

# **/Responsible-Industry**

Benefits of Responsible Research  
and Innovation in ICT for an ageing society

THE RESPONSIBLE-INDUSTRY PROJECT CONSORTIUM

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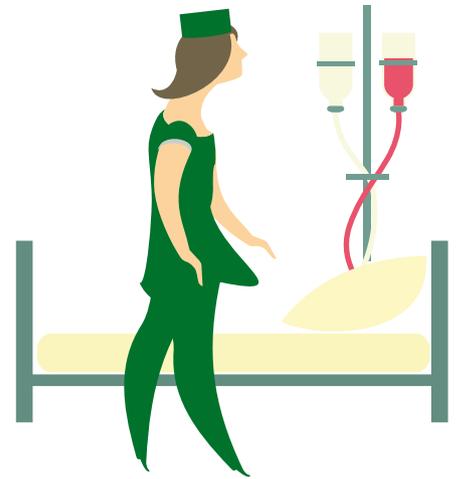
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**HOW TO APPLY RESPONSIBLE RESEARCH AND INNOVATION (RRI)  
IN INDUSTRY – AN INTERACTIVE GUIDE**

<https://www.youtube.com/watch?v=Z0GnZr6Ki1g>



# WHY SHOULD YOU CARE?

As a senior executive of a company in the field of ICT for healthy ageing or e-health, you are part of a very dynamic market. Your innovations address one of the most pressing challenges of the future.

**Y**ou are passionate about developing products that improve people's lives but you're not alone. Today there are approximately 25,000 companies like yours in Europe. **What makes you stand out from the crowd?**

Today, the users of your products are increasingly active and engaged consumers, especially when it comes to their health. As you know, people are more and more aware of the consequences of their purchases. Your users have specific needs. You must be sure to respond to people's expectations! The vast majority of consumers agree that development in science and technology could make changes to their lives too quickly and have negative side effects on health and the environment. Social and environmental impacts are increasingly complex and companies need new ways to manage this. **You need to demonstrate you are ethically, socially and environmentally responsible.** You want to make sure you connect with your customer, and provide them the best products and services. Integrating principles of responsible research and innovation in all your research and development activities will help you achieve this goal.

Responsible Research and Innovation (RRI) aims to motivate social actors to work together throughout all research and innovation processes. This aims to ensure that processes and outcomes of research and innovation meet societal expectations. **RRI is an answer to the demand arising from society that safety, desirability, acceptability and quality should be the basis of the design and realization of research and innovation products.** RRI is intended to build on but go beyond existing initiatives for responsible business governance that are already in place in enterprises, such as CSR (Corporate Social Responsibility) initiatives. Early engagement with EU policy will furthermore allow companies to understand the emerging regulatory framework. Companies can contribute to shaping regulation and ensure that they are early adopters and in a good position to comply, sending a positive message to customers as well as regulators. The Responsible-Industry project undertook a number of in-depth case studies with companies in Denmark, Finland and Spain to explore the role of RRI in companies in practice. One of the companies that were investigated in detail is the Finnish Evondos.

evondos®

WE AGREE THAT DOING RESEARCH  
AND INNOVATION RESPONSIBLY BENEFITS THE COMPANY  
AND CONTRIBUTES TO MAKING A BETTER WORLD.

Evondos Oy has developed an automatic medicine dispensing service for persons with chronic conditions or dementia, or the elderly who receive home care. The service consists of an automatic medicine dispenser and Telecare System, and it utilises the solution of automated dose dispensing provided by pharmacies.

The Evondos service guides the client to take the right dose of medication at the right time, which considerably improves the client's wellbeing and sense of independence. The service enables the reform of home care and the caregiving models of the elderly while enhancing the communication between the client and the caregivers, and freeing up time for direct care and interaction with the client. The service improves the quality of care and introduces significant direct cost savings.<sup>1</sup> As Jyrki Niinistö, CEO, Evondos Ltd put

<sup>1</sup> <http://evondos.com/>

it: "Stakeholder engagement is a vital part for the design and implementation of our service. We believe that user feedback and co-creation of the medicine dispenser are critical source of information to make easy-to-use and cost-effective service for home care application and continuously improve the service and propose new innovations based on that dialogue. We have created a practise that all persons who are doing technical or service design need to go to the home care context and familiarise with the process in order to understand the context of use in real life".

This inclusive approach to research and innovation has contributed to Evondos having been awarded the Health Innovation of the Year 2017<sup>2</sup>.

<sup>2</sup> <http://evondos.com/evondos-is-the-health-innovation-of-the-year/>

# WHAT DOES IT MEAN?

On the one hand ICT holds a huge potential for management and delivery of health and social care to an ageing society and offers increasing opportunities for independent living. On the other hand, there is a growing concern about the possibility that these technologies, like other innovations, could raise ethical issues and fail to meet societal needs and expectations. Ultimately, this could severely limit their acceptability and marketability.

**P**eople have many concerns about ICT and how it may affect their rights and values. Key values of relevance in this field include **individual rights and liberties** (privacy, data protection, rights to freedom of movement, etc.), **personal safety and health, and autonomy, authenticity and identity** (impact of technology on free will, ability to have one's own thoughts and make one's own decisions, to develop own social identity). Further concerns include **implications for quality of life, social isolation, integrity and dignity, bodily integrity** (self-determination of human beings over their own bodies), **social safety, justice (distributive) and access to developed technology, equality** (equal opportunity of human beings in society: age, culture, gender etc.) and **dual use** of developed technologies

A Delphi study<sup>3</sup> undertaken by the Responsible Industry Project has indicated that amongst the enabling technologies<sup>4</sup> that support ICT for ageing, the following raise high ethical concerns:

- **Transmission of data to a third party** (e.g. transmission of personal data from the user's smartphone to e-service portals)
- **Technologies for data management, such as Data Storage and Data analysis** (e.g. cloud computing)
- **Real time monitoring of the user lifestyle through "sensing systems"** (e.g. environmental sensors for surveillance applications at home)

<sup>3</sup> E. Borsella et al. Responsible Industry, Delphi Exercise Report

<sup>4</sup> See more on the list of ICT technologies in the AAlliance2 Project Roadmap, 2014



- **Brain-computer interfaces “Reasoning systems” for medical data analysis**  
(e.g. detection of trend anomalies in vital signs to alert caregivers or family members)
- **“Reasoning systems” for privacy-sensitive data analysis**  
(e.g. noise analysis for activity recognition)
- **“Action enabling technologies”**  
(e.g. automatic control through actuators, artificial muscles)
- **Machine to machine “communication systems”**  
(e.g. transmission of medical data from the user smartphone to care management portals)
- **Human-machine interaction**  
(e.g. robotics)
- **Social Networking Techniques**  
(e.g. location based social networks)
- **Health monitoring through “sensing systems”**  
(e.g. wearable or implantable sensors for daily monitoring of physiological parameters)

## RESPONSIBLE INNOVATION IS SMART BUSINESS

In 2008, with the aim of attaining energy efficiency, legislation was proposed to the Dutch Parliament, which would require a mandatory installation of smart meters in every household in the country. By that time, multi-million euros had been invested in the development of smart meters. However, there was a lot of consumer resistance because of privacy concerns. The Dutch Consumers' Association did a Privacy Impact Assessment of the proposed meter and argued that it was not in conformity with European legislation protecting privacy. As a result of consumer pressure, the Dutch parliament rejected plans for the mandatory installation of smart meters. The delays in the program that this brought and the redesign that was necessary to better meet privacy concerns cost millions of euros. Many of the concerns about the privacy of smart meters could have been mitigated through Responsible Research and

Innovation, by taking account of the values and interests of consumers in the process of developing and introducing novel technologies. For example, the concern that smart meters are unsafe because they can be accessed by third parties for criminal or spying purposes could have been mitigated by designing smart meters that use end-to-end encryption, which allows for a secure communication between the supplier and the consumer and cannot be intercepted by third parties, such as insurance companies, rival energy suppliers, government agencies or criminals.

**The Dutch case of smart meters shows that there is a practical imperative for innovators to build trust and confidence in their technologies by taking account of the values and interests of stakeholders in the process of developing and introducing novel technologies.**



# WHAT ARE THE BENEFITS?

**A**dopting RRI will generate numerous benefits for your company. These include:

- **Strengthening links with customers and end users**
- **Enhancing the company's reputation**
- **Decreasing business risks and unintended consequences**
- **Strengthening public trust in the safety of products**
- **Increasing acceptability of products**
- **Adopting an environmentally friendly profile**

In particular, **RRI will contribute to enhance your company's medium-term competitiveness/profitability**, so improving the bottom line and the company value.

## HOW WILL THE BENEFITS BE ACHIEVED?

- By better understanding customers getting insights into their needs and preferences.
- By better matching societal expectations
- By undertaking foresight activities as part of risk management
- By stimulating and motivating the workforce
- By mitigating environmental impacts
- By ensuring compliance with qualified norms and standards

## HOW DO YOU KNOW IT WORKS?

**We have tested a number of key performance indicators (KPIs) that can be used to check the results of using RRI.** Your company may already use some or most of these.

Our research indicates that these KPIs give an indication of the success of RRI. KPIs typically have to be specific for the company in question. This is a list of KPIs that we have tested during in-depth case studies:

- Strategic value of the project to the customer
- Company's own project management skills
- The R&D culture of the customer
- Communication and cooperation quality
- The role of societal aspects such as sustainability and health
- Technological project superiority
- Recall of products
- Safety of the service
- Reliability of the service
- Customer satisfaction
- Top service/product quality
- Innovativeness
- Usability
- Productivity

Our research has shown that these KPIs can be used to demonstrate the positive impact that RRI has on the company.



## IBERMÁTICA, A COMPANY THAT PUTS ITS ROLE IN SOCIETY CENTRE STAGE

One of these in-depth cases covered the large company Ibermática, S.A., one of the top Spanish ICT companies with more than 3,150 employees in more than 20 offices in different countries and an annual turnover of 234 million euros.

Ibermática<sup>5</sup> benefited from RRI in that it allowed the company to reflect on their current and ongoing commitments and activities, as expressed in the following quote:

“We at Ibermática are very concerned about our role in society and, being a large enterprise, our responsibility for present and future generations. So, we were the first Spanish ICT company to obtain the bequal 007/2015 certificate on social responsibility (with regard to disability). Thanks to our collaboration with the Responsible-Industry project, we reflected about 29 of our ongoing R&D projects regarding their impacts on RRI, which led to new and useful insights to us”.

Elena González, Innovation Manager

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<sup>5</sup> <http://www.ibermatica.com/en/ibermatica/who-we-are>



# WHAT DO YOU NEED TO DO?

**T**his brief document aimed to demonstrate to you the importance of embracing RRI for your company.

You will now be curious how to put these ideas into practice and how to transform your company into one that embraces RRI.

Operationalization of RRI is a complex business and there is need to put it in practice on a case-by-case basis.

In this context, as a significant and challenging bench test, **the Responsible Industry Project specifically aimed to integrate principles and methodologies of RRI** into the research and innovation processes developed by industries active in **the domain of ICT for an ageing society.**

The project developed a **Guide (the Responsible Industry Framework)** providing strategic options and recommendations for industrial actors to enable them to pursue responsible practices and behaviours when developing devices, products and services,

that sit on four pillars:

- Locating responsibility within the organization
- Integrating RRI practices along the R&I value chain
- Performing analysis of ethical and social impacts
- Adopting voluntary governance tools for R&I management

The Guidance document is an output of the ‘Responsible Industry’ project. Its content is drawn from the insights that have arisen from the project activities so far. It is part of a set of documents downloadable at the project web site<sup>6</sup>.

**For more information please check the Responsible Industry website:**  
[www.responsible-industry.eu](http://www.responsible-industry.eu)

<sup>6</sup> Porcari et al., Framework for implementing Responsible Research and Innovation in ICT for an ageing society

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- Orbit (Observatory for RRI in ICT) is a project that will continue much of the work of Responsible-Industry. Orbit helps you self-assess your company or project, engage with experts on RRI, find support in developing projects and processes of research and development that are responsible. The Orbit website contains the key output of the Responsible-Industry project and further guidance and documentation.

**[www.orbit-rri.org](http://www.orbit-rri.org)**

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