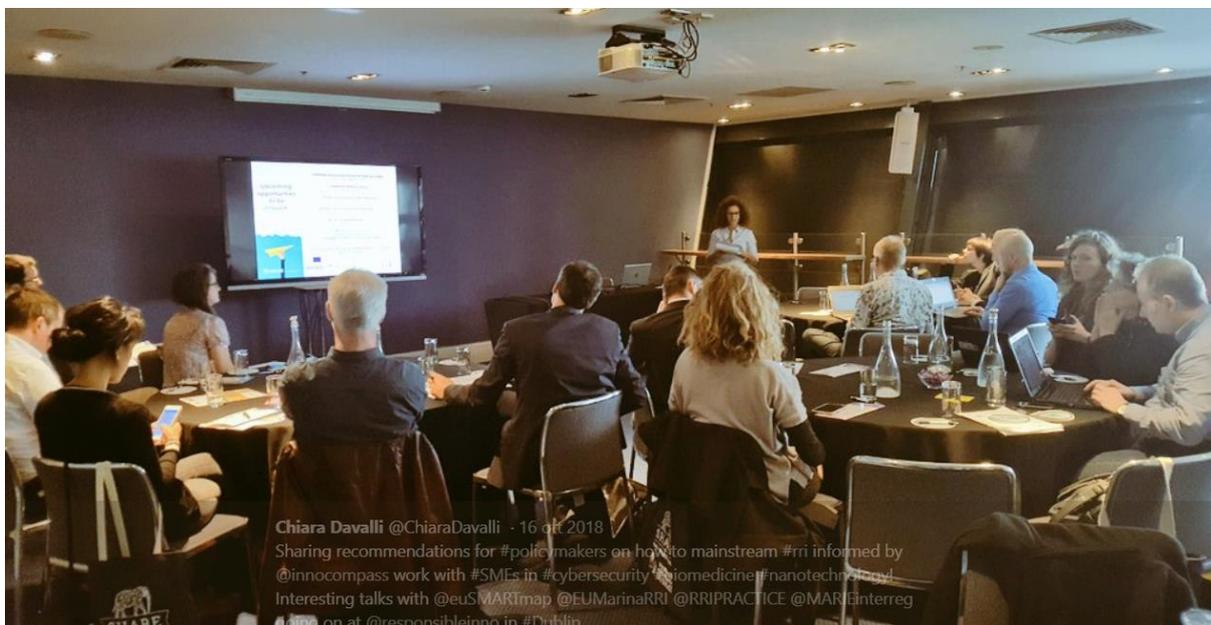


Figure 2: MARIE Workshop at Dublin Responsible Innovation Summit

During the workshop EBN presented the RI COMPASS (710543) tools and methodologies put in place to support European high-tech SMEs embedding Responsible Innovation into their business strategies. Due to the time constraint it was not possible to test the Self-Check Tool, but the occasion proved to be relevant to see how policy makers perceived the overall SME support scheme put in place by COMPASS (710543) and comment upon policy actions needed to further support the take-up of the RI approach by European entrepreneurs. Among others, Dublin City Council expressed an interest in this type of support measures and tools, as they can help policy makers translating policies into concrete actions, and presenting RI to SMEs in practical terms.

MARIE workshop at Responsible Innovation Summit 2018 comments and recommendations

Feedback on COMPASS (710543) approach and tools was generally positive; participants’ comments can be summarised as follows:

- It is important to generating greater awareness on RI by demonstrating how such a broad policy framework can be implemented in different sectors and by different actors

→ RI in practice. The fact that the COMPASS Self-Check Tool proposes current good practices as possible answers is definitely a positive asset.

- COMPASS (710543) approach **reduces the risk of “scaring off” companies and at the same time of “over simplifying” the RI concept**, as it refers to established and known business and innovation concepts and processes, presenting them from a different angle.
- It is important to take into account the differences between regions and Member States in Europe. Although there is a lot of work and exchange around Responsible Innovation, the jargon used in different environments can differ. This can be an obstacle to mutual understanding at interregional level. On the one hand, the wealth of initiatives is beneficial, and we should not advocate a one-size-fits-all approach. On the other, in order to help local politicians to understand and to facilitate transnational dialogue, some common definitions and key concepts would help. The benchmarking feature of COMPASS Self-Check Tool is moving in this direction.
- Participants also highlighted how RI is not a once and for all action a company should undertake. It implies mid- and long- term processes, continuous review and changes in the overall management approach. In this sense, **the modularity, the flexibility and the possibility of reiterating the exercise at different company levels of COMPASS Self-Check Tool have been considered positive and reasonable.**

3.3. Testing with BSOs

After updating the Self-Check Tool questionnaire based on feedback from the COMPASS (710543) Advisory Board, the pilot company, and the third-party experts, EBN presented it to business support organisations to receive their feedback on contents and usability of the tool.

BSOs were again presented with the latest version of the questionnaire in form of a set of cards and given the freedom to choose their own starting point and order of questions to look at.

Testing purpose: Receive BSOs feedback on usability and value of the tool for promoting RRI and presenting it to their client companies, supporting SMEs in improving their impact on society and the environment by embedding these approaches and tools into their business strategy.

3.3.1. Testing with Chambers of Commerce – ROSIE INTERREG workshop

Coordinated by CISE (Centro per l'Innovazione e lo Sviluppo Economico - Azienda speciale della Camera di Commercio della Romagna), the ROSIE project (<https://www.interreg-central.eu/Content.Node/ROSIE.html>) aims to improve skills among entrepreneurs and innovation actors in Central European countries to promote responsible innovation in companies. The project will also develop and test tools and training to improve capacity to implement innovation responsibly. In spring 2018, the ROSIE project and COMPASS (710543) got in touch to exchange their practices and to explore the opportunity for ROSIE partners to use COMPASS Self-Check Tool in their mentoring scheme with regional SMEs.

On October 9th, 2018 EBN participated in the 1st ROSIE study visit and mid-term event in Milan (Italy) to present COMPASS Self-Check Tool and how the work with SMEs feeds into the road mapping process. The meeting was the occasion for COMPASS to test the self-check tool with 32 representatives of Chambers of Commerce from Croatia, Czech Republic, Hungary, Poland, Slovakia, Slovenia, parts of Germany, and parts of Italy. The objective of this session was to provide ROSIE partners with key practical knowledge that can be useful for them during direct work with SMEs.

EBN first presented the overall COMPASS' offer and then introduced the Self-Check Tool and particularly the purpose and function, the structure, the possible ways of using the tool.

The audience was split into four groups, each of them was provided with a set of cards and a list of questions to reflect upon when going through them identifying opportunities, challenges and risks that might be faced by SMEs that intend to adopt RI, and BSOs willing to promote it.



Figure 3: Self-Check Tool testing session at ROSIE mid-term event

Chambers of Commerce comments and recommendations

The participants of the ROSIE project study visit provided the following suggestions:

- A **non-sectorial approach allows wide adoption of the tool** among SMEs in all sectors.
- The modular and flexible approach is key for BSOs who can adapt the use of the tool to different situations/companies.
- Many SMEs in Europe do not carry out R&D themselves but are part of the innovation value chain. The fact that the tool embraces different stages of the innovation process was highly appreciated.
- **Design is easy and accessible** → ticking options is very user friendly.
- The Self-Check Tool makes clear what RI is for SMEs. Very useful to introduce the overall RI approach.
- The fact that the questionnaire is based on best practices makes SMEs' life easier as they can immediately spot a possible solution to their problem/weakness.
- Add "please specify" so to make it an educational tool, not only diagnostic tool.

- Review English (opt for more valueless language, avoiding to implicitly indicate what is best) → there is value judgment in some of the terms used in the questionnaire (e.g. illiterate).
- Currently, there is still a lot of text → Try to **shorten answer options wherever possible** and separate explanations of the sections from the actual questions.
- The non-equal distribution of questions among the 4 sections (i.e. the company management chapter is way longer than the others) might condition SMEs decision on what to focus on.
- The re-evaluating question in the market subsection is more development than marketing.
- ROSIE would use the Self-Check Tool developed by COMPASS (710543) to work with some of the SMEs that will receive dedicated training on implementing RI (5 per territory, for a total of 50 SMEs). The results of ROSIE's work will be used by COMPASS (710543) as an input to the open consultation used to validate the tool.

Overall, they considered the approach taken by the tool (i.e. modular, based on tangible company practices, online, scoring and – potentially – benchmarking, strengths and weaknesses, learning function) to be very promising.

3.3.2. Testing with CorkBIC and the International Security Accelerator

On October 15, 2018 EBN visited CorkBIC and the International Security Accelerator in Cork, Ireland (<https://www.corkbic.com/>).

CorkBIC is a private-sector led organisation, specifically set up to identify and build knowledge intensive companies based on promising technology and capable innovative people. It plays a hands-on role helping entrepreneurs navigate the minefield of raising finance, sorting out business propositions, arranging agreements with shareholders and investors, and finding customers.

Every year, CorkBIC identifies, selects and develops several high potential start-ups or expansions. At any one time, there are 40 or 50 projects in the pipeline. 85% of start-ups engaging in this integrated process survive after five years, far outstripping the international survival average of 50%. Over the past 25+ years CorkBIC has worked with over 500 start-ups, many of whom come back and re-engage.

At the time of the meeting, Cork BIC was about to launch the second edition of their acceleration programme (starting the 18th October) which invests in early stage disruptive companies in the security industry including, Cybersecurity, Internet of Things (IOT), Blockchain, AI, Health & Bioinformatics, Defence, Critical Infrastructure, Financial Services & Logistics (<https://isa.corkbic.com/>).

During this visit, EBN presented the Self-Check Tool in the beta version (cards) and discussed with the EU|BIC staff (Larry O Donoghue, Eileen Moloney, Michael O'Connor, Fionnuala Wall, Laura Mellet) its possible usage with companies in the Cybersecurity sector.



Figure 4: COMPASS slides to guide discussion with testers

CorkBIC comments and recommendations

During the test of the Self-Check Tool, under the Company Management subsection they selected the areas of the questionnaires considered of relevance for the cybersecurity sector, therefore those related with ethics and data management.

Overall, they showed interest in the tool and the information contained in it as easily understandable also for those business not familiar at all with the RI concept.

An argument of interest for them is the possibility of **using the tool to prepare companies to meet the changing requirements from investors who look beyond their return of investments**, asking companies to address environmental and social implications and the ethical acceptability of their business.

CorkBIC team mentioned a couple of companies from the acceleration programme who might be interested in this opportunity, and particularly in the mentoring scheme especially if experts are involved (DMU for cybersecurity). For future cohorts of the acceleration programme, they might introduce elements of the RI approach, therefore building on RI COMPASS (710543) tools and methodologies (Self-Check Tool, sectorial roadmap and co-creation method kit).

3.4. Testing with SMEs

Having tested the tool with BSOs, third-party experts and pilot SME, between October 2018 and March 2019 EBN presented to 22 representatives of 15 SMEs and start-ups the latest version of the Self-Check Tool either in form of a set of cards or as an online beta version. Participants were given the freedom to choose their own starting point and order of questions to look at to receive their feedback on contents and usability of the tool. Some of these tests were run face-to-face, while others have been done online.

Testing purpose: Pilot testing to test general usability and comprehensibility of the questionnaire for SME representatives.

3.4.1. Italian B Corp company

A testing session was run with one of the founding companies of the B Corp movement in Europe, the first B Corp in Italy and Italian partner of B Lab. It collaborated with the Italian Senate for the introduction of the Benefit Corporation law. The SME is committed to promoting the movement and accompanying interested companies in their positive impact assessment process. The company was therefore a good candidate for providing the consortium with competent feedback.

EBN, introduced to them by B Lab, run an introductory e-meeting (via Skype) with the Co-Founder and the Benefit Unit Officer on October 10th, 2018. The online session aimed at presenting them COMPASS (710543) project and the Self-Check Tool.

The discussion mainly focussed on the differences between the self-check tool and the B Corp Impact Assessment which was not clear to the company at first sight. Clarified the scope and the different levels of assessment of the two tools, the company had a quick look to some of

the questions of the COMPASS questionnaire – under Company Management they checked the stakeholders’ engagement related ones.

EBN did send them a follow up email inviting them to a full test of the self-check tool so to get their feedback on other aspects of the tool.

Italian B Corp company comments and recommendations

Main comment concerns the usability of the tool. They would recommend and consider **using the Self-Check Tool with micro-enterprises who cannot afford a deeper assessment process**, like the B Corp one. This tool would therefore introduce these companies to concepts like environmental sustainability, ethical and social acceptability, while outlining main components of impact driven/responsible innovation through good practices.

They also valued the opportunity for companies to be benchmarked against others, therefore **encouraging peer to peer exchange and mutual learning**.

3.4.2. Spanish ICT company

A second test involved a Spanish company specialised in the implementation of integrated technology solutions. It mainly develops communications, systems and software programmes for both private and public entities. The company counts 15 hubs/branches around Spain – headquarters in Valencia, including HR department – and a total of 460 employees. Each hub has different expertise and focus ensuring the company provides a wide range of services. EBN met with the Key Account Manager from the Malaga team on October 29th, 2018 which is dealing with cybersecurity related projects. They count 8 staff and are located in the Technological Park at BIC Euronova who introduced them to EBN team and the COMPASS project (710543).

After an introduction about the RI concept for a SME and a brief overview of COMPASS offer, the company was proposed to look at the Self-Check Tool. The company was very sceptical about the overall concept (*just another label*) and was raising the question if it wouldn’t have been better to let the company management team in Valencia dealing with this type of activities. In conversation EBN explained how the tool can be used by different team units, for different purposes and from different angles.

Thinking about his unit in Malaga, which is selling and developing cybersecurity services to clients, looking at the sub-sections and their chapters the tester decided to first look at the “Development and Testing” one.

While going through questions his main comment was that questions were too generic, and it would have been better if the headquarters where actual development is done and programmed would have answered them. He therefore decided to look at “Market and Impact” area. In the end the meeting lasted 45 minutes and the company asked to get a follow up email and be informed about the online consultation.

Spanish ICT company comments and recommendations

The company provided EBN team with the following comments:

- The Self-Check Tool is a good introduction to Responsible Innovation, but still “too philosophical”. Questions and proposed practices are quite vague, they make sense but do not say much on how to actually implement the different dimensions of this framework.
- Roadmaps can help, but remember **SMEs need “ready to use” content and tools → be practical.**

- The benchmarking feature of the online version is interesting for them.
- Responsible Innovation should be first spread among intermediaries and local policy makers so that they can translate it into concrete action and requirements. It is a cultural change that should be incentivised by the local innovation ecosystem.

3.4.3. SMEs at EBN TechCamp 2018

During the EBN TechCamp 2018, organised together with the European Space Agency in Noordwijk (Netherlands) the 22-23 November 2018, EBN presented the Self-Check Tool in a section dedicated to tools supporting European SMEs (80+ attendees).

Chiara Davalli presented the project and particularly showcased the Self-Check Tool informing the audience about the upcoming open consultation and to invite SMEs to pilot test it at the COMPASS stand.

Two companies introduced themselves as they were interested in the RI COMPASS programme (710543): one Italian and the other one Dutch-Taiwanese. The exercise was run individually, in 2 separate time slots.



Figure 5: COMPASS testing sessions at EBN TechCamp 2018

The Italian company is a spin-off of Istituto Nazionale di Geofisica e Vulcanologia, INGV, currently the largest European body dealing with research in Geophysics and Volcanology. They release innovative products and services thanks to the knowledge and technological transfer from the excellence in research results.

It is composed by a team of engineers, physicists and geologists with a long involvement in research. The Self-Check Tool was tested by the President who (beyond the academic career) previously worked in HP, Ericsson, in the Lazio Aerospace Technology Cluster and in General Electric Aviation Business. It was therefore interesting to look at the tool with a person having in mind characteristics and needs of both large and small innovative companies.

The Dutch-Taiwanese company offers internalization services to Taiwanese companies interested in accessing the European market and develop their technological advantage by finding the right partners and support to launch their business in Europe. Healthcare is one of their main priority areas and as Responsible Innovation is a growing policy framework in Europe, they showed interest in COMPASS Self-Check Tool. The tool was tested by the Director and the EU Programme manager, both representing the Dutch office.

SMEs at EBN TechCamp 2018 comments and recommendations

The test with Italian company initially focussed on the “Idea Generation” section of the Self-Check Tool as the SME is in charge of bringing research results to the market and technology transfer.

The main comments were the following:

- When approaching the tool (idea generation section) it is important that the SME focusses on a specific project, service or product. The exercise might bring different results for different products or services.
- Main comments were about stakeholder’s involvement from challenge definition to project implementation:
 - For an SME is key that the problem addressed is also reflecting clients’ needs – market validation. Stakeholders have to see the benefits deriving from a company innovation.
 - The type of stakeholders that a company will be approaching/involving will also depend on the business model they have in mind (B2B or B2C); still at idea generation stage it is key to consider the whole value chain and the different actors involved.
 - Constant feedback and a co-design approach would be ideal elements during the innovation development phases, but not always possible due to high costs.
- Ex-ante impact assessment is an important aspect of innovation development, but most of the times this very expensive (there are consultancies offering this service, but SMEs cannot access them).
- Some options proposed as answers are too generic and it is hard to pick one (i.e. question 32).
- Companies might answer to several questions by referring to non-structured procedures and processes, which instead should be clearly stated at management level. **Non-coded procedures rely on employees’ experience, but it would be ideal to have them clearly stated.**
- This tool is valuable for all SMEs, as the RI approach would make them more efficient. **The framework is indeed very much aligned with the start-up agile and lean approach.**
- The Self-Check Tool might be useful for large companies too, and particularly for their top management.
- Large corporates do respond to CSR principles, whit an impact on society. As large companies and corporates have ethical guiding principles this can influence suppliers and tiers that work with them, therefore influencing the whole supply chain.

The bilateral test with the Dutch-Taiwanese company presented some similar observations, particularly about company management procedures. They focussed on **company’s mission and ethics as these aspects are not always priority for small companies.**

They suggested that the Self-Check Tool could be used by Board Members to discuss companies’ mission and values.

They then looked at the “Idea Generation” section considering internationalisation processes and dynamics, and how they impact the whole innovation processes and the stakeholders involved. Cultural management is therefore a key aspect when it comes to stakeholders’ engagement.

Moreover, provided the international nature of their company, find very interesting the possibility of **using the tool every time a company address a new market, therefore reconsidering all dimensions in new geographical, cultural, economic and social contexts.**

Comments from other companies - TechCamp follow up conversations

Two more companies contacted EBN after the TechCamp 2018: a Dutch company and a Belgian start-up.

The Dutch SME provides advisory work to public and private organizations that require decision making support enhanced by earth observation and geo-information systems. They are also EBN spoke with 2 staff members (the CEO and the technical advisor) about COMPASS programme (710543) and presented them the Self Check Tool during a call held on December 6th, 2018.

The Belgian tester is a brand-new company that offers consultancy services to public and private sector actors on RRI. EBN met with the founder in Brussels on December 13th, 2018. During this meeting they discussed the overall COMPASS programme (710543) and looked at the COMPASS Self-Check Tool.

During these conversations both companies expressed general comments about the Self-Check Tool:

- At first sight it looks very long to complete, but when reading the questions and the proposed answers the tool looks much easier and quicker than originally thought.
- The modularity and flexibility of the tools are appreciated by SMEs.
- The tool is not only valuable for SMEs, but it is a key instrument for BSOs, consultants and mentors interested in introducing the Responsible Innovation framework into SMEs' innovation strategies.

Both companies did not have time to go through many questions, and they therefore agreed to look at the Self-Check Tool in more details during the open consultation phase.

3.4.4. Austrian SME

On December 4th, 2018 WU run another test of COMPASS Self Check Tool with the Head of Product of a Vienna based SME. It took less than an hour to go through the whole excel file, even though the tester read every single introductory sentence in addition to the questions and answer options. They started with "Company management" and went through all questions in chronological order. Overall, the tester found responding to the question a "fun" experience and something different from everyday work life. She had no problems understanding the questions. She mostly provided additional explanation on why she ticked the boxes she ticked and didn't tick the ones she didn't tick.

Austrian SME comments and recommendations

On top of very specific comments on a couple of questions (wording), the tester provided the following general comments:

- **Scoring in form of percentages instead of absolute numbers is more effective**, because it provides more information.
- While most of the sentences that introduce the different sections are neutral enough, some spark a certain bias towards the user wanting to score highly on the questions in the section. Most prominent with the term "a responsible company".
- As the testing company is preparing for doubling its number of employees in the next year, **the tester would have liked to see answer options that talk about plans for the future of the company** (such as e.g. "We plan to develop a Code of Conduct.").

3.4.5. SMEs in the biomedicine and health sector

Three companies active in the biomedicine and tele-medicine sectors tested the Self-Check Tool. They all applied for the piloting scheme launched by COMPASS (710543) to test with European SMEs the sectorial roadmaps, but only 2 of them did complete the programme— see D4.4 for more details.

They present similar characteristics (academic spin-offs, small staff, very young companies, biomedicine sector) and they participated in a dedicated online session aimed at testing the Self-Check Tool with EBN and WU.

These companies completed the test during bilateral online sessions (using Go2Meeting platform) involving companies' staff and COMPASS (710543) team members. Each session lasted approximately 1 hour and consisted of a short introduction about COMPASS project and the Self-Check Tool scope and structure, followed by the actual testing.

For two of them (a Spanish SME and a Norwegian start-up), who tested the tool at the beginning of 2019, all cards were presented in a locked Power Point document allowing users to control slides moving around questions and sections as they liked. In the meantime, COMPASS team recorded the answers on an excel matrix to show them final outcomes and to then transfer them to the online version of the tool as soon as ready.

The Norwegian company is a young spin-out from the University of Bergen (Norway) working to commercialize decade long research on protein structure and protein misfolding. Their lead development program is focusing on phenylketonuria (PKU), a rare genetic disorder caused by mutations in the enzyme phenylalanine hydroxylase that result in defective degradation and accumulation of the amino acid phenylalanine, which becomes toxic to the brain. They intend to leverage their unique drug discovery platform to target multiple rare disease caused by protein misfolding. The test was run with the Project Director, who's also business developer at the technology transfer office in Bergen (Bergen teknologioverføring AS), supporting commercialisation of research for more than ten research institutions in Bergen, Norway.

It was therefore very interesting to look at the tool with the tester as she had in mind both her spin-off and the companies she supports at the TTO. She explained that today Norwegian researchers and innovative companies are looking at supporting instruments to implement Responsible Innovation in their R&D&I strategies as the Norwegian Research Council has developed a “Framework for RRI”, the main strategy for 2015-2020 that asserts that *the Research Council must assume greater societal responsibility by promoting research and innovation activities that will yield benefits for society at large in the long term.*

Having this in mind, on December 3rd, 2018 we did focus the discussion on the “Idea generation and research” chapter of COMPASS (710543) Self-Check Tool, and EBN then provided the company with the full set of questions and the excel matrix to record their answers, so that they could continue the exercise autonomously.

The Spanish tester is a spin-off company born in the CSIC (Spanish Council for Research) that will help to accelerate the translation of basic research on drug discovery to clinical trials for severe human unmet diseases such as neurodegenerative disorders and metabolic diseases. The company took part in the Spanish RI Lab which was considered a useful instrument to discuss RRI related topics with other companies and experts.

During the test (held on January 14, 2019), the SME was represented by the founder and the business developer. They did go through the questions very quickly, sometimes without even



reading the introduction about the different chapters and RI dimensions. Also in their case, the “Idea Generation and Research” aspect of the Self Check Tool was the first one tested during the online session, then they moved to the “Company Management” one. As for the other company, EBN and WU recorded their answers on an excel matrix and sent it to them in a follow up email together with the full set of questions.

A test with a third company in the health sector was run on April 19, 2019. This French SME entered the programme in March 2019 when the Spanish company informed the COMPASS (710543) team about its impossibility to continue the testing. As this company was informed about the project and its activities earlier on by EBN and they expressed clear interest in the overall initiative, when they were invited to join an “accelerated” testing scheme of COMPASS (710543) tools they accepted.

The start-up based in the South France is providing better access to healthcare and fighting with territorial and social isolation of elderly people through telemedicine. The test was run together with the President and Founder of the company. As they joined the test at later stage, when the Self-Check Tool was available online, they were asked to go through the whole set of questions by themselves and discussed the outcomes and the experience with EBN team *ex post*. This latest version of the tool did already take into account the comments received from the SMEs during the bilateral sessions described before.

During the interview with EBN, the tester first stated that the tool was very interesting for them: some aspects were clear and straight forward for them, namely those referring to data protection. This aspect is regulated by the law in their sector, and they had to consider it even before setting up the company in 2016. Nevertheless, the Self-Check Tool made them reflect about the opportunity of **going beyond standards and regulations**. Moreover, the tool gave inputs on other aspects they never considered as relevant to their sector, but that indeed are pertinent to all companies. It is the case of the environmental impact. Some questions inspired new practices the company will study and implement in the coming months.

As in France responsibility is now a buzz word for businesses in all sectors (Social and Environmental Responsibility of companies), tools like this one would be very important to be adopted. Today everybody speaks about it but there is no specific framework to show the actual implementation of a RI framework within companies. COMPASS (710543) Self-Check Tool could be useful to move from “declarations of intents” to actual practices.

SMEs in the biomedicine and health sector comments and recommendations

We report below the comments collected during the 3 testing sessions:

- Societal Challenges analysis is key for companies, as **without challenges there are no needs, therefore no market**. Defining stakeholders’ needs is an important step in the definition of companies’ business and innovation strategy.
- Social challenges, stakeholders’ involvement and impact are 3 key-words guiding responsible businesses.
- It is important that companies **distinguish between their long-term strategy and their daily management when they answer this questionnaire**. Defining the scope of the assessment is crucial for the relevance of the outcomes of the self-check exercise. Companies might consider repeating it every 6 months, to balance short and mid-term perspectives with their long-term strategy.
- **In the biomedicine sector, companies must stick to rules and ethical standards by law**. This ensures that they cope with important RI aspects, but most of the time this doesn’t imply company’s written codes or statements stating their guiding

principles and values. One of the companies said, “we are not transparent in this sense”, and the Self-Check Tool was an interesting source of inspiration on how to be more transparent towards their stakeholders and partners. **They appreciated the fact that the answers proposed in the tool were inspiring possible concrete actions within a company.**

- A key challenge for spin-offs is to become self-sustainable and commercially viable. The small team and the little resources available don't allow them to consider many aspects they would like to. **Balancing aspirations and actual business sustainability is the most challenging aspect for micro companies like these ones.**
- The Self-Check tool stimulates reflection on different aspects of the innovation management.
- We would recommend companies to do it all in once, at least the first time, as it gives a comprehensive understanding of the different RI dimensions.
- The proposed **method is positive as it is not too time consuming for a company, it is clear, logic in its structure and light, and it stimulates curiosity to go deeper in understanding RI.**
- The benchmarking feature is definitely interesting, but it would be more meaningful if companies could use **more selection filters so to be benchmarked against smaller and more targeted groups of companies.**

3.4.6. SMEs in the cybersecurity sector

2 UK companies in the cybersecurity sector first joined the RI Lab in the UK and the roadmaps' testing phase later on. One of them works to make cyber security implementation, assessment and certification as simple as possible, especially for small, non-technical organisations. The other one develops solutions that make it faster, simpler and safer to prove who you are, and who other people are, online and in person.

The two companies are quite different in terms of size (one counting 7 employees only, while the other has more than 200 employees in Europe and is present both in India and North America - US and Canada), targets and mission; it was therefore interesting to see how they approached COMPASS (710543) Self-Check Tool.

In this framework it was proposed that they test the Self-Check Tool during bilateral online sessions with EBN and WU. Each session lasted approximately 1 hour and consisted of a short introduction about COMPASS project and the Self-Check Tool scope and structure, followed by the actual testing. To test the tool all cards were presented in a locked Power Point document allowing users to control slides moving around questions and sections as they liked. In the meantime, COMPASS team recorded the answers on an excel matrix to show them final outcomes and to then transfer them to the online version of the tool as soon as ready.

SMEs in the cybersecurity sector comments and recommendations

The smaller company did the test on December 4th, 2018 and was represented by the CEO who chose to start from the “Idea Generation and Research” chapter as it looked “more friendly”. Main comments are the following:

- **Many SMEs are following the RI principles either without formalising it or without even knowing it. This might lead companies to tick several answers even if they do not have formal procedures in place. It might be good to specify this in the tool.**

- The ethical dimension of innovations is key in the cybersecurity sector. In their case, they decide to go ahead with an innovation only if it is ethically good and can make a profit. Small companies should always balance these two aspects.
- Impact and risk assessment are important processes to keep updating and improving a company and its products; whether negative impacts can't be minimised or totally avoided they stop working on a project. In this sense the dialogue with stakeholders is fundamental. Once again, **even if they recognise themselves in several answers of this section of the Self-Check Tool they don't know if to tick them or not as they are informally there, and not formally structured and coded.**

The company finally stated that the exercise was very useful to let them realise how many Responsible Innovation aspects they are already implementing. The next step is to formalise and communicate them to stakeholders and partners.

The bigger company was represented by the Director of Regulatory and Policy and 2 colleagues.

They addressed the "Company Management" chapter of the questionnaire. The approach was very interesting as they explained us their company while going through the different questions. **The tool acted as a canvas the testers used to introduce company's structure, mission, values and offer according to a RI paradigm.** It must be acknowledged that this company was one of the few ones with a deep knowledge and experience of Responsible Innovation. It was interesting to see how a more experienced company was looking at the tool. Key comments were as follows:

- Despite the fact that they already had many process and procedures in place, the tool provided them with inputs on how further improve them. The company liked the fact that **the tool is proposing concrete measures as possible answers.**
- As far as ethical conduct is concerned, they found question 6 too ambitious for an SME, which can't give "decision making roles" to stakeholders like consumers. Despite they can be part of an advisory board, it is key to keep external and internal parties well distinguished (they both have advisory capacity, but not decision making).
- **Transparency related questions were very useful** and inspiring to them as they provided new inputs and suggestions to the team on how they can better communicate their added value to a wider audience (at that time they were releasing a new website).
- **Some questions are not specific enough** (i.e. question 8 "going beyond legal requirements") **or proposed answers are not clear** (i.e. question 9 "precompetitive data").
- **The Science Education sub-section should be renamed "Science and Tech Education"** so that this better applies to companies like theirs.

In the end they stated their interest in the benchmarking feature of the COMPASS (710543) Self-CheckTool and that will therefore run the full exercise as soon the online version is available.

3.4.7. SMEs in the nanotechnology sector

Two more companies have been involved both in the Roadmap testing and the Self-Check Tool piloting, both working with nanotechnologies.

The first company is one of the most experienced SMEs that participated in the COMPASS (710543) programme. It is a spin-off of the Catalan Institute of Nanotechnology (ICN2), the University Autònoma of Barcelona (UAB) and the Institut Català de Recerca i Estudis



Avançats (ICREA). Among its co-founders are scientist from these institutions, international experts on RRI (Responsible Research and Innovation), and experts in e-communication and experts in business development and technology transfer. The main current objective is the commercial exploitation of the patent application "biogas production", in the U.S. and Europe, consisting of the use of iron oxide NP as additives to optimise the production of biogas. They have been selected by COMPASS (710543) as one of [the 5 industry cases](#) on how implementing responsible innovation can kick-start innovation and contribute to competitiveness of SMEs in key innovation fields.

The second one is an Austrian company that got in touch with COMPASS (710543) after the EBN Tech Camp 2018, as an intermediary organisation attending the event informed them about the initiative and the opportunity to join the piloting phase as they are interested in the RI framework but don't know it into many details.

It is a young company leading in the invention, development and manufacture of the most advanced nanomaterials and devices. They translate these advanced technologies into value for the customers/users through their solution, service and consulting business worldwide.

While the Spanish company completed the test as the biomedicine and cybersecurity companies (bilateral online session with EBN and WU on January 18th, 2019, where they were introduced to the tool and worked with cards presented in a locked Power Point document allowing while COMPASS team recorded the answers on an excel matrix), the Austrian one followed a different approach. As they joined the test at later stage, when the Self-Check Tool was available online for the open consultation, they were asked to go through the whole set of questions by themselves and discussed the outcomes and the experience with EBN team *ex post*. This latest version of the tool did already take into account the comments received from the SMEs during the bilateral sessions described before.

SMEs in the nanotechnology sector comments and recommendations

The test session with the Spanish SME involved 2 staff members (the expert on safety by design and the RRI expert). They started the test from the "Company Management" section and suggested the following comments and recommendations:

- Questions are good, but proposed answers are more about being "more or less" responsible. The most stringent questions refer to standards and certifications; it would be good to add intermediary levels. As an example, the questions about company's mission should read "Do you review your codes regularly"? This would clarify if a company has written codes (therefore implementing RI) and not just informal statements.
The tool looks more like an educational tool rather than an assessment tool. This aspect was discussed with EBN and WU that clarified that indeed COMPASS Self-Check Tool was designed as a learning tool companies should repeat at least twice to define possible improvements first and then assess if they actually took place.
- They suggested to add a ranking system to show companies how do they perform compared to others. EBN and WU showed them the benchmarking feature that will be released online.
- **The tool is very "comfortable", easy to navigate.**
- It could be interesting to assign different scores to each answer. Answers could be categorised as *low*, *medium*, *high* according to the level of relevance of your practices and procedures against the RI framework.

- As many users of the tool will be “RI beginners”, it could be interesting to let them access a simplified version of the tool first and then the full version.

They then moved to the “Development and Testing” section of the tool, which they considered clearer and with better defined questions (less “open” than the ones in the Company Management section). In this case main recommendations are:

- Some questions are very difficult to answer (i.e. question 39) others are ambiguous, but it is a good instrument to reflect on Responsible Innovation.
- **Do > Correct > Repeat.** This is the approach it should be recommended to companies using this tool to improve their responsibility.
- **The tool would be particularly interesting and relevant for mentors helping SMEs going more RRI:** the 51 questions represent a good check list to work through with mentored companies.
- **The tool is also an interesting and useful conceptual framework for PhD students in the tech transfer offices or involved in cooperation programmes with corporates and companies (innovation from academy).**

The conversation ended with more general considerations on why companies should go for a responsible approach to innovation and research. Legal issues can be avoided if RI is put in place (standards, consumers’ health, employees’ safety, etc.); it could be wise to move from a Responsible Innovation concept, to the “Intelligent Innovation” one.

The focus of SMEs is on business, not on ethics. So, we have to pass the message that **RI give companies competitive advantages in an ethical way.**

As mentioned above, the test with the Austrian company was run in a different way (on March 28th, 2019) with the CEO and its administrator going through the full set of questions from question 1 to question 51. During the bilateral call with EBN, the CEO first explained that the company is really small, with no employees, but developing partnerships and collaborations with different research institutes and labs depending on the projects or clients’ needs. For this reason, some of the sub-section of the “Company Management” chapter do not apply to their company. Still, the CEO has previously founded another high-tech company that run for 25 years (with 50 employees) before selling it.

Main considerations and recommendations remind the ones already raised by other SMEs:

- The Self-Check Tool is very straightforward, easy to navigate. Language is clear and user-friendly.
- Even if some sections do not apply to the present situation of the company, it is a very useful guide to plan the next development stages. **The Self-Check Tool is a good motivational tool.**
- The tool can be used by SMEs in all sectors and at different development stages. **All sections are equally important and are all interlinked.** It took them more than 1 hour to go through the full set of questions.
- Once they finished to answer all questions, they checked the benchmarking tool where they scored quite low compared to other companies, but comparable companies (similar size) were not available at that time. The benchmarking tool is therefore not reflecting micro-companies’ reality.
- The proposed questions demonstrate the usefulness of RI in daily life and present it in very practical terms: **decision making, structures and product development are three aspects the tool addresses helping SMEs planning and managing them all.**

- Despite the fact that the company and the 2 founders were never really involved in responsible innovation, the tool shows how it is not far from companies' processes and interests. **By adhering to RI principles managers can gain competitive advantages as employer (towards employees) and as company (towards stakeholders).**

3.5. Summary of Stage 2 recommendations and actions taken by WU

Below we present a summary of main points of feedback collected in stage 2 and actions taken by WU. Companies that tested more advanced versions of the tool mainly confirmed its usability and clarity.

The table therefore present a first part including feedback that WU used to improve the tool, and a second section including comments that mainly refer to the possible usage and usability of the tool once online and available to a wider audience.

Table 3: Stage 2 Feedback

Feedback	Actions taken by WU
The modular approach is very important.	<ul style="list-style-type: none"> – The tool has been organised around 4 main sections and their subsections. Menu and sub-menus allow SMEs to choose the areas of RI they want to assess.
Work with examples as answer options to increase learning effect.	<ul style="list-style-type: none"> – Answers present good practices in different areas/aspects of RI, so to inspire and motivate companies in case they don't have any of them in place. A "none of the above" option is also included.
Scoring in form of percentages instead of absolute numbers is more effective.	<ul style="list-style-type: none"> – The benchmarking tool and the overall scoring system present results in percentages.
<ul style="list-style-type: none"> • Use the tool to prepare companies to meet the changing requirements from investors who look beyond their return of investments. • Use the Self-Check Tool with micro-enterprises who cannot afford a deeper assessment process. • Use the tool every time a company address a new market, therefore reconsidering all dimensions in new geographical, cultural, economic and social contexts. 	
<ul style="list-style-type: none"> • Do > Correct > Repeat. The tool should be used at different stages of a company strategy development and implementation to see how progresses in terms of RI. • The Self-Check Tool is a good motivational tool. 	



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- The tool can help SMEs to introduce company's structure, mission, values and offer according to a RI paradigm.
 - The tool is also an interesting and useful conceptual framework for PhD students in the tech transfer offices or involved in cooperation programmes with corporates and companies (innovation from academy).

Many of the comments and main questions received during the testing phase with SMEs have been used by COMPASS (710543) team to develop a FAQ section (<http://self-check-tool.innovation-compass.eu/faq>) for the online version of the tool and provide other users with suggestions on how to approach the tool and use it within their companies.

4. STAGE 3 - Online consultation

The third and last pilot phase of the RI COMPASS (710543) Self-Check Tool was the Online Open Consultation which took place in early 2019 (February-March).

Testing purpose: Assess online usability of the Self-Check Tool; test attractiveness and relevance of the tool; check responsiveness and adaptability of the Self-Check Tool across Europe.

4.1. Testing procedure

This last phase aimed at gathering the feedback of users from different target groups and sectors. The open consultation involved both BSOs and SMEs from across Europe, as well as researchers, to see the responsiveness and adaptability of the Self-Check Tool. The exercise involved around 30 users.

The WU team developed the BETA version of the tool (i.e. the version for Open Consultation) together with the contracted web developer in three phases:

- a) discussion and definition of contents and functionality,
- b) design creation, and
- c) development.

The main functionalities of the online tool BETA version included:

- user registration interface
- interactive online self-assessment questionnaire and database
- aggregated and benchmarked user results interface
- Frequently Asked Questions area
- backend editor functionality

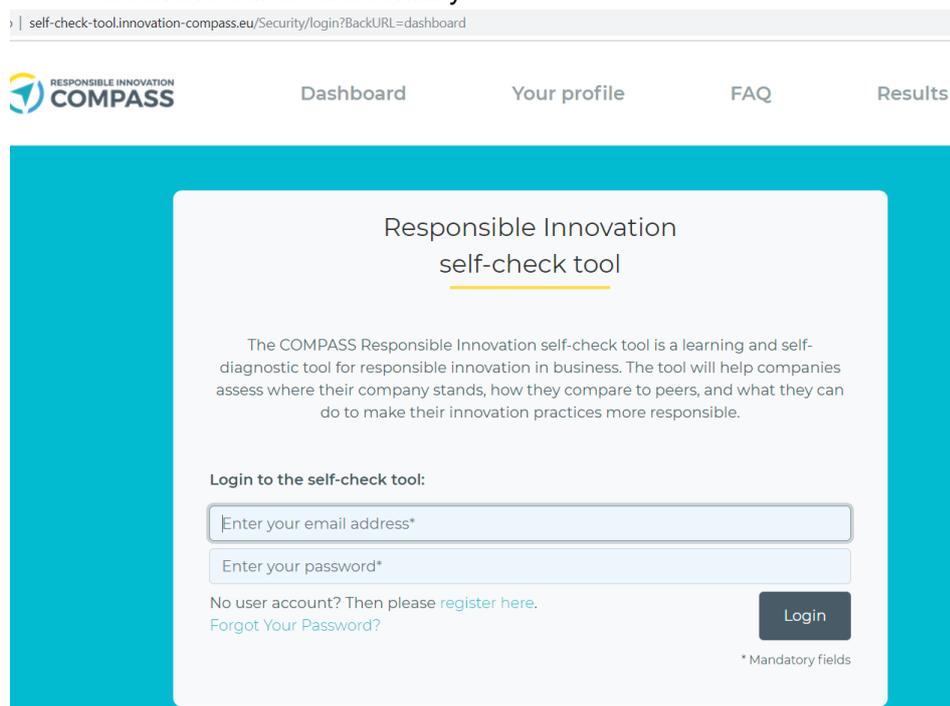


Figure 6: COMPASS Self-Check Tool user registration interface

The consultation was run online, enabling users to test the usability of the tool, not only the questionnaire, but also its outcome and user interface.

The BETA version of the Self-Check Tool had integrated feedback boxes, allowing users to leave comments at each question.

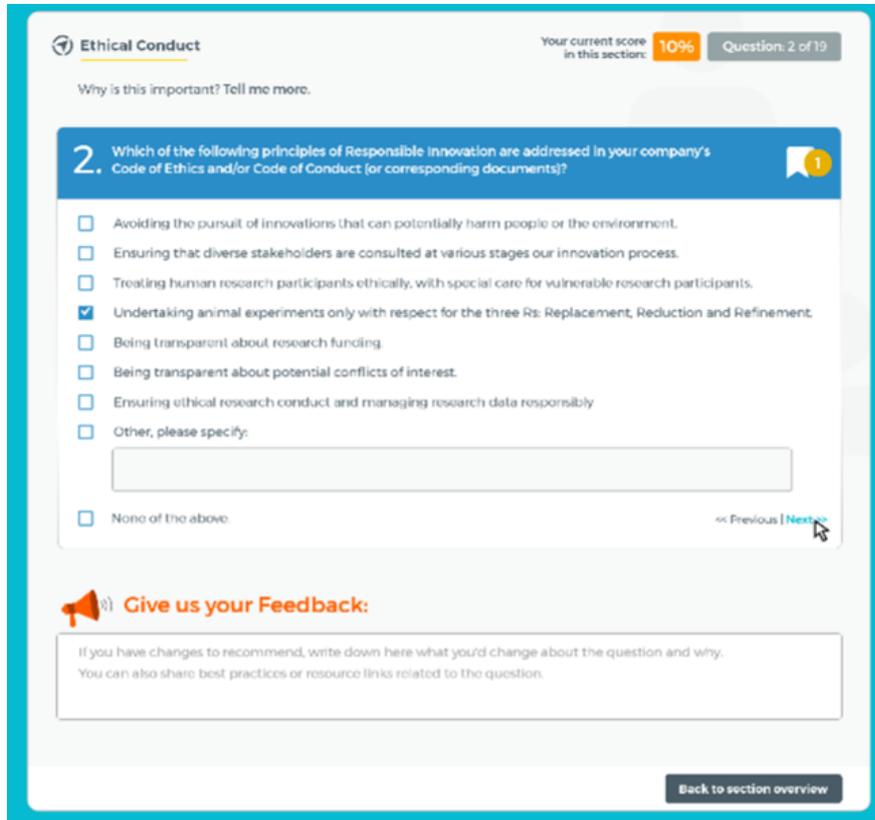


Figure 7: Online BETA version of COMPASS Self-Check Tool

The Online version of the tool included a FAQs area providing users with clarifications and suggestions on how to use the tool.

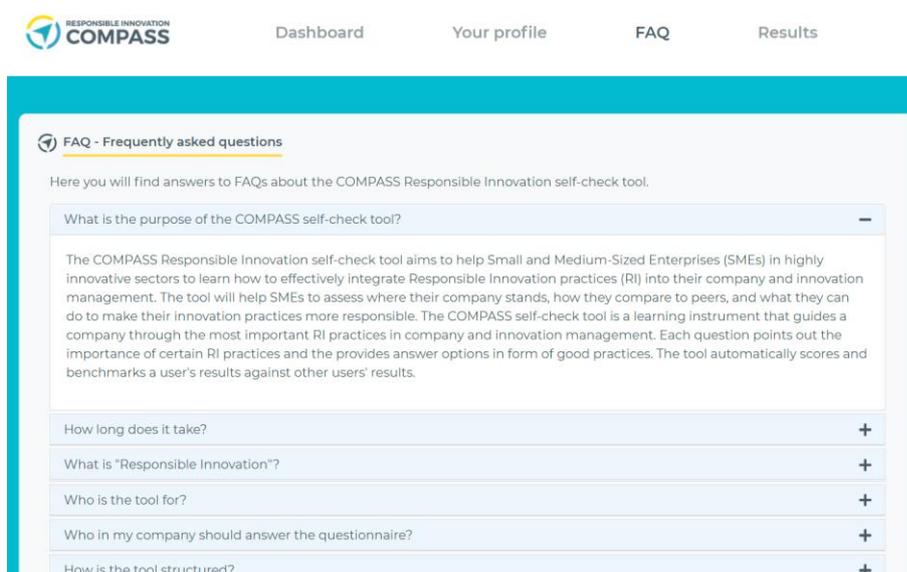


Figure 8: COMPASS Self-Check Tool FAQs

Moreover, users could access their results in the overall questionnaire and by section and be benchmarked against companies of their size as well as all companies in the tool database. In this way, companies' performance is not assessed in absolute terms, but rather in comparison to peers who have completed the questionnaire. They can only see how they compare when they complete a section. Overall by section and sub-section scores will be automatically compared to the average scores of 1) companies of the same size and 2) all companies in the database that have also completed these parts of the questionnaire.

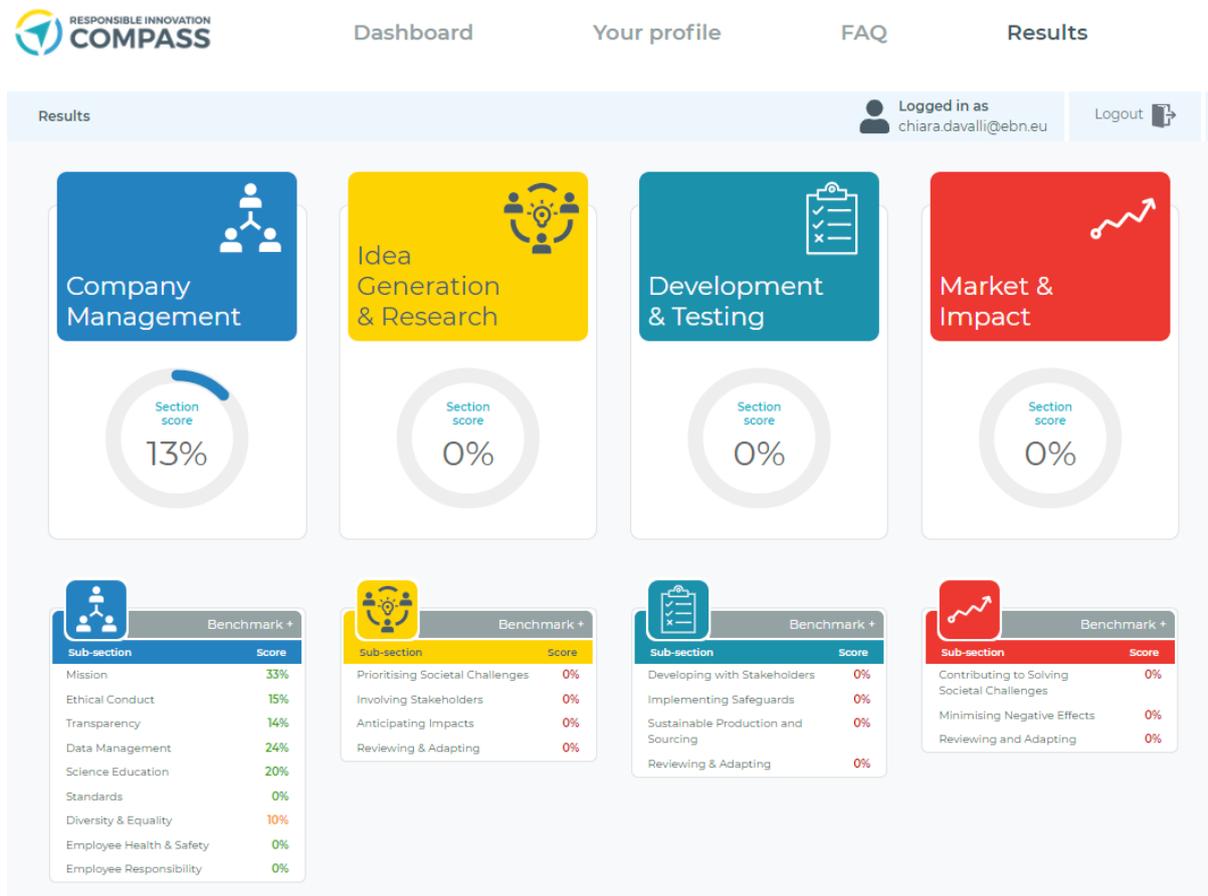


Figure 9: COMPASS Self-Check Tool - Results and benchmarking overview

Since during the consultation phase the number of companies was still limited, COMPASS (710543) recommend checking in with the tool once in a while, because as more companies use the tool, the benchmarks will also change.

4.2. General comments and suggestions

The feedback from users varied greatly, from general remarks on the design and functionalities to specific comments on wording and typos. General comments included that the tool can be very helpful to demonstrate relevant concepts in some postgraduate courses, and that it works well as guidance for interviewing companies. Some users noted that the system is a bit slow in generating results and downloads.

The following table presents a summary of the feedback and actions taken based on the open consultation.

Table 4: Stage 3 Feedback

Feedback	Actions to be taken by WU
Shortening length of questions	– Completed: Questions have been rewritten and shortened where possible.
Checking and removing duplications and redundant questions	– Completed: Redundant questions have been removed.
Concretise questions (Some questions address two different scopes, while several other include environmental and societal issues. Users were unsure what the answer was about, one of the two or both.)	– Completed: Questions have been rewritten or split where necessary.
Explain the symbol in the corner on the right of the question.	– Explained in user guide and FAQs.
Add "Don't know" into the possible answers too, sometimes people do not know the answer.	– Dismissed: Questions should incentivise learning and cooperation (e.g. users can ask colleagues)
Reprogram scoring (Comment: "Section score gets refreshed only after submitting the question, not as you fill it in, therefore the section score displayed on screen when the last question has been filled in but not submitted is lower than the actual final score.")	– Completed: Scoring has been reprogrammed accordingly.
Change people icon at login (Comment: "The icon looks very male.")	– Completed: Has been replaced with the same icon as used in the profile.
Add 'previous' button to all questions (Comment: "Going back to question 1 is not possible.")	– Completed.
Fix issues with password (Comment: "no capital and no special characters allowed, but it is not specified")	– Completed: All characters are now allowed by the system.

5. Conclusions

The final version of COMPASS (710543) Self-Check Tool (<https://innovation-compass.eu/self-check/>) has been officially released online in the occasion of the “Innovation Relunched” (<https://innovation-compass.eu/final-conference/>), the project final event which took place in Brussels on March 26th, 2019.

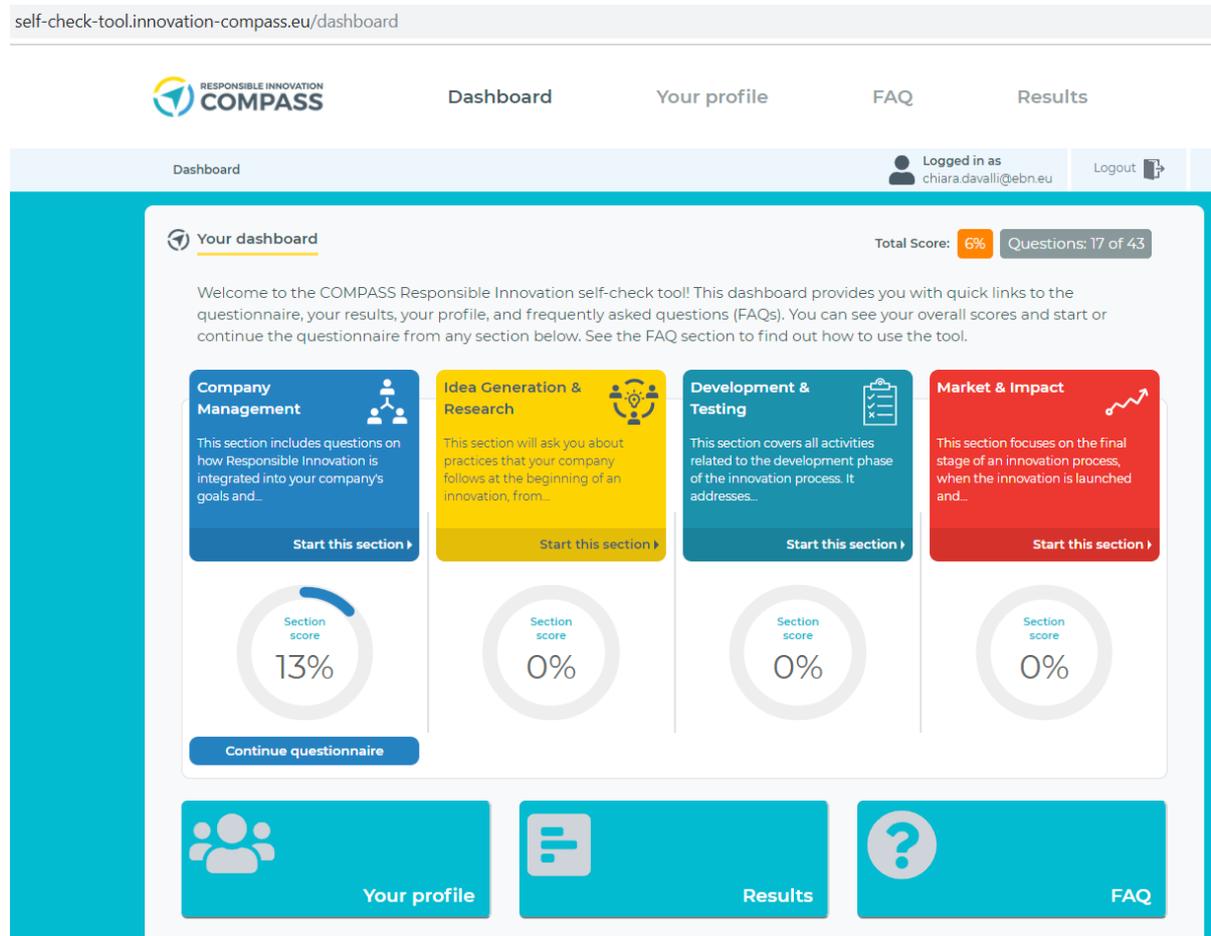


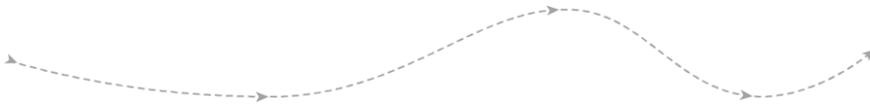
Figure 10: COMPASS Self-Check Tool – user dashboard

The online Self-Check Tool is the result of an intense piloting activity that allowed project partners to develop it with a lean approach that involved RI experts, BSOs and SMEs at different development stages. The tool was shaped since the very beginning by taking into account users’ feedback and suggestions, therefore responding their needs and expectations.

According to the testers’ feedback (and particularly SMEs’ one) COMPASS Self-Check Tool is a valuable instrument for companies approaching Responsible Innovation for the first time, but also for those that are already familiar with this framework. It is a motivational and learning tool that companies can use to assess their progress against different dimensions of the RI framework (“do, learn, repeat” approach suggested by one of the testers).

Users particularly value:

- Flexibility and modularity of the tool > it really fits different needs and type of users
- Clarity of content > the tool is not abstract at all
- Language > the tools speaks SMEs language



- Smooth user experience > layout, length and typology of questions (multiple choice answers)

According to both companies, BSOs, and experts it is also a valuable resource for mentors and coaches that help SMEs defining/re-defining their business and innovation strategies. This also considering the changing innovation policy framework in several EU countries and the new parameters investors and funders introduced in their selection guidelines (now considering social impact and environmental sustainability too).

Some question marks remain about the benchmarking feature of the Self-Check Tool. Considered as a clear added value for its users, the fact that so far only a limited number of companies (with different size) has used the tool online doesn't make this feature particularly relevant and meaningful. COMPASS (710543) team expects that with the wider take up of the tool in the coming weeks/months, this feature will also gain relevance for Self-Check Tool users.

The tool is considered as a key outcome of COMPASS project (710543) as it provides concrete inputs and examples on how to translate RI principles into actual business practices.