

PRISMA

- **D-6.2:** Reports on the 3 open stakeholders workshops (M 30).

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List of abbreviations

< PRISMA >	< Piloting RRI in Industry: a roadmap for tranSforMAtive technologies >
< CSR >	< Corporate Social Responsibility >
< RRI >	< Responsible Research and Innovation >
< SME >	< Small or Medium-sized Enterprise >
< KPI >	< Key Performance Indicators >
< R&D >	< Research and development >

PRISMA

Table of Contents

<i>Introduction</i>	4
<i>Workshop 1: Responsible Innovation Summit</i>	4
<i>Workshop 2: Responsible Research and Innovation day</i>	6
<i>Workshop 4: Society for the Studies of New and Emerging Technologies</i>	11
<i>Workshop 5: Euro Science Forum (ESOF)</i>	14
<i>Workshop 6: International Interdisciplinary Graduate Summer School</i>	17
<i>Workshop 7: NANOINNOVATION Conference</i>	19
<i>Workshop 8: ETHICOMP Conference</i>	23



Introduction

Within task 6.2 (Open Stakeholder Activities), a series of stakeholder engagement activities have been organized in the period October 2017 to October 2018 of the project, in order to:

- communicate the project objectives, activities and findings to the widest possible audience
- promote mutual learning and informal networking with the stakeholders
- encourage coordination actions and exchange on using RRI in practice in different technology fields or innovation processes
- gain feedbacks on the pilot experience and design of the RRI/CSR roadmap

A total of **eight events** have been organized, in the form of workshops within larger thematic conferences, in order to increase visibility and facilitate the attendance of as wide a group of stakeholders as possible.

Below one can find more description of organized eight event:

Workshop 1: Responsible Innovation Summit

Dublin, Ireland, October 2017

The first edition of the Responsible Innovation Summit took place in Croke Park, Dublin - Ireland on 10th October 2017. The aim of the conference was to introduce responsible innovation as an adaptable business concept and broaden the perspectives of innovation itself. The goal of the organizers was to create an inspiring environment for innovation leaders where they can discuss trends, share their experiences and find new tools to generate meaningful change.

The audience consisted of 150-200 innovator leaders. The program of the conference was as follows:

MORNING 1 – Landscape of tomorrow's economy

09.00 Opening

09.05 Key note speech: The Relevance of Responsible Innovation for Business

Speaker: Jeroen van den Hoven, Delft University of Technology, Netherlands Professor of Moral Philosophy

09.20 Panel discussion – Future-proof businesses? Investors insights

09.50 Debate on stage – Incorporating values to create better business models?

10.20 Coffee break – network and visit the Value Market

MORNING 2 – New dimensions of innovations

10.40 Pathfinder projects pitch – Den on stage

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11.40 Kick off speech: Innovative changes in European companies – market trends and success factors

Panel discussion: Organisational values – How to build up the culture of innovation?

12.00 Lunch break – network and visit the Value Market

AFTERNOON 1 – Generating meaningful change

13.00 -14.30 Workshop sections: one of the workshops organised by PRISMA and given by Ibo van de Poel

14.30 Coffee break – network and visit the Value Market

14.50 Key note speech: The power of choice as an ultimate tool for leaders

Speaker: Sheena Iyengar, Columbia Business School, New York S.T. Lee Professor of Business

15.15 Leading the change - challenges and opportunities for next generation of innovators

15.45 Stories from the field – inspirations, tips and tricks

16.45 Closing with Value lottery

For more information: <https://responsibleinnovation-summit.com/2017#tab-340-1>

The PRISMA project organised the following workshop:

Workshop Value Sensitive Design – responsible innovation in action

From 13.00-14.30

With 25 participants mainly from industry

Workshop leaders:

[Prof. Ibo van de Poel](#)

Delft University of Technology Head of the Department Values, Technology & Innovation

[Prof. Jeroen van den Hoven](#)

Delft University of Technology, Netherlands Professor of Moral Philosophy

The workshop consisted of:

- Presentation by Ibo van de Poel about one of the pilots in the PRISMA project and an explanation of the RRI/Design for values tools used in this pilot
- The following three tools were presented: 1) Value scenarios; 2) Value hierarchies, 3) Value maps
- Value scenarios are short stories about (unexpected) use that help to reveal relevant values and potential value conflicts
- Value hierarchies help to translate values into design requirements
- Value maps provide insights in supportive and conflicting values for an innovation



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- The participants applied in groups of 5-7 people the RRI tools to an innovation/project of one of the participant
- Followed by presentations by the participants
- The participants perceived the workshop and presented tools as useful.
- Feedback from the participants was used in the sequel of the PRISMA project



Workshop 2: Responsible Research and Innovation day

Delft November 2017

Title: A critical view on Responsible Research & Innovation

Theme: Science policy and transformation of research practice

Programme: Organized by the section Science Education & Communication, Delft University of Technology

Location: Aula TU Delft – Commissiekamer 3 - Mekelweg 5 in Delft

Date: Tuesday 28 November 2017

Format: Interactive workshops

Duration: Afternoon

Speakers: Steven Flipse, Jeroen van den Hoven, Erik Fisher, Daan Schuurbijs, Rene von Schomberg, Pim Klaassen, Emad Yaghmaei, Ibo van de Poel

Target audience: Scientists, scholars in RRI, students

Briefing notes:

Based on recent experiences with trying to embed responsible research & innovation in actual, on-going science and engineering practice, some questions have arisen that we feel are worthwhile to further consider. We are not necessarily looking for answers to these questions, but rather, we're looking for a platform for critical discussion and feedback around the sense and non-sense of RRI in science and engineering practice.

During this afternoon workshop, experts in the field reflect on the (im)possibilities of RRI. They will discuss the possibility and utility of RRI in practice, and assess to what extent RRI is 'living up to its expectations' from a science policy perspective.

Programme:

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- 12:00 - 13:00 - Welcome / lunch
13:00 - 13:15 - Introduction to the afternoon - **Steven Flipse**
13:15 - 13:35 - Mini-workshop 1: RRI in practice at TU Delft - **Jeroen van den Hoven**
13:35 - 13:45 - Discussion (round 1)
13:45 - 14:05 - Mini-workshop 2: Socio-technical integration research - **Erik Fisher**
14:05 - 14:15 - Discussion (round 2)
14:15 - 14:30 - Coffee break
14:30 - 14:50 - Mini-workshop 3: From academy to professional advice - **Daan Schuurbijs**
14:50 - 15:00 - Discussion (round 3)
15:00 - 15:20 - Mini-workshop 4: Policy aims for RRI - **Rene von Schomberg**
15:20 - 15:30 - Discussion (round 4)
15:30 - 15:45 - Coffee break
15:45 - 16:05 - Mini-workshop 5: RRI in industrial practice - **Pim Klaassen**
16:05 - 16:15 - Discussion (round 5)
16:15 - 16:35 - Mini-workshop 6: From theory to practice - **Ibo van de Poel & Emad Yaghmaei**
16:35 - 16:45 - Discussion (round 6)
16:45 - 17:30 - Drinks

Workshop 3: SETAC Conference

Rome May 2018

Title: Challenges, methodological developments and practical solutions for Social Life Cycle Assessment in industry and policy

Theme: Social Life Cycle Assessment and Responsible Research and Innovation

Programme: SETAC Europe 28th: Responsible and Innovative Research for Environmental Quality, 13- 17 May, 2018 - Scientific programme.

Date and venue: May 17 , 2018, Rome

Format: thematic session with the scientific program of the SETAC conference. Integration of experiences from S-LCA and RRI. Session chaired by a Prisma partner and a presentation of Prisma included in the session

Duration: 2 hours

Speakers: Silvia Di Cesare, CIRAD, Italy, Andrea Porcari, Airi; Sabrina Neugebauer, RWTH Aachen University, Germany; Anne-laure Hettinger, ArcelorMittal, France; Ivan Muñoz, 2.-0 LCA consultants, Denmark; Peter Saling, BASF SE, Germany; Alain Wathelet, Solvay SA, Belgium

Target audience: research, industry, policy makers (> 2000 participants to the SETAC conference)

Links:

- Full SETAC program and abstracts, including the session: https://rome.setac.org/wp-content/uploads/2018/04/abstract-book_scientific-part_FINAL-cover-3.pdf

Description/synopsis of the session:

Assessing social impacts of products is gaining more and more importance and attention. Thanks to a broader media focus, negative employment practices of companies or impacts on social communities



cannot be easily hidden anymore. Besides, consumers do not want their products to be related to such impacts. An adequate method to assess social impacts along entire life cycles is Social Life Cycle Assessment (S-LCA). Since its early stages in the 1990s, significant progress has been made: databases for S-LCA have been developed, first case studies in different fields have been carried out and new methods have been presented. Currently, research especially regarding impact assessment methods, data quality assessment and characterization and weighting factors is being accelerated by the Social LC Alliance. The need for early assessment of social impacts in product development, is also underlined by the notion of Responsible Research and Innovation, increasingly considered in national and EU policies for innovation. Aside from its scientific focus, social sustainability, S-LCA, and RRI as well, are also gaining relevance at the international level. The Sustainable Development Goals 2016 (SDG) are emphasizing social needs including improvements in education and health, gender equality, decent work and job opportunities. Especially in developing countries, the method is of high political interest being considered as a possibility to combat social inequality, unfair working conditions and poverty. Both governments and companies have an important role in achieving these goals by adequate policies and sustainable practices. S-LCA could play a relevant role, as quantitative and scientific-based methodology, towards reaching the social SDG. However, methodological developments are still needed, and its application and implementation in practice is still hesitant. Only some industrial S-LCA case studies have been conducted, and very few pilot studies applying S-LCA in policy have been realized. Similar challenges are faced by practitioners in the field of RRI. Why is that? Is it a methodological issue, i.e. is the method too complex or the impact assessment too uncertain or unspecific? Or is it rather because companies and governments are afraid of uncovering social hotspots in their supply chains that otherwise could be offset by Corporate Social Responsibility activities? Another reason could be that results using generic databases might seem unreliable, or, if reliable, practitioners might not be convinced by the benefits that come along with the analyses. In the presentations of this session, this kind of questions will be discussed and analyzed. Considering the political and business need to improve social conditions especially for workers, local communities and value chain actors, it is important to constantly further develop and establish the S-LCA and RRI methods, and apply them to practical cases. Researchers and practitioners are invited to present theoretical and practical approaches that are related – but not limited – to social data collection (at an industrial and governmental level), impact assessment methods and the definition of impact pathways, and data management tools. Examples of the practical implementation in policy, company-specific solution approaches for the S-LCA of products and RRI, will be considered in the session.

Agenda:

Chairs: Andreas Ciroth (GreenDelta, Germany), Andrea Porcari (Airi – Italian Association for Industrial Research, Italy)

- Developments and recommendations on the practical use of Social LCA | Silvia Di Cesare, CIRAD, Italy
- Piloting Responsible Research and Innovation in Industry | Andrea Porcari, Airi – Italian Association for Industrial Research, Italy
- Social significance analysis of products – considering negative and positive social impacts along the supply chain of leather products | Sabrina Neugebauer, RWTH Aachen University, Germany
- Integration of sustainability in industrial research and innovation: Perspectives from ArcelorMittal's experience | Anne-laure Hettinger, ArcelorMittal, France
- Social footprint of a packaging waste deposit-refund system in Spain | Ivan Muñoz, 2.-0 LCA consultants, Denmark

PRISMA

- Applying Social-LCA and Social Hot Spot Analysis including a SDG Evaluation to Product Assessments with SEEBALANCE® | Peter Saling, BASF SE, Germany
- Sustainable Guar Initiative – an integrated approach of social and environmental LCA | Alain Wathelet, Solvay SA, Belgium

Abstracts (note: only the one referring to PRISMA):

Responsible Research and Innovation in Industry

E. Yaghmaei, I. Van de Poel, Delft University of Technology / Values, Technology & Innovation; A. Porcari, Airi - Italian Association for Industrial Research; E. Mantovani, E. Borsella, Italian Association for Industrial Research.

There is now only limited experience with Responsible Research and Innovation (RRI) in industry and there is also limited evidence of the added value of opening up the innovation process in industry for social engagement and gender considerations. In the PRISMA project (<http://www.rri-prisma.eu> - received funding from the EU's H2020 R&I programme under GA No 710059.), we overcome these current limitations by carrying out eight RRI pilot projects in a realworld industry context. To establish the added value of the RRI approach and the gender dimension in and for industry, we assess the pilot projects on a number of product and process RRI dimensions and compare the pilots on the relevant RRI dimensions with similar projects in the same companies in which the RRI approach has not been followed. We focus on implementing RRI for some of the major technological challenges in the EU including nanotechnology, synthetic biology, Internet of Things (IoT) and self-driving or automated cars.

Briefing notes of the session (article published on SETAC Globe – summaries of sessions . SETAC Conferences - <https://newglobe.setac.org/setac-rome-session-summaries/>):

Assessing social impacts of products is gaining more and more importance in policy and business strategies, and Social Life Cycle Assessment (S-LCA) provides a methodological approach to this end. The recent notion of Responsible Research and Innovation (RRI) underlines the advantages of early assessment of impacts, starting from agenda setting and research and development (R&D) phases of product development.

S-LCA and RRI could provide valuable approaches to assess social performances of organizations (companies in particular), better align products with societal needs, and work toward sustainable development goals. Stakeholders concerned include workers, local communities, consumers, and value chain and supply chain actors, as well as the broader society. Both positive and negative impacts are taken into consideration. However, practical implementation of S-LCA and RRI is still limited, and there is a need to develop practical case studies to collect further experience and improve existing tools and methods.

The purpose of this session was to illustrate experiences on S-LCA and RRI from both the industrial and policy areas, and explore connections between these two emerging approaches dealing with social impact assessment. The session covered views from different experts and stakeholders from both research and business, followed by an interactive plenary discussion.

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The key points emerged from the five presentations and three spotlights included:

- Developments and recommendations on the practical use of S-LCA was presented by Silvia di Cesare, CIRAD, Italy. She underlined the increasing demand of companies for S-LCA as a tool to enhance their social performances and complement their sustainability reporting. Improving existing databases, further developing quantitative indicators and increasing the use of participatory approaches to define system boundaries were underlined among the key steps needed to improve existing S-LCA methods.
- The Prisma Project on piloting RRI in industry was presented by Andrea Porcari, Airi, Italy. S-LCA and RRI share the scope of performing social impact assessment of products, with the latter having a specific focus on R&D, and early stage intervention in the research and innovation value chain (anticipation of impacts). The H2020 Prisma project is using a case-by-case, expert-driven approach to integrate RRI in research and innovation projects of eight companies dealing with transformative (nanotech, Internet of Things, synthetic biology, autonomous vehicles), offering insights on the potential benefits of RRI for industry.
- Sabrina Neugebauer, RWTH Aachen University, Germany, presented on the social significance analysis of products, considering negative and positive social impacts along the supply chain of leather products. She provided a practical example on how S-LCA could help to identify and compare hot spots of social concerns (e.g., issues related to hours of work, health and safety, equal opportunities, social security and delocalization), across a wide range of countries in the leather supply chain. Qualitative and semi-qualitative indicators have been considered, partially when adapting the UNEP–S-LCA assessments.
- “Integration of Sustainability in Industrial Research and Innovation: Perspectives from ArcelorMittal’s Experience” was presented by Anne-Laure Hettinger, ArcelorMittal, France. This very large industrial group is developing an extensive strategy (sustainable development framework) to improve the sustainability performances of their products, combining aspects related to Corporate Social Responsibility (CSR), S-LCA and RRI. The strategy aims to cover the very diverse set of technologies and products related to the steel sector and to impact researchers and employers of the company worldwide. Key aspects include an easy to use self-assessment tool for researchers, hot spot analysis of all research and innovation projects, analysis of added values of sustainability for specific products, materiality analysis and identification of indicators.
- Ivan Muñoz, 2.-0 LCA consultants, Denmark, presented on the social footprint of a packaging waste deposit–refund system in Spain. The assessment of the social footprint is based on a dedicated analysis to include correction factors to the gross domestic product and purchasing power, based on externalities related to environmental and social aspects obtained from a top-down analysis using “IO data” (e.g., household production, trade barriers, unemployment, avoidable health impact, underinvestment in education). Indicators were used to make an S-LCA analysis to evaluate positive and negative impacts of introducing a recycling process in packaging waste system on a local community.

Three spotlight presentations were also given:

- Applying Social-LCA and Social Hot Spot Analysis including a SDG Evaluation to Product Assessments with SEEBALANCE® from Peter Saling, BASF SE, Germany



- Sustainable Guar Initiative – An Integrated Approach of Social and Environmental LCA from Alain Wathelet, Solvay SA, Belgium
- Social Life Cycle Assessment of the Water System in Mexico City from the Engineering Institute Universidad Nacional Autónoma de México

Workshop 4: Society for the Studies of New and Emerging Technologies

Maastricht June 2018

Title: Understanding and Addressing the Challenges of RRI in Industry

Format: Interactive Session

Duration: 1.5 hours

Main event: Society for the Studies of New and Emerging Technologies Annual Meeting

Theme: Anticipatory Technologies: Data and Disorientation

Date: June 25, 2018

Location: Faculty of Arts and Social Science, Maastricht University, The Netherlands

Target audience: Scholars, practitioners and policy makers from around the world interested in the development and implications of emerging technologies

Briefing notes:

Maria João Maia was the session moderator.

The session aimed to address the challenges posed by the concept of RRI and its adoption in industry. The discussion also contributed to the current debate on the importance and benefits of RRI.

Some questions addressed in the session were:

- How to integrate RRI into business practice?
- What is the added value of adopting RRI for companies?
- What are the opportunities of integrating RRI in industry and what are the risks?
- What are the costs/benefits for companies in becoming more “responsible”?
- How to implement practices for stakeholder engagement along the R&I value chain?
- Why are some companies still reluctant to adopt RRI?
- How can the value of RRI be measured and evaluated?

In order to address the proposed questions, 4 presentations were made

Contributions to the session:

Maria Maia – Piloting RRI in Industry: a roadmap for transformative technologies: Project Overview

- The project aims at shed evidence on how RRI can improve the innovation process and its outcomes

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- 8 pilots, companies based in EU and US, focusing on 4 transformative technologies: synthetic biology, nanotechnology, IoT, autonomous vehicles. Each pilot will develop a unique roadmap based on RRI aspects.
- The main goal of the project is to develop a CSR/RRI Prisma exemplar roadmap, based on the 8 pilots roadmaps, that helps industries to implement RRI

Steven Flipse, Sophie van der Horst, Emad Yaghmaei - Industry in RRI projects: 'really' supporting RRI vs. just another socially desirable project? (TU Delft)

- The first challenge is: how to best involve industrial partners in (inter)national projects that aim to study and support responsible research and innovation in industrial contexts
- The second challenge is: how do we keep industrial partners interested over the course of these projects?
- From self-experience: involving industry requires a delicate balance between offering services and promising desirable outcomes, while also safeguarding the independent attitude that is needed within the university research context to allow for academically solid social scientific research in the field of responsible research and innovation management
- One might over-promise the possible beneficial (economic, social and/or technical) outcomes, and that begs the question whether RRI is done for morally right reasons beyond (possibly morally right) economic reasons.
- Which roles do we wish to take to support RRI in the future of innovation: as a community of scholars?

Lotte Asveld - Responsibility for existing value chains (TU Delft)

- Evolva is a company dealing with synthetic biology. They combine genes from organisms that produce a certain rare ingredient and baker's yeast, giving it the ability to produce these ingredients through brewing.
- Evolva has experienced resistance from environmental organisations in the past with some of their innovations, such as synthetic Vanillin and synthetic Saffron.
- The company claims to be committed to Responsible Innovation by: providing a robust framework to identify 'problematic' ingredients; by co-operating in schemes for sustainability criteria for the specific ingredient; by supporting sustainable practices and by creating opportunities for vulnerable farmers in new value chains.
- Critic to Evolva performance: the company undermines the livelihood of producers and other related to the "original" value chain of the product Evolva offers a synthetic alternative to.
- The question raised was : is Evolva (or any other company) responsible for collateral effects (eg. economic) of their innovation, considering the framework of Responsible Innovation? Are companies responsible for possible negative effects their innovation has on vulnerable actors in existing, competing value chains?

Ibo van de Poel - An example of responsible innovation in industry: use of internet of things for better cleaning in hospitals (TU Delft)

- Healthcare-associated infections are a serious social problem that needs to be addressed
- One pilot under development in the PRISMA project has the ability to shed light to solution of this problem, thus with a large potential for added societal value

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- The design for values approach can help the company to early detect possible ethical and responsibility issues with the new technology under development, as well as to address these issues proactively in the design of new dosing systems and the development of new business models
- Relevant values at stake are: public hygiene, trust, autonomy (of cleaning personnel) and privacy of clients and users.
- The answer relies on a careful product design respecting these and other relevant values

Christopher Coenen, Hadewych Honné, Maria Maia - Obstacles to RRI in Synthetic Biology (KIT-ITAS)

- Companies engaged early on in synthetic biology for agricultural, food or similarly contested applications, nolens volens engaged in public and stakeholder engagement activities based on the concepts of responsible research and innovation (RRI) or responsible innovation.
- They partly came to the conclusion that such activities are either of little use, counterproductive or not effectively practicable without an increase of personnel resources for such activities.
- Since the latter is, due to considerations within the companies, hardly feasible without support from outside, the case of companies using synthetic biology for the above-mentioned applications can be used to analyse the preconditions of RRI with a view to the tension between notions of discourse inspired by Habermasian and Foucauldian thinking respectively.
- How do power relationships within and between the various stakeholder groups involved in the controversies about green synthetic biology impact on the chances to come to successful co-creation of innovation? What do the affected companies expect from publicly funded RRI support activities?

Briefing notes:

S.NET is an international association that promotes intellectual exchange and critical inquiry about the advancement of new and emerging technologies in society. The aim of the association is to advance critical reflection from various perspectives on developments in a broad range of new and emerging fields, including, but not limited to, nanoscale science and engineering, biotechnology, synthetic biology, cognitive science, ICT and Big Data, and geo-engineering.

The session discussion focus on the following topics:

- Difficulties in stakeholder involvement /engagement
- RRI as a legitimization of ... Reasons to adopt RRI
- In Malaysia, what kind of contacts Evolva has with local producers?
- Added value on RRI
- Motivation from companies will differ since it takes into account the specificities of the company.
- RRI as a strategic approach – needs to start with the engagement of top level (CEO)



Workshop 5: Euro Science Forum (ESOF)

Toulouse July 2018

Title: Responsible Research and Innovation in Transformative Technologies

Theme: Science policy and transformation of research practice

Programme: ESOF 2018 - scientific programme

Date: 13 July 2018

Format: Interactive round table

Duration: 1h15

Speakers: Philippe Galiay, Angela Simone, Elena Gonzalez, Melanie Smallman, Ibo van de Peol

Target audience: Scientists, Industry / Business, Policy makers

Briefing notes:

Emad Yaghmaei was the moderator of the Round Table Session on 'Responsible Research & Innovation in Transformative Technologies'. The round table session discussed the following questions:

- What do speakers see as the most important lessons learnt through RRI projects about the key enablers and barriers to success in developing and implementing effective RRI strategies?
- Based on this, what do they see as the main challenges ahead to build on the results of the project?
- Do we now have all the tools needed to support companies in embedding RRI in their business strategies and activities? What, if anything, is missing from the toolkit that will require further work in the next wave of projects?
- How can companies which have yet to embrace RRI be persuaded of its benefits, of the need to embed it in their strategies and to engage with a wide array of stakeholders?
- How effective are current mechanisms for monitoring and evaluating the impact of research and innovation and the role that RRI can play in this? And are there gaps in our knowledge about how to implement RRI in industry that need to be filled?

At the end of the debate, Emad drew some conclusions from the discussion by asking speakers all to reply to the same 'wrap---up' question in just one minute each:

- If you had to identify just one key priority for action to foster effective implementation of RRI in business activities --- one key next step --- what would it be?

Points of discussion:

Philippe Galiay (Policy maker representative)

- European Commission view about emerging technologies such as Nano technology - synthesis biology
- Difficulties to industry to be engaged in H2020 programme
- Dimensions of including and training sides for RRI activities
- A few words about FP9/Horizon Europe programme and the role of RRI in the programme

Angela Simone (Civil Society representative)

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- Smart-map project results, embedding RRI into companies. In doing so, companies need to be committed to work on RRI if they see a benefit on it, perhaps through the measurement - They need to see some sort of advantage to work on RRI
- Sharing the experiences on Lombardi region, some measures for companies and researchers to re-think about research actions through the RRI lens
- Grounding RRI at local and regional level
- How effective are current mechanisms for monitoring and evaluating the impact of research and innovation and what is the role that RRI can play in this? And are there gaps in our knowledge about how to implement RRI in industry that need to be filled?

Elena Gonzalez (Industry representative)

- From the company side if you don't have anything to see where you are in terms of the implementation of RRI is difficult to measure its impact, hence is difficult to implement it accordingly.
- Consultancy and providing a tool of management improvement is needed.
- Economic measurement of developed projects in responsible manner helps companies to be aware of RRI and address its principles accordingly.

A need to identify relevant indicators to RRI is seen in the market.

- Action points channel companies into the direction of implementation of RRI within their projects.

Melanie Smallman (University representative)

- She narrated some case studies that show why RRI is useful
- Discussing about responsible behavior of employees that cause responsible corporation.
- Elaborating a bigger picture and consequences of not doing RRI
- RRI is no longer an option and should be embedded into practice

Ibo van de Poel (PRISMA coordinator and University representative)

- Main part of the PRISMA project is 8 pilot studies with companies across Europe, in 4 industries: nanotechnology, synthetic biology, autonomous vehicles and IOT
- Pilot have two main goals: 1) gather experience with RRI in industry and 2) provide appealing examples that can be followed
- Connecting RRI to existing practices in companies like CSR
- There are many RRI tools but most are not appropriate for SME companies: they take too much time and require too specialized expertise in relation to the outcomes/added value they give.
- This does not mean that more or better tools are necessary the answer. We also look need to look at drivers and barriers for RRI
- Main drivers now seem to be (in PRISMA): individuals who want to make a positive contribution; public scrutiny or criticism of a technology, and public image.
- A main driver could also be: new market opportunities, although companies seem not really yet aware of that

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- Barriers are mainly time investment, added value insufficiently clear, distributed responsibilities for innovation and social impact, and hard to make a company-wide concern
- One thing that needs to be done, in particular for SME is more focus on sectoral efforts to implement RRI rather than relying on individual companies as much actions require coordinated efforts



Workshop 6: International Interdisciplinary Graduate Summer School

San-Sebastian September 2018

Title: “RRI and the challenge of responsible governance”

Format: Interactive Session

Duration: 1 hours

Main event: International Interdisciplinary Graduate Summer School 2018: Responsible Research & Innovation and Future Making: Responsibility through Anticipation:

Date: September 10-14Th, 2018

Location: University of the Basque Country UPV/EHU, Donostia-San Sebastián

Target audience: PhD students related to the summer school topic independently on the research field

Briefing notes:

The session was moderated by Maria Maia and Prof. Stefan Bösch (RTWH Aachen, Germany). Maria Maia presented an overview of the PRISMA project giving a special focus to the roadmap development. After the presentation, a discussion period followed with several questions and comments emerging. Some of the questions and comments made by the participants included the following aspects:

- How were the companies recruited and selected to be pilots in the project
- In terms of the approach to the pilot development, was the approach similar to all the pilots? Were there any general guidelines developed so that the approach was similar to all companies?
- Concerning the stakeholder dialogue events, what was the strategy behind it? How were the stakeholders identified and selected? Which difficulties were found and how they were overcome?
- What motivations and expectations did the companies have?
- Why did they accept to participate as pilots?

To be notice that some of the participants are researchers involved in RRI related projects. After the discussion period, an original exercise was challenged to the participants: having in mind the exercise that the project proposed to the pilot companies, use an adopted version of the roadmap to reflect on their own research/PhD development.

The suggested adopted roadmap was as follows:



At the end of the Summer School, a short assessment feedback round took place, Concerning the session organized in collaboration with the PRISMA partner, on the topic of RRI and governance, a very positive feedback was given, specially due to two facts: first the session allowed the presentation of a concrete application/case-study of the topic (theory) into practice and second the exercise suggested to the PhDs for them to make a self-reflection on their research and on how they position themselves in their own research was highly appreciated. The session was considered very useful and enlightening to the challenges of RRI and governance, at the industrial level.

Workshop 7: NANOINNOVATION Conference

Rome September 2018

Title: Responsible Research and Innovation and nanotechnologies for healthcare and wellbeing

Theme: RRI and its implementation in nanotechnologies and other key enabling technologies

Programme: NanoInnovation 2018: Conference & Exhibition, 11-14 September 2018, Scientific programme.

Date and venue: September 13, 2018, Rome

Format: thematic session with the scientific program of the NanoInnovation conference.

Presentations on the experience of Prisma project and Prisma pilots

Duration: 2 hours

Speakers: Prisma: Elvio Mantovani, Andrea Porcari, Airi, Emad Yaghmaei, University of Delft, Giovanni Baldi, Colorobbia Consulting (pilot), Francesca Braca, Laboratori Archa (pilot) - External: Marzia Bedoni, Fondazione Don Carlo Gnocchi

Target audience: research, industry organizations (> 1000 participants to the NanoInnovation conference)

Links:

- Full NanoInnovation program, including workshop:
http://www.nanoinnovation.eu/2018/pdf/Programme_NanoInnovation_2018.pdf
- Workshop agenda and abstracts of the talks:
<http://www.nanoinnovation.eu/2018/index.php/programme/13-sep-afternoon/98-programme/230-ts-vi-e>

Description/synopsis of the session:

What could help research and innovation to improve quality and effectiveness and promote social responsibility of products? How innovation can be aligned with users and societal needs? Which procedures are necessary for a safe use of nanomaterials for nanomedicine, medical devices and cosmetics applications?

Industrial experiences in the application of nano-systems for the targeted and controlled release of active ingredients for both healthcare and wellbeing applications, and their approach toward precaution, ethics, stakeholders and users engagement, sustainability in product design and development will be presented.

The session will focus on case studies from the Prisma project (piloting RRI in industry: funded by the European Commission under GA Nr. 710059) that will include results of case studies on advanced theranostics systems for cancer therapies and nanocapsules for cosmetics and medical devices.

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Agenda:

Chairs: Elvio Mantovani, Andrea Porcari, Airi

- *Introduction from the chairs: the Prisma project*
- *Marzia Bedoni, Fondazione Don Carlo Gnocchi*
Nanotech for Health care and wellbeing: social and scientific challenges and opportunities
- *Giovanni Baldi, Colorobbia Consulting*
A personalized, patient-centric, nano-based technology platform for the diagnosis and treatment (theranostic) of cancer system diseases
- *Francesca Braca, Laboratori Archa*
Sustainable nano-structured devices with controlled release of bioactive agents for dermocosmetic and skin lesions care
- *Emad Yaghmaei and Steven Flipse, University of Delft*
Assessing and improving social performances in R&I projects: Key Performance Indicators for RRI

Abstracts of the talks:

Marzia Bedoni, Nanotech for Health care and wellbeing: social and scientific challenges and opportunities

Nanotechnology applied to medicine, is one of the Key Enabling Technologies (KETs) defined by the European Commission. It impacts the current healthcare paradigm shift towards more personalised and predictive medicine. Nanotechnology needs to be integrated with other KETs such as advanced materials, nano electronics, photonics, biotechnologies, and advanced manufacturing to deliver smart nanomedical products to the patients. Accordingly, technology developers and healthcare industries will undergo a profound transition in the coming years towards a more collaborative approach.

The translation of the preclinical proof of concepts to the market via clinical validation, regulatory approval, and approval for reimbursement by the healthcare systems, requires a more integrated and streamlined ecosystem with less barriers between stakeholders and steps.

As reported by the European Technology Platform of Nanomedicine (<https://www.etp-nanomedicine.eu/public/about/>), in the last years, the European Commission strongly invested in nanomedicine project, promoting translational research to transform scientific discoveries from the laboratory into approved and certified products on the market available to patients, thus supporting the entire chain. In 7th EU Framework Programme for Research, more than 80 nanomedicine projects were funded, and the number is supposed to increase in the HORIZON 2020, ranging from the development of new nanostructured drug delivery systems to regenerative medicine, to the creation of nanoparticles for early diagnosis.

Challenges and opportunities in Nanomedicine field in EU and the Don Gnocchi Foundation approach on that are presented.

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Giovanni Baldi, Ce.Ri.Co, A personalized, patient-centric, nano-based technology platform for the diagnosis and treatment (theranostic) of cancer system diseases.

The technology developed by Cericol is based on a nano carrier system to be employed as a theranostic tool for the treatment of cancer and/or aging-associated neurodegenerative diseases.

The theranostic approach (therapy and diagnosis) takes advantage of the possibility to employ nanostructured materials simultaneously as multifunctional platforms for hyperthermic treatment, controlled drug release and imaging/sensing applications.

The hybrid nano-system envisages an innovative treatment (RF and drug release) of several diseases based on the self-accumulation of the nano-carrier onto the target site of different solid tumors thanks to the specific recognition between antibodies (carried by the nano-carrier) and tumoral markers.

One of the main drawback of the nano-drug delivery is represented by the targeting issue: the accumulation of nanocapsules onto the target tissue is regulated by several factors as their ability of reaching complex and anatomically different tumoral tissues, their ability of recognizing specific moieties expressed by tumoral cells (antigens) and, finally, their ability of escaping the immune system.

To solve the limits encountered by this approach our group has recently developed a robust technique to load hybrid nanoparticles into immune cells still maintaining their viability and functionality unaffected. This method implies the preparation of products based on live-cells with the aim of enhancing their therapeutic, diagnostic or preventive effect.

This technique could allow a custom, patient-centric and precision therapy against severe diseases such as malignant melanoma or, in the neurological field, the multiple sclerosis.

On the other hand many ethical questions are emerging; especially about using nanostructures conjugated with human immune cells and the use of nano-systems especially in chronic therapies like MS.

Another aspect that must be considered are the issues related to the collection of sensitive data and the use of health status information, present and future of the patient.

Francesca Braca, Massimiliano Franceschi, Antonio Cecchi (Laboratori Archa Srl), Silvia Kull (Techa Srl), Sustainable nano-structured devices with controlled release of bioactive agents for dermo-cosmetic and skin lesions care

The study (NANOCUBE research project) deals with the development of innovative technologies for the production of controlled-releasing nanocapsules and nanosystems based on functional molecules for biomedical and cosmetic applications.

The main goal is to develop innovative active nanometric systems for cosmetic and biomedical applications and in particular functional nanofibers for dermal treatment and functional nanocapsules, 100% vegetal derived, with triggered release of essential oils for cosmetic and dermocosmetic use (Medical devices class 1 non sterile) on self-supporting patches for the treatment of chronic wounds.

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The strategy is to protect the active principles by incapsulation into nanoscaled products, preserving their activity and improving their shelf-life.

According to these premises, the research aims to meet the needs of the market, overcoming the barriers that limit the industrial development and commercial exploitation of nanosystems, through careful selection of materials processed by electrospinning and electrospraying.

The most important result is the identification of several hydrosoluble polymers, also plant derived, which are used to produce nanostructured fibers and beads: starting from the state of the art and patents analyses, the selection of raw materials and commercial products for the production of shell polymers, both natural and synthetic and core materials (water-soluble as ascorbic acid and polyphenols extracted from Olive oil Mill Wastewater and essential oils) and other additives (surfactants, emulsifiers,...) has been carried out.

The tests conducted have identified the most suitable operating conditions to obtain both nanofibers and nanocapsules and to control their morphology. The systems based on PVA and sodium alginate with functional molecules are obtained and the encapsulation efficiency and the release factors of the active principle have been studied. The results have to be validated according to several performance tests like release test, the antimicrobial test efficiency and the cytotoxicity effect of the developed products.

Finally, the subsequent development and further optimization of the applied technologies will allow a decisive technological advancement in the nanomaterial sector, applicable to different areas other than cosmetic one.

Emad Yaghmaei, Steven Flipse, Assessing and improving social performances in R&I projects: Key Performance Indicators for RRI

The promotion of Responsible Research and Innovation (RRI) reflects the need to defend common values and increase the sense of solidarity and cohesion in Europe.

We describe our experience on Key Performance Indicators for RRI within the EU funded project 'PRISMA' (Piloting RRI in Industry: a roadmap for transforMative technologies, 2016-2019 - www.rri-prisma.eu), in which we aim to (1) help industries implement RRI strategies in their innovation processes as part of their CSR policy, and (2) to provide evidence on how an RRI approach can improve the innovation process and its outcomes.

The overall aim of our work is to be of assistance to companies, as they plan to review their Research and Innovation initiatives. We therefore focus on ways and methods to "measure" RRI performances through Key Performance Indicators (KPIs). This might also be used by civil society and other stakeholder groups looking for background to benchmark their organization performance on RRI.

This talk presents the self-assessment RRI performance tool for companies that aim at measuring the performance of individual companies, small and large. It may be a mechanism for companies to measure and compare their own performance over time and against peers. The tool helps companies to tailor their approach to verification to suit the corporate culture, the context and objectives and content of their innovation strategy and commitments in align with RRI principles. The Prisma project has received funding



from the European Union's Horizon 2020 research and innovation programme under grant agreement No 710059.

Workshop 8: ETHICOMP Conference

Sopot, Poland, September 2018

Title: Monitoring and Assessing the Strategic Value of Responsible Innovation

Theme: Responsible Research and Innovation

Programme: Ethicomp conference

Date: 24-26 September 2018

Format: Conference presentations

Duration: 2 session during 2 days

Speakers: *Steven Flipse, Susanne Buehrer, Inga Ulnicane, Agata Gurzawska, Catherine Flick, Malcolm Fisk*

Target audience: Scientists, Industry / Business, Policy makers

Briefing notes:

Monitoring and Assessing the Strategic Value of Responsible Innovation

Emad Yaghmaei chair a track in the *ETHICOMP Conference*, to be held on next September 24-26, 2018 in Tricity, Poland.

The track was named "***Monitoring and Assessing the Strategic Value of Responsible Innovation***".

The track aimed:

- To deepen understanding of whether and how RRI leads to measurable societal, democratic, scientific and economic benefits to help stakeholders to improve the outcomes of R&I.
- To identify opportunities for the integration of RRI in industrial practices by way of in-depth case studies, exploring potential paths for the responsible development of applications, products and services in key industrial sectors.
- To assess/measure the strategic value of RRI by defining up-to-date methodologies to assess and measure the value of RRI (e.g. risk assessment, impact assessment, and technology assessment initiatives) as well as benchmark indicators aligned with usual business practice.

Full papers of 4000-8000 words, including references were submitted. As track chair, Emad found at least two reviewers for each abstract/paper in the Prisma track. Papers were peer reviewed and presented at the conference.

The Prisma track timeline:

22/09/2017: The Call for tracks for the Ethicomp 2018 conference was out.

11/10/2017: The ***Monitoring and Assessing the Strategic Value of Responsible Innovation*** track was submitted from Prisma project.

03/11/2017: The Prisma track was accepted for the Ethicomp conference.

10/01/2018: Abstract submission deadline



24-26/09/2018: The organization of the track at the conference venue.

Agenda:

Tuesday, September 25th

16:30-18:00 Session 9B: Responsible Research & Innovation

16:30 Monitoring the value of RRI in industrial nanotechnology innovation projects, *Steven Flipse, Elvio Mantovani, Andrea Porcari and Emad Yaghmaei*

17:00 The benefits of RRI - the researchers' view , *Susanne Buehrer, Ralf Lindner, Jack Stilgoe, Niels Mejlgaard, Angela Wroblewski, Erich Griessler, Ingeborg Meijer, Richard Woolley and Viola Peter*

17:30 Responsible Dual Use Research and Technology: Towards a Novel Framework, *Inga Ulnicane, Tyr Fothergill and Bernd Stahl*

Wednesday, September 26th

09:30-11:00 Session 10B: Responsible Research & Innovation

09:30 Strategic Responsible Innovation Management (StRIM) – A New Approach to Responsible Corporate Innovation Through Strategic CSR, *Agata Gurzawska*

10:00 Priorities of industry in engaging with RRI - a matter of trust, *Catherine Flick*

10:30 Broadening the Scope of RRI to Recognise the Importance of the Silver Economy: Lessons from the PROGRESSIVE Project, *Malcolm Fisk*