Introduction

According to the European Commission, responsible research and innovation (RRI) is a transparent, interactive process in which societal players and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its (marketable) outcomes and impacts.

The RRI framework consists of six key areas of action:
- *public engagement;*
- *gender equality;*
- *science education;*
- *open access;*
- *ethics; and*
- *governance.*

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1. THE OVERALL OBJECTIVE OF THE CONFERENCE AND THE CONCEPT OF RRI

The conference was aimed at highlighting work undertaken by the EESC and four projects funded under the 7th Framework Programme for Research and Development: Great, ProGReSS, ResAGorA and Responsibility. The purpose of the conference was to present findings, conceptual developments, specific messages and policy recommendations so as to contribute to the development of evidence-based research policy in Europe and its Member States. By highlighting current practice and factors that influence the success of RRI, the conference provided insights into good practice that can be the basis of future policy.

Main issues raised concerning the concept of RRI

RRI is still an **emerging concept** and its definition is not clear to or shared by everyone. Different participants put different things into the concept and RRI is also not perceived in the same way in different countries. An RRI agenda seems to be developing in Europe, but there is no single, simple trend or model of it across European countries and organisations.

RRI often covers other concepts such as bioethics and ethics, safety, sustainability, gender equality, diversity and, particularly in the industrial context, **corporate social responsibility** (CSR). Some players understand responsibility mainly in terms of economic growth, to create jobs, particularly in times and areas of economic crises; for others, responsibility means tackling societal needs, such as societal challenges.

In private companies, RRI is little known as a comprehensive concept and only those who participate in the framework programmes, like Horizon 2020, know about it. However, many companies address topics that are covered by RRI through other concepts such as CSR, community development, diversity management, gender equality and sustainability.

The gender aspect of RRI is the most well-known in companies but almost entirely interpreted as equal representation of men and women at all levels and not as considering gender in the innovation process. Ethics is frequently mentioned but has different meanings in business than in academia (research ethics, research integrity). Differences of understanding exist between companies that operate in the health sector – where it is interpreted as the ethics of biomedical research – and those operating in other sectors, where ethics is often synonymous with anti-corruption compliance.

Sustainability is a key issue mentioned in many firms, but not covered by the present European Commission definition of RRI – meaning that not only products and services but also internal processes should be sustainable in terms of using little energy and generating no environmental harm.

❗ The big problem is to go from definition to implementation!

❗ How can we try to implement this new approach to both R&I when these are two different concepts? Research is about creating knowledge and innovation is about creating value – there can be research without innovation. All the norms need to reflect this difference!

Specific recommendations

➢ How to make RRI enter the real world? Let the real world enter into the research first by changing research and funding systems.
➢ We have enough information concerning RRI and it is time to begin experimenting with standards; the way forward is to begin writing procedures for RRI, to try to institutionalise it and see what is going wrong.

- ➢ There are already bodies and orientating frameworks that foster debate on the desirability of R&I. We have to start from them and improve the systems.
- ➢ The R&I indicators need to be revisited.
- ➢ Policy-makers and academic circles should be informed about the work done in this field and provided with specific examples of how to deal with RRI.
- ➢ In the US, UK and Australia, the *impact movement* has emerged. Researchers at universities now have to show the impact on society (in US, it is called broader impact). If you are publicly funded, you have the obligation to show the impact on society. This tendency should also be taken up in the EU.
- ➢ Institutional conditions in which researchers are working must be shaped in a responsible way.
- ➢ RRI cannot be ensured/installed in a solid way – it has to be carried out, more than materialised.
- ➢ RRI should be made mandatory in the R&I calls.

Specific examples of RRI
(For some of the participants, specific examples of RRI do not yet exist.)

- ➢ use of traditional knowledge of the South African community San about plants to produce an anti-depressant organic pill (involvement of the community in the R&I process)
- ➢ social alarm systems made with early engagement with stakeholders which allows co-development and continuous feedback
- ➢ sustainable approach in Nestlé[1]

Specific examples of irresponsible R&I

- ➢ GMOs are not irresponsible but the way they were brought to the market is (technology push as a product-acceptance strategy does not work).
- ➢ Biometrics (like body scanners) raised questions regarding privacy, coercion and solidarity.
- ➢ Neglect of basic principles – in the case of electronic patient files, the question of who owns the data was neglected and the result was a huge loss of money.
- ➢ Lack of foresight and precaution – in the case of asbestos – it was banned only 100 years after it was identified as a potential danger.

2. RRI AND INDUSTRY

There was quite a low involvement of industry at the conference (26 of 318 registered participants came from industry). The general observation was that industry is missing in the discussions about RRI. Academia and industry need to find a common ground for discussion as the discussions are closed inside these two circles.

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[1] See point 3.

Representatives from industry stressed the difference between research (which is public or industry-related) and innovation (which is mostly industry-related). The mix of these two concepts in the field of RRI is very complex.

One representative from industry pointed out that people from industry were not present at this conference because they think the discussions are not yet specific enough, not relevant enough to have an impact on what they do. Innovation is about applying knowledge to create value and industry is not necessarily interested in finding another process or system or another way of doing research. The issue for industry is not to how to innovate but how to make sure that the innovation creates value and will be profitable for the company.

Another representative from industry mentioned the [Business council for sustainable development](#) which is an organisation of forward-thinking companies that galvanises the global business community to create a sustainable future for business, society and the environment. They published the [Vision 2050 report](#), an industry-driven vision presenting things that must happen over the coming decade to make a sustainable society possible (drawn up by 29 leading global companies from 14 industries in dialogue with 200 companies and stakeholders).

3. RRI AND THE SUSTAINABLE APPROACH IN NESTLE

Anne Roulin, vice-president at Nestlé responsible for sustainability, pointed out that in Nestlé the concept of RRI is not used as such but that Nestlé has been working for years in this direction. It is anchored in their business principles that cover consumers. They have external commitments and report on them annually. They are also measured on this by external rating agencies: they fill out every year the [Dow Jones sustainability index](#) (companies are selected for the indices based on a comprehensive assessment of long-term economic, environmental and social criteria that account for general as well as industry-specific sustainability trends). The [Access to Nutrition Index](#) was also completed, along with many others. All the results are made public.

For a company the size of Nestlé, RRI cannot be implemented only in isolation within R&I activities but it has to be anchored in the way the company does business. Nestlé is quite advanced in this field. In all their projects, they look at the commercial sense of the innovation, the technology available, if the product is designed by the consumers, is sustainable and creates shared value. All products go for consumer testing (at the very early phase of ideas – discussed in consumer focus groups) and through blind testing (with competitors' products) with consumers.

Nestlé launched a new approach called **sustainability by design**. This approach starts at the beginning of the product development cycle (if the assessments are done later on, it is too late). All the product developers have practical tools that allow them to make fact-based decisions. Full life cycle assessment to be done properly requires experts, but not all of Nestlé's 4 000 R&D employees are experts in life cycle assessments. Together with an external company, they developed a tool based on life cycle assessment which allows the environmental impact of a product to be calculated. This covers the whole value chain (agriculture, processing, packaging, distribution...). The tool allows a series of indicators to be calculated: greenhouse gas emissions, non-renewable energy, land and water use, biodiversity loss. To comply with this, all product developers have check lists. This approach is

mandatory for all of Nestlé's 12 000 R&D projects. As they were missing upstream agriculture data, they formed the World food database group to develop a set of life cycle inventory data on agricultural impact. This will be soon published.

Nestlé is also working on how to analyse **social sustainability**. The methodology does not yet exist so cannot yet be applied to the whole company as with environmental sustainability. An industry working group is now looking at practical ways of measuring it. They are working on a case study with one of their suppliers on milk products in Pakistan. Social sustainability assessments are currently being developed in Nestlé.

According to Ms Roulin, the private sector is already doing a lot in this field but is not calling it RRI.

4. RRI AND LINKS WITH OTHER CONCEPTS

Technology assessment (TA)

RRI and TA have a lot in common, e.g. inclusiveness. But the RRI concept is broader and contributes to community building. Whilst TA is integrated in decision-making at the policy level, RRI goes a step further and is included in the R&I process itself. The issue is how to mainstream RRI and TA in modern society. TA has an experience with this mainstreaming process (which is still ongoing). In the 70-80s, TA was in the same situation as RRI is today, trying to be mainstreamed, to change the innovation systems in a democratic way. RRI draws on the body of knowledge and experience provided by the history of TA.

Corporate social responsibility (CSR)

The connection between CSR (well established) and RRI (an emerging concept) is being explored. Whilst RRI was originally developed for the public sector, CSR targets the private sector. It can be seen as an expression of corporate strategy, corporate identity and market power. CSR decisions are driven by the values of stakeholders. In contrast to that, RRI establishes procedures to better integrate societal needs in the process of research and innovation and its methodology is centred on the equal roles and responsibility of societal actors and innovators.

Inclusive innovation

This concept concerns the shift of innovation towards products and production processes for the poorer part of the population in developing countries (people who have emerged out of poverty but are still poor). For example, new products geared towards poor consumers like smaller and cheaper tractors, sewing machines etc. There is an important engagement of consumers in the process of innovation itself.

Reverse innovation

This process starts from a very technical and complicated product made in Western countries, which is designed in a much cheaper way for developing countries and keeps only the basic and most

important functions. But this simplified product is then very successfully sold back in the developed countries.

The very interesting example of Colalife was mentioned: Coca Cola is using its distribution chain worldwide (which is everywhere in developing countries) to open up private sector supply chains for simple medicines.

UN Sustainable Development Goals (SDG)

Harvard Business Review (HBR) referred to 10 events in 2015 that changed and stimulated sustainable entrepreneurship in the world. The results of the Paris climate conference, the new UN "Sustainable Development Goals" and the plan of American scientists to achieve by 2050 a completely sustainable energy system in 139 countries across the world.
Sustainability is a central concept and eight of the SDG are linked to RRI.
Sustainable innovation is also innovation for society (like responsible innovation) and public engagement is central in sustainable innovation.

5. BUILDING A COMMUNITY OF PRACTICE

A global observatory for international responsible research and innovation coordination has been set up and its aim is to become an attractive and useful resource for the entire global RRI community. The RRITrends website was also created to provide an overview of current European developments and experiences with RRI and to monitor recent activities in RRI in a number of European countries. RRITrends informs the interested public, stakeholders from research, industry, civil society, as well as policy-makers at the European and national levels about recent developments in RRI and about instruments promoting RRI.
The objective of **RRI Tools** is to develop a set of digital resources to advocate, train, disseminate and implement RRI under Horizon 2020. A **RRI toolkit** will be produced and an online platform will be developed to host the tools and to serve as a basis for the community of practice.

6. PRACTICAL DETAILS

225 participants (318 registered) from research and academic circles, policy-makers, civil society organisations, industry representatives.

6 plenary sessions, 6 parallel sessions, 4 workshops and 2 open spaces.

The event was moderated by Ms Vivienne Parry.