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LIST OF ABBREVIATIONS

Acronym	Description
B2B	Business to Business
B2C	Business to Customer
CEO	Chief Executive Officer
COO	Chief Operative Officer
CSR	Corporate Social Responsibility
CTO	Chief Technology Officer
MNC	Multi National Company
RRI	Responsible Research and Innovation
SDU	Southern Denmark University
SME	Small or Medium size Enterprise
VTT	Technical Research Centre of Finland VTT Ltd

Executive Summary

This report presents the description of progress and some initial findings of comparative pilot projects (in this deliverable called “cases”). The objective of the comparative pilot projects is to identify how the Responsible Research and Innovation (RRI) implementation plan developed previously works along the different activities of the value chain, to test its applicability and how it could possibly influence research and innovation within an industrial environment. After several stages in development of selection criteria, we have selected one pilot case in Denmark and two cases both in Spain and Finland. The meaning of “case” in this context is that each company is offering its product or project for more detailed observations in the form of interviews and workshops: a pilot case in Denmark (D 2.5) enabled the testing and development of the case study protocol (D 3.1) that was followed in the later cases.

As a preliminary result from the case studies, we can conclude that companies saw this kind of thinking and exercises as important and valuable for the development of their performance and processes. The case study companies had a willingness to familiarize them with the theme and they also had similar activities already in their processes as we presented in the Responsible Research and Innovation (RRI) framework. Some of these companies already work in strictly regulated context (hospital, home care) where they need to follow international standards, laws and regulations regarding to health care services and devices. National and international law and regulations touch all companies at some level (e.g. data protection, privacy issues) and these regulations give companies a basic framework for making their products and services in an accountable manner. Regulations give protection both to the customer and the company. However, responsibility as a concept and RRI as a framework extends beyond the legal and regulative framework which can be seen as a liability or an accountability approach – it is the ability to do more than required by law and see the benefits of that extra effort at some tangible (e.g. economic) or intangible (e.g. inspiring working environment, a brand building) form.

Implementation of these RRI activities in the companies’ day to day work is still challenging. A Key Performance Indicator (KPI) approach seems to be a promising one, when presenting and linking RRI-based aspects to the company’s own performance measures. It was stated for example in one of the discussions with the companies that there is a clear lack of incentives and the participants suggested that training would only be implemented in publicly funded Research and Innovation activities if these KPIs were requested by a directive or regulation from the funder. Many of the suggested tasks of RRI framework for the research and development were already implemented in these companies at some level (e.g. user engagement, social responsibility, ethical issues) but the whole RRI framework as such focusing especially to the research and innovation activities was not explicitly present.

The next steps in the case studies are to finalize the last formal tasks in the protocol (i.e. organize the last workshops and 2nd round of interviews). After the analysis of this data, we

will once again approach the companies in order to validate our analysis and results. Finally in the last phase of this process we are able to give some more general recommendations for the development of the framework and implementation of RRI in the specific cases.

This deliverable is structured in the following way. First, we offer a short summary of D2.5 (Pilot project mid-term report) and then give the presentation of the progress and current status of the pilot projects. We will close with some preliminary findings and give a view to the next steps with the projects as well as some insight into the exploitation of this work.

1. Introduction

The objective of the comparative pilot project is to identify how the Responsible Research and Innovation (RRI) implementation plan¹, that has been developed earlier, works along the different activities of the value chain and to test its applicability and how it could possibly influence research and innovation within an industrial environment. The previous pilot project mid-term report D2.5 described the progress of comparative pilot projects (i.e. cases) from December 2014 to September 2015 and identified potential challenges, drivers, and requirements for RRI in industry. The pilot project final term report, D2.6 describes the progress and status till November 2016. However, as some activities with some cases are delayed due several reasons (i.e. changes in company management, difficultness to find common time for workshops), this report cannot give final outcomes of the process with all cases yet. In addition the final analysis of the collected data is to be done in the next stage by Work Package 3.

The studies started in Month 11 of the project and took place in two main stages including 'case study design' and 'data collection and data analysis'. All cases are in the domain of Information and Communication Technologies (ICT) for health, demographic change and wellbeing. However, the projects that are involved as cases may vary somehow from each other as was defined in selection criteria (i.e. large multinational companies vs. small companies). One of the first steps in the case studies was to develop and modify procedures in order to select and justify candidate cases. The first stage was to do a pre-test, developing and testing the method and approach. For this purpose, a SME in Denmark was identified and analysed. Based on these results, four enterprises in two different countries (Spain and Finland) were selected for the cases according to criteria (below).

Set of operational criteria:

Company level:

- Size of company: e.g. Small or Medium Enterprise (SME) or Multi National Corporation (MNC)

¹ The term "implementation plan" was superseded by the term "framework", as it became clear during the earlier stages of the project that a uniform plan will not be applicable to different companies. This framework is available from the project website: <http://www.responsible-industry.eu/activities/framework-for-implementing-rri>. For the purposes of this deliverable we will continue to use the term implementation plan, as this is the term used in the projects Description of Work.

- Company business strategy: Business-to-Business (B2B) or Business-to-Consumer (B2C)
- Company ownership/legal form: stock-market, privately owned
- Sustainability Report: availability of a sustainability report of similar document
- Financial Screen: positive 3 year pre-tax earnings, negative 3-year average earnings
- The ratio of men to women
- Company age
- Source of funding of company: public vs. private funding
- Company RRI awareness level
- Interviewee time employed: 1-5 years, 5 years or greater
- ICT category: Assistive technologies, technologies for physical prevention, and technologies for rehabilitation

Project level:

- R&I project type: hardware-oriented, software-oriented
- R&I project age
- Source of funding of project: public vs. private funding
- Project RRI awareness level

Product level:

- Product age
- Impact analysis of ICT products/services: Yes including ethical and social impact analysis or No.
- R&I product stage - Technology readiness levels (TRLs): seeking to assess the added value of the implementation plan, the same levels used in the Delphi study (WP2) are used to address the potential societal risks and ethical issues within cases were defined:
 - Early planning stage/Agenda setting
 - Basic technology research
 - Proof of concept
 - Prototype demonstration
 - Product development, engineering and testing
 - Go to market

Using an iterative procedure, the first step of the case selection process by VTT and TECNALIA comprised 11 enterprises from Finland and Spain, respectively. Then more responsibility-related data from each enterprise were collected and compared, so that a final selection of four complementary and representative cases in Finland or in Spain was obtained. Finally pilot projects were selected based on the criteria at different stages after a quite thorough negotiation phase of collaboration between project and case study candidate industry representatives. The purpose of “comparative pilot projects” (case studies) is to assess the relevance, quality and usefulness of the RRI implementation plan [1].

2. Summary of Cases

The first and the test case for developing the approach and methodology was a Danish SME developing interactive ICT solutions for elderly people to help them living longer at home and supporting their independence in their everyday lives. One of the projects from this company was chosen where an ICT platform had been developed in collaboration with primary end-users and care professionals.

In February 2015, SDU approached the Danish company's board to arrange mutually convenient time for applying our methodologies within this firm. The process of collecting data was finished in September 2015. This company was considered as a test pilot case for verifying the model and according to the obtained outcomes from this case, we further developed interview guidelines.

The first actual case company is a Spanish SME that had been leading and had participated in Active and Assisted Living (AAL) –program projects. The company had a B2B business strategy, was privately owned, with positive 3 years of pre-tax earnings, and involved in assistive technologies. We contacted the CEO of the company on 11 June 2015 and got his commitment to participate in the case study.

The second Spanish case is a MNC. The company is privately owned, has B2B business strategy, is active in terms of sustainability, and had positive 3 years pre-tax earnings.

The third company is a Finnish healthcare service company at a stage of intense growth. The company has developed a unique solution for those with dementia, the elderly and persons receiving home care who need long-term medical treatment.

The fourth case is a MNC and conglomerate which has subsidiaries in various areas and offices all over the world. For the RRI case study, the company offered a project about wireless monitoring developed mainly in their Finnish office. In both of these Finnish cases ageing covers both the end-users (aging population as the end-users of the technology – ageing at home or in hospital) and on the other hand ageing personnel who are working in the context (home care or hospital).

3. Development of the Case Study Method

The data collection method was defined previously in the case study protocol (D3.1). The participants for the study (employees from the selected companies) were interviewed by means of semi-structured interviews.

3.1. Development of Interview Guideline

During the general project consortium meeting in Karlsruhe in May 2015, it was decided to work on the potential usages of the RRI implementation plan with a view to improving its usability for various stakeholders. For the validation and modifications of the implantation

plan, we agreed to focus the study on RRI good practices that could then be used to ascertain whether the RRI implementation plan was fit for purpose and how it needs to be further developed. The following criteria for RRI good practices helped SDU to frame interview guidelines for the case studies. In addition, SDU integrated usage scenarios into the interview guideline that described expected ways of using the RRI implementation plan:

- Company vision in relation to the RRI aspects
- Alignment of a company's research and innovation (R&I) with societal challenges, users and social needs
- R&I-based products taking into account ethical and societal issues
- Company structures and processes integrating RRI aspects
- Stakeholder/user engagement in the R&I process
- Adoption of preventive measures (e.g. technical solutions)
- Ongoing assessment and management of impact
- Open access to information and data on R&I processes
- Information and communication with stakeholders
- Training and multi-disciplinarity of professionals
- Cooperation, networking with stakeholders
- Long term impact analysis
- Gender related issues or concerns explicitly observed

In light of these important findings from the Delphi study and according to the stages of the RRI implementation plan, SDU designed the interview guidelines. These stages were identified and are presented here in three overarching categories:

- Issues pertaining to RRI awareness
- Assessment of the company's RRI level (RRI assessment)
- Implementation of RRI practice and integration of RRI principles in daily work

SDU designed 3 types of interview guidelines for 2 rounds of interviews in order to engage company employees in the case studies from a various position in the company: CEO/high level strategy manager, CTO/high level tech manager, the marketing or sales or CSR manager, the Research and Development (R&D) manager, and a member of R&D staff.

3.1.1. Category 1: RRI awareness

Interviewees: CEO/high level strategy manager

VTT and TECNALIA approached the owner, CEO or high ranked managers of the companies in order to present the case study approach for them. When agreement of the effort and benefits of the case study was achieved, only then actual case studies could be scheduled and planned in more details with company representatives. This approach at the top level of the company was assumed likely to be successful if the company is already displaying signs of responsibility (for example having CSR, a code of conduct, a compliance officer in the company, and/or announcing a customer-centric approach as a key element for the development of their product or service, etc.). The message was framed in a specific interview guideline for high level strategy manager(s)/CEO to get a better understanding of their current level and understanding of the responsibility concept in R&D.

SDU applied this method within the Danish company from February to September 2015 where the final interview guideline was developed. The initial meetings with the CEO were held in March 2015 to explain the aims and activities of the Responsible-Industry project, and to highlight the benefits that their company would gain by engaging with RRI. Following that activity, the first round of interviews was done. This interview guideline for CEOs had 25 questions and focused on RRI awareness. In fact at this point it was realized that there is a need to further develop implementation plan and to identify RRI implementation indicators in order to develop a schema of RRI that is suitable for industry and for the specific company. These operational indicators, which come from interviews, assist us in understanding how industry could integrate principles and methodologies of RRI into R&I processes.

3.1.2. Category 2: RRI assessment

Interviewees: CTO/high level tech manager/marketing or sales or CSR manager/Project manager

The second group of interviewees consists of high-level manager(s) in the company who would be in charge of developing a strategy for implementing RRI in their enterprise. VTT and TECNALIA did interviews with these people in the companies to identify their perception about the process of RRI implementation. For this purpose, there was a need to frame the interview guideline as if it was coming to an initial assessment of the current practices of the company. To achieve this, SDU used the RRI implementation plan. It provided the mid-level insights into strategies and activities required. According to that, SDU designed a specific interview guideline for these people. SDU interviewed the CTO and project managers of the Danish company. They answered key questions, such as who would be the person(s) responsible for doing the practical RRI implementation, who would be involved in the RRI implementation plan, which projects or products will be covered etc. One key component of this interview guideline for these people was the assessment. As was discovered earlier in the Responsible-Industry findings, to manage RRI in industry it will need to be done with the help of all members of the company at different organizational levels and positions. This RRI assessment section consists of two main steps: assessment and implementation planning. At

this stage, SDU, VTT, and TECNALIA were seeking to identify RRI assessment operational indicators to align the RRI implementation plan better to industrial activities.

3.1.3. Category 3: Implementation of RRI

Interviewees: R&D manager and R&D Dept. staff

At this stage, VTT and TECNALIA did interviews with R&D managers plus a junior R&D staff to recognize how they implement RRI ideas and principles. This case study looks at the actual practice of RRI in the R&D processes. This is where detailed information can be given on things like the practice and methodologies of stakeholder involvement, the type of project governance structures that allow for reflexivity, details of methodology such as privacy by design. At this stage, the interaction will be with an expert who performs R&D activities, and whose remit has been identified as being capable of benefiting from integration of RRI.

The purpose of doing interviews with the people who are involved in R&D processes, was to help them extend their knowledge of responsibility and RRI ideas and principles and critically reflect on their work. In the Danish company, within the pilot test, SDU conducted interviews with the interactive design manager of the company (R&D manager) and a design developer. SDU designed a distinctive interview guideline for this category where RRI implementation issues were addressed.

After the general project consortium's meeting in Karlsruhe (Germany) in May 2015, where the Responsible Industry (RI) consortium discussed how the RRI framework in industry should be applied, SDU, VTT, and TECNALIA had several internal meetings where they set out above case studies and categories. SDU modified the 1st round of the interview guidelines in accordance with abovementioned categories and designed 2nd round of the interview guidelines. SDU applied 2 rounds of interviews (pre- & -post interviews) for 3 above categories in a Danish company to verify the methods for upcoming case studies in Finland and Spain. For the actual case studies after the 1st round of interviews and workshops, the 2nd round of interview guidelines were modified according to analysis of these activities.

The RRI implementation plan developed in WP2 and applied in the pilot case with the Danish company is a good basis for a discussion about RRI-related issues with employees of the target enterprises. The process of co-creation of the RRI framework by involving four companies or industry representatives will carry on and data will be collected by VTT and TECNALIA. The RRI implementation plan and RRI experts from VTT and TECNALIA can help the company to understand the idea of RRI and discuss together with companies on how to practically integrate RRI in R&D processes.

4. Findings from 1st round of interviews

The 1st round of interviews has been finished both in Spain and Finland. Preliminary findings are summarized in the following sections.

4.1. Case 1: Spanish Large Multinational Company (MNC)

Three groups of employees were interviewed:

1. High level managers: Senior Management, Marketing Director
2. Technological and innovation managers: Technical Director of R&D projects
3. Technical staff or developers: Technical Director of R&D projects, an Innovation Consultant and four members of R&D staff

Results

Theme 1: RRI Awareness

Issue awareness

The interviewees were asked about their awareness of RRI concepts. It turned out that the term “RRI” and the concept as such were unknown to them. However, they were very well aware of related concepts, such as Engagement, Gender Equality, and Ethics.

Acknowledgment of social connection & feedbacks

Regarding the degree to which the interviewed employees acknowledged the social connection between their business, including its supply chain activities and societal actors, it was stated that this enterprise had a business to business (B2B) model, so that they usually did not provide products directly to the elderly people as final users. They often collaborated with health services providers from other Spanish autonomous communities and the specifications of the products were usually defined by experts in ICT technologies, medical doctors in hospitals and therapists in nursing centers who worked with that regional institution.

In a European research and innovation action, the company collaborated with a local cooperative that integrated public service companies with a social initiative, made up of professionals and managers, to respond comprehensively to the social needs of socially vulnerable and dependent people in that autonomous region.

The interviewees reported a close relationship with their clients, having frequent communications on a weekly basis, sometimes even daily. Moreover, on the supply side, many subcontracted suppliers and some project partners had tight collaboration with the company, and even worked inside the facilities of the interviewed company. However, in general there was limited interaction with hardware providers from whom specific products were purchased only once.

Theme 2: RRI implementation

Collective action with external stakeholders

Collective actions with external stakeholders were reported in several interviews. For instance, there had been some pilot studies with medical doctors. The company usually collaborates in their projects with only one external stakeholder in a project, who sometimes happens to be their clients.

Some outcomes of collaborations of such kind were insights into privacy issues and other aspects of acceptance of technology of end users and technical limitations in the homes of elderly people.

Engaging in third party networks

The interviewees mentioned their commitment to the civil society, such as collaborations with an NGO that helped children and events like workshops about ethics with other companies and institutions.

Employee engagement

In general, it was reported that the interdepartmental communication and awareness about the activities of other working groups within the same large multinational company were limited. One tool for improving the exchange of ideas between staff from different departments in different locations was to make use of the company's Intranet.

Furthermore, the company fostered the creation of new business ideas and entrepreneurial spirit within their employees.

Education of their employees was important to the company. Technical staff, for example, were allowed to participate in training activities that had not been directly related to their daily work, but which was useful in more general aspects.

The software developers of the company who participated in the interviews said that training and educational activities in the enterprise involved sharing information among R&D staff and a continuous effort at learning.

Regarding ethical issues, the interviewed people said their superior had explicitly informed them that they should feel free to discuss with him any ethical concern they may have.

Aligning RRI with operational practices and procedures

All interviewees said that the company did not have any explicit internal procedures or organisational structures to exercise RRI principles in their actual production or value creation processes - such as manufacturing, marketing, procurement, or sales - that would have a direct impact on the supply chain.

Anticipatory design

The interviewees confirmed that they had a frequent and tight collaboration with their clients and often even with the clients of their most important clients. In projects with public funding, such as European research and innovation projects, they collaborated with consortia. In either case, the interview partners believed that they applied several aspects of an anticipatory design approach. They considered that user and partners' engagement evokes anticipatory design.

Transparency

Information of most projects has been made public on the company's website and through other channels, except in cases in which there had been concerns regarding the protection of intellectual property of the company.

Theme 3: RRI assessment

Risk identification and risk management

When asked about any potential risks in their daily work in projects and associated mitigation strategies, most interviewees were referring to their answers to risks related to the interaction between their platforms and applications with end users and customers. Frequent meetings with customers help informing the latter in a timely manner about any deviation or problem in the project, so that acceptable solutions could be found together with the customer.

It was stated that most risks were associated with the research and innovation process and only to a lesser extent with the final software products on the market.

The interviewees were aware of risks related to privacy issues of the end users of their software products.

Impact assessment

The RRI-related impact of the company's products and processes were not analysed in a regular and structured way. One comment was that impact was often caused by the used technology in a specific project, not so much by the application field in a broad sense, e.g. health.

In terms of the beneficial impact on society, it was said that it could be considered a necessary condition for the economic success of an innovative software product. The design and development of their products usually was an answer to a demand of the end users, who are part of the society.

Public funded research projects often predict future demands of the society, provided by the funder (e.g. the European Commission and their associated experts) or internal staff, which leads to the evident risk that this prediction may be wrong and the societal need could change in forthcoming years.

Technology assessment

The participants of the interviews agreed that interaction and communication with users of their software products and other stakeholders of the innovation process were important aspects in order to assess the consequences of its use for the society and the environment.

In some of their projects, NGOs, medical doctors, therapists, and organisations that work with the elderly or end users are engaged to provide their expertise and recommendations to evaluate the technologies and their impact, potential risks and benefits.

Summary of findings:

The interviewed employees of the multi-national ICT company with headquarters in Spain had a high awareness of ethics and sustainability. This example shows that such a large company has the economic means to employ several staff members working in the related field of corporate social responsibility, on strategies for the employment of disabled people, collaboration with Civil Society Organizations (CSOs), gender equality policies, sustainability reports etc. These people and their colleagues from the research and innovation department can be receptive entry points for defining strategies for the practical implementation of RRI in large private companies.

Even though the company had a B2B model providing their products and services to other companies and public administrations, the involvement of external stakeholders, such as therapists, caregivers, medical doctors, in all phases of their research and innovation projects with and for the elderly end-users of ICT have been reported being valuable regarding anticipatory design, risk avoidance, acceptance of technology-based products, and privacy issues.

4.2 Case 2: Spanish Small or Medium size company (SME)

We interviewed three people with different, but overlapping roles in the case of CEO and CTO:

1. The CEO participated in the interview with the CTO, since he has been involved also in technical questions.
2. The CTO took part in the interview with R&D staff, because he played an important role as hardware and software developer.
3. R&D staff: a hardware developer.

The semi-structured interviews were based on the previously prepared questionnaires.

Results

Theme 1: RRI Awareness

Issue awareness

The concept of RRI was new to the interviewed staff from the Spanish SME. After a first introduction to the concept by the interviewers, some of the interviewees thought that it would be better applicable to research, not so much to development of technological products and services.

The general manager informed us about the many different tasks he had to work on and manifold issues he had to tackle every day, so that he believed that the concept was too abstract to cope with, even though potential practical implications seemed very relevant to him. Furthermore, he said that if there were a mandatory normative, he would follow it.

Acknowledgment of social connection & feedbacks

Employees of this small company did not have too much relation with societal stakeholders related to RRI activities. Moreover, they did not participate in activities or actions to promote RRI to their business partners, suppliers or stakeholders.

Theme 2: RRI implementation

Collective action with external stakeholders

In terms of user involvement in their research, development and innovation processes, it was stated that there were no legal obligations to involve end-users. However, user involvement turned out to be very useful and was an internal requirement in order to develop better designed products with higher acceptance among the users of their products.

Moreover, end-users and other stakeholders were involved in public funded R&D projects in which the SME had participated in. In one of these European projects, their role was to contribute expertise in marketing and business to the project, while other partners designed and prototyped a proof of concept, other did trials with end-users and contributed with expertise in physiotherapy, occupational care, and elderly rehabilitation. A User Centred Design (UCD) approach had been applied and end-users had participated from the beginning of the project. One example of the changes to the prototype made as a direct result of user involvement was that the avatars used in the project, representing the elderly users, were perceived as being too young.

This SME did not sell their products directly to their end-users, but to suppliers, who received support from the SME. Furthermore, the sporadic contact of the SME with end users of their products was reported being positive, because it provided the feedback of their products and this support to end-users was beneficial for other parts of the value chain, such as the distributors and suppliers, too.

Engaging in third party networks

The interviewed employees of the SME usually did not do any special activities to engage other stakeholders or civil society. Suppliers and distributors were sometimes trained by staff of the SME on how to use or how to install their products. However, training used to be very technical and specific.

Employee engagement

The interviewed R&D staff and the CEO agreed that their SME did not have a specific and explicit strategy towards ethics or other RRI-related issues, but the CEO emphasized their sensitivity regarding these topics.

Aligning RRI with operational practices and procedures

Regarding the internal mechanisms through which the SME exercised RRI principles in their production or value creation processes, the CEO said that they did not use any tool, but he would be interested in applying practices and procedures provided by the RI project consortium or any other project consortium or institution.

He expressed his criticism about the barrier to innovation given by existing legislation being too ambiguous, generic and outdated for a very fast developing technology field like ICT. He said that many of the norms for tele-assistance, for instance, had been published in 2003 or 2004. Once a provider offered him a new tele-assistance product to be used as a state-of-the-art radiofrequency of 2.4 GHz. However, the corresponding norm did not allow a frequency of more than 869 MHz. This was an example where the company could not sell their product in a competitive public project, due to a norm whose authors had not been aware of the new radiofrequency.

Anticipatory design

In the design process of new products, this SME applied two criteria to decide whether the product development should be started or not. First, there must be a user need. This need was either observed by the business department or an explicit customer request. Secondly, the economic viability and cost validation analysis must be passed. In case that new product development should be done, new design is done according to the identified user needs and the specifications given by the customers.

Anyway, in the case of this SME, a typical investment in the development or innovation activities is equivalent to the direct and indirect costs to the work of one or two employees during two to three months. Any new development must be able to return this investment and to create some revenue to be economically interesting and feasible. During the interview, CEO showed the relevance of investment and economical returns.

It was observed that public funded projects assumed more risks than investments solely of the SME in the development of new products. So in these cases end user involvement had

demonstrated to be an effective and important tool to the interviewees to anticipate design errors and to improve acceptance of the final product.

Transparency

It turned out that the personal interests of some employees to publish results could cause a conflict of interest with the need of the company to protect their intellectual property, which is important to maintain a competitive advantage.

Theme 3: RRI assessment

Risk identification and risk management

The interviewees were not aware of many risks related to stakeholders' involvement or ethics, for example. But they put special efforts in the privacy of patients and elderly people. For instance, in the case of calls from patients to their nurses inside a hospital or from home, the technically feasible option to be overheard by a third person was decided to be switched off by default and was only activated with the explicit consent by the user.

An issue reported by both Spanish companies participating in this case study consisted of the ethical concern of taking a prototype back from the user even after a successful trial and after which the user was not happy to return the device. It was recommended that users participating in such trials should be informed beforehand that they would have to return the test devices after the trials.

Specific risk in the context of tele-assistance systems was identified, given by the case in which a hypothetical user presses an alarm button but the alarm is not triggered. Due to this risk with potentially fatal consequences, the developers from this SME proposed multiple channels of notification mechanisms, and regular external checks on the correct functioning of the system.

It turned out that this SME was very serious about solving possible technical and design problems regarding their products, but moreover the employees were very concerned about potential ethical issues and the responsibility they had regarding to a flawless functioning of their products.

Impact assessment

The CEO classified the impact of RRI-related issues of their products to be low. We discussed several RRI-related concepts with the interviewees:

- Privacy issues: The CEO and CTO confirmed that they had taken action to prevent that someone could listen to user communication between caregivers and elderly users in the tele-assistance product without permission ("silent listening").
- Education: The technical staff constantly update their knowledge through research

on the Internet, and dedicated time to learn new programming languages, communication protocols and other kinds of technologies. This knowledge about the technological state of the art permitted them to be probably the first company using RFID for identification in an alarm systems.

- **Gender equality:** The CEO informed us that there was no internal policy regarding gender equality. In terms of gender-based use of products, their products could be used by any user. Concerning contracting new employees, it was pointed out that every applicant had the same opportunities to get the employment without any preference of their gender.
- **Governability:** It was suggested that this concept may be relevant in bigger companies with a different structure and different needs, but not in this small company.
- **Open access:** the staff and in particular the CEO supported the concept of open access, in particular in public funded projects.

Technology assessment

The development and innovation projects were usually in the context of software and electronics applied to tele-assistance or other aspects relevant to nursing centres or hospitals.

Concerning ethical issues impact, the SME was working on improving health and quality of life of elderly people, where ethical issues are often concerned.

In the case of the 'silent listening' option it was always blocked (only in the case that the user accepts that other people could listen their conversations in alarms is it activated). But some clients in a psychiatric hospital asked them to activate it without the permission of users because of their security.

They explained to us that the impact on society is important for them, but this is not only the thing that they have in mind to decide if a project is interesting or not for them.

The CEO of this SME explained that their projects were usually of two types. The first group of projects had a rather exploratory character with higher technological risks searching for technology that later could be the core of a new product. The second group has a higher technology readiness level and comprises development of products, where an immediate return of investment is expected and where the impact on the end users was always analysed, especially if the product is related to safety, such as alarm buttons.

The interviewed staff members of the SME were concerned about and aware of European and Spanish normative and legislation.

Summary of the findings:

Small companies like the one that participated in this case study, especially those with fewer than 20 employees, can assign much fewer resources than large enterprises to implement

new concepts such as RRI in their innovation processes. It can be assumed – even though it was only one small company from Spain in this particular case study – that few small ICT companies have staff dedicated to related topics like corporate social responsibility. The CEO has been an open-minded and interested entry point and main contact person for discussing RRI.

Many decisions in small enterprises are taken ad-hoc in a fast and agile way, without having written or explicit plans, structures or internal policies in many cases. In a field like ICT, where fewer than 20% of the university graduates are women, the management of the company tried to do their best to guarantee equal opportunities for applicants of either gender to new job offers, without having any specific, written gender policy.

A hospital recommend them that elderly end users participating in tests with ICT prototypes should be informed before they start using the devices that they should return the test devices after the test phase.

To access small and medium sized enterprises regarding RRI and to implement RRI successfully in their research and innovation processes, the approach must not be academic and abstract, but requires a clear, concise, tailored and user-friendly implementation plan and easy-to-use tools.

4.3. Case 3: Finnish Small or Medium size company (SME)

We interviewed six persons in various positions/groups:

1. High level managers: (CEO, COO)
2. Technological and innovation managers (CTO, Manager of Customer Projects)
3. Technical staff or developers: (SW manager, technical support)

Results

Theme 1: RRI Awareness

Issue awareness I

Case 3 is a start-up company. Most of the time at the moment is used to the service development, solving technical problems or marketing and selling the service and service deployment and support. Interviewees didn't know the RRI concept. After explaining the RRI dimensions they noted that some of them were already taken into account. Human-centric philosophy and willingness to produce the top quality have been at the core of their business model. "Customer centric thinking is one of our values."

The human-centric approach implemented for the service included the following values:

- Elderly should feel good and comfortable
- Promotion of the ability for the elderly to live at home for as long as possible
- Reduce errors in the service

- Automated packaging generates fewer errors compared with humans
- Customers aren't dependent on the timetable of nurses (which can increase independence)
- Be truly customer-centric
- Our service should solve a real problem
- The use of our service is easy and convenient
- Increase the quality of outpatient care
- Release resources to more important subjects
- Nurses can concentrate on actual caring instead of giving delivering medicine
- Hospitals may use more outpatient care after the quality has risen to higher level and beds in hospitals can be used more for acute care

The company has also recognized a few aspects to be important or where they could improve their business.

“We are extremely committed to top quality that we are promising to our customers. We want to be sure that our service functions as precisely as said in the prescription.”

Privacy is one ethical aspect that company has already considered extensively.

“We have an extremely well secured and protected system.....We don't handle any unnecessary data like such as names or birth information. According to data privacy regulations...Every customer will agree with home care organization if they want to use our service. And in clinical testing we are asking from the customers if we may collect any information.”

Acknowledgment of social connection & feedback

The interviewees believed that the company is acting socially responsibly. People and environment are considered by conforming to international norms and regulations. Interviewees believe that they are treating both employees and their customers with respect and integrity.

“We have joined a business area, which provides people with the better quality of life and health for people. Our responsibility is to push our service forward even though customers wouldn't be receptive to this idea at first.”

The company has also recognized the importance of customer service. By carefully going through every call they receive and saving the solutions, they are trying to understand the customer experience and develop the service to be more self-explaining.

Theme 2: RRI implementation

Collective actions with external stakeholders

The company is working closely with public home care providers and the elderly. Public home care service providers are biggest customers. There is usually one public home care provider in every city in Finland and interviewees have noted that they should be contacted directly these entities to get sales. But the elderly (and home care personnel at some level) are the actual users of the device.

“We are engaging the people who are really using our service and those whose problems we are trying to solve. It is important to engage customers and end users. Engaging is a continuous project because it is linked to customer satisfaction.”

Engaging in third party networks

The company has plans for the future that their service/device will perform as a platform for third party networks.

Employee engagement

The company has noticed the importance of understanding their business environment. Thus they have tried to engage office employees to meet the customers’ needs. The engagement is implemented by arranging every office employee to spend at least one shift in the field and observing the work of a home care nurse in real work context.

There are also certain guidelines listed in the company values. Some interviewees pointed out however that values should be communicated more often and better to employees.

“Nobody is left alone in our company. We are listening what everyone has on their mind.”

Aligning RRI with operational practices and procedures

The interviewees believed that they are aligning very strictly with regulation. In addition to this, the company has considered at least environmental aspects more closely in manufacturing and development of the concept.

“Our business model is that we own the devices and customers are renting them. This means that we are handling the disposal of the devices.”

“We are not using harmful chemicals and we are demanding this also for our suppliers.”

“We are using all the material basically that goes to manufacturing. Almost nothing is thrown away.”

Anticipatory design

The service is designed for the elderly. Thus it must be convenient and easy to use.

“We have spent time for researching and questioning among real end users.”

“The device has only one physical button, which means the device is easy to use. No extra buttons.”

In addition to this, they have used experts to deepen the understanding of their customers’ needs.

“We have used a human memory expert to help us personate our service/device for customers. The aim is that the device would be personal and comfortable to use.”

The company has also recognized some difficulties considering the growth of their business.

“We must preserve the dialogue with our customers even though our business is growing. We should create automated processes to reach this goal.”

Transparency

It became clear that at least right now company wouldn’t like to share their knowledge to competitors.

“We are not an open innovation company and it is at the moment our competitive advantage. We would like to secure our position in the markets. After we hold a strong position we may consider sharing some of our innovations.”

Theme 3: RRI assessment

Risk identification and risk management

The service/device is categorized into the health care segment, which means that there is a strict regulation that must be fulfilled to get permission for selling the service into the use.

There are several technical risks identified: e.g. what happens if there are power cuts, what if the end user tries to misuse the service somehow? These risks have been managed by including a "24-hour battery" in the device and taking misuse possibility strongly into account in the design of the service.

“The system is comprehensively monitored. Almost every possible occasion that may lead to an error is taken into account and errors generate an alarm to home care organization.”

The company is also educating the customers to use the device as designed.

In addition to technical risks there exist some ethical or social risks that the company has identified.

“In product development ethical aspects and responsibility were in mind especially in risk management.”

Loneliness is the most severe social or ethical risk identified. The fact is that device could reduce face to face contacts with a nurse or other care personnel and the end user. If the end user doesn't have any other social contacts beside nurses, the increase of loneliness is a true risk.

“Loneliness couldn't be cured by increasing physical contact with nurses because their contact is only professional” argued the interviewee that has a registered nurse degree.

There is also a simple “chat” function in the device that could be used to take into account a possible increase of loneliness. Later the “chat” function should support voice chat and possibly even videos if they fulfil certain quality boundaries.

Impact assessment

Currently, regulation is not affecting the service strongly. But if the category of the service changes, then the regulation will also change to be stricter and it demands more impact assessment. Company has assessed their device to be a preventive and supportive caring method.

“The law (in Finland) demands that caring institutes should provide a possibility for preventive care for their patients.”

Technology assessment

There are strict technical standards in the field of healthcare and questions regarding to accountability, liability and responsibility may occur. It is the company's responsibility for the device to give the right service at the right time and only nurses are allowed access inside the device.

“We are a very quality oriented company, which means that regulation has not produced any problems.”

Summary of the findings:

The company is utilising a very human-centric approach in the development of their service. User requirements and feedback at different levels (elderly, nurse, service coordinator, and service manager) are collected from the field continuously and taken into account early in the service development. The company also utilises external experts in order to have a more holistic view in the service development. Besides following national and international regulations which is required for their service when taken into use, the company has also considered issues that fall beyond liability or accountability. Ethical issues like the possible

increase of loneliness among customers is taken seriously and arguments, justifications and solutions are explored in order to enable just the opposite: nurses may have more time to be truly present when visiting the elderly, and the elderly have more freedom with service when they do not have to “be on duty at home” waiting for short visits at fuzzy times. Additionally, the service might offer communication models of new kinds for interactions with family and friends or professionals.

Case 3 offers a very nice example of the company which is already mostly following the RRI framework that was presented to them. They do not use the same terminology naturally but due the service model and characteristics they already need to do very thorough risk analysis and are committed to have strong and continuous user engagement. Thus in the RRI practice level Case 3 is already well established. In the RRI monitoring level the company follows legal and regulative issues and goes even beyond when taking into account ethical issues beyond the law. So also in this level the company does quite well already when correlating their practice to the framework. The RRI feedback level case is also advanced: they have in their marketing taken a strong customer-centric approach. They have continuous interaction with several stakeholders in the field and collect feedback in order to correct failures and make the service improvements if needed. In the RRI vision and culture level strong commitment to the other levels is communicated via various informal channels. A highly recommended approach to raising awareness about the importance of understanding the context is for personnel to have field visit.

4.4. Case 4: Finnish Large Multinational Company (MNC)

We interviewed three different persons in different positions:

1. High level managers: Principal engineer
2. Technological and innovation managers: System lead designer
3. Technical staff or developers: Usability Designer

Results

Theme 1: RRI Awareness

Issue awareness

A common feeling among the interviewees was that the company is acting responsibly. The RRI concept wasn't familiar to them before our contact. After explaining the content of the RRI concept, interviewees noted that most of the subjects were already taken into account at the company. An ethical point of view and engagement were especially strongly emphasized in their internal processes. They also pointed out that in healthcare markets there is a strict regulation that determines the guidelines of products and working processes.

“In healthcare industry, corporations have to lean strongly on standards to get a permission to sell their products.”

They have also recognized many ethical and social aspects related to the ongoing R&I project:

- Ethical aspects
 - The developed product will have an important role when doctors and nurses make decisions concerning the care of the patients, therefore the information received and transferred via devices must be precise and correct
 - Data privacy must be ensured, especially when creating wireless technology
- Social aspects
 - User environment and usability criteria must be valid to test the right dimensions
 - When involving real patients in testing permission needs to be sought and consent must be fully informed, especially in the case of vulnerable patients
 - The patient must be able to move around and made to feel as free as possible (so that the patient does not feel that she or he is forced to lay on hospital bed with beeping devices)

Acknowledgment of social connection & feedbacks

This section relates to the degree to which the company members acknowledge the social connection between their company's business, including its supply chain activities, and societal actors.

“From the project point of view it is important to acknowledge the aspects that are of importance. Usability work is basically about the same thing.”

The interviewees believe that company has only a minor possibility to change the way hospitals are working. Hospitals are independent actors that have their own regulations and protocols. However, by creating new products or materials that shift the mind-sets in context, specific regulations and processes, company could make a change even in hospitals. New mind-sets may contain new technologies or methods that change the processes or entirely novel way of thinking. An example of a novel way of thinking could be for example changing the place where the care is given from hospital to home or to shift the focus of caring from acute to preventive care.

But the company can affect the supply chain of technologies and components provided by subcontractors in much easier ways than before. They can set requirements for subcontractors to work ethically for example. They also have certain channels to receive feedback from the customers and users of the devices.

“The materials and working procedures that are purchased from our subcontractors always The company is trying to develop the community around them. They have created a start-up

environment for potential collaborators. In the USA, they also have a community service day which is devoted to repairing and cleaning school premises.

Theme 2: RRI implementation

Collective actions with external stakeholders

The company exploits a lot of co-creation efforts with external stakeholders. One important reason for this is the regulation and demand in many market areas in terms of comprehensive testing with different user groups to verify that the created products are safe to use. The interviewees believe also that in addition to regulation, usability testing is an integral part of product development for better user experience in general.

“Usability testing is the thing, when we gather feedback from the users and try to understand how our devices and concepts are working. Testing devices and concepts that are under development is practically impossible in a hospital environment.”

The company uses consultants, research organisations and public projects in their R&I processes.

Engaging in third party networks

It is technically possible for third parties to create algorithms, graphs etc. for the new devices and services that the company is still developing. However, the company hasn't opened the system for third parties due to unsolved data security and responsibility questions.

The co-creation space supported by the company is a place where different companies can work together and co-create innovations and products.

Employee engagement

The employees of the company are engaged in RRI dimensions by corporation wide instructions that include advice on how to act ethically. The employees have to pass an ethical instruction test annually. In addition to this, subsidiaries have their own instructions.

There is also well working cooperation between different R&I departments among the whole conglomerate.

Aligning RRI with operational practices and procedures

“...we have Clinical Research Organization and Process that monitors that the process is acting inside specific ethical boundaries. There are actors from inside and outside of our organization. For example people from a hospital.”

The company has also developed a tool of their own to assess the environmental impact of the products.

“The tool takes into account the production place, materials, carbon footprint etc.”

Although the company strives towards a smaller negative environmental impact, customers still decide whether they will buy products that are made in long lasting materials or meant to be used only once. Some customers prefer long lasting products that generate less waste and some prefer disposable products for reasons that are not related e.g. to infections.

Anticipatory design

The company tries to design their products to be easy and safe to use. It is also important that products are suitable at least to the key market areas. Language packages are basically the only tailored part between market areas. For example, the EU is demanding that nurses should be able to use the patient monitor with his/her native language.

“Our devices are designed so that one can use them without training. The users on many occasions use different kinds of devices and they usually haven’t received training in every aspect of the devices. Of course this leads to situations where users can’t utilize the full potential of the devices. However, the basic functions of the devices are designed to be easily available even without training.”

The company is working in a close relationship with end users. This is due to legislation and regulation, but they have also recognized the importance of user feedback in every phase of the product development.

“In usability, we would like to have test users of every kind from young and recently graduated to experienced and aged nurses. The test users are randomly selected although normally they cover these particular types of users.”

“Patients have not been selected as test persons at this early phase of the project. I think that it isn’t a relevant question to have patients involved in design. But we are discussing more about for example the definition of a sharp edge (of the device) or what is uncomfortable for patients.”

Transparency

The answers of the respondents vary the most in this category. It appears that the company has a clear transparency or open science policy but the strategy has not been distributed effectively to the employees. The differences in answers might also result from different responsibilities of interviewees.

A common opinion existed that in product development the general rule is that company is not sharing any information to keep their competitive advantages. But research is another story. Company have participated in public research projects and supported university students in their master’s theses. The results of these studies are usually public. One answer

was also that company might be telling more about their work to their customers than previously due to marketing purposes.

“We are more and more telling our customers how we are considering the needs of users. We are making our usability work more transparent. When we are opening our methods to customers we are in a way opening our work for criticism. Have we done our work with high enough quality?”

Theme 3: RRI assessment

Risk identification and risk management

Risk identification and risk management are in a key role of healthcare companies because of regulation and standards. Every relevant risk should be identified and if some relevant risks are left out of consideration there should be a document that justifies the decision.

In addition to regulation and standards, and the most apparent risks are identified via usability tests of many concepts, mock ups and prototypes. To manage errors in the use of the device, product education is always included in the price of the device.

Impact assessment

The company is working in a close relationship with user organizations and end users. Regulation is also forcing healthcare companies to assess the impact of their product in order to receive a permission to launch the product. However, the regulation is focusing strongly on safety issues even in the field of usability.

“Healthcare companies must lean on standards to have a permission to launch the product. The negative aspect is that usability standards are also focusing strongly on safety issues. For example, what kinds of errors a user may do when using the product and how these errors could be prevented? The final validation must be done with real end users and with every relevant user groups.”

“In the viewpoint of UX (user experience), people, usability standards on healthcare industry are covering only a small area. For example, user satisfaction has no role in standards.”

Technology assessment

The company has a feedback channel that provides the company with information on how the technology is working in the products already on the market. Usability testing is a method for assessing technologies in prototypes and concepts. The regulation is also forcing healthcare companies to assess carefully potential technologies to pass the strict standards.

Summary of the findings

As a very large multinational conglomerate, the company has processes and actions that relate to the RRI framework very closely (even though naturally also in this case the company does not use exactly the same terminology as in our framework). The code of conduct, transparency initiatives, and compliance and integrity activities are well established and some of the examples of how in very high-level awareness and strategy setting of these issues is supported and maintained: “[The company] infuses compliance and governance into every aspect of its business. We are committed to maintaining a world-class compliance culture in every business and everywhere we operate around the world. We recognize that our reputation for integrity and compliance is a competitive advantage and are proud to have been honored as one of Ethisphere’s World’s Most Ethical Companies for 10 straight years (2007-2016)”. Thus RRI culture and vision are identified as an important aspect in the company strategy. The challenge probably in the company as large like our case, is the issue how well the strategy is implemented throughout the organization. RRI feedback (marketing) and monitoring (CSR, legal issues) are also implemented in processes and procedures and developed continuously. The main developmental targets from a RRI framework point of view for this case could be found in RRI practice: even though stakeholder engagement and risk analysis are in this environment are basic requirements to the development work there might be something that can be done differently. One challenge in very large organisations is also the strategy implementation from top to down and to harmonize procedures globally.

5. Workshops

5.1. Development of the general workshop procedure

The general workshop procedure was developed in autumn of 2015 and spring 2016 (Appendix IV). During the discussions and based on the Danish pilot study results it was decided that besides validating the RRI framework with companies in workshops and using the workshop as the main intervention as action to implement some aspects of RRI framework also reviewing the interrelationship between RRI indicators and company key performance indicators could be a useful approach for the case study. Based on the first round of interviews we found some assumptions for this and during the workshop the intention was to agree with the company about some RRI indicator(s) (new or some sort of indicator that company is already using in the performance measurement) to be taken into consideration as an important action to be developed and followed.

General guidance for the workshop was the following:

1. Welcome and introduction; objectives of the workshop – 5 min
2. Main results from the first workshop - 5 min
3. Discussion about company’s Key Performance Indicators (KPIs) in the context of RRI taking into account further professional, quantitative and qualitative, objectives and additional performance indicators of the participants – 20 min

4. Analysis of the Framework document for implementing RRI in ICT for an ageing society to talk about the responsibilities of different roles in different companies, the feasibility to implement them, barriers, and specific actions – 30 min
5. Revision of KPIs suggested from the literature and other sources, and the possibility to implement specific KPIs and RRI-related activities in the company – 30 min
6. Conclusions, next steps, outlook – 10 min

Objectives:

The main objective of this meeting was to advance in defining together with the company test cases of activities to implement RRI and to discuss risks and benefits, as well as identify indicators to measure their impact and success.

Below are presented some preliminary findings of the two first workshops (MNC in Spain and SME in Finland). Two other workshops (SME in Spain, MNC in Finland) are to be held at the end of 2016. As analysis of the Finnish workshop is still on-going and only summary of the analysis is presented. The Spanish workshop for MNC is presented more thoroughly

5.2 First findings from the workshops

5.2.1 Spanish large multi-national company

Objectives:

The main objective of this workshop with employees from the Spanish large multi-national company who participated in the case study was to define test cases of activities collaboratively within the company to implement RRI, to discuss risks and benefits, and to identify indicators to measure their impact and success. Furthermore, the results of the first interview in November 2015 were presented and KPIs of the company and those suggested by the literature were discussed, which had been analysed by the RI consortium in the context of RRI taking into account further professional, quantitative and qualitative objectives and additional performance indicators of the participants.

Material:

The company had elaborated a list of KPIs that had been sent to the team of the RI project on the 10th of February. The participants from the company received during the workshop a personal copy of the Draft Implementation Plan, a document with the results of the analysis of the first interviews in the company on the 10th and 23rd of November 2015, and a hand-out with suggestions by potentially interesting KPIs related to RRI.

Results

Key Performance Indicators (KPI) and goals related to RRI

In addition to the company's KPI shared with the RI consortium, the following topics were considered relevant, in particular in the context of RRI:

- Tele-work (also called telecommuting and remote work, i.e. a work arrangement where employees do not commute to a central place of work) and the need to raise awareness that this possibility actually exists within the company.
- Financial support for further training for professional skills and university.
- Projects with social implications and positive impact on society.

In the context of further professional training to gain new professional skills, especially in the fast changing environment of ICT, several issues were discussed:

- In general, the employees of the company had to ask for any professional training and organize many of the related issues by themselves. This kind of training has usually been very technical and specific. There has been practically no transversal professional training.
- It was suggested measuring how many employees had not done any professional training in the past ten years. One of the interviewees commented that the workers' representatives had made a similar questionnaire that had been provided for the Human Resources (HR) department.
- A general discussion was about training because the participants of the workshop considered that a general training plan was missing in the company. They thought that there was some training for technicians, but it was on demand and very specific. However, there was lack of general training for improving the collaboration in teams ("soft skills") or for management skills.
- It seemed to be difficult to obtain information on ongoing and closed R&I projects from the Intranet or internal databases, especially for those who do not know where and how to search. However, the heads of the departments could be asked about closed and ongoing projects and other information about whenever this kind of information was required.

RRI framework and how to implement it in a large enterprise

The contents of the pages 14 to 28 of the booklet *Executive Brief: Implementing Responsible Research and Innovation in ICT for an ageing society* (orange-covered) were discussed. The following comments and observations refer mainly to pages 17 to 21.

Many of the suggested tasks in R&D were already implemented in the company:

- All the prototypes built were tested with end-users.
- For testing prototypes, they used to ask for ethical approval to the corresponding committees whenever necessary.
- The company made a social impact evaluation of their (software) products.
- The company engage with stakeholders during the projects.

Tasks for the Marketing department could easily be implemented in the company (e.g. monitoring the impact of campaigns and projects and users'/clients' opinion). The participants were not aware of any ongoing implementation in this regard in the company. In particular, feedback and other data could easily be obtained from Twitter, LinkedIn, and Facebook. The sales person was in charge of these tasks. The interviewees reported about barriers regarding the promotion of multidisciplinary, training on ethics and to measure its impact.

More comments during the discussion were that it could be difficult to obtain data about the economic impact of the ethical culture (in tasks in executive management group). The company was collaborating with a Spanish government organization that supported people with disabilities, especially people with visual impairments. The participants proposed to check the outcomes and the impact of that alliance.

A Special Employment Centre, which had been a pioneering initiative in the sector of information and communication technology, was oriented towards the social integration of people with different skills, beginning with their incorporation into the labour market. The interviewees suggested defining a measure for that, but were not aware if this measure existed already in their company.

One conclusion was that it is always important that existing possibilities, opportunities and procedures in a company are communicated effectively to the employees to raise awareness among the staff.

Proposed RRI-related KPIs

During the discussion within the workshop, the participants expressed their view on one group of KPI obtained from the literature and from the RRI project consortium that was labelled RRI Awareness. It was stated that there was clear lack of incentives and the participants suggested that training for example would be implemented in public funded R&I activities of companies only if these KPIs were requested by a Directive or regulation from the funder, e.g. the EU or the Spanish or Basque Governments, or if it was requested in proposal templates, for example.

Spanish small company

The workshop with the Spanish small company was pending by 29 November 2016 due to an unforeseen change in the staff of the company.

5.2.2 Finnish small or medium size company

The company has noted that employee engagement in homecare organizations is in a key role to the service quality. The company has already launched a consultation program for homecare organizations

Based on customer interviews, the company has managed to improve interaction between the customer and the nurse, improve the sense of safety and reduce the loneliness. If only the number of home visits has reduced.

The values of organization must come from everyday work. It is not useful to learn values from documents.

Conclusion of KPI (Key Performance Indicator) conversation (potential candidates)

It is important to know and understand what you measure (why, how) – defining important indicators is relevant.

- i. NPS (Net Promoter Score), x amount of new and y amount of old customers, rules to be clarified better. Goal to get even more feedback from customers (old and new ones).
- ii. Number of company employees visiting care organizations/context. How large a percentage of office employees (or other relevant set of employees) have been in the field familiarizing themselves in the homecare environment?
- iii. Vigilance case: amount and reaction speed and effect. How to take care of needed actions when something is reported being “wrong” or needs to be changed, corrected, commented. How large a number of customer contacts can we handle carefully? A percentage of the customer contacts that lead to an action could be an indicator. How long does it take, after we have noticed a required action, to exercise the action? How well does the action fix the noted problem?
- iv. Service adherence: quality of service. (At some level already used)
- v. Patient safety feeling: an indicator to be built in another project
- vi. How large a percentage of their working time employees (who are working with customers) are actually spending with the customer.

6. Conclusions and next steps

Working with companies in this theme gives a better understanding about the opportunities and challenges when thinking of aspects of responsible research and innovation; some of these aspects have already taken into account extremely well in these companies (especially legal issues), some aspects could be improved via selected actions if seen as beneficial (user engagement, RRI culture and vision) and some aspects might feel either irrelevant or not very suitable being considered for the company (CSR as a formal approach to SME).

As we have not yet finished the case studies (still missing the two last workshops and the second round interviews), we cannot give thorough descriptions of the experience with these companies in this report.

However, already in this phase we can conclude that companies saw this kind of thinking and exercises as important and valuable for the development of their performance and processes in this theme. Chosen companies already had willingness to familiarize them with the theme and they had similar activities already in their processes as we also present in RRI framework. Some of these companies work already in strictly regulated context (hospital,

home care) where they need to follow international standards, laws and regulations regarding to the health care services and device. Naturally national and international law and regulations touch all companies at some level (e.g. data protection, privacy issues) and it should give company already some framework for making products and services accountably and in that sense some protection both for the customer and for the company also. However responsibility as a concept and RRI as a framework goes beyond the legal and regulative framework – it is the ability to do more than required by law and see the benefit of that extra effort in some tangible or intangible form. Thinking about implementation of these RRI activities to the companies' day to day work is still challenging.

Next steps in the case studies are to finalize the last formal tasks in the protocol (i.e. organize the last workshops and 2nd round of interviews). After the analysis of this data, we will once again approach the companies in order to validate our analysis and results. Finally in the last phase of this process we are able to give some more general recommendations for the development of the framework and implementation of RRI to the specific cases

References

- [1] Porcari, Andrea; Borsella, Elisabetta; Mantovani, Elvio (2016) A Framework for implementing Responsible Research and Innovation in ICT for an ageing society
<http://www.responsible-industry.eu/activities/framework-for-implementing-rri>

Appendix I. Interview Guideline with CEO – RRI Awareness

Timing: each interview should last for 45-60 minutes

Suggested questions: 1st round (I) and 2nd round (II)

1.
 - I. Please tell me more about your company. What are the innovative actions of your company? What are the company goals?
 - II. Please tell me more about your recent activities in your company. Do you have any strategies that can increase the innovative actions in your company?

2.
 - I. Are there any incentives offered by company management to increase the commitment of your company in applying innovative actions?
 - II. Which factors/incentives drive you increased commitment to deploy innovative actions? (e.g. Scientific value vs. economical potentials)
 - I. Could you, regarding your project, name from where do these project goals come from?
 - II. Which role elderly people clinicians (caregivers), and institutions played in the creation of the project idea?

3.
 - I. Could you, regarding your project, name challenges you have faced in research and innovation part during the last 12 months? Did you pass any milestone in the project that you would like to mention?
 - II. What were the crucial turning points in the project during the last 12 months? What are current challenges in research and innovation part (e.g. scientific, technical and economic challenges)?

4.
 - I. Who decides on the management of your projects? Any contributions from your side?
 - II. Who is in charge for in the project for decision-making to determine the direction of project? Subsequent steps? Any contributions from team member of project?

5.
 - I. Are there any social and ethical instances linked to your project? Have you considered any strategies for being familiar with social responsibilities? Any discussion in the company?
 - II. What are the social responsibilities in general in your daily work? Are you aware of them in general?

Here the researcher will explain again about RRI pillars and regulatory gaps/grand challenges independent of the matter whether or not the CEO answers yes or no to the last question; thus, the CEO is asked about RRI components in which one of RRI component(s) is/are more suitable for his/her company. - This description is either for 1st round and 2nd round of interviews

6.
 - I. Are you aware of legislation of the RRI area in any of its components and adhere to existing laws? Could you name some legislations and laws in the certain area you are working on?
 - II. What are the legislation(s) of RRI area? Do you adhere to existing laws? If so, could you name some?
7.
 - I. Do you think you face RRI principles where some regulatory gaps are most likely to appear? Could you name some of those RRI principles? Are you aware of them?
 - II. Do you think do you face RRI principles where some regulatory gaps are most likely to appear? Are you aware of them/some of them? Could you name some of those RRI principles?
8.
 - I. Imagine at one step up when you are already aware of all range of RRI components, do you think to what extent is possible for CEOs to be aware of some RRI components where regulatory gaps are most likely to appear? Any possibility to be aware about all RRI components?
 - II. What do you think how we may raise awareness of RRI components to the top level - fully awareness of RRI components– for CEOs? By performing what?
9.
 - I. Have you ever tried to convince others (other stakeholders in your business sector such as suppliers, end-users, caregivers, etc.) to engage them with RRI principles?
 - II. Are you actively involved in promoting RRI awareness among other industry stakeholders? What are the strategies you have to convince other stakeholders in involving one, several or all RRI principles in their daily work?
10.
 - I. Are you responsible for addressing societal risks and ethical issues in the project? Who else does take care about these issues?
 - II. Who/which departments within your company/organization would be responsible for addressing societal risks and ethical issues –RRI components-? Do you utilize external partners/industry peers to take into account ethics and societal issues?
- 11.

- I. Are you aware of initiatives carried out by your company/organization to ensure that research and innovation are done responsibly?
 - II. What are the initiatives carried out by your company/organization to ensure that research and innovation are done responsibly? How do you inform your employees about the discussed RRI components?
12.
 - I. Are there any connection/interaction along supply chain/value chain with other stakeholders? Do you involve them at design process?
 - II. Could you name, if any, the stakeholders that connected along the supply chain/value chain? If not, why don't you interact with others along product development value chain?
13.
 - I. If connection exists, are the connections between your company and your suppliers established legally or on a moral basis? Do you involve them because it is required by legislation?
 - II. (If they have a social interaction with other stakeholders) what sort of social connection between your company and its supply chain is laid along the value chain? More legal or moral? Do you involve them because of existing legislations?
14.
 - I. Do you have effective connection with these stakeholders for applying some or full range of RRI components? If some, could you name which component(s) is much bold in interaction with other stakeholder(s)?
 - II. What are the RRI components that cause a connection between you and other stakeholders? Could you name those?
15.
 - I. Do you have any strategies in place that promote ideas about any RRI aspect along the value chain? If not, any idea how you could approach this issue?
 - II. In which ways do you think you/we may do active promotion of responsibility along the value chain?
16.
 - I. In your opinion are the issues raised by CSR valued in your company? In what ways? What about ethical codes? Informal and formal ways
 - III. What are the issues raised by RRI (discussed RRI components) valued in your company?
17.
 - I. Do you have any internal project system (informal or formal) by which address RRI principles (or that specific component, which CEO underlined before) in an analysis of your company's strengths, weaknesses, opportunities and threats

- (SWOT)? If not at all, what do you think how could you acknowledge the RRI principles in the company's SWOT analysis if you wish?
- II. In which ways do you address RRI components in the company' SWOT analysis?
- 18.
- I. Do you address RRI principles in a SWOT analysis because of your company's internal rules (any particular protocols in place)? Could you name them? E.g. code of conducts, etc.
- II. Are there any formal rules in your company in addressing RRI components in SWOT analysis? If not, do you think that the established legislation do help in this process?
- 19.
- I. Do you reflect all RRI components or some of those into SWOT analysis? If some, which ones?
- II. What are the main RRI components that you address in SWOT analysis? (formally or informally)
- 20.
- I. Do you have any strategies in promoting the reflection of RRI principles in SWOT analysis?
- II. Do you have any strategies in promoting the reflection of RRI principles in SWOT analysis?
- 21.
- I. Are there any weaknesses of acting responsible in your company? Any strengthens?
- II. What are the current weaknesses of acting responsible? Any strengthens?
- 22.
- I. Do you have any particular protocols in place to consider ethical aspects of research and innovation? Any professional ethical codes? (If none then any idea why not?)
- II. What are the particular protocols in place to consider ethical aspects of research and innovation? What professional ethical codes do you consider?
- 23.
- I. Do you consider any specific tool for implementing the adoption of ethical and social aspects for your project? Could you name a few examples?
- II. Which tools would you suggest to raise the awareness of RRI concept/societal risks and ethical issues in ICT for ageing?
- 24.
- I. Which materials/documents would you suggest to us to provide other industrial stakeholders to help understand societal and ethical aspects? If possible, please name your suggestions separately for before, during, and after of our discussion with them?

- II. Which materials/documents would you suggest to us to provide other industrial stakeholders in knowing better RRI aspects? If possible, please name your suggestions separately for before, during, and after of our discussion with them?
- 25.
- I. [Do you have any further questions/issues you would like to add/address?](#)
 - II. Do you have any further questions/issues you would like to add/address?

Appendix II. Interview Guideline with CTO/Project Manager – RRI Assessment

Timing: each interview should take 45-60 minutes

Suggested questions: 1st round (I) and 2nd round (II)

1.
 - I. Please tell me more about your project. What are the innovative actions of the project? What are the project goals?
 - II. Please tell me more about your recent activities on the project. Do you have any strategies that can increase the innovative actions of the project?

2.
 - I. Could you, regarding your project, name from where do these project goals come from?
 - II. Which role do patients, clinicians (caregivers), and institutions play in the creation of the project idea?

3.
 - I. Who decides on the evaluation/assessment of your project? Any contributions from your side?
 - II. Who is in charge in the project for evaluation/assessment of the project? Any consecutive steps? What are the CTO contributions?

4.
 - I. Can your innovation reduce the level of complexity in the cases / pathways it impacts?
 - II. How can your innovation activities reduce the levels of complexity in the cases / pathways it impacts?

5.
 - I. Are there any social and ethical instances linked to your project? Have you considered any strategies for being familiar with social responsibilities? Any discussion in the company?
 - II. What are the social responsibilities in general in daily work? Are you aware of them in general?

Here the interviewer will explain one more time the RRI pillars/action lines and regulatory gaps/grand challenges regardless CTOs/high rank managers answers yes/no to the last question; then, the CTO is asked about RRI components in that which RRI component(s) is/are more suitable in him/her work? - This description is applied either for 1st round and 2nd round of interviews

(please list the RRI action lines to interviewees, describe regulatory gaps, and talk briefly about social responsibilities)

6.
 - I. In your opinion are the issues raised by RRI valued in your company? In what ways? What about ethical codes? (informal and formal ethical codes)
 - II. Which component(s) of RRI are valued in your company?

7.
 - I. Do you understand the processes the innovation will impact? Do you take the impact assessment into account in operational practices and procedures? (in general – or not at all)
 - II. What impacts do your innovation have on the society? What sort of impact assessment strategies/tools do you apply?

8.
 - I. Have you analyzed the level of impacts of your innovation?
 - II. Have you analyzed the level of impacts of your innovation with regard to RRI components?

9.
 - I. Does your impact assessment come from established legislation? Any regulatory leverage behind such assessment?
 - II. To what extent do the established legislations influence on your decision to apply impact assessment strategies?

10.
 - I. If you are impacting operational processes and procedures, in particular social processes, do you have effective plans to deal with RRI components? One component or more?
 - II. What are the main RRI component(s) that you address normally in your impact assessment?

11.
 - I. Do you actively involved to promote RRI-impact assessment among other industry stakeholder?
 - II. What strategies do you have to convince other stakeholders in assessing one or full of RRI principles in their daily work?

12.
 - I. Are you aware of the risks derived (came) from your innovation? (in general – not at all?) Do you consider your innovation has the low-risk nature or high-risk nature?
 - II. In which ways do you address the risks related to your innovation?

- 13.

- I. Do you have appropriate risk management strategies for your innovation? Do you apply such strategies because of existing legislations? (Internal legislation or external one)
 - II. Do you have appropriate risk management strategies for your innovation? Do you apply such strategies because of existing legislations? (Internal legislation or external one)
- 14.
- I. If your innovation involves risks on social processes, then do you address RRI components in your risk management plan? If not all, which ones?
 - II. Which RRI component(s) do you address in the risk management plan?
- Note: Risk management plan is including: regulatory affairs and regulation compliance, communication to patients and clinicians, clinical endorsement, evidence building for safety, quality, clinical trials management, etc.
- 15.
- I. Do you have any strategies in promoting the reflection of RRI principles in risk management plans among other employees, stakeholders, etc.?
 - II. In which ways do you think you/we should do active promotion of risk management strategies for RRI aspects among other employees, stakeholders, etc.?
- 16.
- I. Have you analyzed your innovation technically to see if there may be new platforms that you can use?
 - II. In which ways do you analyze your innovation technically to see if there may be new platforms that you can use?
- 17.
- I. Do you evaluate your innovation technically along the value chain to address regulatory gaps? Are you involved with existing legislation in having technology assessment?
 - II. Do you evaluate your innovation technically along the value chain to address regulatory gaps? Are you involved with existing legislations in having technology assessment?
- 18.
- I. If you are assessing technology, do you reflect all RRI components or some of those for your evaluation? If some, which ones?

- II. If you are assessing technology during development phase, what are the main RRI components that you address in your evaluation?
- 19.
- I. Do you have any strategies in promoting technology assessment to other companies, employees, etc?
 - II. Do you have any strategies in promoting technology assessment to other companies, employees, etc?
- 20.
- I. Overall, do you apply any specific tool for assessing RRI aspects? If any, Could you name a few examples?
 - II. Which tools would you suggest to assess RRI principles/action lines in ICT for ageing?
- 21.
- I. Which materials/documents would you suggest to us to provide other industrial stakeholders to help understand societal and ethical aspects? If possible, please name your suggestions separately for before, during, and after of our discussion with them?
 - II. Which materials/documents would you suggest to us to provide other industrial stakeholders in knowing better RRI aspects? If possible, please name your suggestions separately for before, during, and after of our discussion with them?
- 22.
- I. Do you have any further questions/issues you would like to add/address?
 - II. Do you have any further questions/issues you would like to add/address?

Appendix III. Interview Guideline with R&D Manager/R&D dept. Staff – Implement RRI

Timing: each interview should last for 45-60 minutes

Suggested questions: 1st round (I) and 2nd round (II)

1.
 - I. Please tell me more about your activities in the project. Which sort of innovative actions are you involving in the project?
 - II. Please tell me more about your recent activities in the project. Do you have any personal strategies that can increase the innovative actions in the project?

2.
 - I. Do you have a end-user centric design, Such as elderly people, patients, clinicians (caregivers), and institutions?
 - II. Do you have a patient-centric design? Or more clinicians-centric design?

Here the interviewer will explain one more time the RRI pillars/action lines and regulatory gaps/grand challenges regardless R&D member answers yes/no to the last question; then, the R&D employee is asked about RRI components in that which RRI component(s) is/are more suitable in him/her work? - This description is applied either for 1st round and 2nd round of interviews

(please list the RRI action lines to interviewees, describe regulatory gaps, and talk briefly about social responsibilities)

3.
 - I. In your opinion are the issues raised by RRI valued in your company? In what ways? What about ethical codes? (informal and formal ethical codes)
 - II. Which component(s) of RRI are valued in your company?

4.
 - I. In your project, do you collaborate with the company' suppliers or business partners for research and development phase/designing process?
 - II. In your project, what sort of collaborations is developed between you and your business partners for research and development phase/designing process?

5.
 - I. Are the existing company' legislations assured you to collaborate with suppliers/business partners?

- II. Do existing company' legislations tell you to collaborate with suppliers/business partners for better designing?
- 6.
 - I. If you are collaborating with them, do you tackle a particular issue area of RRI together with them in developing phase/designing process?
 - II. What are the main RRI component(s) that you literally tackle in collaboration with your business partners/suppliers?
- 7.
 - I. Do you actively involved to address, develop, and promote RRI agenda to your suppliers/business partners?
 - II. What strategies do you apply to convince suppliers/direct business partners to address, develop, and promote RRI agenda in designing process?
- 8.
 - I. Are your work' functions involved yourself in addressing RRI principles? If so, could you name which RRI component(s) do you normally address?
 - II. Are your work' functions involved yourself in addressing RRI principles? If so, could you name which RRI component(s) do you normally address?
- 9.
 - I. Further, do you actively involved in dealing with all issue areas of RRI?
 - II. Further, do you actively involved in shaping the RRI agenda?
- 10.
 - I. Do you address these principles only because of existing legislations?
 - II. Do you address these principles only because of existing legislations?
- 11.
 - I. Do you have any strategies in promoting RRI in the company and among stakeholders by engaging employees?
 - II. Do you have any strategies in promoting RRI in the company and among stakeholders by engaging employees?

Note: Risk management plan is including: regulatory affairs and regulation compliance, communication to patients and clinicians, clinical endorsement, evidence building for safety, quality, clinical trials management, etc.

- 12.
 - I. Overall, have you taken RRI principles into account in operational practices and procedures (OP&Ps) (designing functions here)? If so, which ones mostly?

- II. Overall, in which ways do you take RRI principles into account in operational practices and procedures (OP&Ps) (designing functions here)? If so, which ones mostly?

- 13.
 - I. Do your OP&Ps (designing functions) address the full range of RRI?
 - II. Do your OP&Ps (designing functions) address the full range of RRI?

- 14.
 - I. Are you only following existing company' legislations for reflecting RRI principles in OP&Ps (designing functions)? Beyond that?
 - II. Are you only following existing company' legislations for reflecting RRI principles in OP&Ps (designing functions)? Beyond that?

- 15.
 - I. Did you / would you share the best practices with suppliers, business partners, employees, etc. that relate on implementing RRI?
 - II. Did you / would you share the best practices with suppliers, business partners, employees, etc. that relate on implementing RRI?

- 16.
 - I. Overall, do you apply any specific tool for implementing RRI aspects? If any, Could you name a few examples?
 - II. Which tools would you suggest to implement RRI principles/action lines in ICT for ageing?

- 17.
 - I. Which materials/documents would you suggest to us to provide other industrial stakeholders to help understand societal and ethical aspects? If possible, please name your suggestions separately for before, during, and after of our discussion with them?
 - II. Which materials/documents would you suggest to us to provide other industrial stakeholders in knowing better RRI aspects? If possible, please name your suggestions separately for before, during, and after of our discussion with them?

- 18.
 - I. Do you have any further questions/issues you would like to add/address?
 - II. Do you have any further questions/issues you would like to add/address?

Appendix IV. Workshop guidance

Project Workshop

With this workshop, the Responsible-Industry project identifies how companies understand open questions / challenges concerning the lack of responsibility/sustainability aspects within their activities. This workshop seeks to assist them in implementing a Responsible Research and Innovation (RRI) framework in practice.

The first goal of this workshop is to clearly connect responsible business cases through RRI main indicators to the existing KPIs of an organization.

If an organization uses KPIs e. g. regarding profit margins, new product revenues or new types of technology, this workshop can offer insight and practical advice how RRI principles enable a more effective achievement of company objectives.

Furthermore there needs to be an understanding of the connection between existing KPIs and RRI principles, which can be built through this workshop. This includes also developments and processes from the relevant industry e.g. through considering actions of competitors. Staying up to date regarding such developments is essential for sustainability and is one of the benefits facilitated by our workshop.

The Goals

- Connect RRI main indicators to the existing KPIs of your company
- Learn about RRI principles and how to generate a responsible business case
- Create more forward-looking goals around RRI issues like employee engagement, external stakeholder engagement, etc.
- Co-creation of an RRI framework in collaboration with your company
- Learn how to embed RRI principles into R&D initiatives
- Highlight relevant developments towards RRI

Who Will Attend

Company members from each of the cases in Spain and Finland

Activities

- Make a summary of the previous interview with the company.
- Give to the company some customized feedback according to the analyzed data gathered during previous interview.
- Give some guidelines to implement RRI in the company before next interview.

Action plan: We have our own RRI main indicators that we gained from the RRI framework - conducted in WP2 - and the analysis of the 1st round of interviews within the companies. The idea is to connect the RRI main indicators to the existing KPIs of the respective company.

To have an overview of how are we engaging whom and with what topic, we created our own little KPI worksheet. We're talking about what are the things we want to engage participants in at different levels. We want to align their engagement with the core KPIs that they consider to be important. To achieve this goal, we ask participants firstly to fill out the KPI worksheet that we provide. In fact, they go through the things that influence the development in their companies and all things they deem important for them in the company and their work, which of course depends on their positions. They write up those things in a form called KPI worksheet. For instance, a CEO might think about 'strategy and target setting', whereas an R&D manager focuses on 'solution for managing sustainability' and 'design thinking'.

Then we facilitate some separate group discussions, in which they discuss the things they have already written. In these discussion rounds one of our colleagues joins the group and tries to integrate RRI main indicators in discussed KPIs. For instance, when R&D manager talk about 'design thinking', we are engaging it related to RRI main indicators, e. g. to socially responsible thinking paths.

As an output, we have a worksheet, in which participants wrote all things they consider to be important, and which they discussed afterwards with their colleagues and us in relation to integrating socially responsible aspects.

1. Which things are important for participants in the company and their work? They write those things individually.
2. Individual analysis of their KPIs
3. Make a group discussion with 2-3 persons in order to build the bridge between what they do and what we do. In this section, we need a person from the consortium to integrate RRI main indicators in their works – final output: a list of important things for them (top of the list), and their/our solutions to integrate RRI principles for each point of importance (bottom of the list).
4. Swap the groups and discuss again, take a note on separate papers for different groups, and finally compare these lists with the KPIs provided by the company
5. Have a final discussion over existing KPIs & highlight what they could do to become more socially responsible or how we can add RRI main indicators to the existing KPIs.

Main points to discuss during discussion rounds

The workshop will provide you with information about the following topics, which will then be discussed:

- Do you already have any social and ethical indicators under existing KPIs? If not, how could you connect RRI main indicators to the existing KPIs of your company?

- How could your company implement RRI main indicators in its daily work?
- How can RRI main indicators be connected to the existing KPIs that they mention?
- Identify the drivers/barriers of RRI for your work in practice.
- Discuss the impact of social and ethical value in their work

Follow-up Plan

All participants will receive a questionnaire at the end of the event in which they indicate how they evaluate the event and where they can state opinions and suggestions. After the workshop, we will analyze the collected KPI worksheets for each company separately and get back to them by suggesting a list of indicators that we think are important to implement in their respective company.

Time and Location:

This is our agenda for the Workshop – close to 2 hours in total

- Introduction to today's agenda – 5 min
- Summary of the 1st interview – 15 min
- Ask for the most important issues/KPI for each of them.
- Brief explanation about the framework for implementing RRI – 30 min
- Who is responsible for what?
- How to integrate it along the value chain? – Talk also about what is an informed consent and information sheet.
- Give them a copy of the books.
- Exercise

- ✓ Please have a look on the comment: Talk about the KPIs that they sent us - 20 min
- ✓ Group discussion about including the KPIs we are proposing – 30 min

- Conclusions and next steps – 10 min
- Final questionnaire – 5 min
- Two weeks after workshop: send the feedback of the workshop and the revised list of social responsibility-oriented KPIs to the company - we need to give them an early feedback