PRISMA

Final report on the Stakeholder Dialogues

Deliverable 4.2

Grant Agreement No.	710059
Project Start Date	01-08-2016
Duration of the project	36 months
Deliverable Number	D4.2.
Deliverable Leader	KIT/ITAS
Dissemination Level (PU, CO, CI)	PU
Status	1.0
Submission Date	31.12.2018
Author **Institution** **Email**	Maria Maia Christopher Coenen Karlsruhe Institute of Technology (KIT/ITAS) maria.maia@kit.edu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 710059.The opinions expressed in this document reflect only the author's view and in no way reflect the European Commission's opinions. The European Commission is not responsible for any use that may be made of the information it contains.

Modification Control

VERSION	DATE	DESCRIPTION AND COMMENTS	AUTHOR
0.1	03.11.2018	First Draft	Maria Maia, Christopher Coenen (KIT)
0.2	20.12.2018	Second Draft	Maria Maia, Christopher Coenen (KIT)
1.0	28-12-2018	Final version	Maria Maia, Christopher Coenen (KIT)

List of contributors

- Andrea Porcari (AIRI) (main contributor)
- Pim Klaassen (RIVM) (main contributor)
- Daniela Pimponi (AIRI)
- Elisabetta Borsella (AIRI)
- Elvio Mantovani (AIRI)
- Jaco Westra (RIVM)
- Korienke Smit (RIVM)
- Lotte Asvelt (TU Delft)
- Steven Flipse (TU Delft)
- Victor Scholten (TU Delft)
- Emad Yaghmaei (TU Delft)
- Ibo van de Poel (TU Delft)
- Tom Sorell (Warwick University)
- Christopher Nathan (University of Warwick)
- Agata Gurzawska (Twente University)

List of Abbreviations

PRISMA	Piloting RRI in Industry: a roadmap for tranSforMAtive technologies
CSR	Corportae Social Responsability
RRI	Responsible Research and Innovation
SME	Small or Medium-sized Enterprise
KPIs	Key Performance Indicators
WP	Workpakage
KIT	Karlsruhe Institute of Technology
AIRI	Italian Association for Industrial Research
TU Delft	Technical University of Delft
RIVM	National Institute for Public Health and the Environment
SbD	Safe-by-Design

Table of contents

1. Introduction

The main goal of the PRISMA project is to help companies implement Responsible Research and Innovation (RRI) in their innovation and social responsibility strategies, and to provide evidence on how an RRI approach can improve innovation processes and their outcomes. Based on the experience in eight pilots, with companies active in different sectors, PRISMA aims to develop an RRI/CSR 'roadmap', i.e., a methodology to integrate RRI dimensions and actions in strategies of companies, in order to improve the value of their Research and Innovation processes, and their overall performances. The pilots will take place at private companies and public-private partnerships and will focus on the research, development and innovation phase of the development and life cycle of specific products of transformative technologies such as nanotechnology, synthetic biology, autonomous vehicles and Internet of things. The pilot aims at evaluating the applicability of several RRI approaches and tools to the company.

The main aim of WP4 was to develop and carry out stakeholder dialogues with actors from different areas, in order to act as a platform for group-specific discussions focused on important issues for stakeholders and how to best implement RRI and gain practical insights for the development of the RRI/CSR Roadmap. Thus, the stakeholder dialogue will serve as a platform were industry (for example SMEs but also large companies as well as related industrial researchers) policy-makers, advisors (such as Technology Assessment (TA) Institutes, Academia, consultants, civil society Organizations (CSO) and other social actors, Standard Bodies, etc.) and bio-hackers and Fab-lab developers can be brought together in order to discuss specific needs and expectations, as well as concerns and challenges that RRI can introduce when put into practice in an industrial environment. Also, to the different stakeholders, it will give the possibility to discuss and design in a collaborative way the roadmap for the responsible development of transformative technologies.

In total 5 events were planned do take place during the project. The strategy for its organization was developed and reported in Deliverable 4.1: "Dialogue Strategy and Stakeholder Mapping".

In a nutshell, the first event was organized aiming to collect opinions and "reactions" on the pilots being developed. The target audience was the pilot companies. The second and third event were focused on the four technologies related to the work of the pilots. Considering the type of technologies, it was decided to merge the events on nanotechnologies and biotechnologies (third dialogue) and the event on autonomous vehicles and internet of things (forth dialogue). The fifth and last event aimed to have a reaction and act as a validation of the RRI/CSR roadmap draft, under development in WP5. For this reason, the targeted audience was industry. The events organization scheme is illustrated in Figure 1.

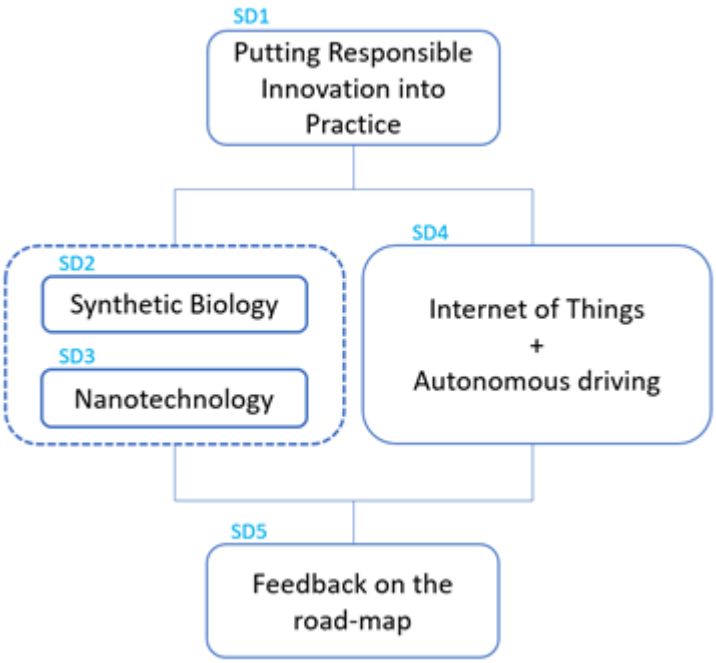


Figure 1 - Schematization of the Stakeholder Dialogue event

Although the organization of the events was the responsibility of KIT, all project partners supported its implementation through the moderations of sessions, organizing workshops, acting as rapporteurs, among others.
The aim of this deliverable is to synthesize and present the main outputs of the five-stakeholder dialogue, organized in WP 4.
The report is structured as follows: session 2 will present the approach to the events in terms of the methodology adopted. It will also present some general statistics on the events. The following sessions (3 to 6) an overview of the five stakeholders dialogue is presented, providing details on the aims, agendas and participants. The main outputs of each event are presented, having in mind its further uptake to the roadmap conceptualization and development.

2. Approach and events overview

Between April 2017 and September 2018, a total of five stakeholder dialogues were organized and hosted by KIT, in collaboration with the consortium partners.
The events took place in European cities such as Berlin (Germany), Brussels (Belgium) and Milan (Italy) in order to promote dialogue between several stakeholders and discuss the principles of RRI applied to the project.
The events were organized having into consideration the methodology described in Deliverable 4.1. “Dialogue Strategy and Stakeholder Mapping”.
All events lasted one day and included a working dinner with all participants and the PRISMA consortium partners, in order to promote networking. It is important for the participants to get to know each other and share information on a common interest: RRI.
The overview of the PRISMA Stakeholder Dialogue is presented in Table 1.

Event	Location	Date
1st Stakeholder Dialogue "The future of technology: putting responsible innovation into practice"	Brussels, Belgium	13 April 2017
2nd and 3rd Stakeholder Dialogue "Setting the agenda of RRI in industry "	Berlin, Germany	20-21 November 2017
4th Stakeholder Dialogue "Envisioning the future of transformative technologies Stakeholder Dialogue Case studies on automated vehicles and Internet of Things"	Brussels, Belgium	7 February 2018
5th Stakeholder Dialogue "A roadmap to foster social value in business, research and innovation strategies I Co-Creation Dialogue"	Milan, Italy	30-31 October 2018

Table 1 - PRISMA Stakeholders Dialogue overview

The recruitment of participants was done having into consideration the methodology approach described in Deliverable 4.1. "Dialogue Strategy and Stakeholder Mapping".
According to this deliverable four stakeholder's groups were identified:

- Industry - Companies whose main activity involve manufacturing or selling products that incorporate the so-called transformative technologies. These is the main target group of the project. It also involves business associations that support such organizations.
- Policy makers and advisors: The policy making community is essential in the development of RRI concept. Policy makers such as governments, national and international authorities, ministries, parliaments, regulatory agencies, standards organizations and lawyers will be considered, since the actions of this stakeholders can shape the direction of the development in the different technological fields approached. They too must decide on how they from their perspective must deal with the issues of uncertainty and unclear risks: e.g. do they need to change regulations with respect to safety or privacy and ownership of data. Main research and innovation 'governing' institutions will also include research funders, such as governments cooperation's, ventures capitalists, institutional investors and supporting transformative technology research and innovation as well as ethical committees and technology assessment institutions. In a way, these stakeholders are guiding the development path of technologies, by means of research funds.
- Civil Society Organizations (CSO) - Can include labour associations but also non-governmental organizations (NGOs), consumer or human-rights advocates. The organizations are normally monitoring governmental regulatory activities, industrial activities, common and innovative and near market product (and processes) developments, due to the risk and uncertainties related to the research and application of transformative technologies. Consumers or citizens are also considered as they can contribute to awareness raising on the different technologies approached in the project. Furthermore, these groups can provide input on how the technologies might affect daily life but also to bring in aspects for creating safe, ethical and sustainable products and processes. As the RRI concept includes how to increase societal stakeholder's engagement, these groups are important as to how this can be done.
- "On the ground" stakeholders - "On-the-ground" should be understood as artists in dealing with the interfaces of science, technology, art and society. Examples of such stakeholders are DIY activists, BioHackers and FabLabers. These actors can bring in different

perspectives on innovation and ethical considerations as well as how non-institutional science and technology development can work and be made accessible to a wider public.

Mainly, invitations to participate in the events was made via existing networks of the consortium partners.
To be noted that none of the contacted persons or Institutes from the “On-the-ground” stakeholder group was present in any of the events. Some were not available in the events dates and most did not reply to the invitations made. The same applies for CSO, as only two participants from a CSO attended the event.
Overall, 118 delegates participated in the events, representing 83 different entities. The list of the participating entities distributed according to the stakeholder group was as follows:

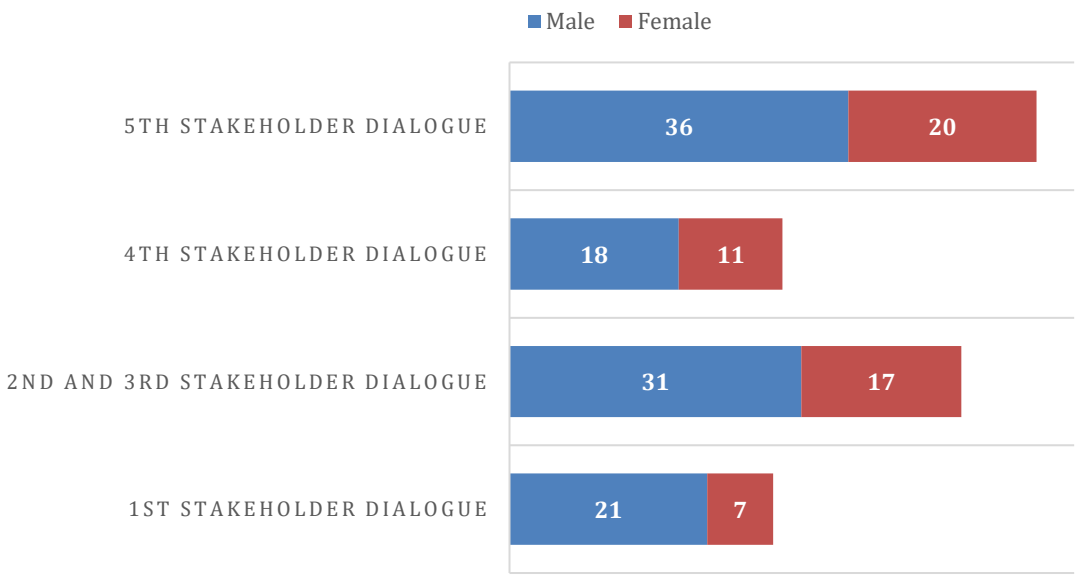
Stakeholder Group	Entity
Industry	
SMEs	Evolva, CH
	VP, Strategy & Public Affairs at Evolva, US
	Laboratori Archa, IT
	Colorobbia, IT
	RDM (WMG), UK
	Hub of All Things, UK
	Global Head Long Term Innovation Manager (aka Science Friction Soaper) Ecover / Method, BE
	RDM Group - Warwick Manufacturing Group, UK
	Spectro EV, NL
	Ecoinnovazione srl - spin off ENEA, IT
	RINA Consulting, IT
	Versia, ES
	YO.TI, UK
	Aerialtronics, NL
	Mobility Genossenschaft, CH
Large companies	Novozymes, DK
	BASF SE, DE
	GeneArt / ThermoFisher Scientific, DE
	STMicroelectronics, IT
	ATOS, ES
	Enel Green Power SpA, IT
Industry Associations	Italian Association for Industrial Research (AIRI), IT
	FUTOPEDIA - Task force member for EIRMA - European Industrial Research Management Association
	Nanotechnology Industries Association (NIA), BE
Policy-maker Advisors	European Commission
TA Institutes	Institute for Technology Assessment and System Analysis of the Karlsruhe Institute of Technology, DE
	Rathenau Institute, NL
	ISI Fraunhofer Institute, DE
	Office of Technology Assessment at the German Bundestag (TAB), DE
	DBT International at The Danish Board of Technology, DK
Academia	The University of Warwick, UK
	Warwick Manufacturing Group, UK
	TU Delft, NL
	Maastricht University, NL

	University of Birmingham, UK WU (Vienna University of Economics and Business), AT Techno-Science & Societal Transformation; Institute for Advanced Studies, AT Research Platform Nano-Norms-Nature, Institute of Philosophy, University of Vienna, AT Institute for Advanced Studies / research group "Techno-Science and Societal Transformation", AT University of Natural Resources and Life Sciences (BOKU) /Department of Nanobiotechnology (DNBT), AT BISIGODOS (WMG), UK NC State University, US Wageningen University, NL Technical University Berlin, DE Robotics and Industrial Complex Systems research group- Faculty of Sciences and Technology (FCT) of the New University of Lisbon (UNL), PT Arizona State University, US University of Twente, NL University of Florence, IT University of Limerich and University of Applied Sciences, DE Link Campus University, The International University in Rome, IT
Consultancy	De Proeffabriek, NL (Consultancy for RRI) Independent researcher Biotechnology & Society, NL Malsch TechnoValuation, NL (Consultancy on TA) Independent Strategic Consultant in Health and Social Care sectors, ES RINA Consulting, IT BioInnovators Europe, DE
Others	Dutch National Institute for Public Health and the Environment (RIVM), NL Risk Analysis and Technology Assessment in the Dutch Nanotechnology Programme NanoNextNL/RIVM, NL Centre for Safety of Substances and Products at RIVM, NL German Federal Ministry of Education and Research / NanoKommission, DE Sociedade Portuguesa de Inovação (SPI), PT Fraunhofer Center for Responsible Research and Innovation (CeRRI) / Need-oriented Research Planning, DE Fraunhofer Center for Responsible Research and Innovation, DE Disease Foundations Network at the Structural Genomics Consortium (SGC) at the University of Oxford, UK VDI/VDE Innovation + Technik GmbH, DE Society Inside, UK bioanalytik-muenster, ETP Nanomedicine / NanoBioMedicine, DE ORBIT - The Observatory for Responsible Research and Innovation in ICT, UK Institute of Technology Futures, DE Fondazione Bassetti, IT A.I.S.E. - The International Association for Soaps, Detergents and Maintenance Products, BE Italian National Research Council (CNR), IT Centre for Innovation and Economic Development (CISE), IT Fundazione Sodalitas, IT Italian National Standard Body, IT Italian General Confederation of Labour (CGIL), IT National Research Council, IT European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (CENELEC), BE Special Agency for Innovation of Milan Chamber of Commerce (InnovHub), IT Joint Institute for Innovation Policies, BE Formicablu srl (Science communication and multimedia production agency), IT
CSO	ANEC - European consumer voice in standardisation; CODICI Lombardia, Centro per i Diritti del Cittadino; Associazione di Consumatori e Utenti (ONLUS), IT Intersection - Center for Science and Innovation, RS

The general overview of participants distribution per stakeholder group can be seem in Figure 2. To be noted that the advisor stakeholder group had a more prominent representation in the events, followed by the Industry stakeholder group.

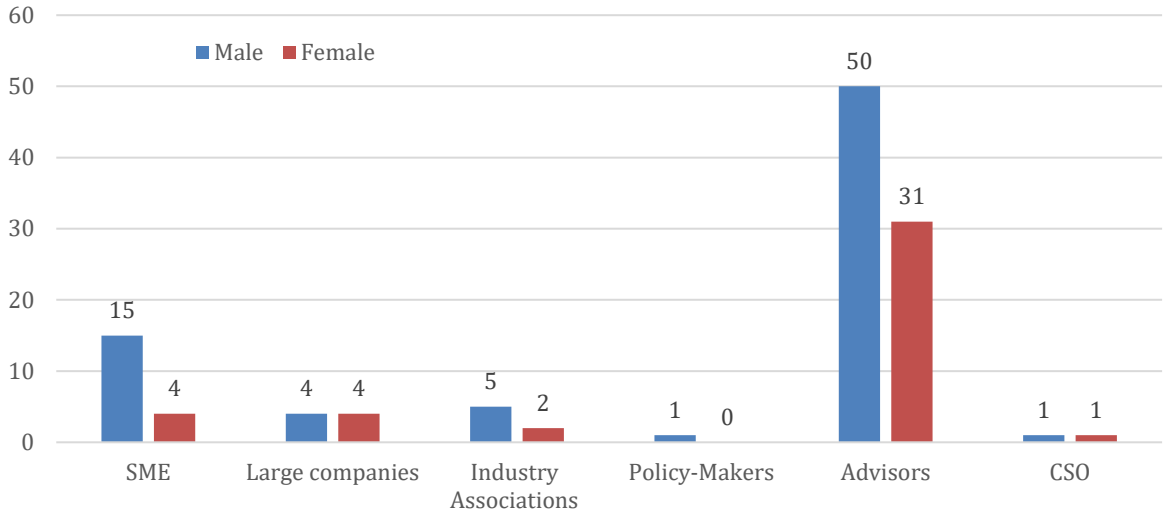
Figure 2 - Stakeholders overview in the Stakeholder Dialogue events

From the 118 delegates, 76 were man and 42 were woman (Figure 2). The gender distribution by event can be seen in Graphic 1.



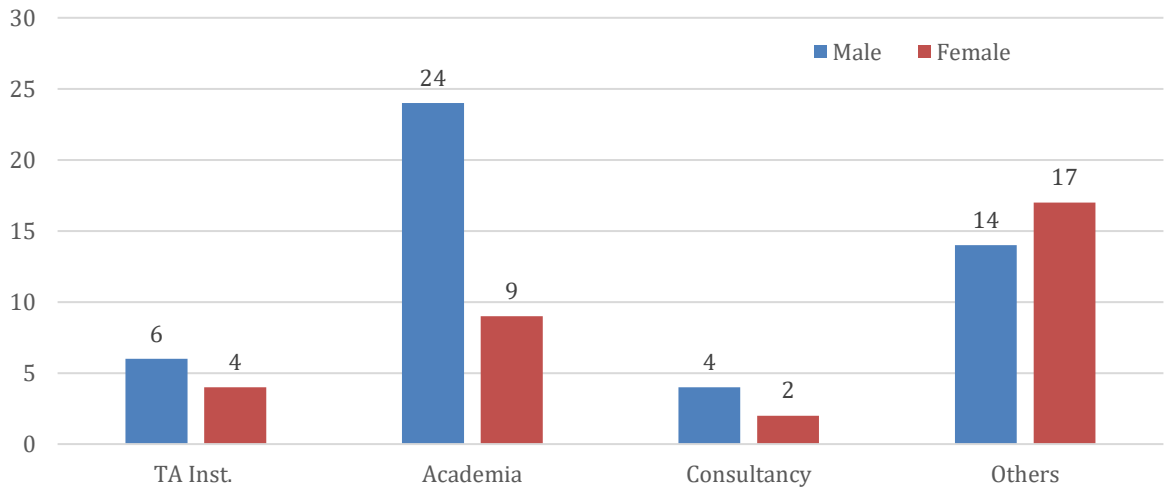
Graphic 1 - Gender overview of the participants

The gender distribution per stakeholder group is showed in Graphic 2:



Graphic 2 - Gender distribution per stakeholder group

Within the Advisory Stakeholder group, the gender distribution was as follows in Graphic 3:



Graphic 3- Gender distribution in the Advisory Stakeholder Group

Concerning data and information collection, all participants receive the event booklet prior to the event, in order to make sure that all participants where acquaintance with the project and the work being developed.
Pictures taken during the events had the authorization from the participants, in all events, as well as their use in work related to the project.
In general, discussions were constructive and opened, steered in a respected way.
The participants showed interest to be kept informed on the project outcomes and next events. The feedback received from the participants was highly positive in all events.
The success of all events and the fruitful inputs collected would not been possible without the presence of the several and different stakeholders who were engaged in the discussions, offering their points of view and sharing their experiences, in open and vivid discussions.

3. The 1st stakeholder Dialogue: The future of technology: putting responsible innovation into practice

3.1. Overview

The first Stakeholder Dialogue was held on 13th April 2017, with the duration of a full day, at the Greater Birmingham and West Midlands Brussels Office, in Brussels, Belgium. The main objective of the event was to discuss the assessment of the added value of an RRI approach in industry, using as references the RRI-Key Performance Indicators (KPIs) developed by PRISMA (WP3), as well as to exchange experiences from different stakeholders' point of view on RRI in industry.
The format of the event was developed by KIT in collaboration with the other project partners, and based on the Deliverable 4.1
The program was structured in a panel discussion followed by a hands-on exercise on KPIs for assessing RRI. In the afternoon, a panel discussion on experiences of working with industry in RRI took place.
The event gathered a total of 28 participants, mainly from industry and other stakeholders' groups.

3.2. The programme

The agenda of the event was structured in four stages:

1. Firstly, Ibo van de Poel (TU Delft), Coordinator of the project provided some introductory remarks on the PRISMA. Maria Maia (KIT) as leader of the WP4 explained the aim and expectations of the event.

2. Secondly, Steven Flipse (TU Delft) made a presentation on "Key Performance Indicators for assessing RRI". In his presentation, Flipse started by introducing the importance of KPIs as presented in innovation management literature. He presented the methodology of the work being developed in WP 3 which aims the selection of KPIs for RRI.
   A hands-on exercise "Key Performance Indicators into practice" followed. The participants were divided in working groups. Each group had a PRISMA pilot representative and the correspondent project partner responsible for the pilot. The aim of the exercise was to create the benchmark for the KPIs, by operationalizing the indicators that most suited the pilot company R&I. Having as a start point 92 indicators, the participants were asked to cluster the relevant indicators and prioritize them. The discussion should reflect the interest of the company but also the inputs of the different stakeholders presented in the round tables. The results of the exercise were then presented in plenary.

3. Thirdly, and reflecting the title of the event, a panel discussion took place entitled "Experiences with RRI in industry". The panel was chaired by Ibo van de Poel.
   Four experts on RRI were invited to give a short presentation on their experiences in working together with industry in research projects:
   - Indrani Mahapatra (University of Birmingham)

- Katharina Jarmai (COMPASS Project)
- Ralf Lindner (SMART- Map Project)
- Christopher Coenen (SYNENERGENE Project)

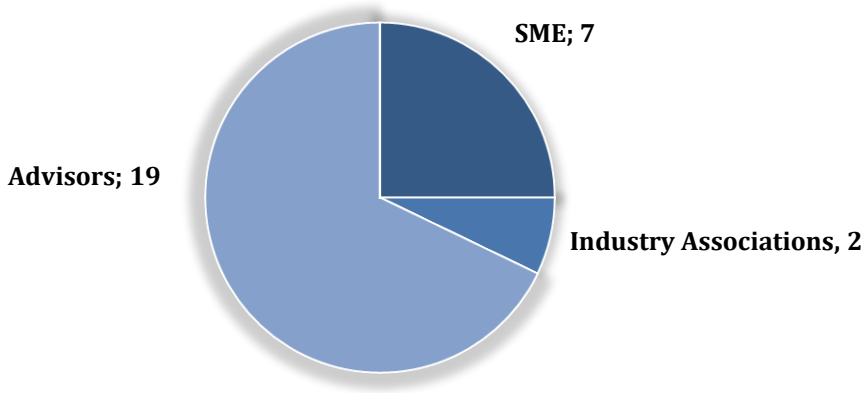
After the presentations, participants provided feedback on the main lessons learn in their experience dealing with RRI and industry.
Summarizing the key points discussed in the panel, Andrea Porcari (AIRI) acted as rapporteur.

4. A wrap-up and final remarks were made by Ibo van de Poel (TU Delft) and Maria Maia (KIT).

The speaker's short biography can be found in Appendix 1 and the event's program can be found in Appendix 2.

3.3. Participants

In total, 23 participants took part in the event. 7 participants were SME's representatives, 2 were representatives from industry associations and 19 were advisors (see Graphic 4), from different organizations such as Technology Assessment Institutes and Academia. 21 were man and 7 were woman.
It was strategically planned for this event to focus on the invitation of industry stakeholders. It was the first (of five) event organized and the main goal of the event was targeted to companies, specially the one acting as pilots in the project.



Graphic 4 - Distribution of Stakeholders by group (1st Stakeholder Dialogue)

3.4. Notes from the event and inputs for the roadmap

The discussion results were important as they will be feed in the roadmap development (WP 5). They were summarized in four main categories:

Visions for RRI

- Sometime RRI is just a new way to call already existing/implemented practices in companies ("De facto" RRI) – it was given the advice to start looking to what companies are already doing, identify similarities to RRI principles and try to work with companies on how to go beyond these practices. It was also mentioned that companies should really define what they need

- As in other concepts such as CSR, RRI can be tailored to needs of stakeholders. Thus, the is a certain interpretative flexibility of RRI
- RRI can be interpreted as a subset of sustainability
- RRI is seen as a way to change the moral division of labour (co-responsibility)

Concepts for RRI

- Accountability although not seen as an immediately clear concept, can be considered as accountability to tax payers and funders, who should be informed about actions and decisions in order to justify companies conduct.
- Sometimes is seen as a duo irresponsibility vs responsibility
- Reflexivity dimension: why innovating in certain fields (besides the business reason)? is there a real social need for some specific innovation?
- Risk transfer along the supply chain (a new concept of risk transparency along the supply chain, which is also related to insurance, re-insurance). Liability issues could become relevant interesting aspects to consider for RRI
- Dealing with novel future technological concepts: from visionary science visions to more evidence-based discussion (de-virtualization)
- RRI could be a way to communicate benefits and risks and become closer to the end-users
- RRI means going beyond usual practices
- A suggestion was given for the introduction of a societal watchdog

Experiences/Practices for RRI

- It is important to understand RRI through peer-to-peer experiences. The role/responsibility of peer reviews and experts could be to "identify" responsible practices from industry.
- These practices and experiences can be disseminated by the media however the media also needs to be responsible for the quality of the dissemination, as their work will have, to some extent, an influence on the public opinion.
- In the analysis on RRI approaches, keep in mind the role of the system level - considering the full eco-system of innovation to promote RRI ("eco-system of RRI")
- Consider innovating the company network system by connecting with stakeholders that have never been in contact with the company before
- Multi-stakeholder dialogues should be organized, guided by specific RRI tools
- The co-creation and co-design concepts are quite important to RRI, but concrete case studies or application in industry are needed, as it seems that there they are still in an exploring phase.
- Extend existing tools for RRI

Challenges for RRI

The RRI concept itself seems attractive, but there are difficulties engaging businesses in RRI. In particular:

- Lack of awareness and understanding of RRI from businesses
- RRI sometimes is perceived in a negative sense: as a weird, difficult, bureaucratic process

- Finding enough internal resources/capacity and as well external resources for implementing RRI
- Peculiarity of SMEs for implementing RRI
- Framework conditions are essential to facilitate RRI in business
- The ethical and social impact of innovation is considered as an important aspect in business. However, it is difficult to quantify the (intangible) added value of RRI
- Need to invest more in training and capacity building, compared than in developing tools. Tools become useless if people are not trained to implement RRI (and so able to understand how to use the tool). RRI should not be a check list
- Structural/resource problem to perform public engagement and RRI (need for incentives!)
- Difficult to get civil society and policy makers involved in RRI processes

4. The 2nd and 3rd Stakeholder Dialogue: Setting the agenda of RRI in industry

4.1. Overview

The second and the third Stakeholder Dialogue were organized in combination, as mentioned in the introductory section of the deliverable. The event was held in two full days, on 20th and 21st November 2018, at the Helmholtz Association Office, in Berlin, Germany (Figure 3).

Figure 3 - Flyer of the 2nd and 3rd event

The aim of the event was to facilitate a debate amongst research, industry, policy and civil society representatives, and to compare and discuss practical experiences and approaches concerning the take-up and further development of RRI principles and procedures by industrial research and innovation actors. The dialogue focused on two of the key technological areas explored within the PRISMA project: nanotechnology and synthetic biology. As a starting point for reflection the following questions were addressed:

- What are the opportunities, challenges and costs deriving from the adoption of responsible research and innovation (RRI) principles?
- Are RRI practices - such as stakeholder engagement, open access, transparency, and participatory/value-sensitive product design - suitable and of interest to companies?
- Are there common models for implementation at industrial level, or should a case-by-case approach be pursued?

The format of the event was developed by KIT in collaboration with the other project partners and based on the Deliverable 4.1.
The event program was composed by six panel discussions, each addressing different topics, were several experts in the field provided a short presentation and a discussion followed. A session focusing on the safe-by-design approach took place within the event.
The event gathered a total of 48 participants, from industry and other type of stakeholder groups.

4.2. The programme

The agenda of the event was structured in five stages:

1. Firstly, Ibo van de Poel (TU Delft), as coordinator of the project provided an introduction to the PRISMA project and Maria Maia (KIT) as organizer of the event provided some words concerning what was expected for the event and its aim.

2. Secondly, several plenary sessions took place along both days of the event, each focusing on specific technology or topics, in accordance with the dimensions targeted for the roadmap.
   In total 6 plenary sessions took place, organized as follows:
   I. Session on nanomedicine “Nanomedicine as the possible “universal problem solution”: which role for RRI?”.
      This session aimed to bring discussion on the application RRI in the field of nanomedicine. Three experts were invited to contribute:
      - Erik Reimhult - Professor of Nanobiotechnology and head of the Department of Nanobiotechnology at the University of Natural Resources and Life Sciences in Vienna
      - Klaus-Michael Weltring - Member of the Executive Board of the ETP Nanomedicine leading the ELSA Advisory Group
      - Todd Kuiken - Senior Research Scholar at the Genetic Engineering & Society Center at North Carolina State University

      The session was moderated by Elvio Mantovani (AIRI), and Elisabetta Borcella (AIRI) was the rapporteur.

   II. Session focusing on experiences from industry “Setting RRI into CSR policies: learning from experiences”

The aim of this session was to share inspiring examples of responsible research and innovation practices at the industry level. Sharing experiences is a way to inspire other companies to foster the introduction of RRI in existing CSR practices, as well as to learn from experiences. Thus, the identification of hurdles and obstacles were presented as well as the strategies adopted to overcome them.
Three companies (2 SMEs and 1 big company) shared their experiences and well as an ex-consultant and now advisor on RRI:

- Michael Liss - R&D Manager at GeneArt /ThermoFisher Scientific
- Tom Domen - Global Head Long Term Innovation Manager (aka Science Friction Soaper) Ecover / Method
- Stefan Herrera - VP, Strategy & Public Affairs at Evolva
- Hilary Sutcliffe - Director of SocietyInside

The session was moderated by Tom Sorrel (University of Warwick) and Christopher Nathan (University of Warwick) was the rapporteur.

III. Session on practicalities of RRI "RRI in practice: examples from academia"
Several research projects financed by the European Commission focus on RRI and industry. The aim of this session was to share the experiences of such projects and have feedback and advices of working with industry. The following projects were presented:

- The MoRRI project: main objective is to provide scientific evidence, data, analysis and policy intelligence to support directly Directorate General for Research and Innovation (DG-RTD) research funding activities and policy-making activities in relation with Responsible Research and Innovation (RRI)[1]. PRISMA project is adapting some of the project results mainly in the development of WP3 ((Assessment and comparative analysis of RRI pilots).
- The Nano2All project: [2]aims to contribute to the establishment of RRI policy and governance on nanotechnologies, one of the transformative technologies addressed in PRISMA.
- The Responsible-Industry project[3]: explored how private corporations can conduct their research and innovation activities responsibly.

These project results are used mainly in WP 5 (Development of an RRI-CSR roadmap). The invited speakers were:

- Erich Griessler - Researcher at the Institute for Advanced Studies in Vienna (MoRRI Project)
- Dora Fazekas - Consultant at Sociedade Portuguesa de Inovação in Portugal a (Nano2All Project)
- Julia Hahn - Researcher at the Institute for Technology Assessment and System Analysis (Responsible-Industry Project)

The session was moderated by Jaco Westra (RIVM) who also acted as rapporteur.

[1] For further information on the project please consult: http://morri-project.eu/ (accessed in December 2018)
[2] For further information on the project please consult: http://nano2all.eu/content/about-us (accessed in December 2018)
[3] For further information on the project please consult: http://www.responsible-industry.eu/ (accessed in December 2018)

IV. Session on stakeholder engagement “Engaging with stakeholders in research and innovation activities”. This session aimed to address the importance of engaging with stakeholder and learn from real engagement activities. The invited speakers were:
   - Carolina Kranz - Senior Manager Innovation & Technology Policy at BASF SE
   - Claudia Schwarz-Plaschg - Researcher at the Research Platform Nano-Norms-Nature, Institute of Philosophy, University of Vienna

   The session was moderated by Emad Yaghmaei (TU Delft) and Steve Flipse (TU Delft) was the rapporteur.

V. Session on gender “Woman and work: The Industry gender gap”. The aim of the session was to address strategies that can help to improve gender and diversity balance in research and development and innovation in industry, on the one hand concerning those involved in project but also concerning the design for inclusion and diversity. The invited speakers were:
   - Aleksandra Drecun – President of Intersection - Center for Science and Innovation
   - Martina Schraudner - Head of Fraunhofer Center for Responsible Research and Innovation

   The session was moderated by Lotte Asveld (TU Delft) who also acted as rapporteur.

VI. Session on open assess “Opening up to research: learning from open access”. With the aim of establishing a common ground as how to promote open access in R&D activities, two practical cases on open access platforms already established in different contexts were presented by:
   - Wen Hwa Lee - Director of the Disease Foundations Network at the Structural Genomics Consortium, University of Oxford
   - Gernot J. Abel - Science Manager and Innovator at Novozymes

   The session was moderated by Steven Flipse (TU Delft) and Emad Yaghmaei (TU Delft) was the rapporteur.

3. Thirdly a keynote was followed by a round table discussion.
   The aim of this session was to provide the participants inputs from the policy level. Philippe Galiay from the European Commission was invited. In his presentation Galiay shared his experience in mainstreaming responsible research and innovation in Horizon 2020 and the European Research Area. The keynote was followed by inputs from Wolf-Michael Catenhusen, who shared his experience as State Secretary of the German Federal Ministry of Education and Research and chairman of the NanoKommission, in Germany.
   A round table discussion followed, moderated by Dirk Stemerding (Biotechnology & Society).

4. Fourthly, a practical exercise - Workshop
   Organized by RIVM, the workshop “Safe-by-Design: (ir)relevance for nanotechnology and biotechnology” took place.
   Initiated by a plenary session on “safe-by-design” (SbD), the introduction on the concept of safe-by-design developed in the projects NanoReg 1 and 2 was provided. Adrienne Sips (RIVM) provided a presentation on the background of safety issues and an introduction of the reasoning behind SbD and safe innovation.

The aim of the session was to inform stakeholders and raise awareness about the relevance and/or importance of the SbD-approach to safety, and to stimulate reflection on possible differences between the nano- and biotechnology field in ensuring safety.
The participants were then divided into two working groups. And within these groups in groups of three people. They were asked to step into the role of either industry/regulator/risk assessor/other in order to describe barriers and incentives for bringing SbD into practice, considering two different scenarios: one in nanotechnology and other in biotechnology application. Each group focused on a specific topic:

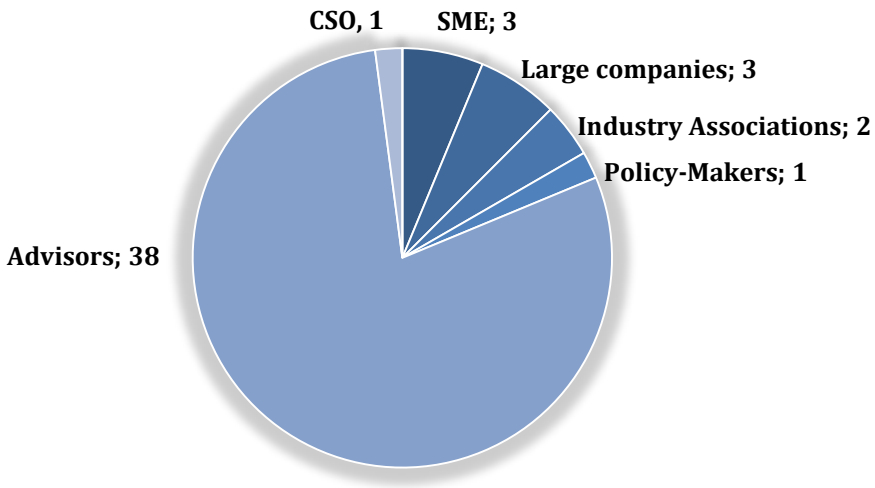
- Group A focused on safe-by-design in nanotechnology.
  Having the scenario's developed in NanoReg2 as a starting point for discussion about 'safety', a discussion followed on the usefulness of the scenarios as a reflective self-assessment tool for implementing safety.
- Group B focused on safe-by-design in biotechnology.
  The discussion with biotech companies and academics focused on the concept of safe-by-design that was presented in the plenary session, namely the applicability and usefulness of such concept in the context of modern biotechnology.

5. A wrap-up and final remarks were made by Ibo van de Poel (TU Delft) and Maria Maia (KIT).

For a short biography information of the presenters, please see Appendix 3. The event's program can be found in Appendix 4.

4.3. Participants

In total, 48 participants took part in the event. 3 participants represented SME's, 3 represented large companies, 2 participants were from industry associations , 1 was a Policy-Maker and 39 were advisors from different fields (see Graphic 5). 31 participants were man and 17 were woman.



Graphic 5 - Distribution of Stakeholders by group (2nd and 3rd Stakeholder Dialogue)

4.4 Notes from the event and inputs for the roadmap

In the field of **nanomedicine** several inputs were provided in the discussion, as follows:

- There is a need to identify key priorities and entry points (beyond CSR) for an effective implementation of RRI in nanomedicine
- Does the term “nano” raise unique (new) ethical and safety concerns (with respect to other drugs /medical products)? If yes, which ones? These questions should be explored
- An effective engagement of all relevant stakeholders in nanomedicine should be fostered, and an attempt to involve also “lay people” (not only “elite”) should be aimed if the goal is to increase acceptability of products / applications in the future
- A definition / implementation of effective RRI strategies should take place in order to facilitate industrial take-up and clinical trials of nanomedicine applications / products
- A careful consideration on the opportunity of adopting the “size” as a main parameter to set-up regulation / safety protocols in nanomedicine should be taken – There is a need for a clear definition of the term “nanomaterial”
- Find new funding models to support the additional costs of responsible research and new coverage models (insurance) to increase the number of patients who may have access to nanomedicine applications

Considering the experiences shared, both from **industry and academia perspectives**, several inputs and reflections were collected during the discussion:

- One should consider the benefits/motivation behind RRI: why would companies uphold RRI principles? Analyses of RRI projects shows that there are societal and economic benefits to be promoted and advocated.
- A cross-sector collaboration should take place: e.g., the presentation on biosecurity involved competitors collaborating to the advantage of all
- Labour markets: e.g. the issue that the representative of Ecover found most valid was the objection that the new product would cause an upheaval in existing labour markets (for instance that farmers would be robbed of their livelihood)
- Transparency and diplomacy: how far transparency extends or to what extent it is consistent with other aspects of doing business.
- The discussion on open access is important from both a business and an RRI point of view and needs to be continued.
- The specific setting and context of an industry branches is an important determinant for company interest in being involved in RRI.

Concerning **stakeholder engagement**, experiences and lessons learned from dialogue processes need to be incorporated in the further development of RRI. It was also mentioned the relation between stakeholder engagement and persuasion, namely if the engagement is to be on the level of rationality or emotion (e.g. pictures of babies) or is the ‘engagement’ to include efforts to persuade? Thus, it was mentioned that engagement strategies need to be defined and be more transparent. Also mentioned was the fact that the body of experience with dialogue tools keeps growing and is promising from both a methodological as well as an instrumental perspective.

Considering the **gender** dimension, two strategic approaches to gender equality were mentioned. The first, in terms of employment, were there is a need to increase women's participation for instance

in industry and research, by promoting gender equality in careers through structural change in research organizations. The second related to the fact that there is a need for societal change to allow consumers and industry to work together. Also "gendered innovations" should be promoted by integrating sex and gender analysis into research. This way there will be an a**dded value to society** by making research more responsive to social needs.

On **open access**, several inputs were provided. They are summarized as follows:

- Giving knowledge away stifles commercialisation
- Open science can reduce duplication, improve efficiency, and accelerate discoveries
- Open access probe drives discovery of an entire new target class
- Open access enables faster target validation
- Companies need to think about including non-traditional partners and stakeholders; Potential partners can appear in many shapes and forms
- Open access creates trust for new ecosystems
- Developing an open access platform within a company, can bring experts together to develop solutions for global challenges - partnering for impact

Results from the **workshop** (Figure 4) **focusing on nano and synthetic biology** are:

- There is a need to move beyond safety. Some participants thought the focus on safe by design was too narrow. Safety is but one value that competes with/must be seen in perspective with other social or societal benefits
- The term SbD is already in use in Industry and has different meanings for different audiences. Thus, the need to clarify the concepts addressed.
- SbD was perceived as an additional burden for industry, although it is recognized that it can be advantageous and a possibility to save money.
- In order to industry to RRI be fostered in industry, there is a clear need to demonstrate what can be the RRI's pay-off.
- Some incentives to implement RRI were presented:
    - RRI is needed to avoid negative reactions from end-users and regulators. However, it should not focus on safety alone. It was suggested to go beyond regulatory issues as there are other benefits, such as:
        - Efficiency: anticipating implications smoothens the road from inventions to innovation
        - Dialogue and reflection: understanding consumer's and societal needs
    - RRI can increase market update
- Also, barriers to implement RRI were discussed:
    - The main barrier mentioned was the excessive costs related to research and the final product development.
    - Synthetic biology and nanotechnology take longer time from R&D to market. Transparency is needed to shorten the process. Although transparency is part of the academia culture, for industry it is seen as a threat. Therefore, there should be an interest of parties within research projects to have more transparency.

Figure 4 - Group discussion at the workshop

During the event several flipcharts were available in the room in order to collect contributions, thoughts, questions, etc, from the participants concerning the RRI/CSR roadmap. The inputs were mainly in the form of questions:

Engagement:

- How to explain to industry the difference between “stakeholder engagement” as intended by RRI and common practices like “focus groups” that usually employees do to increase product acceptance?
- How to create more constructive dialogue between different stakeholder’s groups from company’s governance and NGOs?
- How significant are data from citizens dialogues, if the selected citizens represent less than 10% of the population?
- Problem in public engagement: How to make sure that engagement is not done with a “self-selecting elite”?
- The notion that early engagement adds positively to product-development
- Having into consideration the examples of Ecover and Evolva, were public engagement failed, is RRI in industry mainly concern to interact with NGOs in order not to have them acting like enemies, an receive severe criticism from them later?

Communication processes:

- Need for communication platform for implementing RRI in nanomedicine: at what level should these platforms work: of projects, programmes or sectors? On the sectoral level such platforms do exist already? What to learn from them, from an RRI perspective?
- Identify and use communication demands to channel positive technology messages and news into the public sphere so that the information spread is reliable and functional and not based on irrational “fear makes”. Evidence based information should be used to shape the public knowledge on specific technological fields, such as the transformative technologies approached in the project.
- More communication in needed between actors across the value chain and with the public.

Added value of RRI:

- What is added value of RRI for companies? How to establish it?

- How to establish industry-wide initiatives for RRI? (like responsible care in the chemical industry)
- RRI is more than a response to safety issues:
    - Respect for user needs / societal needs
    - Sustainability
    - Transparency
    - Accessibility
    - Fair technologies
- Capacities / Time of stakeholders is limited
- Do we need RRI principles for companies?
- What is the overall purpose of RRI?
    - Is it to gain “buy-in” for a technology or application?
    - Is it a mechanism for a go/no-go decision on a technology or application?
    - Is it to be integrated into better design?
- Responsible innovation should be forward facing and proactive, not backward facing and reactive.
- Transparency vs responsibility:
    - How far should industry go to be responsible?
    - How to deal with the “cost” of being transparent?

5. The 4th Stakeholder Dialogue: Envisioning the future of transformative technologies Stakeholder Dialogue Case studies on automated vehicles and Internet of Things

5.1. Overview

Held in Brussels, Belgium, at the Greater Birmingham and the West Midlands Brussels Office, the 4th stakeholder dialogue had the duration of a full day (see Figure 5). On the 7th February 2018, 29 participants got together to discuss how RRI could support industry dealing with transformative technologies, such as automated vehicles or Internet of Things and how to better address ethical and societal aspects of their products.

Some proposed questions for reflection were:

- How to develop responsible innovations that take in to account societal needs and could find broad consensus within society?
- Which activities can be undertaken for the integration of RRI along the whole R&I value chain? How to involve stakeholders?
- What are the possible economic consequences for industry in terms of RRI adoption (or non-adoption)?

The format of the event was developed by KIT in collaboration with the other project partners, and based on the Deliverable 4.1

The agenda was structured in two panel discussion and a discussion session with a Word Café format. A panel discussion on how to move forward with RRI in Industry also took place.

Figure 5 - Flyer of the 4th event

5.2. The programme

The agenda of the event was structured in 5 stages:

1. Firstly, Ibo van de Poel (TU Delft), as coordinator of the project provided an introduction to the PRISMA project and Maria Maia (KIT) as organizer of the event provided some words concerning what was expected for the event and its aim.

2. Four case studies from the PRISMA pilots were presented: the pilot from HAT and Spectro EV (on Internet of Things) and the pilots from RDM group and Aerialtronics (on autonomous vehicles). The aim of this presentation was to have presented the experiences of the companies with RRI and the obstacles and practices they face in the development of their individual roadmaps.

3. Thirdly, a session on “Expert perspectives” was organized, with the contribution of 4 experts from academia and industry. Topics addressed were: participatory techniques, Social-Life Cycle Assessment and it added value for industry as well as experience with responsible innovation. Presentations were given by:
    1. Elisabeth Frankus - Senior Researcher, Techno-Science & Societal Transformation; Institute for Advanced Studies in Austria

2. Martin de Heaver - Director of ORBIT - The Observatory for Responsible Research and Innovation in ICT
3. Paolo Masoni - President at Ecoinnovazione srl - spin off ENEA
4. Lorenza Bizzarri - Product and Program Manager at STMicroelectronics, Automotive and Discrete Group, Automotive Digital Division.

The speaker's short biography can be found in Appendix 5.

4. Based on the previous stage, a Word Café was organized in order to discuss in a less formal way the pilots draft roadmaps. The following topics were addressed:
   - Which activities can be undertaken for the integration of RRI along the whole R&I value chain?
   - How to involve stakeholders?
   - What are the possible economic consequences for industry in terms of RRI adoption (or non-adoption)?

   An introduction to the exercise was given by Maria Maia (KIT) and Andrea Porcari (AIRI). A video from the company YO.TI was showed aiming to hear from a company recently introduced to the concept of RRI, also working with it.
   The participants were divided in smaller groups (4-5 participants). In each group there was also a moderator and a rapporteur from the partners as well as one selected delegate from a specific stakeholder group (in connection to the technology focused on the pilot).
   The discussions were made in three rounds and the participants were free to change group each round.
   Based on the case studies in the plenary sessions, three questions were presented to each table:
   - Stakeholders engagement:
     How to implement practices for stakeholder's engagement along the R&I value chain?
   - Added value of RRI for companies:
     Why adopting RRI for companies? [key values, gaps and priorities, opportunities and risks]
     How to adopt and integrate RRI? [entry points (e.g. CSR) & RRI tools in relation to specific products and sectors]
   - Economic dimension of RRI adoption:
     What do you think are costs & benefits of RRI, including reflection of improved access to business and funding opportunities?

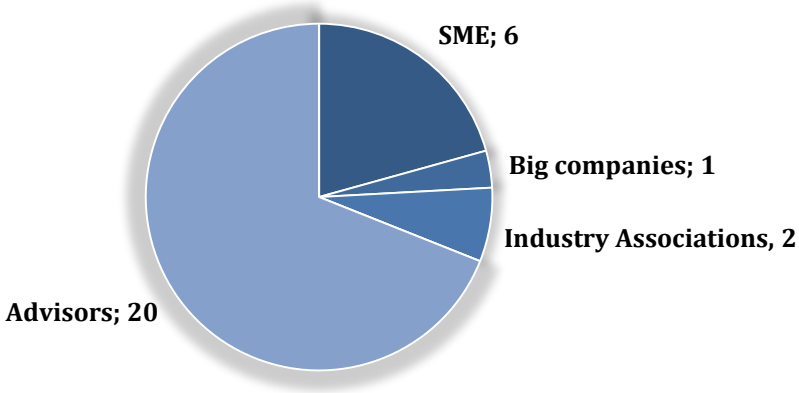
   The results of the several discussions were presented in plenary.

5. A wrap-up and final remarks were made by Ibo van de Poel (TU Delft) and Maria Maia (KIT).

The event's programme can be found in Appendix 6.

5.3. Participants

In total, 29 participants took part in the event. 6 participants represented SME's, 1 represented a big company, 2 participants were from industry associations area and 20 were advisors from different fields (see Graphic 6). 18 participants were man and 11 were woman.



Graphic 6 - Distribution of Stakeholders by group (4th Stakeholder Dialogue)

5.4. Notes from the event and inputs for the roadmap

The notes taken during the discussion focus deeply on the work being developed by the pilot companies and their individual RRI/CSR roadmaps drafts. Since the outcome of the discussion contains several sensitive information, only the general aspects are synthetized as follows:

- Some concern was raised in terms of responsibility and how far the company is responsible for possible side-effects of its innovation. Considering responsibility as the "desire to do good" a company aims to be responsible for its part in the value chain. This aspect is a concern to be developed in the company's roadmap.

- A concern was raised concerning data collection and storage. A company identified the need to further interact with its customers to discuss data collection and have from them support on this issue.

- Related to companies dealing with massive data collection and assessment, comes the massive energy consumption. This aspect should be taken into consideration by the company, in terms of sustainability.

- It was recommended that a company should, before focusing on RRI, first do a self-reflection exercise, focusing on three aspects:

i. The definition of the company key social principles. These include the company's philosophy in terms of ethical issues and social engagement. These could be framed in terms of principles that drive the company's innovation agenda and the conduct of tasks when dealing with ethical or social issues.

ii. The identification of the technologies developed by the company that can have substantial ethical or social impact. This identification is crucial to identify stakeholders who will be affected by them. These stakeholders need to be involved and engaged with, since the beginning.

iii. The economic impact needs also to be addressed in order to eventually change regulations.

This self-reflection can help the company to start the innovation process in a more open way and address potential user groups in order to identify possible problems and understand their needs, before starting the development process of the technology.

- The involvement of end users was identified as crucial in the development of innovations. Their feedback can shed light in terms of innovation acceptability and technology design, for instance.

6. The 5th Stakeholder Dialogue: A roadmap to foster social value in business, research and innovation strategies I Co-Creation Dialogue

6.1. Overview

The fifth and last Stakeholder Dialogue was organized in Milan, Italy, at the Italian National Standard Body (UNI). With the duration of two half-days (30-31 October 2018), the aim of the event was to discuss and shape the contents of the RRI/CSR roadmap, that will be based on the outcomes of the PRISMA RRI case studies at industrial level, by other stakeholders' experiences on strategic and structural changes aiming to implement RRI and the analysis and discussion of existing CSR tools and initiatives. Emphasis was given also to existing norms, standards and best practices in the field of innovation and social responsibility, crucial to bring products to the market place. The Co-creation Dialogue explored the extent to which a roadmap can contribute to responsible innovation and business strategy, when it comes to transformative technologies, such as nanotechnologies, synthetic biology, Internet of Things, and autonomous vehicles (Figure 6).

Figure 6 - Flyer of the 5th event

The format of the event was developed by KIT in close collaboration with AIRI, based on the Deliverable 4.1.
The event program was composed by a set of inspirational talks, the presentation of several case-studies from research and innovation players and presentations from the PRISMA pilot experiences. In terms of an interactive session, a Fish Bowl exercise and a word Café were organized. Several discussion periods were also contemplated in the program.
The event gathered a total of 56 participants, from industry and other stakeholders' groups.

6.2. The programme

The agenda of the event was structured in 6 stages:

1. Firstly, Maria Maia (KIT) as coordinator of the WP4 introduced the PRISMA project and as organizer of the event provided some words concerning what was expected for the event and its aim.

2. Two inspirational talks on methodological approaches to promote social responsibility, responsible innovation, open innovation and co-creation amongst companies and stakeholders were given by:
   - Luca Remotti - Joint Institute for Innovation Policies, BE
   - Monica Ibido - Italian National Standard Body (UNI), IT

   A discussion followed, moderated by Ibo van de Poel (TU Delft) and by Elvio Mantovani (AIRI). Andrea Porcari (AIRI) in the following presentation, shared the outline of the PRISMA RRI-CSR roadmap exercise. The presentation focused on the step-wise methodology being developed and used by PRISMA to integrate RRI in decision-making process at industrial level.

3. Five case studies from research and innovation players from industry were presented, focusing on strategies to integrate social values and social responsibility in RRI processes. The invited presenters were:
   - Elena González - Versia, ES
   - Luisa Fracassini - STMicroelectronics, IT
   - Timothy van Langeveld - Aerialtronics, NL
   - Samuel Rowe - YO.TI, UK
   - Samuele Ambrosetti - RINA Consulting, IT

   Moderated by Andrea Porcari (AIRI) an interactive session took place in the form of a Fish Bowl exercise. Lotte Asveld (TU Delft) was the rapporteur.

4. Opportunities and challenges were the main topic of this block of presentations.
   Results of the work being developed in PRISMA were presented by the four project pilot companies. Their presentation focused in the company experience on opportunities and challenges promoted by the introduction of an RRI approach, developed in their individual roadmaps. The companies presented were:
   - Giovanni Baldi - Colorobbia, IT
   - Stephan Herrera - Evolva, CH
   - Francesca Braca - Laboratori Archa, IT
   - Susan Wakenshaw - Hub of All Things, UK

Ibo van de Poel (TU Delft), as coordinator of the PRISMA project presented results of the project, focusing as well on opportunities and challenges from the academia perspective.
A discussion followed moderated by Maria Maia (KIT) and Andrea Porcari (AIRI).

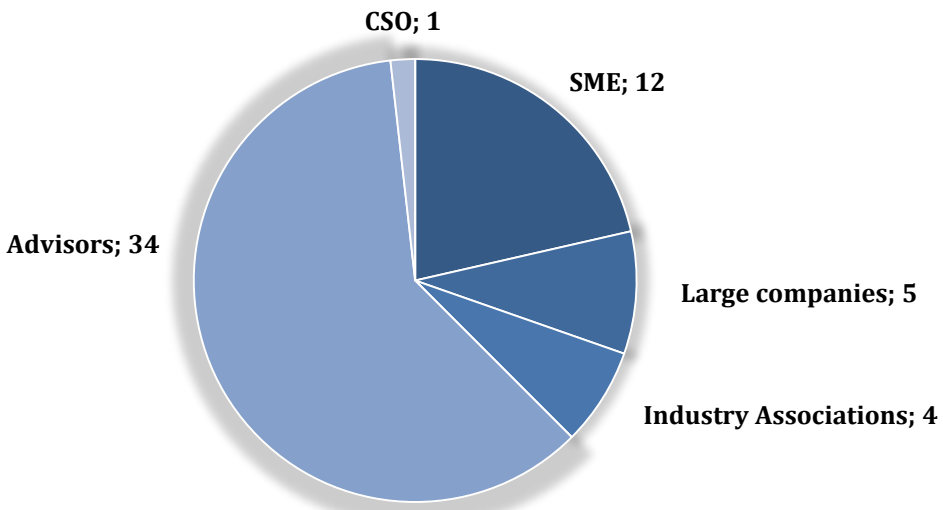
5. An interactive session was organized in the format of a World Café, intitled “Principles and actions for practical implementation of RRI, to be integrated into the RRI/CSR PRISMA roadmap”. The session was initiated by Maria Maia (KIT) and Andrea Porcari (AIRI) who provided an introduction to the session format.
   Two main topics were proposed for discussion: RRI principles and RRI actions. The participants were divided in 4 tables. During the 3 rounds of discussion, they were invited to rotate freely between the tables.
   In the first round a list of “RRI actions” developed in WP5 was distributed and discussed. On the second round a list of criteria, also developed in WP5, was distributed aiming to be a baseline for discussion on why RRI should be implemented in companies. The last round was a free discussion on the topic “Towards a standard: the PRISMA roadmap”.
   In each table a moderator and a rapporteur were presence. In plenary results from all tables were presented and discussed.

6. Agata Gurzawska (Twente University) was invited to contribute as the rapporteur of the plenary sessions of the event. Based on the notes, she then presented her inputs and remarks in plenary. These inputs, provided by an external participant to the project, will feed into the roadmap development.

The program of the event can be found in Appendix 7.

6.3. Participants

In total, 56 participants took part in the event. 12 participants represented SME’s, 5 represented large companies, 4 participants were from the industry associations, 1 was a Civil Society Organization representative and 34 were advisors from different fields (see Graphic 7). 36 participants were man and 20 were woman.



Graphic 7 - Distribution of Stakeholders by group (5th Stakeholder Dialogue)

6.4 Notes from the event and inputs for the roadmap

From the Fish Bowl exercise some inputs were collected and clustered:

RRI Implementation / the roadmap:

- There is a need for a common framework because many people are not familiar with the concept of RRI. It needs to be high level enough, so it can be applied in different areas, but specific enough that people can apply it in a meaningful way.
- Opinions differ concerning start-ups; for start-ups the short-term impact is very important: on the on hand even though RRI implementation can be resource-demanding, start-ups should embrace it since the beginning. On the other hand, the investment is questionable, as it is also questionable the added value at this point for start-ups.
- RRI need always to be sell internally as well; why do we do this?
- One approach to RRI adoption can be to develop a strategy that demarks the company from others. This means to use RRI as a selling point strategy.
- Each company will have to decide of their own whether they want to adopt this approach. They should be offered a framework that they can adopt or not.
- Some participants questioned the usefulness and added-value of RRI, since RRI does not differ much from existing sustainability schemes and CSR.
- RRI is seen as too theoretical, thus the need to have more examples of the real world. It is necessary to share best practices.
- Most of regulatory frameworks are risk-based, and few consider benefits.
- The involvement of regulators should be considered in the roadmap in order to make sure that ethical actions will be taken.
- A general framework can become very large; however, it needs to focus on what is important for behaving responsibly.

Concerning *trust*:

- RRI is basically about doing the right thing. How does that translate into creating a real-world benefit? A main issue here is trust. Will RRI help to create trust in your product? All this will only be real if there is a reaction by the real world.
- It was questioned the importance of trust. An example given was google: a lot of people adopt google services, while giving away their personal data, while people do not trust google. They just want added value. The suggestion made was for the roadmap to be able to deliver a system or a product that adds value and that allows the company to interact with its costumer.
- The focus on the customer was emphasised by several participants. The idea behind is that all companies need to satisfy their customer, thus if companies involve them and include their feedback on the technology development since the beginning, they will gain their customers trust and commitment to solve a possible future issue.
- The issue of public societal responsibility was also mentioned. The public can have a lot of influence, for instance by pushing laws. Also, the public is starting to certificate things by themselves. One example is the Trip Advisor platform were the people trust each other assessment and judgement.
- Power is shifting from centralised authorities to more diffuse networks, supported by innovations such as blockchain. So how does RI deal with the democratisation of assessing innovations?

RRI assessment:

- One the one hand, one can measure sustainability, on the other hand other concepts will be difficulty to measure, thus it is difficult to demonstrate and measure the positive, economic impacts of RRI.
- A lot of existing indicators are not relevant to a company core activity. There is a needed to adapt them to the company's core activities.

Values:

- Every stakeholder will have their own system of values that will also affect the supply and demand balance.
- Sometimes ethical standards spread throughout a value chain. If one actor starts using them, others (e.g. suppliers), will follow.
- Some values are only relevant to a specific group of costumers. It was suggested to consider market segmentation to address values.
- A company cannot work against their customers values, so in general companies need to comply ethically. Regulators and the markets should take care of those that do not behave ethically.

The external rapporteur provided also some short inputs for reflexion, concerning the outcomes of the project:

- One of the success factors of open innovation, namely framework condition, brings the question of the expected outcome / product of the PRISMA project. The discussions points could be summarized in three options:
  a) creating a practical tool, methodology, which could be used by any company to guide a development of their own approach to RRI. Preferably, it should be tailored made, adaptable to each company regardless of their size and sector;
  b) creating an assessment tool based on indicators. The question is whether there would be any threshold for being assessed as RRI company / institution? And what would be the outcome of the assessment;
  c) standard / certification scheme (as a further step of creating an assessment tool). The industrial stakeholders expressed their interest in the assessment tool / standard / certification approaches. What would be the added-value? Differentiation.
- The PRISMA project needs to address the following aspects:
  - Added-value of RRI: the framework will focus on doing the "right thing" so the added value will follow. These values need however to be demonstrated, especially when considering the core values of consumers.
  - For whom is this added-value target for? Who will benefit from RRI? Is it a value driven innovation approach or a technology driven approach? The profits will benefit the company what is the gain for consumers?
- The discussion on framework approaches for RRI focused on the nature of non-state actor regimes (standards, frameworks, assessment tools, and potentially the PRISMA's roadmap). They reflect the change of powers, democratisation of regulation. They serve as a tool for dissemination of knowledge and market uptake of research results. It is a strategic instrument, being used at an early stage of a new product development helping to establish characteristics of a product. Regardless of the CSR, there is also the social responsibility of the society. The public has various ways to influence changes and overcome barriers. We move from centralised power to diffused power, shared power. We already have means of doings so, e.g. quality certification of blockchain, public certification as in case of TripAdvisor.

- In terms of standards, they are agreed ways of doing something: codification of the latest state of the art. Standard are not static, they are a process. Specific standard on RRI do not exist, but reference to 2 documents: standard on management and standard on innovation. How RRI differs from these standards? The question of politization of standards. How to avoid standards being tools for green-washing, and how to make them meaningful processes? All voices should be heard.
- In terms of an assessment framework: standard v. case-by-case, tailored approaches. How to ensure generalizable/comparable approach with a tailored made approach.
- The question of how to measure e.g. trust:
    - An expert-driven approach. Should RRI system be based on the trust of consumers. If yes, how to measure trust? Do consumers care? We should not underestimate consumers. Nevertheless, everyone has their own system of values. Common trust?
- Regulation: you cannot regulate everything. Regulation is based on a perceived risk, not on benefits. Companies must comply with existing regulations.
- The roadmap should respond to a question: considering the existent variety of frameworks and standards is there a future need for RRI? Will the PRISMA RRI/CSR roadmap be able to offer something more?
- Another argument emphasizes the value of marketing, making a business case. One example is the World Economic Forum and the values in innovation, where one can really see the power of RRI in action. What matters is what people do in real world. One of the ways to do this, is to take stories and examples thus, to provide for testimonials.
- Obstacles: problem of resources: RRI and open innovation are time and resource consuming. They require engagement of partners. This is particularly problematic for SMEs.

Some inputs were also provided on the world Café exercise:

On the 1st Round (RRI actions)

- Political participation: Focus on inclusion, as opposite to exclusion. People were asking questions who counts as stakeholder, how to have many stakeholders involved, whether NGOs are represented, who should be included.
- Stakeholder engagement and co-creation support directness and legitimacy of framework. Some of the options include: working with individual stakeholders through crowd source, consumer response.
- Some RRI actions should be more accessible, e.g. more accessible terms. In terms of the formulation of RRI vision / strategy, PRISMA should decide whether these actions should be part of something else or a standalone strategy.
- Terminology and the language used: companies define actions under KPIs, transaction, gains, benefits, etc. RRI actions and RRI strategies need to be translated into an incentive that can be measured (for instance in KPIs).
- Avoid general actions and focus on something specific, expected impact of actions, management of RRI it is a managerial decision and it should be shared among the company.
- Measuring is important to understand the company results, but indicators can also be used to motivate workers. For instance, the human resource department could also have parameters to motivate workers to adopt RRI.

- The company ethical board should ensure that ethical aspects are being considered in RRI actions taken by the company.
- RRI could be a strategy of open innovation.

On the 2nd Round (Why RRI in companies)

- RRI should aim at the process and not at the outcome or goal, meaning that instead of providing an objective assessment, companies should be invited to provide a feedback on the process of implementing RRI.
- Some participants emphasized that the list is about companies' responsibilities and tasks, while some of the actions should be either shared by various actors (e.g. governmental organisations and/or NGOs). If a broader picture is not included, there's a risk that even if companies act, these actions would be a failure without a systemic approach. For instance, there should be both governmental programs for accelerating innovation and private accelerators.
- What is the threshold for RRI assessment? Should a minimum of requirements be included?
- Strategic and economic impact is a measure barrier for RRI implementation. If the company does not see the added value, it will not uptake the RRI initiative.
- The approach to RRI should be on the focus of strategic aspects. For instance, the corporate image that considers the general public responses and value of RRI actions

On the 3rd Round (The PRISMA roadmap)

- Matching points and added value of RRI compared to CSR and sustainability could be a reporting function.
- There is a difference if one considers SMEs or large companies when applying RRI. The participants argued that larger companies have larger responsibility than smaller companies.
- Commitment steps. How to make companies committed to RRI? There are internal and external incentives. The industrial stakeholders emphasized that what could help is to look at risks and possible scenarios. They emphasized the importance of personal conversations and commitments, personal stories, CEOs (leadership). To be effective, it should motivate by example, for instance through RRI ambassadors who share similar experiences.
- Furthermore, it is about setting the priorities. They should be set looking at internal and external level, and their urgency. This would require a circular approach, depending on the level of innovation and should be embedded in the company. The choice of the priorities should depend on the centrality of the stakeholder in the value chain. Therefore, what is the stakeholder's negotiation power? RRI is dynamic, therefore some participants argued that a roadmap should take a circular approach, along a specific timeframe.
- Some voices emphasize the need of setting management system standards for RI to have minimum requirements to implement RI. This approach would help investors to engage in responsible businesses and companies in supply chain cooperate with responsible partners.
- Participants discussed whether RRI should be implemented through mandatory approaches. This leads to a crucial question about the expected outcome of the PRISMA's project. Whether it should be a methodology/tool to develop a company's approach to RRI, an assessment tool or a standard; a top-down approach or bottom-up approach. The implementation should be gradual, it should focus on championing people and raising the bar and being transparent. An example that was mentioned is B Corp based on a gradual progress of its members, building a community and a movement.

During the event several flipcharts were available in the room in order to collect contributions, thoughts, questions, etc, from the participants (Figure 7). Some general remarks made by the participants were as follow:

- RRI makes sense only in complete business ecosystem
- Value chain extended to stakeholders
- Strategic aspects: RRI helps in building community and critical mass that can foster the development of a specific innovation sector
- Continuous monitoring of ethical aspects in product development (most usual development of check lists)
- RRI relies on the trust of customers which in turns implies awareness by means of effective communication
- Is trust a goal or trustworthiness?
- Considering technical standards including RRI issues

Figure 7 - Overview of the flipcharts

After the event, it was requested a short feedback from the participants on the main “take-home” messages. The following points summarize their feedback:

- RRI is complex and requires the merging of different fields of knowledge such as management and economics. For RRI to be adopted, the benefit for the company should be demonstrated.
- RRI implementation in companies needs to be done in the entire ecosystem and it can be done in a gradual way and using existing elements such as CSR policies.
- Stakeholder engagement is crucial to have the values and the acceptance of the customer embedded in the technology development. Best practices to this regard should be make public and use as good practices.

- The PRISMA RRI/CSR roadmap should be customised to the company, experience, sector and so on.
- Although the PRISMA RRI/CSR roadmap is good theoretically, its real impact will be difficult to measure.
- Best practices of RRI in industry need to be disseminated. Stories, experiences from companies need to be shared. These pioneer experiences will push RRI into reality.
- Some aspects of RRI can already be taught in universities which would encourage a change to take place already in the educations system.

7. Final remarks

The main aim of WP 4 – Stakeholder Dialogues was to develop and carry out stakeholder dialogues with actors from areas that are important and influential for RRI.

In total five Stakeholder Dialogues were organized, gathering a total of 118 participants, from different areas. Results of the five Stakeholder Dialogues were used as inputs for the development of the PRISMA RRI/CSR roadmap, in development under WP 5 - RRI-CSR roadmap for transformative technologies.

Besides the organization of the Stakeholder Dialogues presented in this report, other Stakeholder activities were also organized within the project. These “Open Stakeholder Activities”, under Task 6.4. allowed a more informal networking of the stakeholders and dissemination of the findings and outcomes throughout the project. These activities enabled PRISMA to react to emerging issues and to serve the potential demand for additional exchange and mutual learning between the stakeholders. The dialogues events will be used not only to gain feedback on the roadmap, but also to encourage coordination actions and exchange on using RRI in practice in different technology fields or innovation processes. The report related to the described “Open Stakeholder Activities”, can be found in Deliverable 6.2: Report on the open stakeholders’ workshops.

Appendix

Appendix 1- 1st Stakeholder Dialogue: Presenter's short biography

Indrani Mahapatra has completed an interdisciplinary PhD at University of Birmingham. In her PhD, she modelled the future environmental concentrations of nanomedicine and performed a probabilistic environmental risk assessment of nanomedicine. She also explored expert imaginaries on environmental risks from nanomedicine and the adequacy of pharmaceutical and medical device regulatory frameworks and explored the conceptualization of responsible innovation (RI) in nanomedicine by interviewing well-known experts in the nanomedicine innovation pathway. She has proposed an operationalization framework for RI in nanomedicine which she will present in this panel discussion. She has a Bachelor of Science degree in Biochemistry and master's degree in Environmental Management. Before her PhD, she had worked at Ernst and Young in their Risk Advisory Services vertical, TERI (an environmental research organization) and Development Alternatives (an environmental and developmental NGO). She has worked in the areas of occupational health and safety and air pollution risk assessment and in various interdisciplinary and transdisciplinary projects. She has advised SMEs (e.g. e-waste recyclers, lead battery waste recyclers, brick kilns, aggregate manufacturers) on cleaner production and multinational corporations on sustainability performance, sustainability sourcing and social responsibility. She has worked with grass-root communities to assess their vulnerabilities and capacities for interventions on sustainable livelihoods, has mainstreamed gender issues in projects, and implemented decentralized renewable energy projects with community participation and consensus. She has co-developed eco-labelling standards for the lead battery manufacturing sector. She is currently doing Environmental Life Cycle Assessment of different waste management strategies.

Katharina Jarmai is research fellow at the Institute for Managing Sustainability at WU - Vienna University for Business and Economics. She holds a doctoral degree from WU Vienna; in her PhD thesis she analysed the impact of foresight processes in the European research and innovation system. She has been collaborating in European projects on sustainable development, foresight processes in R&I policy-making and evaluation of European research and innovation policy. She is the project manager of COMPASS, which runs for three years from 2016 until 2019.

Dr. Ralf Lindner is a senior researcher at the Department of Emerging Technologies and Coordinator for Technology Assessment & Governance within the Fraunhofer Institute for Systems and Innovation Research ISI in Karlsruhe. In this function, he has participated in, managed and coordinated a number of large national and European research projects in the field of science, technology and innovation policy and governance. He has coordinated the EU funded RRI project Res-AGorA and is involved in the RRI-projects JERRI (Joining Efforts for Responsible Research and Innovation) and SMART-map (roadMAPs to Societal Mobilization for the Advancement of Responsible industrial Technologies). Other research activities directly related to RRI include his leading involvement in the European project MoRRI (Monitoring the Evolution and Benefits of RRI) (DG RTD, 2014-2018), and membership in the editorial board of the Journal of Responsible Innovation. Ralf Lindner holds a PhD in political science (2006) and a diploma in political science and economics (2000), both from the University of Augsburg. Among his recent publications is a working paper of reflexive governance for research and innovation (http://www.isi.fraunhofer.de/isi-wAssets/docs/p/de/diskpap_innosysteme_policyanalyse/discussionpaper_52_2016.pdf) and an edited volume of Electronic Democracy in Europe. (http://www.springer.com/us/book/9783319274171)

Christopher Coenen is a senior researcher at the Karlsruhe Institute of Technology's Institute for Technology Assessment and Systems Analysis (KIT-ITAS). As team member or project leader, he has conducted more than 20 projects on behalf of such institutions as the German Bundestag (national parliament), the European Parliament and the European Commission. Currently, Coenen is the coordinator of the large-scale stakeholder and public dialogue project *SYNENERGENE* on responsible research and innovation in synthetic biology (EU, FP7, with 25+ partners, including from the Americas) which will run until June 2016, editor-in-chief of the journal '*NanoEthics. Studies of New and Emerging Technologies'* (Springer), re-elected member of the board of the '*Society of the Study of New and Emerging Technologies (S.NET)'*, and co-editor of the Springer book series '*Futures of Science, Technology and Society'*. Other current projects of him include *INOPRO*, one of two new BMBF (German Federal Ministry of Research) innovation clusters involving partners from industry, academia and the healthcare sector that aim to develop highly innovative intelligent limb prostheses and other medical products, and *VI-DAS*, a H2020 project with partners from academia and industry which will develop non-invasive, vision-based sensing capabilities to vehicles and enable contextual driver behaviour modelling. Since the early 2000s, Coenen has widely published, lectured and been interviewed on a wide range of societal, political, ethical and other aspects of new and emerging science and technology. For more information on him, please consult www.itas.kit.edu/english/staff_coenen_christopher.php.

Appendix 2- Programme of the 1st Stakeholder Dialogue

09:00 – 09:30 – Arrival and registration

09:30 – 09:40 – Introductory remarks

09:40 –10:45 – Panel Discussion: Key Performance Indicators (KPIs) for assessing RRI

10:45 – 11:15 – Coffee break

11:15 – 12:30 – Key Performance Indicators into practice (exercise)

Steven Flipse, Delft University

12:30 – 13:30 – Lunch

13:30 – 16:00 – Panel Discussion: Experiences with RRI in industry

Chair: Ibo van de Poel, Delft University

Rapporteur: Andrea Porcari, Airi

Indrani Mahapatra, University of Birmingham

Katharina Jarmai, COMPASS Project

Ralf Lindner, SMART- Map Project

Christopher Coenen, SYNENERGENE Project

16:00 - Closing remarks. Farewell

Appendix 3 - 2nd and 3rd Stakeholder Dialogue: Presenter's short biography

- Plenary sessions

Panel 1: Nanomedicine as the possible "universal problem solution": which role for RRI?

Erik Reimhult

Presentation title: **"The problem of characterizing nanomaterials in biological systems and its relation to risks".**

Erik Reimhult (Dr) was born in 1974 in Sweden, where he studied Engineering Physics and got his PhD in 2004 from Chalmers University of Technology. After stints as postdoc in Singapore (A*STAR Institute of Materials Research and Engineering) and in Switzerland (ETH Zürich) he moved to Austria in 2010 to assume a full professorship in Nanobiotechnology at the University of Natural Resources and Life Sciences (BOKU), Vienna. In 2011 he became head of the Institute for Biologically Inspired Materials. In 2013, Reimhult was awarded an ERC Consolidator Grant for research on nanoparticle-membrane interactions. He is elected member of the Young Academy of the Austrian Academy of Sciences and has assumed many university functions such as head of department and vice-chairman of the Senate. Prof. Reimhult's current research is focused on developing new approaches to synthesize and study the assembly of biomimetic nanoscale material with application in medicine and biotechnology, as well as on the study of colloidal interactions of biological interfaces.

Klaus-Michael Weltring

Presentation title: **"RRI in Nanomedicine"**

Klaus-Michael Weltring (Dr) is a molecular biologist by training with a PhD and a Habilitation degree from the University of Münster. Since 2001 he is the managing director of bioanalytik-muenster, a local network of researchers from different disciplines and SMEs, responsible for the development of the Münster region into a leading nanobioanalytic location at the European level. Since 2009 he is a member of the Executive Board of the ETP Nanomedicine leading the ELSA Advisory Group of this platform. Since March 2015 he is the chair of the German platform NanoBioMedicine. At the local level he is the Chief Scientific Officer of the Nano-Bioanalytik-Zentrum Münster (NBZ) and manages the Nano-Characterization-Lab Muenster (www.NCL-Muenster.de) interfacing 11 local companies, which develops new and certified methods for characterization of Nanomaterials in consumer products and biological systems. Currently he is partner in the EU-projects ENATRANS and EU-NCL.

Todd Kuiken

Presentation title: **"Converging Technologies for a Smarter Health and Wellness Future"**

Todd Kuiken (PhD) is a Senior Research Scholar at the Genetic Engineering & Society Center at North Carolina State University. Prior to that, Kuiken was a Senior Program Associate with the Science and Technology Innovation Program at the Wilson Center where he explored the scientific and technological frontier, stimulating discovery and bringing new tools to bear on public policy challenges that emerge as science advances. He was the principal investigator on the Wilson Center's Synthetic Biology Project, where he had numerous projects evaluating and designing new research and governance strategies to proactively address the biosafety, biosecurity and environmental risks associated with synthetic biology. Todd Kuiken was recently appointed to the United Nations Convention on Biological Diversity Ad-Hoc Technical Expert Group. He is also a

member of the human practices committee of the International Genetically Engineered Machines competition and a founding member of its biosafety/biosecurity committee

Panel 2: Setting RRI into CSR policies: learning from experience

Michael Liss

Presentation title: **"Commercial Synthetic Biology: Biosecurity in the Gene Synthesis Industry"**

Michael Liss (Dr), Sr. Manager R&D, received his PhD in 2000 from Univ of Regensburg & Boulder gaining expertise in virology, molecular biology and directed evolution. From 2000 to 2002 he did his PostDoc in Biosensoring with aptamers. After that, until 2012 he worked as a scientist in Research & Development at GeneArt GmbH. From 2012 to 2014 he was Sr. Manager Research & Development at Life Technologies, and since 2014 he is Sr. Manager R&D at Thermo Fisher Scientific. During his work in synthetic biology and gene synthesis Michael has set up and managed the directed evolution unit for more than five years. He further advanced the progress of economic and reliable gene synthesis and installed the gene-to-protein service. Today, he is responsible for R&D projects including process development, portfolio accretion and novel applications of synthetic biology.

Tom Domen

Presentation title: **"The rise and fall of Ecover's algal oil, lesson's learned"**

Tom Domen graduated in 1996 with a Master in Industrial Design. In 2007, he completed a Master in Sustainable Development at the University of Brussels. With his MA on Sustainable Technology for Eastern Africa, he received the yearly Award for Innovative Technology from the Chamber of Engineers. He started working for Philips in packaging innovation after which he worked for 5 years as a marketing and communication specialist at Panasonic. Tom has been working for Ecover/Method for 11 years, where he is responsible for the long term innovation strategy and sustainability for the different categories of Ecover/Method products (laundry, cleaning, dishwashing, home care and personal care). Getting inspiration out of biomimicry and system thinking, he has been laying out an ambitious roadmap for the company to inspire transformative change towards a restorative business model. Tom is also a member of the board of Kringwinkel, a Belgian organisation that gives a second life to what otherwise would be waste.

Stephan Herrera

Presentation title: **"We all need to be looking at the bigger picture"**

Stephan Herrera is VP, Strategy & Public Affairs at Basel, Switzerland-based Evolva , which is developing health, wellness, and nutritional ingredients through next-generation yeast-based fermentation. The Company has additional operations in Denmark, India, and the US. Herrera is based in California in the Bay Area. Prior to Evolva, Herrera was Sr Director of Investor Relations and Corporate Affairs at Nektar Therapeutics. Before that, he held the same position at Sirna Therapeutics, the RNAi-focused biotech acquired by Merck for $1.2B. Prior to his operational roles in biotech, Herrera was a reporter and editor who specialized in the global business, science and politics of biotechnology, industrial biotech, and nanotechnology. His 18 years in the field included staff reporting/editing positions at leading magazines such as Forbes, Red Herring, Nature Biotechnology and the Acumen Journal of Life Sciences. He was also a long time contributor to the Economist and a contributing editor at MIT Technology Review.

Hilary Sutcliffe

Presentation title: **“CSR - Building trustworthiness”**

Hilary Sutcliffe is the Director of SocietyInside and was previously the Director of MATTER and the Responsible Nano Forum which she founded in 2007. Prior to that she ran Shared View a consultancy specialising in multi-stakeholder involvement & communications. Hilary sits on World Economic Forum Global Futures Council on Human Rights, and previously the Global Agenda Council on Nanotechnologies. She advises the Responsible Research and Innovation Steering Group at the University of Sheffield; the serves on the Governance Sub-Group of the UK Synthetic Biology Leadership Council; the External Advisory Board of the Institute of Innovation Research, Manchester Business School, University of Manchester and the Advisory Board of SynbioChem, the Centre for Synbio & speciality fine chemicals. She was previously a Non-Exec Director of EIRIS (the Ethical Investment Research Service), the External Advisory Board of the University of Michigan Risk Science Centre in the USA; member of the Advisory Board of PRISMA project and chaired the Advisory Board of ResAgora a research project which explored a Responsible Innovation Framework for Europe; the advisory board of the Public Dialogue on applications of Nanotechnologies; a member of Amnesty International UK Business Group and was involved in the Royal Society of Arts Inquiry into Tomorrow’s Company.

Panel 3: RRI in practice: examples from academia

Erich Griessler

Presentation title: **“What are the benefits of RRI for industry and other actors”**

Erich Griessler (Dr) studied Sociology and History at the University of Vienna (1983–1990) and the Maastricht University. In 1990 he graduated as Magister of Philosophy (Thesis: "Problems of Controlling Polycentric Societies"). From 1990 to 1992 he worked as scientific collaborator at the University of Vienna. From 1992 to 1995 he worked on a dissertation scholarship at the Austrian Research Center Seibersdorf, Department for Technological Research. In 1992/1993 he conducted research at the Rijksuniversiteit Limburg, NL. In 1995 he took his doctor's degree (Dissertation: "Technology Foresight as Organizational Innovation in Public Administration. A Comparison between Austria and the Netherlands"). From 1995 to 1999 he worked as junior researcher at the Ludwig Boltzmann Institute for Medicine and Health Sociology in Vienna. Since 1999 he works as researcher at the Institute for Advanced Studies in Vienna. Since 2016 he is head of the research group "Techno-Science and Societal Transformation". Currently, Dr. Griessler is working on the project “Monitoring the Evolution and Benefits of Responsible Research and Innovation” (MoRRI) for the European Commission and coordinating the H2020 project “NewHoRRIzon”.

Dora Fazekas

Presentation title: **“NANO2ALL - Societal engagement practices in nanotechnology R&I”**

Dora Fazekas is a consultant at Sociedade Portuguesa de Inovação (SPI) working in the international area of the company. She has been involved and has managed several FP7 and Horizon 2020 projects and proposals in the areas of nanotechnology, food safety, medicine and others. She is currently the manager of NANO2ALL, a Horizon 2020 project aiming to enhance societal engagement in nanotechnologies. Dora’s work includes project coordination and management, communication and marketing strategies, data collection and research studies. Dora has trained and supported over 100 researchers, business sector representatives and project managers in grant application writing for European programmes. Dora Fazekas holds a post-

graduation in European Studies and Global Affairs (Catholic University of Milan) and a degree in law (Catholic University of Budapest).

Julia Hahn

Presentation title: **"RRI – Business-as-Usual or New Potential for Industry?"**

Julia Hahn has been a junior researcher at ITAS since 2011. She is doing her PhD on global aspects of Technology Assessment. She has experience working in several EU projects, including the FP-7 projects 'Parliaments and civil society in Technology Assessment' and 'Responsible-Industry' as well as the H2020 Project „Responsible Research and Innovation in Practice". She studied Cultural Sciences at the Leuphana University of Lüneburg at the University of Naruto, Japan, and at the University of Chicago, USA. Her research interests include practical and conceptual implications of Responsible Research and Innovation, participatory methods in Technology Assessment as well as interdisciplinary and cultural perspectives of sustainability.

Panel 4: Engaging stakeholders in research and innovation activities

Carolin Kranz

Presentation title: **"RRI in practice: 15 years of nanotechnology management"**

Carolin Kranz (Dr) is responsible for the political and stakeholder communication of the issue nanotechnology in the Communications & Government Relations department of BASF. She is a member of the BASF NanoCore Team, the BASF committee responsible for the group-wide management of nanotechnology EHS and communication issues. Carolin Kranz hosts the BASF Dialogforum Nano. After a basic course in chemistry at the University of Stuttgart, Germany she graduaded as an engineer from the Ecole Européenne des Hautes Etudes des Industries Chimiques de Strasbourg in France. From the Saarland University she received a Ph.D. in Chemistry in 1994. In 1994 she joined BASF as a R&D chemist. Assignments in the Corporate Communication and EHS departments with focus sustainability followed before she moved to the Government Relations department in 2006. Carolin Kranz holds mandates for BASF in several nanotechnology working groups of industry associations. She participates in the NanoDialog of the German Federal Ministry for the Environment which started 2006 and lasts until today. As a Member of the Advisory Board, she supported the EU-funded NanoDiode Project. Currently she is a member of the Advisory Boards of the European Union's H2020-funded PRISMA and GoNano projects.

Claudia Schwarz-Plaschg

Presentation title: **"Stakeholder and public engagement in industry: Nudges for reflexivity"**

Claudia Schwarz-Plaschg (Dr) is University Assistant (Postdoc) at the University of Vienna, where she works at the interdisciplinary Research Platform Nano-Norms-Nature. Her academic background is in science and technology studies, sociology, and media studies. Her current research focuses on public engagement, the social and ethical aspects of nanotechnology, and the governance of new and emerging technologies more generally. She has also worked in science communication and has conducted stakeholder engagement in the area of personalized medicine.

Panel 5: Woman and work: the Industry gender gap

Aleksandra Drecun

Presentation title: **“Gendered Research and Innovation - Any Benefits Beyond Just Being Fair?”**

Aleksandra Drecun is President of Intersection - Center for Science and Innovation and a member of DG R&I Horizon 2020 Program Committees: "H2020 Strategic Configuration, with SwafS" and Societal Challenge 6 "Europe in a changing world – Inclusive, Innovative and Reflective”. She is an elected Member of the Board of the European Science Engagement Association (EUSEA), a member of the Helsinki Group (EC advisory body on Gender and Research), the World Bank expert for Investments Management and the Council of Europe expert for Good Governance and Anti-Corruption. Drecun was the Secretary General to the President of Serbia from 2004 to 2006, Special Advisor to the Government of Serbia between 2007 and 2008 and Secretary General at the Ministry for Finance and Economy from 2001 to 2004. She is the Co-Chair of the Woman’s Gov. of Serbia, an organization that promotes women’s expert potential, and was the Founding Director of the National Center for the Promotion of Science from 2010 to 2015. She has managed and participated in numerous international R&I projects. Drecun graduated at Belgrade University Law School and holds a Master’s degree from Harvard University.

Martina Schraudner

Presentation title: **“Gender Equality – just a case of CSR?”**

Martina Schraudner (Dr) is the Head of Fraunhofer Center for Responsible Research and Innovation. After studying biology and biotechnology and graduating from the Technische Universität München, Dr. Schraudner started in 1993 her work as a researcher at the German Research Center for Environmental Health Munich (gsf – now Helmholtz Zentrum) and the ETH Zurich, and obtained her habilitation at the Humboldt-Universität in Berlin. Starting from 1998, she has held various positions in technology management at the Forschungszentrum Jülich and since 2000, as part of the Fraunhofer Management Staff. In addition to her work at Fraunhofer, Prof. Dr. Martina Schraudner heads since 2008 the “Gender and Diversity Aspects in Organizations” department at the Technische Universität Berlin. Her research focuses on methods, instruments and processes to make diversity accessible and manageable for organizations and companies.

Panel 6: Opening up to research: learning from open access

Wen Wha Lee

Presentation title: **“No shades of grey – realising RRI through Radical Open Science to accelerate drug discovery”**

Wen Wha Lee (Dr) directs the Disease Foundations Network at the Structural Genomics Consortium (SGC), based at the Nuffield Department of Clinical Medicine, University of Oxford. Dr. Lee is trained in Biology, Molecular and Structural Biology, Protein Crystallography, Computational Biology and Drug Discovery in diverse places such as Brazil (University of Campinas, Brazilian Synchrotron Source), USA (Scripps Research Institute) and France (Université Paris V). Dr. Lee joined the SGC at its inception in 2004 and has since been involved in the planning of scientific strategies, communications, and alliances with external collaborators and partners. He has been working with multiple institutions to facilitate the exchange of expertise and establishment of joint research programs with SGC’s international partners, including charities, academia, industry, and government agencies – always exploring the potentials of Open Access models.

Gernot J. Abel

Presentation title: **"Share. Receive. Accelerate. Open Innovation with HelloScience"**

Gernot J. Abel (Dr) is Science manager and Innovator at Novozymes. Throughout his career he has been paving the way for a green economy with more sustainable growth using solutions found in nature and matured in the laboratory. In the recent years he has been deeply involved in Novozymes open innovation initiatives such as the recently launched www.HelloScience.io. Gernot is frequently giving talks at research institutions and public events to share his vision on how open source & collaborative society will change the science landscape. Making the traditional R&D environment disruption ready and establishing new ways of collaboration between educational systems, startups, biohackers and the corporate biotech world is highly emphasized by Gernot.

- Keynote and final plenary discussion

Phillipe Galiay

Presentation title: **"Mainstreaming Responsible Research and Innovation in Industry"**

Trained as an engineer, Dr Philippe Galiay graduated with a PhD in physics from the University of Strasbourg (France) in the field of holography. After various experience in research, teaching and international technology transfer with Asia, he worked for a French Regional Council (Pays de Loire Region), promoting interregional cooperation in research. He joined the European Commission in 1994, coordinating Research and Structural Policies. He participated to the creation of the Science and Society Directorate and to the Science and Society Action Plan in 2001. He is the author of several policy and academic papers (e.g. on nanotechnologies, on socio-epistemic networks). He is now Head of the Sector "Mainstreaming responsible research and innovation in Horizon 2020 and the European Research Area" in DG Research and Innovation of the European Commission.

Dirk Stemerding (moderator)

Dirk Stemerding (Dr) has been working as a senior researcher Technology Assessment at the Dutch Rathenau Instituut. He was one of the co-authors of the Rathenau study Getting to the core of the bio-economy: a perspective on the sustainable promise of biomass (2011). He has been leading a work package on synthetic biology in the European project Global Ethics in Science & Technology (GEST 2011-2014) and was one of the editors of the volume Science and Technology Governance and Ethics: a global perspective from Europe, India and China (Springer 2015). He was also involved as work package leader in a four-year European Mobilisation and Mutual Learning Action Plan aiming at responsible research and innovation in synthetic biology (SYNENERGENE 2013-2017). Since his retirement he is working as an independent researcher on issues relating to biotechnology & society.

- Workshop

Adriënne Sips

Presentation title: **"Safe Innovation Approach"**

Adriënne Sips (PhD) is the research coordinator risks of nanotoxicology at RIVM and coordinator Risk Analysis and Technology Assessment in the Dutch Nanotechnology Programme NanoNextNL (www.nanonextnl.nl), and senior toxicokineticist. She has vast experience as manager of various

departments within RIVM, and as a leader of interdisciplinary complex projects. She is involved in a broad spectrum of research activitities and in bridging science to policy development at both national and international level. Adriënne Sips is one of the developers of the EU Project NANoREG (www.NANoREG.eu) and WP leader for “keeping pace with innovation”. Furthermore, she is initiator and developer of the RIVM Safe Innovations Approach, including Safe-by-Design.

Gijs Kleter

Presentation title: **“Incorporation of safe-by-design by researchers from Wageningen into the development of synthetic biology applications within the agri-food sector”**

Gijs Kleter (Dr) is from RIKILT, an institute specialized in food safety which is also part of Wageningen University & Research in the Netherlands. He has been working for this institute for 18 years now. His main activities include foremost: risk assessment of genetically modified foods and feeds, desk research on a broader range of emerging and other food risks and participation in national and international activities, committees striving towards harmonization of food safety requirements for genetically modified and other foods. He was a member and vice-chair of the European Food Safety Authority’s Expert Panel on Genetically Modified Organisms until 2015. He also serves on international committees of the OECD - Organization for Economic Cooperation and Development and the IUPAC - International Union for Pure and Applied Chemistry, and has taught online courses on biosafety for the United Nations Industrial Development Organization for many years.

Jacqueline van Engelen

Jacqueline van Engelen (PhD) is working as a senior toxicologist and risk assessor at the Centre For Safety of Substances and Products at RIVM. She is involved in various projects like alternatives for animal studies, safety of rubber granulate, chromium VI and early warning. She is also participating in a national project on Safe by Design and also in NanoRegII, WP 3.7, in which the scenarios for Safe by Design are being developed. Jacqueline was manager of the RIVM unit for environmental health for four years and before that she managed the unit of kinetics and modelling. She has a background in consumer safety and exposure assessment, was one of the founding mothers of the ConsExpo exposure model and has been a member of the EU Scientific Committee for Consumer Safety for many years.

Appendix 4 - Programme of the 2nd and 3rd Stakeholder Dialogue

PRISMA

PRISMA Stakeholder Dialogue

SETTING THE AGENDA OF RRI IN INDUSTRY

focusing on nano and synthetic biology technologies

20 and 21 November 2017, Berlin

Programme:

Day 1 – November 20th

8:30 Arrival, registration and coffee

9:00 Welcome: the PRISMA project and aims of the Stakeholder Dialogue

9:30 Nanomedicine as the possible "universal problem solution": which role for RRI?
Erik Reimhult - Professor of Nanobiotechnology and head of the Department of Nanobiotechnology at the University of Natural Resources and Life Sciences in Vienna
Klaus-Michael Weltring - Member of the Executive Board of the ETP Nanomedicine leading the ELSA Advisory Group
Todd Kuiken - Senior Research Scholar at the Genetic Engineering & Society Center at North Carolina State University

10:45 Coffee break

11:00 Workshop
Safe-by-design: (ir)relevance for nanotechnology and biotechnology

13:00 Lunch break

14:00 Setting RRI into CSR policies: learning from experience
Michael Liss - R&D Manager at GeneArt /ThermoFisher Scientific
Tom Dornen - Responsible for the long-term innovation and sustainability at Ecover
David Carlander - Director General of the Nano Industries Association
Stephan Herrera - VP, Strategy & Public Affairs at Evolva
Hilary Sutcliffe - Director of SocietyInside

15:30 Coffee break

16:00 RRI in practice: examples from academia
Erich Griessler - Researcher at the Institute for Advanced Studies in Vienna (MoRRI Project)
Dora Fazekas - Consultant at Sociedade Portuguesa de Inovação in Portugal a (Nano2All Project)
Julia Hahn - Researcher at the Institute for Technology Assessment and System Analysis (Responsible-Industry Project)

17:00 Closing remarks

19:00 Continued discussion over dinner
(at Clärchens Ballhaus)

Day 2 – November 21st

8:30 Arrival, registration and coffee

9:00 Summary of the previous day
PRISMA project achievements

9:30 Engaging stakeholders in research and innovation activities
Carolina Kranz - Senior Manager Innovation & Technology Policy at BASF SE
Claudia Schwarz-Plaschg - Researcher at the Research Platform Nano-Norms-Nature, Institute of Philosophy, University of Vienna

10:30 Coffee break

10:45 Woman and work: the Industry gender gap
Aleksandra Drecun – President of Intersection - Center for Science and Innovation
Martina Schraudner - Head of Fraunhofer Center for Responsible Research and Innovation

11:45 Opening up to research: learning from open access
Wen Hwa Lee - Director of the Disease Foundations Network at the Structural Genomics Consortium, University of Oxford
Gernot J. Abel - Science Manager and Innovator at Novozymes

12:45 Lunch break

14:00 Keynote with discussion
Philippe Galiay - Head of Sector "Responsible Research and Innovation in H2020 and ERA; DG Research & Innovation, European Commission

15:00 Final plenary discussion: setting the agenda of RRI in Industry
Chaired and introduced with an enlightening talk by **Dirk Stemerding** - Independent researcher Biotechnology & Society; input by **Wolf-Michael Catenhusen** - State Secretary, German Federal Ministry of Education and Research <ret.>, NanoKommission (2006-2011) chairman

15:45 Closing remarks: the future lies ahead

16:00 Farewell

For more information:
maria.maia@kit.edu

TU Delft KIT nanotec IT WARWICK

Appendix 5 - 4th Stakeholder Dialogue: Presenter's short biography

Elisabeth Frankus

Elisabeth Frankus holds a PhD in Sociology and a Magister (rer. soc. oec) in Sociology and Educational Sciences, is qualified Prince2 practitioner and has further education in business studies, coaching and training. Since 2008 she has been gaining experience with European projects as project coordinator, evaluator and as content developer in the fields of health, education, economic, public security, autonomous mobility and Responsible Research and Innovation (RRI). Her scientific approach leads to diverse publications and presentation. Since April 2015 Elisabeth Frankus has been working as senior researcher at the Institute for Advanced Studies (IHS) in the research group "Techno-Science & Societal Transformation" focusing on the topics of RRI, autonomous mobility and refugee studies. She is teaching at the University of Vienna as well as at the Vienna University of Economics and Business quantitative and qualitative research methods.

Martin de Heaver

Martin de Heaver is Director of ORBIT, the Observatory for Responsible Research and Innovation, an independent body funded by the Engineering and Physical Sciences Research council in the UK and run by the Universities of Oxford and De Montfort. Martin is an engineer and entrepreneur. He has worked on EU FP4/5/7 funded research projects in aviation and telecommunications. Martin is a former Senior Research Fellow at King's College London, and an entrepreneur mentor at London Business School.

Paolo Masoni

Paolo Masoni is, since 2017, the President of Ecoinnovazione, a spin off ENEA. Before he was working in ENEA, as Research Director, coordinating several large international research projects. At the time, Paolo was also the Italian representative in the technical Advisory Board of the PEF at the European Commission, the Italian representative in the Steering Committee of the Global Network of Interoperable LCA databases and also member of the Italian Committee for Green Public Procurement. Paolo is an expert in the FAO LEAP Partnership.

Lorenza Bizzarri

Lorenza Bizzarri is currently the Product and Program Manager at STMicroelectronics, Automotive and Discrete Group, Automotive Digital Division (defining and managing the execution of new products introduction through: overall plan definition, budget calculation, development and qualification management). Since 1997 she is employed in the Automotive Group of STMicroelectronics, were she had previously the following functions: Microcontroller Product Marketing Manager (responsible for marketing and business development of Microcontroller for Power Train applications), Digital Products Strategic Marketing Manager (responsible for marketing of new segment, the Advanced Driver Assistance System (ADAS)) and Marketing Responsible (for managing and developing the Speech Technology (Speech Recognition, Text To Speech, Echo Cancelling, Noise Suppression)). Lorenza has a degree in Engineering Physics/Applied Physics from "Università degli Studi di Roma La Sapienza" with experimental thesis work entitled "Sound Synthesis by Physical Model: the case of Clarinet", developed at the IRIS research center.

Appendix 6 - Programme of the 4th Stakeholder Dialogue

PRISMA

AGENDA

07 February 2018

09:00 – 09:30	Arrival, registration and coffee
9:30 – 09:45	**Introductory remarks: The PRISMA project**

- Prisma partners

9:45 – 10:45	**Case studies from the Prisma pilots**

- Susan Wakenshaw - Hub of All Things
- Laurens Metternich - Spectro EV
- Simon Brewerton - Intact /RDM Group
- Timothy van Langeveld - Aerialtronics

10:45 – 11:15	Coffee break
11:15 – 12:15	**Experts perspectives**

- Elisabeth Frankus - Senior Researcher, Techno-Science & Societal Transformation; Institute for Advanced Studies in Austria
- Martin de Heaver - Director of ORBIT - The Observatory for Responsible Research and Innovation in ICT
- Paolo Masoni - President at Ecoinnovazione srl - spin off ENEA
- Lorenza Bizzarri - Product and Program Manager at STMicroelectronics, Automotive and Discrete Group, Automotive Digital Division.

12:15 – 13:15	Lunch break
13:15 – 14:45	**Discussion session (World Café format)**
14:45 – 15:00	Coffee break
15:00– 15:20	**Plenary: Results from the World Café**
15:20 – 16:30	**Plenary discussion: Moving forward – RRI principles and the PRISMA Roadmap**
16:30	**Closing remarks. Farewell**

Appendix 7 - Programme of the 5th Stakeholder Dialogue

PROGRAMME

DAY 1: TUESDAY, 30 OCTOBER

Part I (methodology): Comparing industrial strategies and policies on RRI, CSR and innovation management to address ethical, legal and social impacts in R&I processes

Chairs: **Ibo van den Poel**, Delft University of Technology and PRISMA Coordinator (TU Delft), NL
Elvio Mantovani, Italian Association for Industrial Research (AIRI), IT

11:30 REGISTRATION

12:00 BREAKING THE ICE - SOCIAL NETWORKING – LUNCH

12:50 WELCOME

Maria Maia: Institute of Technology Assessment and Systems Analysis (ITAS/KIT), DE
Ruggero Lensi: Italian National Standard Body Director General (UNI), IT
Ibo van de Poel: Delft University of Technology (TU Delft), NL and PRISMA Coordinator

13:05 INTRODUCTORY REMARKS ON THE PRISMA PROJECT

Maria Maia: Institute of Technology Assessment and Systems Analysis (ITAS/KIT), DE

13:15 INSPIRATIONAL TALKS: METHODOLOGICAL APPROACHES TO PROMOTE SOCIAL RESPONSIBILITY, RESPONSIBLE INNOVATION, OPEN INNOVATION AND CO-CREATION AMONGST COMPANIES AND STAKEHOLDERS

Luca Remotti: Joint Institute for Innovation Policies, BE
Monica Ibido: Italian National Standard Body (UNI), IT

14:00 OUTLINE OF THE PRISMA RRI-CSR ROAD MAPPING EXERCISE: A STEP-WISE METHODOLOGY TO INTEGRATE RRI IN DECISION-MAKING PROCESSES AT INDUSTRIAL LEVEL

Andrea Porcari: Italian Association for Industrial Research (AIRI), IT

14:20 QUESTIONS AND ANSWERS

14:40 COFFEE BREAK

15:00 CASE STUDIES FROM RESEARCH & INNOVATION PLAYERS: STRATEGIES TO INTEGRATE SOCIAL VALUES AND SOCIAL RESPONSIBILITY IN R&I PROCESSES

Elena González: Versia, ES
Luisa Fracassini: STMicroelectronics, IT
Timothy van Langeveld: Aerialtronics, NL
Samuel Rowe: YO.TI, UK
Samuele Ambrosetti: RINA Consulting, IT

16:30 GENERAL DISCUSSION: DIMENSION AND KEY STEPS FOR AN RRI/CSR ROADMAP

17:30 CLOSING REMARKS OF THE FIRST DAY

19:00 DISCUSSION OVER DINNER

PROGRAMME

DAY 2: WEDNESDAY, 31 OCTOBER

Part II (good practices): Experiences from the Prisma industrial pilots on principles and actions to integrate RRI in R&I and business practices

Chairs: **Maria Maia:** Institute of Technology Assessment and Systems Analysis (ITAS/KIT), DE
Andrea Porcari: Italian Association for Industrial Research (AIRI), IT

08:00 REGISTRATION AND COFFEE

08:30 WELCOME AND WRAP-UP OF THE FIRST DAY

09:00 RESULTS OF THE PRISMA PROCESS: EXPERIENCES FROM THE RRI PILOTS

Giovanni Baldi: Colorobbia, IT
Stephan Herrera: Evolva, CH
Francesca Braca: Laboratori Archa, IT
Susane Wakenshaw: Hub of All Things, UK

10:15 RESULTS OF THE PRISMA PROCESS: OPPORTUNITIES AND CHALLENGES

Ibo van de Poel: Delft University of Technology (TU Delft), NL

10:35 INTRODUCTION TO THE INTERACTIVE SESSIONS

Maria Maia: Institute of Technology Assessment and Systems Analysis (ITAS/KIT), DE
Andrea Porcari: Italian Association for Industrial Research (AIRI), IT

11:00 INTERACTIVE SESSION (WORLD CAFÉ): PRINCIPLES AND ACTIONS FOR PRACTICAL IMPLEMENTATION OF RRI, TO BE INTEGRATED INTO THE RRI/CSR PRISMA ROADMAP

13:00 FINAL DISCUSSION AND CLOSING REMARKS

13:30 LIGHT LUNCH