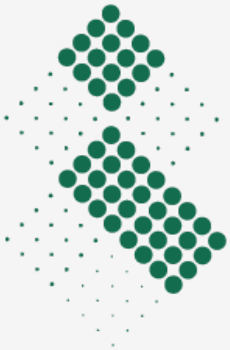
RRI LEADERS

RESPONSIBLE RESEARCH AND INNOVATION IN TERRITORIES

Territorial Report of Catalonia and the city of Sabadell



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Introduction

The following report is a desk-top research production, giving an RRI-based overview of the relationships between and among Catalonia's stakeholders on the chosen policy areas for the city of -++++++++++Sabadell: Smart Specialisation in active ageing, circular economy and innovation in design, within the greater Catalonia context.

During the last years the Economic Development Agency of Sabadell Municipality has been engaged in the deployment of the Smart Specialization Strategy in Sabadell city, not only through the participation in a Territorial Specialization and Competitiveness Project (PECT), but also developing new projects focused on important industrial challenges like the Industrial Symbiosis. In this sense, our work at the RRI-LEADERS will be framed by the implementation of Smart Specialisation Strategies (RIS3) in our municipality.

Thus, our policy focus seeks to promote the territorial innovation ecosystem. It aims to generate a policy change at local level through the projects carried out by the Economic Agency of Sabadell Municipality.

To achieve this local policy change, all the projects will need to be considered through the RRI vision, especially those which are more sensible to societal challenges. Our aim is to integrate civil society/ final user to the territorial innovation ecosystem, improving its inclusiveness and alignment with societal challenges. The ongoing projects where RRI vision will be applied are focused on developing an active aging programme, a circular economy lab and a final user design and prototyping lab.

The report´s purpose is to synthesise the main actions and policy directions regards integrating RRI in current R&I&D policies so as to help the understanding of how and where the Catalan actors areas are – as a baseline – in constituting and shaping the territorial R&I ecosystem as the RRI-Leaders project develops.

Finally, this report is complemented with the findings obtained during the Participatory Workshop organised on July 15th, intended to explore **how the territorial stakeholders perceive responsibility in research and innovation as well as the RRI keys and AIRR dimensions and their relevance to the overall development policy of the territory in Catalonia and the city of Sabadell region**.

Methodology

This report is divided in two sections: (i) the first one consists of a desk-top research and analysis of the existing policy documents in the region of Catalonia and in the City of Sabadell regarding the presence of the RRI thematic keys and AIRR dimensions in Smart Specialisation; (ii) the second one consists of the findings obtained during the Participatory Workshop with different territorial stakeholders about their perception of RRI in general terms and its keys and AIRR dimensions and their application to the territorial Smart Specialisation policies.

The identified and analysed policy documents involving Smart Specialisation issues were:

- Strategy for the Smart Specialisation of Catalonia (RIS3CAT)
- *Specialisation and Territorial Competitiveness Project "Vallès Industrial"* (PECT Vallès Industrial)
- Project RELOS3: *From Regional to Local: Successful deployment of the Smart Specialisation Strategies*

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- Different past and current RRI initiatives and projects in the territory

The findings were summarised in a specific document provided in advance to the participants of the Participatory Workshop and constituted the basis for the discussions held, summed up at the last part of the present report.

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Part I: Desk-top research and analysis of territorial policy documents and initiatives

Smart Specialisation in Catalonia

The European Commission requires Smart Specialisation to be the basis for investing in research and innovation, which are co-financed with European funds. The member states and regions have to detect their own potential and concentrate European funds in economic areas that truly have the capacity to transform their region.

Within this framework, the Catalan Government approved the Strategy for the Smart Specialisation of Catalonia (RIS3CAT)[1], aimed at ensuring that European Union co-financed research and innovation investments are turned into economic growth and jobs.

As stated in the website of Internal Market, Industry, Entrepreneurship and SMEs of the European Commission "RIS3CAT defines the framework within which the Catalan Government establishes research and innovation (R&I) actions and programmes over the 2014-2020 period and provides support for the generation and development of innovative projects. Moreover, the Digital Strategy of Catalonia for 2020 establishes the framework for investment and action in the ICT field.

"RIS3CAT establishes four strategic objectives:

- "To modernise the business fabric by improving the efficiency of production processes, internationalisation and the reorientation of consolidated sectors towards activities with greater added value.
- To promote new emerging economic activities through research and innovation to create and develop new market niches.
- To consolidate Catalonia as a European knowledge hub and link technological and creative capacities to existing and emerging sectors in the territory.
- To improve the overall Catalan innovation system, increasing the competitiveness of companies and steering public policies towards promotion of innovation, internationalisation and entrepreneurship."

The areas of activity are[2]:

- Seven leading sectors of high significance and potential are identifiedas key drivers for economic recuperation and the redirecting of the Catalan economy towards a more rational, sustainable and inclusive growth model.
    - Agrofood industries
    - Energy and natural resources

[1] Research and Innovation Strategy for the Smart Specialization of Catalonia (RIS3CAT) - Internal Market, Industry, Entrepreneurship and SMEs - European Commission (europa.eu)
[2] http://catalonia.com/newsletter_news/newsletter/issue6/ris3cat.jsp

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  - Industrial systems
  - Design based industries
  - Sustainable mobility
  - Health industries
  - Experience-based industries
- New economic opportunities in emerging areas, arising out of technological capacities and synergies between related sectorial ambits
- Transversal facilitating technologies that transform the productive ecosystem.
  - ICT (with microelectronics and Nano electronics)
  - Nanotechnology
  - Photonics
  - Advanced materials
  - Biotechnology
  - Advanced manufacturing technologies
- Improvement of the innovation ecosystem and strengthening of companies' competitiveness towards boosting innovation, internationalisation and entrepreneurship.

RIS3CAT for the programming period 2021-2027 promotes shared research and innovation agendas that contribute to greening the economy, improving people's quality of life, enhancing the industrial transition and transforming production and consumption models to make them more sustainable and inclusive[3].

Smart Specialisation in Sabadell

Sabadell has a high potential for innovation and technological advancement owing to its important industrial fabric and business tradition, complemented by the presence of reference R&D institutions and universities and a strong business ecosystem and organisations[4].

The City Council has been a key agent in the promotion of local innovation, developing different innovation strategies and participating in several projects in this regard. It is also recognised as an innovation agent by the Government of Catalonia.

Sabadell is now leading a project in the framework of the RIS3CAT instrument**: *Specialisation and Territorial Competitiveness Project "Vallès Industrial"* (PECT Vallès Industrial)**, which "aims to promote this territory as a reference in the specialisation domain of industrial systems and to become a centre for innovation and design in this field. To this end, the city council is collaborating with several agents from the local and regional innovation ecosystem, such as universities, business associations, technological centres and other municipalities. It also maintains an active collaboration with the General Directorate for Economic Promotion, Competition and Regulation (GDEPCR) belonging to the Ministry of the Vice-presidency and of the Economy and Finance of the Government of Catalonia. The GDEPCR is responsible for the coordination of the Research and Innovation Strategy for the Smart Specialisation of Catalonia (hereafter, RIS3CAT)."

The themes addressed are:

[3] RIS3CAT 2021-2027 and transformative innovation policy – Tatiana Fernández and Alberto Pezzi – EAPC blog (gencat.cat)
[4] RELOS3_ACTION_PLAN_SABADELL_eng_revisio_FINAL_DEF.pdf (interregeurope.eu)

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• **Intelligent design** applied to industry, design and innovation applied to industrial and auxiliary SMEs. Construction of a centre for design and innovation.

• **Active ageing**: Improving the aging and health of the elderly population. Creation of a space and a methodology for capturing the needs of the population over 60 and transforming it into business opportunities.

• Boosting the **circular economy** in industrial systems:

o Promote circular economy actions to improve the competitiveness of the business fabric of the territory.

o Improve resource efficiency, reduce costs and promote synergies between companies through the exchange of materials, energy and water.

At the same time, Sabadell leads a project in the framework of Interreg EU calls, **"RELOS3[5]: From Regional to Local: Successful deployment of the Smart Specialisation Strategies"** which seeks to implement regional Smart Specialisation Strategies (RIS3) in a local context by actively involving local authorities, innovation agents and companies. The local level is often overlooked, but it is crucial to involve local ecosystem in innovation strategies. Being part of RELOS3 Interreg Europe network has allowed Sabadell to identify good practices developed by other partners, which have been translated to the Catalan context:

- "Implementing the Entrepreneurial Discovery Process in practice": The Maltese GP shows how they modified their original RIS3, mostly a top-down approach, to one involving fourth helix representatives (government, academia, private and civil society). They set up structures and systems to stimulate, guide and drive the Entrepreneurial Discovery Process at national level

- "Multilevel Governance in RIS3 Basque Country": The Basque Country GP points to the importance of involving different departments of the regional government in the design and implementation of the RIS3. Moreover, it shows how the inclusion of the local scale in the RIS3 helps to reach agents that might otherwise be left out of the specialisation process (such as SMEs or small business associations). Finally, the Basque Country RIS3 features a key figure, the facilitators, agents that activate the collaboration process. RELOS3 action plan has two goals:

- firstly, to address issues of governance among the regional and local authorities currently involved in the deployment of the selected policy instrument;
- secondly, to improve the participation of agents in the local (subregional) innovation ecosystems in the process of regional Smart Specialisation, improving the interplay between regional and local innovation processes.

The Plan identified four key challenges in the involvement of the local level in the RIS3 related to the identified weaknesses of the RIS3CAT policy instrument.

- The need to demonstrate the key role of the local level in the implementation of the RIS3
- The analysis of the collaboration mechanisms between the different agents involved in the specialisation and innovation processes

[5] RELOS3 | Interreg Europe

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- How to involve R&D agents in local innovation ecosystems
- How to engage regional and local administrations in order to recognise the potential of the local level in the RIS3

In particular, the Plan pointed to specific improvement aspects identified in the RIS3CAT instrument (as shown in the table below), which related to a) governance issues (among the managing agents of RIS3CAT project calls and the different developed instruments under which innovation-related projects are being implemented); b) to the sustainability of the cooperation of the triple and quadruple helix in innovation and specialisation projects, c) more specifically the participation of the private sector.

General Local Level Involvement in RIS3	Quadruple Helix Sustainability	Private Sector Support Options for RIS3 Deployment
• Involving local governments is always recommended, since they are close to their businesses and civil society • Have good communication and dissemination involving all quadruple-helix stakeholders in the decision-making process (to develop programmes, tools, indicators) • Entities should be able to "say no" to projects emerging from the RIS3 strategy, when they do not match respective RIS3 key areas • Flexibility should be provided for including "out of the box" initiatives • Inter-departmental coordination among managing agents of projects calls is key for implementation	• The role of facilitators is key for helping stakeholders to work together. Facilitators should be independent entities capable of connecting with each other the different quadruple-helix agents, as well as facilitating/guiding collaborations • Motivation is the only way to involve and innovate. The policy should integrate different challenges and interests. • The experimental design of public policies opens up a dialogue with the city's needs and challenges. • The local level is where RIS3 is best at developing collaboration.	• Start-ups: give support to extend their knowledge base, realising the time they need to grow and succeed • Critical to identify the most central node in target activity • Large companies might want to work with start-ups and cooperate with them (in a stable framework) • Start-ups and entrepreneurs: how do we transform a person with an idea into an entrepreneur? • Training, planning, identifying the target consumer for each new product/service • The public sector expects to reach a broad community of potential entrepreneurs. To do so, it must connect with existing initiatives and deploy a stable operating framework

Based on these observations, a model for more efficient RIS3CAT governance and for improving the sustainability of quadruple-helix collaboration was developed, offering some space for a bit more integration of the RRI keys of public engagement and governance, in concrete:

- By involving a wider range of stakeholders
- By improving the current knowledge and information exchanges amongst them

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- By reinforcing the engagement of other public administrations
- By setting up and engaging the stakeholders in consultative mechanisms
- By improving communication of the RIS3CAT's impacts on the local economy so as to create more opportunities for synergies between existing local projects and initiatives

Nowadays, the ambition is to capitalise on the work already accomplished through both projects with regard to smart specialisation in the territory, by leveraging the specific advantage of the local authority to address the existing challenges within its territory and act as a bridge between society and science. Likewise, to learn about and adopt methodologies to enable building stronger ties between societal challenges identified in the territory, and the way in which research and industry could give an answer to them. The quadruple helix approach would be reinforced and also the chances to speed up the process of territorial specialisation and thus achieve a positive impact in terms of economic development.

RRI keys and AIRR dimensions in Catalonia and Sabadell Smart Specialisation policies and initiatives

The spirit of RRI is deeply integrated in RIS3CAT and in Sabadell Smart Specialisation project RELOS3, following the EU policy developments. However, as mentioned in the SEERRI project report "Mapping RRI Dimensions and Sustainability into Regional Development Policies and Urban Planning Instruments", RRI practical implementation is problematic, due to the complexity of the concept itself and the lack of awareness on RRI among private companies, though they have undertaken activities compatible with RRI like sustainable innovation, participatory design, open innovation, stakeholder dialogues, scenario development, circular economy, etc.[6] In this sense, efforts in disseminating and creating awareness of the benefits of the RRI keys and AIRR dimensions should be done by public administrations. Even our current project, RRI-LEADERS, can contribute a lot.

RIS3CAT defines priorities in line with RRI governance, public engagement, open access and sustainability. It foresees participation and quadruple-helix collaboration, to be put in place by instrument such as RIS3CAT Communities or Projects of Territorial Specialisation and Competitivity (PECT). Not only is the public sphere taking care of the RRI governance, but also cluster organisations and other local organisations, especially through the implementation of EU and non-EU projects focused on all RRI thematic keys, as well as through the establishment of institutional representatives for addressing gender equality, open access and ethics[7]. These last two, though, are still insufficiently included into regional development policies and urban planning instruments.

6 https://www.researchgate.net/publication/343003661_Mapping_RRI_Dimensions_and_Sustainability_into_Regional_Development_Policies_and_Urban_Planning_Instruments

7 https://www.researchgate.net/publication/343003661_Mapping_RRI_Dimensions_and_Sustainability_into_Regional_Development_Policies_and_Urban_Planning_Instruments

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In accordance with the conclusions of the SEERRI project report, the most critical dimensions of RRI to be included in Smart Specialisation in territorial development policies and urban planning instruments are ethics and open access. The RRI dimension of ethics has been already included in labour directives and guidelines, but it could be expanded also to other fields. For instance, public authorities, cluster organisations and private companies could try to include specifically ethical standards in their development policies and instruments, also by developing targeted awareness/social marketing campaigns.

Open access is mainly seen as transparency and openness in public processes (i.e., to request information) and in publication of specific policies (i.e., through online portals or open platforms to access spatial planning documents or other public policies). In this sense, open access should be also included as a priority in the next RIS3. Transparency mostly applies to public authorities, which are often obliged by national or regional laws to publish in open access documents and procedures, and to make the general public aware of decisions on urban planning and territorial development. On the other hand, open access is still a thorny issue, especially in the private sector, mainly for intellectual property considerations.

Citizens and all the relevant actors should be involved during all the processes, from the elaboration to the approval and also during the implementation and monitoring of plans and development policies, in order to guarantee the acceptability of the choices being made and also to obtain more concrete results in the achievement of the planning objectives. Moreover, the co-creation in the first phases ensures that different perspectives are included, aligning the outcomes to the values, needs and expectations of the whole society.

Gender equality is compulsory by law and has, thus, been addressed. However, including gender equality in development and territorial policies has not been fully exploited yet, due to the fact that society is becoming more and more diversified, with divergent interests that often entail conflicts between different user groups.

Targeted development policies are already addressing science education as their main objective; moreover, training activities and learning programmes on RRI principles (i.e., mainly on gender equality, public engagement and sustainability) are widespread practices. However, an accurate and targeted planning and design is often required in order to provide dedicated spaces and infrastructure for innovative science education (e.g., Science Parks, Scientific and Technical Pole, public university campuses, research centres), to also improve the quality of the educational and training spaces and the provision of technologies and infrastructures for the scientific research and education.

Indeed, schools and universities can create learning contexts based on real challenges in society by promoting local, national and international alliances which involve different actors (companies, NGOs, public entities, etc.). These alliances can offer students the chance to take actions for sustainable development that lead them to question and change their vision of the world and prepare them for disruptive thinking, the collaborative creation of new knowledge and thus take well-grounded decisions and play active roles both locally and globally to deal with the global challenges and contribute to building a sustainable future.

Regarding the AIRR dimensions they are incorporated in RIS3CAT in the following way:

- **Anticipation**, via the incorporation of forward-looking exercises: RIS3CAT is a transformative R&D agenda geared at building a more sustainable, inclusive future, and therefore it must anticipate the impacts of economic, social and environmental actions.

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- **Reflexivity**: RIS3CAT is not a linear agenda since it has to entail constant learning and reflection on the potential economic, social and environmental impacts of its actions. This could be done by formulating alternative future scenarios and analysing crucial factors for the different pathways.
- **Inclusion**: RIS3CAT promotes participative governance systems in which citizens are engaged alongside public administrations, universities and companies.
- **Responsiveness**: The processes promoted by RIS3CAT should be legitimate and reflect society's interests and needs, and therefore they should be promoted by political institutions and civil-society organisations that represent citizens.[8]

RRI Initiatives – Past and Present in the Territory

The following section presents an indicative range of RRI-related projects that have been carried out in Catalonia since the FP7 and H2020 Programmes. While certainly not exhaustive, it does reflect the extent of RRI-focused activities that have been carried out by the 12 public and private universities, research centres, public authorities, private sector, Catalan Clusters, etc. It shows the strong public-private cooperation, which is a strong element in the Catalan R&D ecosystem, revealing to what extent the triple helix system is consolidated structurally and where the RRI framework is still mostly a work-in-progress at the 4H level. In the sense of citizen's participation and co-creation, this is still rather under-developed, and even more true regards people's empowerment and participation in citizen science projects, despite the many successes below.

1. RRI-Tools[9]. A project led by the Fundació La Caixa and IRISCaixa, a health research institute jointly created with the Catalan Government. It brought together four foundations, ten science centres, four universities and research centres, a science shop, a chamber of commerce and a technological partner, plus six related European networks of the EU project.
2. IRISCaixa is also involved in the project LIVING INNOVATION[10] - Implementing RRI through co-creation of smart futures with industry and citizens, where major ICT industry leaders unite forces to co-create more responsible approaches to innovation.
3. GRACE[11] (Grounding RRI Actions to Achieve Institutional Changes in European Research Funding and Performing Organisations), with AGAUR as Partner. The project's mission is "To develop a set of specific Grounding Actions in six research performing and funding organisations… These actions will be the basis for the development of a tailored 8-year RRI Roadmap within these organisations to ensure its sustainability and full implementation over the long-term."
4. HEIRRI[12], Higher Education Institutions and Responsible Research and Innovation), with the Catalan network of universities as Partner (Associació Catalana d'Universitats Públiques, ACUP) has the objective of starting "The integration of RRI within the formal and informal education of future scientists, engineers and other professionals involved in the R+D+i process".
5. TRANSFORM[13] The aim of TRANSFORM is to contribute to Catalonia's transition to a more competitive, sustainable and inclusive economic model (focusing on waste management). The Catalan cluster is

[8] https://seerri.eu/wp-content/uploads/2021/02/deliverable_maquetacion_V3.pdf
[9] Home Page - RRI Tools (rri-tools.eu)
[10] Livin - Virtual Community Platform (living-innovation.net)
[11] Homepage – GRACE (grace-rri.eu)
[12] https://heirri.eu/
[13] citizen science Archives - TRANSFORM (transform-project.eu)

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working towards transforming the projects from the triple to the quadruple helix, incorporating citizen science as a means of integrating RRI into Catalonia's RIS3CAT 2021-2027, its instruments and the actors of the Catalan R&I ecosystem. The pilot projects chosen by the Catalan cluster are already developing or planning to develop innovative participatory strategies. The Catalan cluster will deepen this perspective using two approaches:

- Co-creation process of innovative citizen science tools: various agents of the quadruple helix will be involved in a co-creation process to generate innovative tools based on citizen science.
- Citizen science to improve municipal waste selective collection: a citizen science process will be developed in order to contribute to the design and monitoring of innovative municipal waste selective collection systems.

TRANSFORM's co-design process was set up to start defining citizen science projects responding to the waste management challenges, always from the perspective of collaboration between Quadruple Helix agents, supported by the Catalan cluster.

On other major initiatives that involve RRI aspects in their work, two stand out as related to the three of the thematic focus in Sabadell and Catalonia in RRI-LEADERS:

1. The European EIT Health[14] project. In Catalonia, BIOCAT[15] has been promoting the EIT initiative since 2009 as an associate member. BIOCAT also coordinating the RIS3CAT community: "NEXTHEALTH: Multidisciplinary solutions for the coming challenges in health" in order to tackle the main health-related challenges in Catalonia, from knowledge to market access, to "maximise the economic and social impact of the life sciences and healthcare innovation of the BioRegion", according to the website.

2. Circular Economy: Circular Catalonia: the Circular Economy Observatory[16] According to its website, this is the "hub for innovation and a meeting point for companies and institutions that provide solutions and strategies to consolidate the circular economy in Catalonia".

Likewise, the Commission of Economy and Sustainability of the College of Economists of Catalonia, Promotion of National Work, PIMEC, the Chair of Circular Economy of the Tecnocampus Mataró-Maresme and the Department of Territory and Sustainability (DTES) of the Generalitat de Catalunya put together the 'Barometer of circular economy of the Catalan company' 2020. The barometer checked the extent of knowledge and implementation of the circular economy in Catalonian companies. The findings seem to indicate RRI-based opportunities for improvements.

The main results have been (and may give indications for "RRI-LEADERS" as to the situation in Catalonia):

- While 81% of companies surveyed are aware of the concept of circular economy, large companies consider it more urgent to start actions than smaller ones, and this seems linked to business strategy.
- In implementing the circular economy, most actions focus on recycling, improving the efficiency of the use of resources and in their recovery. More sophisticated initiatives related to remanufacturing are considered more difficult to achieve.
- Indicators to measure progress towards circularity and its benefits are still lacking.

[14] EIT Health | Promoting innovation in health
[15] Strategic projects | Biocat
[16] Catalunya Circular: l'Observatori d'Economia Circular. Departament de Territori i Sostenibilitat (gencat.cat)

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- There is a strong conviction that to move to a circular economy requires investment. Almost half have obtained public aid for their projects, but providing knowledge about available aid can be improved.

Observations after conducting desk-top research and analysis

It has been identified the importance of the fact that both public and relevant private territorial entities should have mapping methods, with indicators for RRI, benchmarks and maturity level in place, or in the making, for meaningful RRI-based transformative change in policy to come about.

With regard to the indicators, perhaps it has been underestimated those related to the Sustainable Development Goals of the United Nations (UNSDGs)[17]: the importance of these as recognised by stakeholders seems to be growing, including those amongst the private sector.

It seems that the importance of the "language" aspects (communication) is underestimated as public officials speak one language, and industry speaks another, Civil Society Organisations still another. RRI is difficult to translate and explain (especially when the RRI messaging comes from a researcher).

The Regional Operational Programme (ROP) does not foresee a procedure to link locally-led projects (which can be smart specialization focused as well) with "Communities" projects (R+D led and part of the ROPs), although communities are supposed to add high value to specialised ecosystems. Indeed, the RIS3 strategy made no specific reference to how subregional policies should be involved and aligned with it, so the City Council of Sabadell (in the RELOS3 initiative) has been investigating how other European regions and cities (if any) have implemented these coordinated strategies straddling the regional and the local. Sabadell is collecting procedures to improve collaboration among the stakeholders (specifically those regarding R+D areas such as technological centres, innovation units in universities , etc), within its specialised ecosystem (meaning companies in the territory) .

Catalonian initiatives appear no different from any other territory's in focusing on the early stages of technology design, for innovation (the "upstream" phase), while not focusing on the social impacts (the downstream" phase (Jenkins et al. 2020). Indeed, RRI mostly get spotlighted at the "emerging" and "novel" innovation phase, but finds traction more difficult in discourse and deed once a new technology becomes "established".

Two other perhaps inter-connected "messaging" observations: On the one hand, as with probably other territories, there may be "techno-visionary discourse" that becomes predominant, and in a way, "elitist" which can inhibit lay citizens from joining in on the discussions about innovations and responsibilities.

On the other hand, there may be a combined - a) "fake news" discrediting science impact, where anyone with a Twitter account can opine; and, b) RRI fatigue that universities or research centres are the main ones that should always be leading the RRI cause. Together, these speak to a broader "de-standardisation, fragmentation" of a science institution's internal workings and a society's willingness and/or capacity to absorb science's findings and insights in ways that serve societal needs and expectations.

[17] https://www.un.org/sustainabledevelopment/sustainable-development-goals/

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According to the valuable findings in a recent publication on RRI in Catalonia, in the context of Spain, (Responsible Research & Innovation in Catalonia. Technical Report)[18], the concept of 'responsible research and innovation' does not appear to play any role in the hands on, daily work of researchers and research groups. This despite the impressive participation of Catalan entities in RRI initiatives funded by the EC, and despite these universities' ascribing to the 'HR Excellence in Research Award' based on the European Charter for Researchers and The Code of Conduct for the Recruitment of Researchers (gender, ethics).

In universities, steps can be observed made in the dimension of gender equality/ethics/public engagement/open science/science education/citizen science, however not within a guiding, integrative framework of RRI, but rather as principle-specific actions.

Last, the policies and initiatives of higher education, research and innovation from the Generalitat of Catalonia are included in the 2020 National Agreement for the Knowledge Society[19]. It is an agreement approved during the Plenary of the Pact held in May 2020, unanimously supported by the 78 representatives of universities, research centres, students, trade unions, the business world, the territorial sphere and all political groups represented in the Parliament of Catalonia.

The Agreement cites the support for Open Science by way of the Portal de la Recerca de Catalunya[20], which brings together all the information about research carried out in Catalonia, in universities as well as specialised research centres, and its linkages with the European Open Science Cloud. RRI ("recerca i innovació responsable") is specifically mentioned just once in this Agreement, and that is about its contribution to "Revalue scientific culture as an indispensable tool for forming a responsible and critical society, and promoting ad hoc training in this regard."

Part II: Participatory Workshop

Introduction

The following section presents the results of the workshop organised by the Sabadell territorial and methodological partners to explore **how the territorial stakeholders perceive responsibility (in research and innovation), as well as the RRI keys and AIRR dimensions and their relevance to the overall development policy of the territory in Catalonia and the city of Sabadell region**. The workshop focussed on reaching a common understanding among the participants on the relevance of RRI-AIRR approach to the territorial policies especially on the chosen policy areas: Smart specialization in active ageing, circular economy and innovation in design, within the greater Catalonia context.

This section focuses first on the methology of the workshop and presents the list of participants,to offer afterwards a summary of the issues discussed by the territorial stakeholders in Catalonia /Sabadell.

[18] (PDF) Responsible Research & Innovation in Catalonia. Technical Report (researchgate.net)
[19] Pacte Nacional per a la Societat del Coneixement – PN@SC. Departament d'Empresa i Coneixement (gencat.cat)
[20] Portal de la Recerca de Catalunya: Pàgina d'inici (csuc.cat)

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Workshop methodology

The workshop's agenda and methodolgogy were based on the reccommendations given by the Methodological Guidance for the WP 2, Task 2.2 of the RRI-LEADERS project, taking into account the chosen policy area and the type of territorial stakeholders present.

The workshop was held the 15th July 2021 from 9 to 13.30 am. As mentioned above, it took place in an on-line format, due to the restrictions for face-to-face meetings caused by the COVID-19 pandemic. The platform used was Zoom, provided by the Sabadell partner.

After the welcoming and a brief introduction by the participants, the methodological partner from Catalonia, the Fundació Catalana per a la Recerca i la Innovació, gave a short introduction to the project, presenting its main goals and the workshop's objectives. After this, the territorial partner from Sabadell, PES-SL, explained the main results and ideas of the desk-top analysis on existing strategies and programmes/plans in Catalonia and in the city of Sabadell which constitute the first part of the present report, with an special mention to the chosen policy instrument, the Catalan Smart Specialization Strategy and its implementation in Sabadell.

Afther this, the methodology of the workshop was presented: participants were divided in two groups in order to discuss in simultaneous sessions the questions posed by the guide, but adapted to the Catalan context. They were the following:

- How do you perceive responsibility in research and innovation, as well as RRI keys and AIRR dimensions? Here participants were first asked to prioritize the RRI keys and AIRR dimensions according to the ease of implementation in R & D & I mechanisms, followed by an open discussion.
- Discussion of the opportunities for the embeddedness of RRI-AIRR approach on existing strategies/programmes/ plans. Specifically, participants were asked to prioritise a set of existing strategies chosen by them and discuss the implications of the RRI-AIRR approach.
- Based on the documentary review analysis findings, please discuss the opportunities for the embeddedness of RRI-AIRR approach on existing strategies/programmes/plans related to the chosen policy area. Here participants discussed specifically the RIS3CAT.
- Identify potential policy areas for future implementation of RRI-AIRR approach
- Comment on the opportunities to include the RRI approach in the policy chosen by Sabadell: the RIS3CAT. They were specifically asked to discuss which of the 5 keys and 4 dimensions of the RRI were already included in the RIS3CAT and which were missing.
- Discuss how to include the RRI's approach to Sabadell's specializations. Here the stakeholders had to focus specifically in the three specialization areas: Intelligent design, Active ageing and boosting the Circular Economy.
- Identify other relevant areas of public policy where the RRI approach can be included. Here participants had to choose and discuss other relevant areas.

After the discussion in the paralel sessions, participants joined the plenary room to put in comon the findings and set the conclusions to the workshop.

In order to engage participants and to promote the discussion, the online participatory tool MENTI was used, allowing them to priorise the different keys and dimensions of the RRI in relation to their embeddeness in the existint plans and policy areas. After the priorisation, participants engaged in an open discussion to delve deeper in their choices.

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List of participating Territorial stakeholders

The workshop was attended by 13 stakeholders, representing research, business and public policy sectors in Catalonia and Sabadell area, some linked to the specialization areas of Sabadell: Intelligent Design, Circular Economy and active ageing, while others were linked to RRI issues or involved in innovation processes in Catalonia and Sabadell. The workshop was organised by representatives of the methodological and territorial partners in Catalonia and Sabadell: the Catalan Foundation for Research and Innovation and the PES SL (Sabadell City Council). It was moderated by two external expert consultants brought by the PES SL.

Participant	Role	Institution	Type of stakeholder
Konstantinos Kourkoutas	Coordinator CORE (Intelligent and Sustainable Cities Research Network)	Universitat Autònoma de Barcelona	Research sector
Gerard Mayol (DIBA)	International relations technician	European Office and International Strategy, Diputació de Barcelona	Territorial policy makers
Mireia Martínez	Responsible for Employment inclusion	Fundació ECON (services of social inclusion)	Third sector/civil society
Nacho Raya	Lawyer of VHIR -member of the RRI Platform at the Vall d'Hebron Research Institute	Vall d'Hebron Institut de Recerca (health research institute)	Research sector
Mar Escarrabill	RRI Strategic Officer and Project Manager	Science for change	Third sector/civil society
Daniel Raya	Business Intelligence Developer for Public Administration	EURECAT (technological centre)	Research sector
Jaume Enciso	Technical office for Urban Ecology	Sabadell City Council	Territorial policy makers
Encarna Ruiz	Director of the Department of Theory and Analysis of Design	ESDi- Universitat Ramon Llull	Research sector
Ricard Rodríguez	Director	Foundation MAIN (promotion of opportunities for socially vulnerable people)	Third sector/civil society
Isabel Baños	Technical Director	Nodus Barberà- Barberà City Council	Territorial policy makers
Joan Monterón	Technical Secretary	Vall d'Hebron Institut de Recerca	Research sector
Xavier Faura	Marketing Assistant	INDESCAT (Sports Cluster)	Business sector
Monica Molina and Iolanda Repullo	PES SL - RRI Leader Territorial Partner		
Belen Lopez	Fundació Catalana per a la Recerca i la Innovació - RRI Leader Methodological partner		
Laura Capel and Rafael Lacasa	External consultants and moderators – FI Group		

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Summary of the workshop's dicussion

Perception of RRI, its RRI keys and AIRR dimensions

Participants considered that Science Education was the easiest **RRI key** to be incorporated to the research and innovation cycle, followed by Public Engagement and Ethics. The keys that presented more difficulties to be incorporated were Open access and Gender Equality.

However, this first prioritization was then qualified during the open discussion, stating that the capacity to incorporate these keys to the R+D+I depend on the type of stakeholder: for instance, science education and open access can be easily implemented by research agents through their existing channels, as can be gender equality or ethics. These two keys are being increasingly incorporated by the research sector, as they are compulsory elements of research projects, especially those with European funding. Civil society or third sector representatives, on the other hand, found Science education a relevant but difficult key to implement, as this is not usually their main goal of action, and they lack the appropriate means to develop activities in this field, while keys as public engagement, ethics or gender equality are more aligned with the goals and missions of their organisations.

Gender equality was considered a transversal key with dependencies with many of the others. For instance, this is a central element to address in science education, as women are underrepresented in scientific and specially in technical careers, making them one of the main beneficiaries of these actions, which requires specific attention when implementing, for instance, public engagement activities. The same is true according to participants for young people. *Public engagement also presents difficulties mostly related to how to ensure that citizens and users are engaged through all the research and innovation process*, and not only considered in general participatory activities in the initial stages, in this sense, it was mentioned that users should be, for instance, those posing the research questions, not only those who test results, as happens in most of the co-creation processes.

The open access key also raised discussion regarding its potential conflicts with confidentiality issues, and in the case of public administrations at local level, related to the lack of technical knowledge or capacities to implement it. Moreover, it was noted that open access is not enough if the scientific or R&D content is not made understandable to all, something that is usually not done. In any case, all stakeholders agreed that the public administration is an essential driver in the promotion of the RRI keys, having a "drag along" effect on the rest of stakeholders.

The Science for Change representative said that the third sector entities have responsibility as bridges between the collectives they attend, the research sector and other agents that might give answer to their challenges. They also highlighted that *gender issues imply not only gender balance but other issues as family-work balance when doing, for instance, participatory processes (not putting these meetings late in the evening for instance)*. It was also claimed that there was greater need to promote interdisciplinary knowledge in order to connect research areas more traditionally linked to women (as health) to others such as technology or engineering.

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Regarding AAIR dimensions, participants considered Reflexivity to be the most easily implemented in the real environment, followed by Anticipation and Inclusion. In this sense, one of the representatives of the public administration highlighted that *anticipation is becoming more and more incorporated in their way of doing, especially as it is somehow required in the European funded projects in which they participate, for instance through the risk management plan*.

Responsiveness was, according to participants, the one with more difficulties for implementation. It was discussed that the reason might be related to the type of agents that need to be involved to address them: reflexivity and anticipation might be done internally by agents of the same area before engaging in RRI, while inclusion and responsiveness involve external agents and internal changes that might difficult its management. Regarding this last point, internal resistances to change were found to be a critical element to achieve a real responsiveness in organizations, especially if it implies the undertaking of profound organizational changes.

Discussion of the opportunities for the embeddedness of RRI-AIRR approach on existing strategies/programmes/ plans in Catalonia and Sabadell

The participating stakeholders identified several existing strategies and programmes where RRI-AIRR approach could be embedded:

Pacte Nacional per a la Societat del Coneixement (Catalan National Pact for the Knowledge Society)	http://empresa.gencat.cat/ca/intern/pnsc
Plataforma Vàlua Sabadell (Third sector platform)	https://www.vaporllonch.cat/economia-social-i-solidaria/plataforma-valua
Xarxa per a la Inclusió Laboral de Barcelona (XIB) (Employment Inclusion Network of the Barcelona City Council)	https://www.bcn.cat/barcelonainclusiva/ca/xarxa13.html
The Barcelona Citizen Science Office	https://www.vaporllonch.cat/economia-social-i-solidaria/plataforma-valua
Participatory Budgets of municipalities	Examples from Barcelona, Sabadell, and other municipalities in Catalonia

From the identified policies, participatory budgets were considered by most participants the type of policy that has more opportunities for the embeddedness of RRI-AIRR approach: they promote accessibility and inclusion, imply public engagement, and can incorporate issues of open access. Moreover, most city councils in Catalonia have such instruments, which would facilitate its use to integrate RRI at territorial level, engaging actors such as citizens. Other existing plans, as the Catalan Pact for the Knowledge Society, were considered a useful tool to promote governance, as it facilitates the creation of consensus about the key elements of RRI.

On the other hand, programmes such as the Vàlua Platform or the Employment Inclusion Network of the Barcelona City Council were deemed relevant as they can be used as platforms to include societal actors in territorial (f.i. at local level) initiatives coming from research agents related to RRI. In this sense, the initiative "Barcelona Citizen Science Office" was considered a good practice on how to do so.

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Discussion of the opportunities for the embeddedness of RRI-AIRR approach on the chosen policy area: The RIS3CAT and Sabadell Smart Specialization project

The presentation done by the Sabadell team about the RIS3CAT and the RRI highlighted (based on the previous analysis) that both policies define priorities aligned with keys as governance, public engagement, science education or open access, which are present in the policy documents and strategies of the RIS3CAT, and even more in the Smart Specialization Strategy of Sabadell. On the other hand, dimensions such as anticipation, responsiveness or reflexivity are taken into account in the governance structures of these policies. Howerver, it was stated that it is difficult to emebedd the RRI in the dalyly tasks, on one hand as it is conceptally difficult and on the other because some agents, as companies, are not familiar with it even if they might have activites that incorporate this concept. These statements were then discussed by the stakeholders, considering the actual implementation of the RIS3CAT and the Sabadell Smart Specialization.

Participants noted that gender equality is present in a formal way in the chose policies, as this is an element recognised by law, and it is a requirement to obtain funding from the RIS3CAT instrument. However, other noted that ensuring gender balance in a research project is not enough, as "*research teams are led in a non-inclisive way*" and the gender perspective in the project implementation must also be taken into account, which is missing in certain areas of knowledge like engeneering.

Regarding public engagement, it was discussed that there is still a major gap to cover *"from paper to reality, specially regarding social organisations and citizens".* That is, RIS3CAT lacks explicit programs or activities were these type of actors are included. Last, participants questioned the statement that science education was embedded in the RIS3CAT, with similar reasons as the public engagement, that is its lack of specific programes set to promote it. It was noted that scientific research is still widely unfamiliar for groups as youngsters or less educated people, as it seem away from their daily interests. Similar findings were discussed regarding the inclusion dimension: there is a strong focus in the promotion of triple helix collaboration but not that much that of citizens or the third sector.

Anticipation and responsiveness were other two dimensions in which the discussion was focussed regarding the chosen policy area. Regarding the last one, it was stated that RIS3CAT existing instruments and calls for funding are quite rigid and make difficult to adapt the funded activities to changes; for instance, unexpected delays or change in the budget or personnel are difficult to manage, which detracts from their ability to embed the responsiveness dimension. And while anticipation was considered essential in research because it facilitates the continuous analysis of the social circumstances that are generated around the object of study, it is not clearly embedded in the policy area, as it is left to "*ambiguous and general criteria of the lines of funding*".

After the discussion focussed in the general embeddedness of RRI in the RIS3CAT, stakeholders debated about how to specifically incorporate the RRI keys and dimensions in the smart specialization areas of the Sabadell strategy: Intelligent design, Active ageing and boosting the Circular Economy.

Active aging

Here the stakeholders considered that ethics and public engagement were the most relevant RRI keys, and science education the less relevant. Regarding the 4 dimensions, they chose anticipation as the most relevant, followed by the responsiveness.

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It was discussed that Ethics is a basic principle in any field of research, both in terms of the methodologies used and the management of results, but more in fields as ageing, were you deal with vulnerable people. The public administration representatives agreed on this point, also stating that in this area the ability to respond to unexpected events is critical, as proven during the COVID pandemics, that greatly affected the elderly. Other mentioned that responsiveness and ethics should go hand to hand with transparency and the ability to transmit trust to the citizens.

Intelligent design

Here the stakeholders chose ethics and open access as the most relevant RRI keys, followed by science education. Issues of public engagement were deemed less relevant in this field. Regarding the 4 dimensions, they chose responsiveness and anticipation as the most relevant, followed by inclusion and reflexivity. followed by the responsiveness. The ESDi representative stated that for them design implies to analyse, in order to be able to make the right proposals for products, services and experiences that improve people's lives. Other agents considered that inclusion is also key in this area, to reach the maximum participation in the co-creation processes and include diversity of visions and perspectives.

Boosting the circular economy

Regarding this last specialization area, participants voted public engagement as the most critical RRI, followed by ethics and science education, while gender equality was considered the less relevant.

Reflexivity and anticipation were the most relevant AAIR dimensions, while anticipation and inclusion obtained less consensus about their role in this area.

Conclusions

After the discussion around the several questions, participants were asked to expose their final conclusions regarding the embeddedness of RRI-AIRR approach in the Research and innovation and the chosen policy areas. We offer them below:

There are still difficulties in concretizing RRI principles in our daily life. There is need for more dissemination of the principles in the practice of public administration, as well as more "transversality" among the different agents to involve, which should be encouraged by each organization internally and through governance mechanisms.

Related to this, it was stated that what is needed is to “land the inputs”, that is the challenge is now how to articulate mechanisms that guarantee the RRI perspective to the different processes and entities.

The consolidation of the RRI requires the commitment of all parties involved, making special attention to increase the participation of all type of agents and improving the education. In this sense, it is necessary to disseminate and promote the RRI to reach many more stakeholders that allow to expand the participation, the reflexivity, and the promotion of this approach.

At the end, it was considered that Responsible Research and Innovation and its principles can be embedded in all areas of knowledge that are related to social and environmental well-being (politics, economy, sustainability, education ...), but agents need the right tools and resources to do so.

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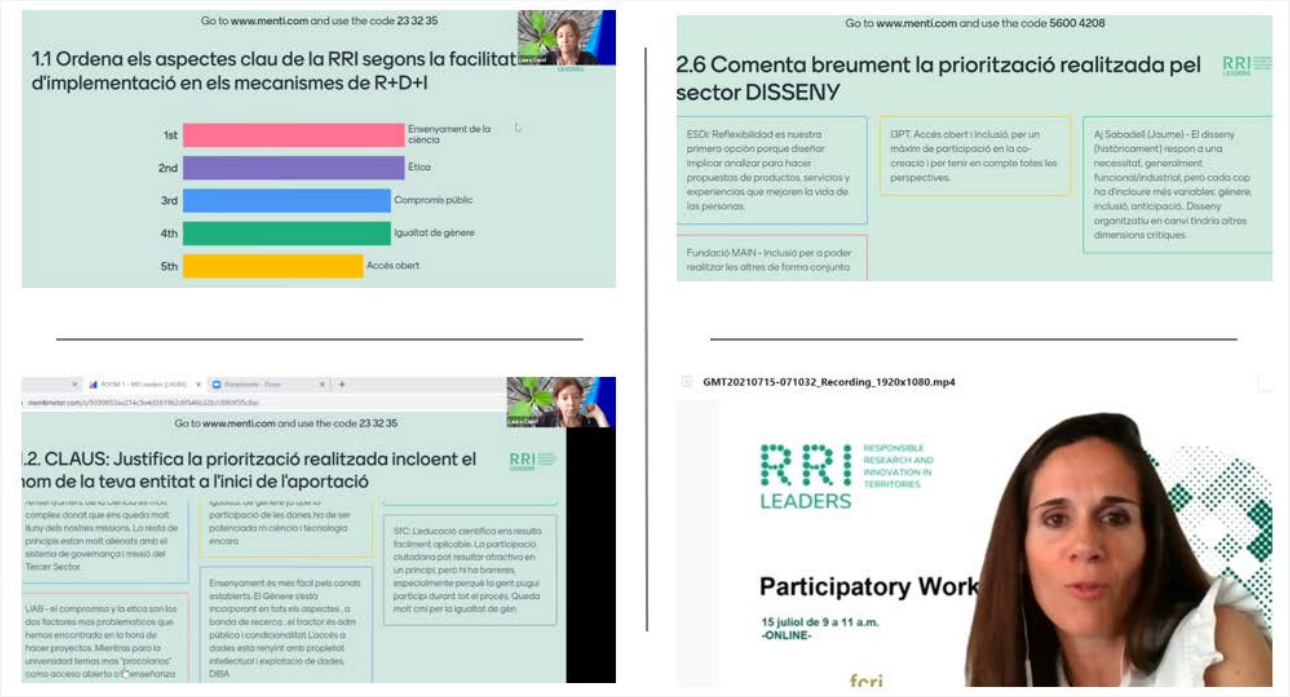

Some images taken during the workshop

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