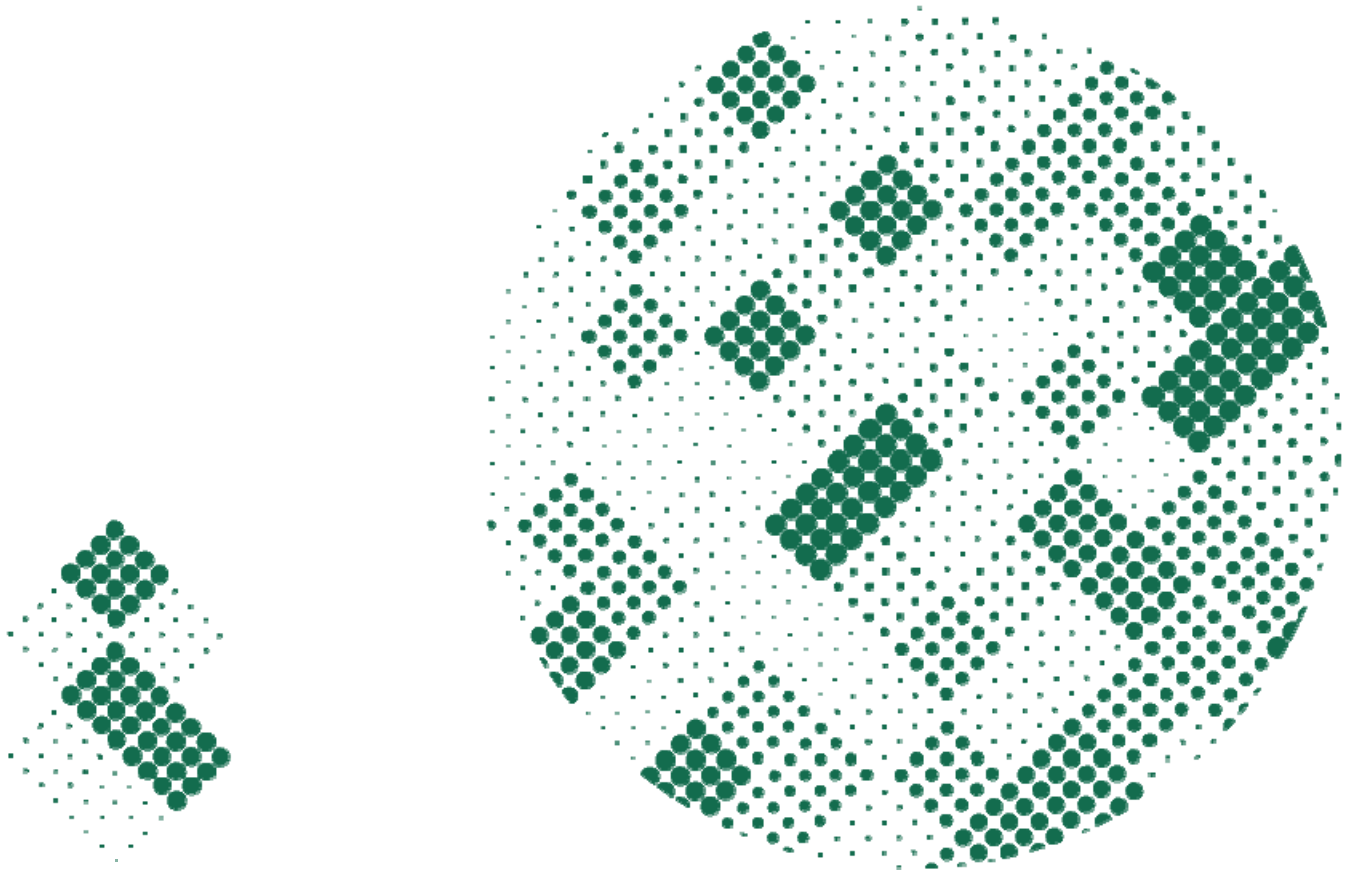




RESPONSIBLE  
RESEARCH AND  
INNOVATION IN  
TERRITORIES

# **Deliverable 5.3**

## **Report on Case Narratives**



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## Deliverable 5.3

### REPORT ON CASE NARRATIVES

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| P9 | ECONOMIC DEVELOPMENT AGENCY OF SABADELL CITY COUNCIL          | PROMOCIO ECONOMICA DE SABADELL  | PES SL               |

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## List of acronyms / abbreviations used in this document

Anticipation, Inclusiveness, Reflexivity and Responsiveness – AIRR  
 Citizen review panel – CRP  
 Cluster of Bioeconomy and Environment – CluBE  
 Digital Transformation Strategy of Sofia - DTSS  
 Escola Superior de Disseny – ESDi  
 Free Democratic Party - FDP



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Fundació del Disseny Tèxtil – FUNDIT  
Gigawatt hours – GWh  
Handwerk und Gewerbeverein – HGV  
Information and communication technology – ICT  
Innovative demand responsive green public transportation for cleaner air in urban environment – INNOAIR  
Institute of Computer Science, Artificial Intelligence and Technology – INSAIT  
Just Transition Development Programme – JTDP  
Local Government Association of Western Macedonia – LGA-WM  
Non-Government Organization – NGO  
Nomenclature of territorial units for statistics – NUTS  
Ostschweizer Fachhochschule - Eastern Switzerland University of Applied Sciences – OST  
Parc Taulí Research and Innovation Institute – I3PT Projectes d’Especialització i Competitivitat Territorial–  
PECT  
Public Power Corporation – PPC  
Quadruple helix – QH  
Quadruple helix stakeholders – QHS  
Region of Western Macedonia – RWM  
Renewable Energy Sources – RES  
Research and Development – R&D  
Research and innovation – R&I  
Responsible Research & Innovation – RRI  
Small and medium-sized enterprise – SME  
Smart Specialisation Strategies – RIS3  
Sofia Development Association - SDA  
Sofia Municipality – SM  
Stakeholder workshop – SW  
Strengths, Weaknesses, Opportunities and Threats – SWOT  
Sustainable urban development – SUD  
Threats, Opportunities, Weaknesses, Strengths – TOWS  
Transformative outlook – TO  
Universitat Autònoma de Barcelona – UAB  
University of Western Macedonia – UoWM  
Zürich University of Applied Sciences – ZHAW



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## Introduction

The Leveraging Leadership for Responsible Research and Innovation in Territories (RRI-LEADERS) project explores the relevance of responsible research and innovation (RRI) to territorial governance in four European territories: Sabadell (Spain), Sofia (Bulgaria), Thalwil (Switzerland) and Western Macedonia (Greece).

The objectives of RRI-LEADERS are:

- to facilitate the adoption of RRI principles in territorial governance,
- to promote an innovative, inclusive, and responsive multi-actor approach to the development of policies on issues related to science and innovation,
- to provide an evolutionary perspective on the future of RRI in territorial policy and governance for the Horizon Europe programme.

The four territories have different cultural and socio-economic backgrounds, territorial oversights, institutional and decision-making infrastructures, research and innovation (R&I) landscapes, and dynamics among territorial actors. They present a diverse range of opportunities and implications for RRI and demonstrate its potential at a sub-national level, enabling us to carry out a thorough assessment of the relevance of RRI to territorial governance.

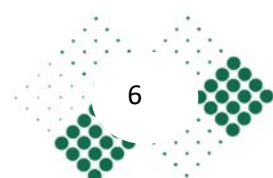
We use the knowledge gained through this assessment to offer a detailed outlook on the potential of Responsible Research Innovation (RRI) as a guiding framework for the territorial governance of R&I. The framework serves as a comprehensive methodological approach for making and enacting policies. Its implementation during the RRI-LEADERS project has been characterised by a process of collaboration and negotiation among the various actors involved, with a particular focus on defining the roles and responsibilities of each one. This approach has enabled a comprehensive examination of the dynamics and relationships between citizens, stakeholders, and institutions as they work together to address the pressing societal issues of our time.

This report presents the experience of the four territories in integrating the principles of responsible research and innovation in territorial governance, giving detailed histories of their individual RRI journeys. The aims of the report are to generate significant insights into the territorial governance of RRI, particularly with regard to the application of RRI in the development of policies in diverse territorial contexts, and to ensure that each territory's journey throughout the RRI-LEADERS project translates into new learning and knowledge. The report presents the territorial experiences in the form of four individual case studies.

The RRI approach promotes the ethical, inclusive, and sustainable development of science and innovation, taking into consideration societal needs and concerns. The case narratives serve the following purposes in the context of RRI:



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1. **Illustrating RRI principles:** providing real-world examples of how RRI principles, such as inclusivity, transparency, and ethical considerations, have been integrated into research and innovation processes.
2. **Documenting best practices:** detailing successful RRI practices and initiatives and showcasing how organisations and projects have effectively addressed societal challenges and ethical dilemmas.
3. **Highlighting challenges:** underlining the challenges and obstacles faced during the implementation of RRI-LEADERS and offering insights into the complexities of integrating responsible practices into research and innovation.
4. **Informing policy and decision-making:** providing evidence to inform policymakers, researchers and stakeholders about the benefits and challenges of RRI, helping them make informed decisions and develop policies that promote responsible innovation.
5. **Promoting learning and awareness:** serving as educational tools to raise awareness and educate stakeholders about the importance of responsible and ethical R&I.
6. **Inspiring innovation:** encouraging researchers and organisations to adopt RRI principles in their work by showcasing innovative approaches and positive outcomes.

The case narratives take the form of four individual case studies that systematise the learning from each of the involved territories. They present a qualitative evaluation of project activities and reveal the experiences of universities, companies, local and regional administrations, and citizens as they engage with the RRI-AIRR (Anticipation, Inclusiveness, Responsiveness, Reflectiveness) framework in the four territories. The aims of the case narratives are to showcase each territory's transformative journey in engaging with and adopting the RRI-AIRR framework, and to assess how different ways of applying RRI-AIRR influence the effectiveness of policymaking. This is achieved by examining evidence of societal, democratic, environmental, economic, and scientific impacts during the implementation of the project, as well as considering the views of different actors in the process.

The case narratives are relevant to anyone wishing to learn from the RRI-LEADERS project about the transformative potential of responsible R&I, the transformative processes of the territories, the challenges and bottlenecks they faced during implementation, and how responsible R&I has helped achieve the intended outcomes in the participating territories.



# Chapter 1: Sabadell Case Narrative

## 1.1 Introduction



Sabadell, with a total population of 216,500, is the 25<sup>th</sup> most populated city in Spain and the 5<sup>th</sup> most populated city in the region of Catalonia. As a result of its strategic geographical position in the industrial area of Vallès and its proximity to Barcelona, the city has significant opportunities for the development of a competitive industrial and research structure at regional, national, and European levels.

In terms of economic activity, the tertiary sector is highly developed with commerce generating a high turnover rate among businesses. The secondary sector – manufacturing – is also an important aspect of the city’s economy, and its financial success is largely due to construction. Sabadell also largely depends on the textile and paper industry, which has been evolving in the city since the Industrial Revolution. Sabadell, together with other nearby towns, is one of the main important areas of economic activity in the south of Europe. It also has several universities and research and development (R&D) institutions that enrich the innovation and technological ecosystem.

Sabadell’s current aim is to promote projects encouraging innovation, new technologies and knowledge, and activities associated with industry. It is committed to the revitalisation of the local economy, based on a strategy focused on five main areas: healthcare, logistics, research and technology, aeronautics, and design and fabrics, with sustainability cutting across these processes.

Over the past few years, the city of Sabadell has been engaged in the deployment of R&I strategies for smart specialisation (RIS3) in the circular economy, active ageing, and intelligent design in industry, which are intended to develop a competitive economic advantage. Thus, active ageing is considered to be an important policy focus, embraced by the city’s strategic healthcare axis, and linked to the increasing economic market of the Silver Economy.<sup>1</sup>

Why is active ageing so important? Population ageing is one of the greatest challenges of contemporary societies. Maintaining a healthy and active population is clear necessary for all countries in order to be in a position to meet their citizens’ social and economic demands. In addition, during the past decade, governments have started to look at the important potential of older people and their contribution to society, and they have been working towards creating a set

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<sup>1</sup> A new economic market focused on older people’s needs. As the European Commission remarks, the Silver Economy is “the sum of all economic activity that serve the needs of people aged 50 and over, including the products and services they purchase directly and the further economic activity this spending generates. Thus, Silver Economy encompasses a unique cross-section of economic activities related to production, consumption and trade of goods and services relevant for older people, both public and private, and including direct and indirect effects.” (European Commission. *The silver economy: final report*, Publications Office, 2018 (page 6)).

of measures, strategies, and policies to promote active ageing. Older people form a growing collective that could easily act as promoters and users of ways to ensure more efficient use of resources. Therefore, they could provide their views on ageing-related challenges.

Policies aimed at active ageing could create opportunities for technological design, innovation, and experimentation. At municipal and regional levels, universities, companies, local and regional administrations, and citizens (termed the 'quadruple helix' in the literature) need to come together to plan and innovate in the field of active ageing, creating, and promoting a valuable innovation ecosystem.

However, innovation inception has not been previously conceived in this way. Traditionally, it was promoted by academia and research centres only. Later, business and industry participated in the innovation process as they were considered to be key players in product development. In the past few decades, local and regional governments have actively retained and promoted innovation in their territories. Therefore, this has been one of the main objectives of the Economic Development Agency of Sabadell (Promoció Econòmica de Sabadell), which is fully committed to creating a solid and dynamic territorial innovation ecosystem.

But the voice of civil society is still missing in Sabadell's innovation ecosystem, which is why the Economic Development Agency of Sabadell decided to join the RRI-LEADERS project: to explore a more systemic way of integrating principles such as public engagement, ethical considerations and the promotion of gender equality and diversity into policymaking, creating a systemic framework for responsible policymaking. Moreover, the project involves the Quadruple Helix stakeholders in responsible policymaking to overcome societal challenges.

#### ➤ The Quadruple Helix in Sabadell's innovation ecosystem

**Academia** plays a key role as it creates the basis for research and innovation. Here, it is important to underline the role of institutions that have a presence in the city of Sabadell, such as the Parc Taulí Research and Innovation Institute (I3PT), dedicated to healthcare innovation; Fundació FUNDIT-ESDi, dedicated to design studies (e.g., products and textiles); and Universitat Autònoma de Barcelona (UAB). In October 2021, Sabadell City Council signed an agreement with UAB, Corporació Sanitària Parc Taulí and Fundació FUNDIT-ESDi to create the Urban Campus of Life and Health Sciences. All four institutions agreed to launch large-scale projects that include a set of training, research, innovation, and business-creation actions. One of these projects involves using an old, renovated factory to host a large proportion of the UAB degree course in nursing, as well as new studies and complementary services related to healthcare.

Without local government agreeing to compromise on the deployment of the city's strategic healthcare axis, this agreement would not have been achievable. Thus, **local government** is responsible for creating an enabling environment for exchange and collaboration among multiple



agents. This can be achieved through the creation of particular forums or panels, as well as through participation in specific projects such as the ‘Vallès Industrial’ Specialisation and Territorial Competitiveness Project (PECT Vallès Industrial). That project, coordinated by Sabadell City Council, emerged as a very interesting initiative that aimed to promote innovation and design in the territory. The project enabled the strengthening of the territorial innovation ecosystem and the implementation of many innovative operations, one of which was centred on active ageing.

**Businesses** and industries are particularly important in promoting the local economy and ensuring territorial economic growth and job creation. Innovation would not be possible without knowledge transfer into business ideas and industrial prototypes. In this sense, the Economic Development Agency of Sabadell works to ensure business creation and innovation. It is also responsible for promoting new opportunities in emerging economic sectors, such as the Silver Economy, and a trade fair dedicated to this sector recently took place in the city of Sabadell.

Last but not the least, **civil society** is a crucial actor in overcoming societal challenges. Its involvement in all innovative processes must be considered in order to develop better policies and more citizen-centred solutions. We present a graphical representation of the quadruple helix of the active ageing ecosystem in Sabadell in Figure 1.



Figure 1: The Quadruple Helix of the active ageing ecosystem in Sabadell.

## 1.2 The co-creation process and implementation of the RRI-AIRR paradigm

### ➤ The importance of the co-creation process

The combination of civil society, government, academia, and business (the quadruple helix) appears to be critical in creating opportunities for technological design, innovation, and experimentation. The quadruple helix approach needs to be deployed to create a solid territorial innovation ecosystem capable of addressing societal challenges. Guaranteeing the participation of multiple stakeholders and citizens has been one of the cornerstones of the RRI-LEADERS project.

The project in Sabadell has been developed through an extensive co-creation process, which has involved more than 100 territorial stakeholders in various participatory events and activities (see Figure 2).

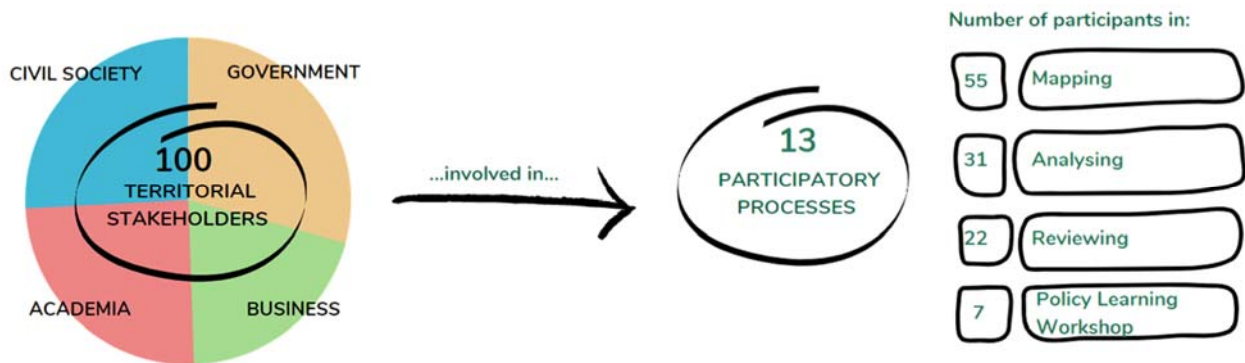


Figure 2: The co-creation process in numbers in Sabadell.

The project has involved three stages: mapping, analysing, and developing a transformative outlook. While each stage has provided us with important learning and knowledge, we have encountered difficulties and barriers in the development of each one.

**STAGE 1:** The first stage consisted of an extensive mapping exercise, focused on the state of play regarding the RRI-AIRR framework. We conducted 17 semi-structured qualitative interviews with actors in the territorial R&I ecosystem. Interviewees included representatives from organisations, governmental agencies and the research and business sector of the municipality of Sabadell.

As this was the first step in the project’s co-creation process, identifying and listing all stakeholders took some time. Engaging them in interviews also took some considerable effort, given that RRI was unfamiliar to them, and the interviews were fairly time-consuming. Despite these challenges, the interviews gave us the opportunity to identify some key stakeholders and get to understand, in depth, their contributions to the topic.

Following the interviews, we held an online focus-group workshop with 12 stakeholders to further explore the findings from the interview analysis. Later, we held a participatory workshop with 10 stakeholders from organisations that had not previously participated in the project in order to investigate territorial stakeholders’ understanding of responsibility in R&I to the overall

development policy in the territory. Finally, we held four separate focus groups with stakeholders from research, business, policymaking, and civil society.

The focus groups and the workshops had an important impact on the project deployment as they helped narrow the policy focus. The online focus groups and workshops provided an important exchange of ideas and actively contributed to creating a solid innovation ecosystem on the topic of active ageing. However, holding all the events online was a clear barrier to the spontaneous exchanges among stakeholders. We needed to recruit a total of 80–100 stakeholders to the project, so we had to continually involve new stakeholders in each participatory event or action in stage one. This presented a serious challenge for the organisation as there is no participatory culture in Spain as there is in other countries.

Stage one ended with a co-creation process involving five interviews and a focus group that took place at the Economic Agency of Sabadell. One of the main findings was the significance of local government as a practitioner in RRI key areas and AIRR dimensions. However, the RRI-AIRR approach is little known by administrations and their public employees, although some of them were working under the umbrella of RRI-AIRR principles without being aware of it.

**STAGE 2:** The second stage consisted of analysing and developing ideas around the policy area and integrating them into the RRI-AIRR framework. Following the mapping exercise, we used an iterative Delphi survey. The Delphi survey consisted of a series of three questionnaires that allowed stakeholders to develop ideas and reach agreement on potential developments around the policy area and the integration of the RRI-AIRR framework. We invited 30 experts in active ageing (13 men and 17 women) from academia and research, policymaking, industry and business, and civil society to participate in the three rounds of the Delphi survey.

As questionnaire responses were anonymous, it was difficult to find out which stakeholders were interested in the process, and which were not. In the end, 67% (20) of those invited participated in the first round, 53% (16) in the second round and only 47% (14) in the final round.

However, the Delphi survey was very useful as the process gathered information from experienced stakeholders on the topic of active ageing. The survey collected a lot of interesting contributions that helped to clearly define the final objectives and actions of the transformative outlook. Unfortunately, once again, the lack of participatory culture and the complexity of the process did not help retain stakeholders in the second and third rounds.

This stakeholder engagement was followed by organising a World Café event, which was an interesting opportunity for experienced participants to exchange knowledge and opinions on active ageing and innovation policies. The World Café was held in person and 17 people (11 men and 6 women) from business and industry, academia, civil society, and public administration participated in it. This event helped shape the final objectives and actions for the active ageing roadmap. Unfortunately, six of those recruited did not appear, reducing the final number of participants to 11







(8 men and 3 women). This again confirms the lack of participative culture and engagement in the city.

**STAGE 3:** The third stage consisted of reviewing and validating the co-created active ageing roadmap: the transformative outlook. We organised a workshop to give citizens the opportunity to voice their opinions while suggesting improvements to the experts' objectives and actions. The eight-hour event was attended by 12 people of various ages although there was an imbalance with 75% of participants being over 50 years old. This reveals a lack of interest in active ageing policies among the younger generation. Participants' gender and educational backgrounds were also skewed: 8 out of 12 attendees identified as female, while 8 out of 12 had completed tertiary studies. Nevertheless, the working session was very productive, highlighting the importance of active ageing policies in the city of Sabadell and citizens involvement in the co-creation process.

This last stage ended with a final workshop celebration involving experienced stakeholders in active ageing policies. The event took place one month after the citizens' workshop and brought together 10 people, mainly from the academia and research environments. The event was an incredible opportunity to exchange knowledge from different disciplines and to narrow the focus of the actions. In addition, as some of the experts would be directly involved in the future deployment of some of the objectives, their contributions were crucial to improving the actions of the transformative outlook. By the end of the process, the five objectives that form the transformative outlook of Sabadell were validated, two new actions were created, and one action was completely modified. The final version of the transformative outlook contains five objectives and nine actions (see Figure 3).

In addition to the three stages previously described, the co-creation process relied on three policy learning workshops, involving three key stakeholders from Sabadell's innovation ecosystem. Their opinions were crucial in better integrating the RRI-AIRR framework into business, academia, civil society, and public administration environments. As with the other processes, two of the key challenges were stakeholders' lack of understanding of the RRI-AIRR principles and the Economic Development Agency of Sabadell's difficulties explaining them.

Guaranteeing the participation of all the society emerges as a clear necessity in order to have a positive impact in the territory when exploring how to design policies that are anticipatory, inclusive, and reflexive, and responsive to issues of ethics, public engagement, open access, science education, gender equality and governance.



|                    |  |
|--------------------|--|
| <b>Objective 1</b> | <b>Increasing by 15% the number of photovoltaic panels installed in public and private nursing homes</b>   |
| Action 1.1         | Collection of basic data from nursing homes.   |
| Action 1.2         | Giving practical information about energy transition to the nursing homes.   |
| Action 1.3         | Exploring measures to regulate benefits from energy savings.   |
| Action 1.4         | Piloting the project in a nursing home.  |
| <b>Objective 2</b> | <b>Creation of a senior lab</b>  |
| Action 2.1         | Providing information about the senior lab to the citizens, organisations, academia and businesses.  |
| <b>Objective 3</b> | <b>Preparation of good professionals in the socio-sanitary field to attend elderly people, considering the Expertise of Senior Professionals</b> |
| Action 3.1         | Triggering collaboration between senior and junior healthcare professionals at university level.   |
| <b>Objective 4</b> | <b>Creation of a participatory tool for identifying the elderly people challenges</b>  |
| Action 4.1         | Elaborate a communication plan to engage the users.  |
| <b>Objective 5</b> | <b>Development of pilot projects for the design of technology-based products focused on Active Ageing</b>  |
| Action 5.1         | Promotion of the transfer of knowledge from the senior lab to start-ups and companies focused on Active Ageing through different activities.     |
| Action 5.2         | Reinforcement of the territorial innovation ecosystem through the retention of talent.   |

Figure 3: Objectives and actions of the final transformative outlook.

### ➤ Implementation of the RRI-AIRR paradigm

The RRI paradigm refers to the application of five key areas (public engagement, ethics, gender equality, open access and science education – see Figure 4) in territorial innovation systems, with a special emphasis on instrumentalising leadership in the design of AIRR policies).

The implementation of the RRI-AIRR framework was a major challenge throughout the project. Every co-creation event had to take into account all RRI key areas and AIRR dimensions. Therefore, it took time for organisers and participants to comprehend them and incorporate them into their actions. The project helped identify all the RRI key areas and AIRR dimensions that were already embedded in policymaking, those that were highly relevant and those whose integration in policymaking still represented a challenge (see Figure 5). Despite the equal importance of all RRI key areas and AIRR dimensions, our findings revealed that **ethics** and **gender equality** were already adopted in policymaking.

Some of our most notable findings were in reference to the RRI-AIRR framework’s everyday application. Although the concept was little known by stakeholders and the Economic Development Agency of Sabadell, our findings revealed that gender equality and ethics were systematically

applied. In addition, inclusiveness appeared to be a recurrent AIRR dimension in policymaking. Therefore, these RRI-AIRR key areas and principles were inherent in public administration practices. However, stakeholders warned that gender equality and ethics would need to play a larger role in addressing future social challenges, such as those related to artificial intelligence (AI).

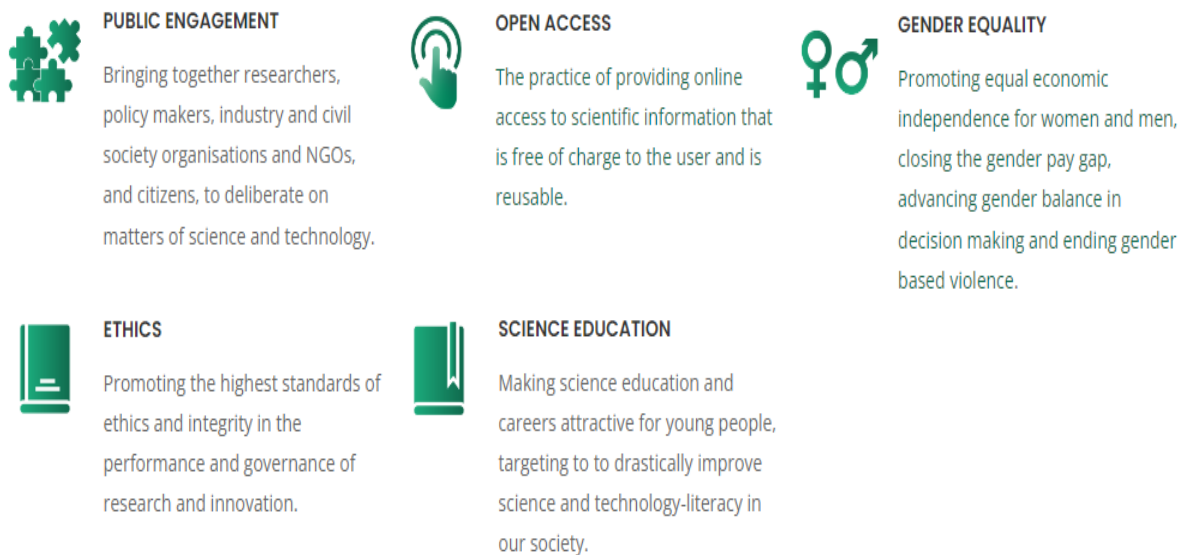


Figure 4: The RRI key areas (more information at [www.rri-leaders.eu](http://www.rri-leaders.eu)).

Public engagement was understood to be the cornerstone of the project as involving the quadruple helix was essential. At the same time, anticipation, through the detection of key topics that might arise interest among stakeholders in the innovation ecosystem, also had a very important place. Results from the co-creation process showed that anticipation is a key dimension in guaranteeing the participation of all stakeholders and detecting future social challenges. Exploring this dimension through the implementation of surveys or other participatory tools could help anticipate future challenges and topics of interest. Again, inclusiveness has a cross-cutting role in ensuring the involvement of all quadruple helix actors.

Reflexivity and responsiveness were identified as the most important challenges for stakeholders and the organisation. Despite the importance of these dimensions, they have not been systematically integrated into policy evaluation. In this sense, the analysis of all the programmes and initiatives than run in an annual basis, through different qualitative and quantitative indicators, was suggested.

Open data was debated several times as no agreement was reached on the free publication of data. Also, the lack of interoperable data make their collection and treatment more difficult. In addition, ethical questions arose such as ‘Should raw data be published?’

Finally, the importance of science education as a cross-cutting issue was underlined. Indeed, the RRI-AIRR paradigm cannot be applied without proper communication.



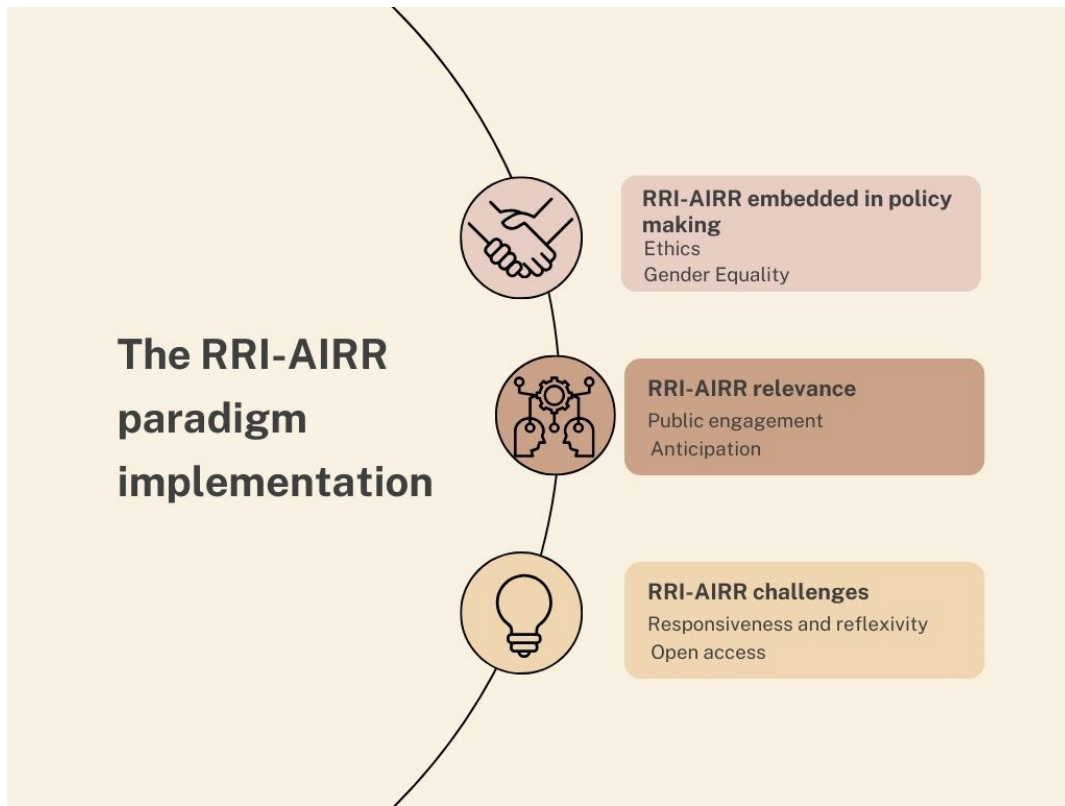


Figure 5: Implementation of the RRI-AIRR paradigm.

In summary, the project has raised awareness about the importance of responsible policymaking through the exploration of all RRI key areas and AIRR dimensions. It has also given stakeholders an opportunity to be introduced to the RRI-AIRR framework, learn more about it and actively participate in applying it to a territorial policy focus: active ageing.

### 1.3 Conclusion

The main findings from the co-creation process demonstrated that not all stakeholders have an equal understanding of RRI. More specifically, academia and research stakeholders are very familiar with the RRI framework, due to the nature of research institutions and universities, while citizens are barely familiar with the concept. The RRI framework is not familiar to most businesspeople. Neither are they familiar with the key thematic areas, which, although implemented to a small extent, are sometimes confused with social responsibility terminology. Public administration is an important practitioner in the RRI key areas and AIRR dimensions as it integrates a significant number of them. However, the RRI-AIRR approach is still little known to administrations and public employees. The different levels of knowledge of RRI-AIRR principles among stakeholders appears to be a real challenge.



Although many stakeholders do not consciously apply the RRI-AIRR framework in their daily activities, the majority of them have the potential to contribute to the adoption of RRI principles and AIRR dimensions in territorial governance. Moreover, some stakeholders have been actively involved in various innovation processes that have already applied the RRI-AIRR framework in the territory of Sabadell. This was a very interesting finding as these stakeholders could play an important role at local level and lay the foundation for the implementation of RRI key areas and AIRR dimensions in Sabadell's policymaking.

Throughout the development of the project, the key area of **public engagement** and the dimension of **anticipation** have been identified as most important for the advancement of policy focus on active ageing in the territory. The involvement of the quadruple helix has a significant role to play in the consolidation of the innovation ecosystem. Moreover, anticipation forms the foundation of responsible governance, allowing the creation of proactive rather than reactive strategies. Reinforcing the anticipation dimension will result in greater resilience and better preparedness to tackle global changes. Anticipation can also help build bridges to other RRI key areas and AIRR dimensions, such as reflexivity, for example, by questioning how a policy affects gender, ethics or inclusivity. **Open data** and **science education** appear to be challenging key areas that need to be addressed in order to effectively adopt the RRI-AIRR framework.

Other interesting findings were related to the need for global coverage of the integration and implementation of RRI-AIRR values from public administrations, business, and civil society. Thus, it is necessary to formally identify all RRI key areas and AIRR dimensions and raise awareness of their importance in all organisations, and society in general, as there is no specific role holder responsible for the governance, management, implementation, monitoring and evaluation of policies and practices pertaining to the various RRI key areas and AIRR dimensions. It is necessary for organisations to create RRI-AIRR protocols in order to incorporate the RRI-AIRR framework into their daily activities.

The project's co-creation process was an incredible learning experience. Some of the barriers we encountered were related to the nature of the events, such as the eight-hour citizens' review panel. In this regard, another type of methodology needs to be implemented in Sabadell to engage more stakeholders in the co-creation processes. The RRI-LEADERS co-creation process was a very long journey. As engaging stakeholders was challenging, we would decrease the number of events in future iterations from 10 to just one or two.

Communication and dissemination were key in the recruitment of participants. However, new methods need to be explored in order to reach more people, especially in a policy area such as active ageing. Responsible governance is undoubtedly an important issue in all territories, and the adoption of the RRI framework can help support local governments that are committed to designing AIRR policies. The resilience of a territory can be measured through its capacity to overcome societal challenges through its social implication.



## Chapter 2: Sofia Municipality Case Narrative

### 2.1 Introduction

This Case Narrative describes quadruple helix actors' experience of engaging with the RRI-AIRR framework as a broad methodological framework for making and implementing policy in Sofia municipality. Applying the framework as part of the RRI-LEADERS project has followed a path of collaboration and negotiation about the role of each quadruple helix actor, providing a critical view on how the interactions between citizens, stakeholders and institutions enable the formulation of policy solutions to current societal challenges.

The project has helped assess different ways of applying RRI and AIRR and their potential to influence the effectiveness of policymaking and the structured inclusion of diverse points of view in the process. The study highlights the positive and negative experiences of integrating selected RRI-derived elements in four policy areas that have been chosen by the city, namely, **support for innovation, sustainable urban development, digital transition and new skills, and youth employment and entrepreneurship.**

For the participants in the process – the Sofia Development Association (SDA), municipal officials, stakeholders, and citizens – this has not been a smooth journey; there have been both catalysts and pinch points along the way, but also final rewards. The first catalyst was Sofia Municipality becoming part of the RRI-LEADERS consortium and being given the opportunity to test new approaches to policy formulation guided by experienced mentors and allies.

From the project perspective, the case of Sofia provides evidence that smart and sustainable urban solutions comprise technological, organisational, and social innovations, which are developed in an integral and interdisciplinary manner across different sectors, and which always involve citizens.

#### ➤ Background



Sofia, the capital of Bulgaria, is a vibrant metropolis nestled at the foot of Vitosha Mountain in the western part of the country. With a population of around 1.3 million, Sofia is the largest city in Bulgaria<sup>2</sup> (and the 14th largest in the European Union) and serves as the economic, cultural, and political centre of the country, as well as being home to legislative, executive and judiciary powers.

In recent years, Sofia has been increasingly recognised for its commitment to innovation and digital transformation. The ambition of the mayor's office is to develop Sofia as a smart city that employs policy and financial instruments to improve the efficiency of urban operations and public services;

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<sup>2</sup> According to the most recent census in 2021, this is nearly 23% of Bulgaria's population; <https://www.nsi.bg/en/content/19807/nsi-announces-final-results-population-number-bulgaria>.





the economic, social, and cultural environment; and citizens well-being and quality of life. At the same time, the mayor's office aims to ensure that the needs of present and future generations are met in an equitable manner. The overall goal for the city authorities is to strengthen the role of research and innovation in policymaking, and, through dialogue and exchange with local and national stakeholders, to pursue strategic planning that is anticipatory, responsive, and inclusive.

Like other big cities today, Sofia faces major economic and social challenges to urban development, including air pollution and climate change, decarbonisation, sustainable smart mobility, an ageing population, and a dynamic process of migration (from other parts of the country and from other countries to the capital). Each of these challenges requires institutional, human, and financial resources to address them effectively. There is strong demand for a digitally savvy administration, capable not only of coordinating complex transition processes at speed and scale but also doing so with responsiveness and care for all those affected. The city is learning to adapt successful combinations of policy design, technology, and community involvement to transform the way policies are designed and implemented.

However, converting research and innovation results into policy objectives and actions is not a straightforward process, especially in less developed regions. According to the EU Innovation Scoreboard, Bulgaria is an Emerging Innovator<sup>3</sup> with performance at 45.2% of the EU average, whereas the region in which Sofia is located (Yugozapaden NUTS2) ranks one step higher as an Emerging Innovator+. Therefore, to ensure the positive impact of policies on citizens, co-creation approaches are vital to meet the enhanced need for consensus building on strategic policy proposals.

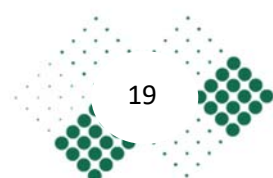
In this context, the RRI-LEADERS project was a welcome opportunity for city officials to gain access to new tools for policy experimentation, to rethink and reconfigure the policymaking process. We have learned that embedding RRI principles in urban planning is not a one-way linear process but requires careful orchestration of the trajectories of multiple actors and governance levels. In the long run, the project has revealed new perspectives for a shift in the governance of innovation and public engagement in such a way that responsibility becomes an institutionalised ambition and leadership priority for the city authorities.

Over the past two-and-a-half years, SDA has worked with many stakeholders to identify pathways for realising that ambition. Within the local R&I ecosystem, the city administration plays a coordinating, enabling, and supporting role, assisted by advisory bodies comprising experts from the relevant policy areas. Academia, civil society, and business have great interest in the four policy areas not only as beneficiaries but also as policy entrepreneurs and sources of expertise and good practice.

The capital is home to many leading public and private research and innovation institutions. Nearly half of the 52 accredited higher education institutions in the country are in Sofia, including the

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<sup>3</sup> [https://ec.europa.eu/assets/rtd/eis/2022/ec\\_rtd\\_eis-country-profile-bg.pdf](https://ec.europa.eu/assets/rtd/eis/2022/ec_rtd_eis-country-profile-bg.pdf)





Bulgarian Academy of Sciences. The city has a well-developed start-up and entrepreneurial ecosystem, with the information and communication technology (ICT) sector accounting for 19% of the city's economy. There are 63 research centres and more than 30 independent ICT schools; the city ranks 3rd in Europe and 10th worldwide in terms of the absolute number of certified ICT professionals.<sup>4</sup> The strategic priorities of the city include securing financial capital and access to the market for innovative small and medium-sized enterprises (SMEs) and start-ups and developing digital technologies and regional specialisation. Key quadruple helix stakeholders are organised in many clusters (in robotics and AI, and automotive, biotech, cultural and creative industries) and knowledge and technology transfer centres, such as Cluster Sofia Knowledge City, the Bulgarian Startup Association, Sofia Tech Park and the Institute for Computer Science, AI and Technology (INSAIT).<sup>5</sup>

Public institutions that have great interest in and a strong influence on policies (particularly in support of innovation and digital transition) include the municipal administration and municipal bodies (e.g., InvestSofia – Sofia Investment Agency,<sup>6</sup> the Municipal Guarantee Fund for SMEs,<sup>7</sup> InnovativeSofia and SofiaGreen).

SDA is a territorial partner in the project, representing Sofia municipality. SDA is a centre for research, innovation, and experimentation. Established by Sofia Municipal Council, SDA supports the municipality's efforts to better integrate key players in the R&I ecosystem. SDA follows an inclusive cross-sectoral approach, implementing projects and providing wide-ranging support to knowledge and innovation communities.

SDA plays two main roles in the territorial innovation ecosystem. First, at the level of policy and strategic development, it works with local government, stakeholders, and end users to define strategic urban development agendas. SDA has co-authored the Innovation Strategy for Smart Specialization of Sofia (RIS3) and coordinates the annual action planning for its implementation. Second, SDA performs important functions as a value creation supporter, providing facilities and infrastructure, as well as access to expertise for innovators and entrepreneurs for the generation of ideas and the design of new projects and services. SDA fulfils this role through SofiaLab,<sup>8</sup> an urban-living lab that carries out activities focused on four pillars which represent the entire cycle of building an innovation ecosystem: debate, learning, innovation, and demonstration.

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<sup>4</sup> <https://investsofia.com/wp-content/uploads/2019/04/Overview-of-The-Start-up-and-Innovation-Ecosystem-in-Sofia-May-2019.pdf>

<sup>5</sup> <https://insait.ai/what-is-insait/>

<sup>6</sup> <https://investsofia.com/>

<sup>7</sup> <https://ogf-sofia.com/en/>

<sup>8</sup> <https://www.facebook.com/sofiablabsda>





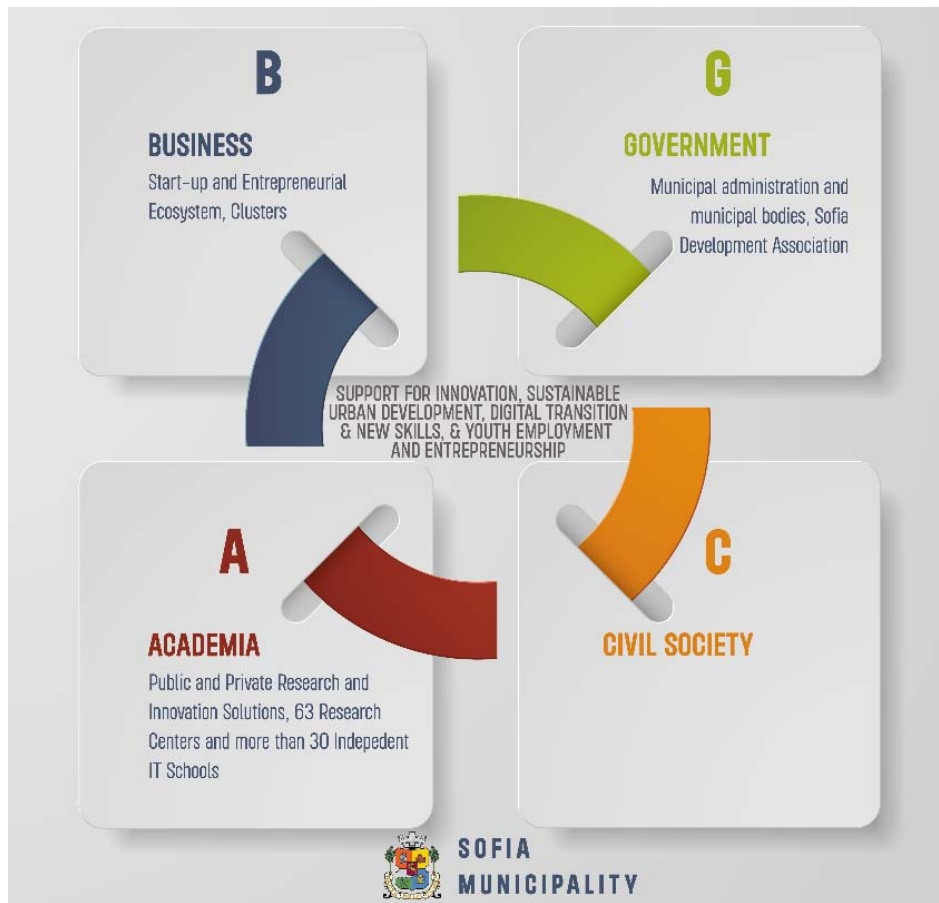


Figure 6: The Quadruple Helix ecosystem in Sofia Municipality.

## 2.2 Designing transformative policies

This case narrative presents, in detail, the process of designing transformative policies<sup>9</sup> through public engagement. Across the policies chosen for the project, two issues kept resurfacing: first, the need for the digitalisation of all internal administrative processes, public services, and communications with the public to enhance transparency and inclusivity. Second, a demand for challenge-based collaborations between public institutions, research, industry, and NGOs to enable the co-creation, incubation, and acceleration of solutions to urban development issues.

While not tied to a single policy, these challenges concern the overall quality of the policymaking process at system level. Therefore, the set-up and implementation of the knowledge-gathering and co-creation activities in RRI-LEADERS had the potential to change the approach to those phases of the policy cycle that concern participatory processes and impact assessment. As one interviewee shared, the participatory process in RRI-LEADERS stimulates reflection and rethinking of goals and

<sup>9</sup> ‘Transformative policies’ is used in a broader sense to refer to policies that aim to address societal challenges through innovation and technology in the context of great transitions, e.g., digital, and green.

proposed actions. The engagement of institutional stakeholders and citizens encourages ‘agile policymaking’ and pressures the administration to always ‘keep an ear to the ground’.

➤ The participatory process

The project approach consisted of a sequence of mapping and co-creation formats, which enabled the cross-referencing of stakeholders’ experiences and continued reflection on the knowledge gained.

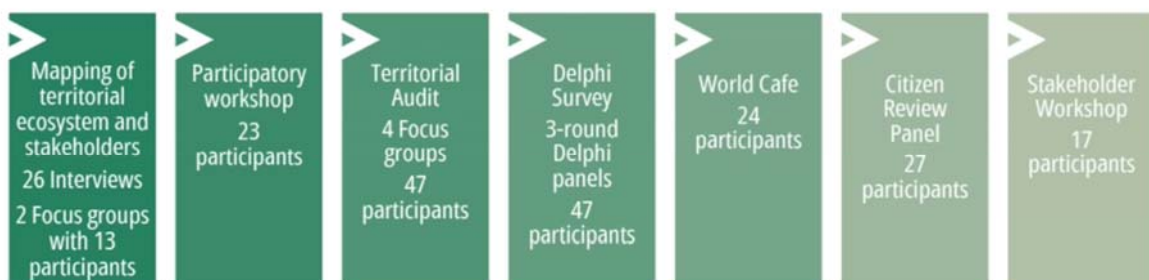


Figure 7: The co-creation process in numbers in Sofia Municipality.

The first stage included an analysis of RRI-embeddedness in policy documents, structures and practices, and R&I stakeholder mapping (implemented through in-depth interviews, focus groups and a participatory workshop). Stakeholder mapping included 37 policymakers, 14 academic or research institutions, 13 representatives from business and industry, and 36 NGOs.

Building on the initial mapping and the conclusions drawn, the second stage aimed to articulate policy priorities and to define interventions to policy challenges (implemented through a 3-round Delphi study and a World Café seminar with stakeholders). The preliminary set of policy objectives and actions, with a special focus on RRI-AIRR-relevant measures, was compiled into a single document: a territorial transformative outlook.

The third stage featured a citizens review panel, which was followed by a stakeholder workshop. Both these activities aimed at further articulating and validating the policy actions formulated in the transformative outlook; stakeholders also had the task of assessing the viability of the actions proposed by citizens.

Transitions between each stage involved a process of reconciling the initial policy agenda (defined in the four chosen policies) with the empirical data obtained and the positions of the various target groups involved (e.g., between academics, citizens, and policymakers).

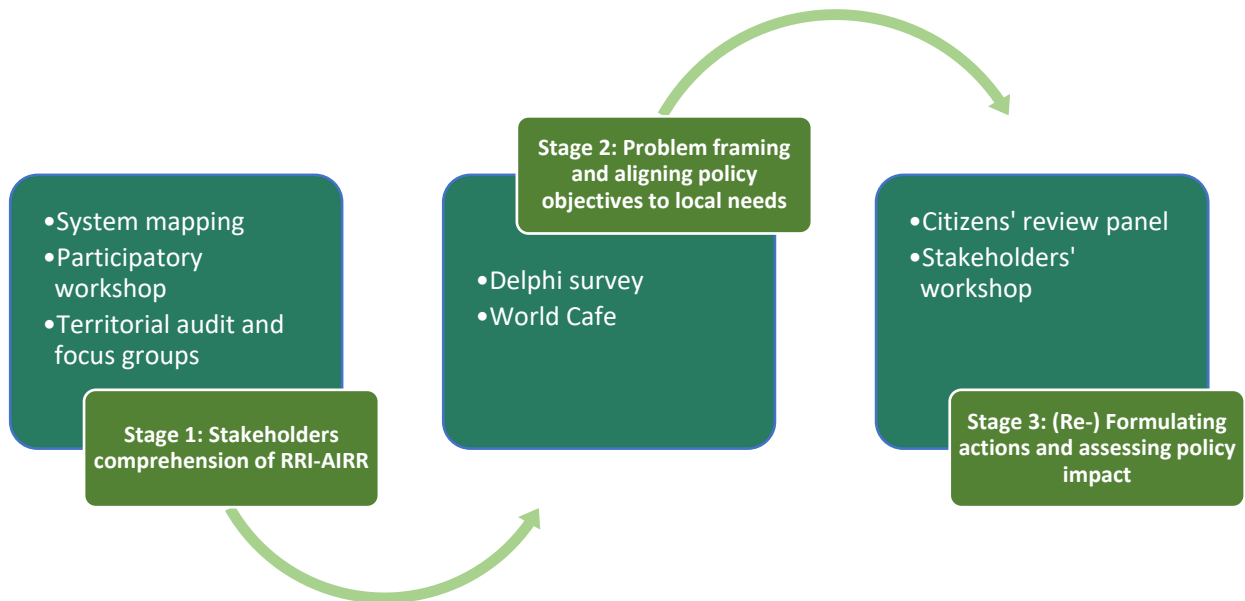


Figure 8: The stages of the co-creation process in Sofia Municipality.

Table 1 sums up the evolution of the form and content of the co-creation activities and outlines the focus on different RRI-AIRR dimensions in each stage.

Table 1: Focus on RRI-AIRR dimensions per co-creation stage.

| Delphi study and World Café   | Citizens' review panel   | Stakeholders' workshop   |
|---|--|--|
| <ul style="list-style-type: none"> <li>◇ Anticipatory, responsive, vision-setting</li> <li>◇ Science-based formulation of solutions</li> <li>◇ Strong focus on embedding RRI-AIRR in policies</li> <li>◇ Deeper understanding of barriers, drivers, solutions to aligning societal and policy objectives with RRI</li> </ul> <p>World Café:</p> <ul style="list-style-type: none"> <li>◇ Policy solutions assessed in relation to the organisational and political context in the city</li> </ul> | <ul style="list-style-type: none"> <li>◇ Responsive</li> <li>◇ Inclusivity and diversity</li> <li>◇ Ethics and responsibility</li> <li>◇ Lack of information prevents formulation of actionable proposals</li> <li>◇ RRI-AIRR less emphasised in assessing policy actions</li> <li>◇ Consensus based on tangible impact of policies on communities</li> <li>◇ Citizens control over policy implementation &amp; societal alignment with objectives of innovation and technology</li> </ul> | <ul style="list-style-type: none"> <li>◇ Reflexive</li> <li>◇ Responsive</li> <li>◇ Anticipatory</li> <li>◇ Information and expert knowledge carries more weight than citizens' review panel proposals</li> <li>◇ RRI-AIRR less emphasised in assessing policy actions</li> <li>◇ Consensus based on solutions' viability in terms of legal mandates and city resources</li> <li>◇ Business sector less represented</li> </ul> |

By the end of the Delphi study, we had 168 statements, which were converted into four policies, 14 objectives and 54 actions in the first version of the transformative outlook. The citizens' review



panel added 18 new actions, of which six were rejected by the stakeholders’ workshop; in the final version of the transformative outlook, there are four policies with 13 objectives and 46 actions.

Asked which tools or methods used during the co-creation process they found the most valuable and that had the greatest potential for replicability, interviewees highlighted the Delphi survey and the citizens’ review panel. According to a city council advisor, formats such as the Delphi survey are important for ‘translating research into actionable ideas’ and ensuring that ‘policy design is backed up by credible expert analysis and input’.

➤ Barriers and difficulties



‘Lost in translation’

A critical initial finding indicated that representatives from academia are generally more knowledgeable about RRI-AIRR terminology. For our own team, learning the terminology occurred during the process. The definitions of the five RRI key areas and the four AIRR dimensions appear to be both broad and overlapping, and so, sometimes, can be difficult to distinguish. Familiar concepts like public engagement and gender equality can be easily confused or conflated with inclusiveness and diversity. Becoming familiar with RRI is not just a matter of sticking a new label on old items (if a city strategy already emphasises public engagement, labelling it as an RRI key area would not add value to it). Indeed, the document analysis during the first stage revealed that while RRI-AIRR ideas are not formally embedded in policy documents, most are implemented (e.g., public engagement, gender equality, inclusiveness, and anticipatory practices). Questions of responsiveness are broadly understood as including public voices at various points in the policymaking cycle and societal acceptance of technological innovations.



A key takeaway in this respect is the recognition that enforcing the formal integration of the RRI-AIRR framework into existing institutional practices is unlikely to produce the desired transformative effect; it is rather a question of enhancing existing institutional routines by adding selected elements to improve coordination and ensure that all actors share the same values concerning the city’s future.

This lack of conceptual clarity of what RRI is all about affected, to some extent, the quality of the contribution of various actors in the process. For example, there was nearly 70% overlap in the approval of statements in the Delhi survey and the World Café; however, there were some statements that received approval in the Delphi survey but were rejected by World Café participants, only to be reconfirmed in the citizens’ review panel. Consensus building in the various formats prioritised different values and principles, which conditioned the acceptance or rejection of the policy proposals. In addition, the co-creation process always aimed to engage new participants, which prevented us from building a critical mass of people with a deeper grasp of the framework and its potential for mainstreaming in stakeholder practices. Although small, logistical hurdles such as this affected reflexivity and possibilities for institutional learning.

➤ Differences in perceptions and roles

Other interesting dynamics and relationships emerged during the co-creation process. Interest in participation varied among quadruple helix stakeholder groups, depending on their prior awareness of RRI and the intensity of the collaborative format (e.g., the World Café, the citizens' review panel and the workshops were much more dynamic and engaging than the focus groups). The role of quadruple helix stakeholders and public bodies consisted primarily of sharing expertise and problem-framing, given their (privileged) access to resources and knowledge that citizens do not have. Meanwhile, citizens provided their personal perspectives on concrete issues. Academia, civil society, and business demonstrated great interest in the policy fields, not only as beneficiaries but also as contributors to knowledge generation and policy experimentation; however, they have no decision-making powers (despite their involvement in consultative and advisory functions at local or regional level). The low number of business stakeholders participating in the activities may indicate a misalignment between the business agenda and that of the R&I sector and local government.

A drawback of the entire process was that citizens and stakeholders did not always work together; their dialogue was indirect, with no opportunity to test each group's opinion in debate. We still need to define to what extent the citizens' review panel enables the effective contribution of citizens to responsible territorial policymaking, given that it came at a later stage in the co-creation process.



As we reflect on the process, together with our interviewees, we nevertheless confirm a positive shift in understanding the objectives of public engagement in policymaking, along with the evolving role of the municipality in the process. The activities allowed citizens and stakeholders to act as both producers and end users of a vision for the city's future, while the municipality was encouraged to recognise the value of co-produced solutions and their relevance to societal concerns.

➤ The time factor and small wins vs grand missions

Shared policy agenda creation and the co-design of solutions take time, and often lag behind societal challenges. The citizens' review panel and stakeholder workshop discussions indicated that communication from the city to its citizens is often patchy, slow, or absent. Thus, citizens rarely follow the policies and measures that are planned and implemented. Some of the actions proposed by the citizens' review panel were rejected by the stakeholders because they were already being implemented or not feasible due to lack of resources.



Therefore, for a participatory co-creation process to be meaningful, adequate information should be made available to all those involved. Participatory formats should be used in the formulation of challenges and policy objectives (the stage of policy agenda setting), not after solutions have already been defined; at that point, seeking citizens'

contributions becomes merely a tick-box exercise. A focus on anticipatory formats is crucial in order to navigate a future of increasingly complex social, financial, technological and ecological problems.

Co-creation is especially valuable for designing technological solutions and for social innovation purposes. For example, the INNOAIR project – [Innovative Demand Responsive Green Public Transportation for Cleaner Air in Urban Environment](#) (implemented by SDA and Sofia municipality) used co-creation for smart, alternative mobility through student competitions, hackathons and neighbourhood meetings. The citizen engagement format was built on the concept of a small wins strategy that encourages small-scale, bottom-up initiatives to address mobility and digital transition challenges in the city. It is a way of pursuing the achievement of major policy goals that ensures shared ownership of the solutions, the political commitment of local authorities and public legitimacy.



In the words of one SDA expert and INNOAIR coordinator, ‘It is important to make policy innovation “trendy”. We need to change the narrative and change mindsets, to rally [...] support for measures which may, at the outset, go against habits and long-standing practices.’

In the context of RRI-LEADERS, ‘trendy’ transformative policymaking means creating narratives and visions that inspire collective action and encourage the active involvement of citizens in great societal transitions.

#### ➤ Positive and negative experiences

In summarising the RRI journey, we must say that applying the RRI-AIRR framework to policy and decision-making practices is no easy task. At the same time, the framework allows for flexibility in selecting and tailoring various components to the context. Given that RRI was originally introduced to support scientific research, it is most beneficial for policies governing innovation-intensive sectors such as digital transformation. Citizens and stakeholders alike consider local government the body responsible for supporting innovation and exercising oversight and control linked to associated technological and ethical issues.

‘Although the situation is changing, a predominantly hierarchical model of governance remains an obstacle to more constructive, tension-free cooperation between local authorities and stakeholders’, says an expert interviewed for the case narrative. Centralised decision-making does not always encourage the promotion of bottom-up initiatives and new ideas in the administration itself. The expert also said that applying RRI could mean ‘systemic change’ in the way policies are formulated, analysed, and evaluated across municipal departments.

Meanwhile, as Deputy Mayor Kerezov, head of InnovativeSofia, shared during a policy-learning workshop in Sofia, that the municipality is changing gears and getting ready for new (digital) modes of governance. It takes some effort to adjust the legislation and local regulations to the pace of technological tools for urban development, but ‘political will and intrapreneurs are key for achieving



policy objectives, especially when the deployment of transformative digital technologies concerns each and every person’.

### ➤ Lessons learnt

With four policy areas on the table, it was a major challenge to identify, at system level, more effective ways to promote the generation and diffusion of innovative policy solutions through stakeholder collaborations. The participatory approach of RRI-LEADERS allowed for pursuing outcomes related to the legitimacy, shared ownership, and commitment to urban policy agendas that traditional top-down or bottom-up pathways would not have delivered.



Several key takeaways regarding the co-creation process are worth sharing. Fostering collaboration, establishing open channels of communication, and nurturing a culture of trust and inclusivity are key factors in facilitating a robust co-creation process. They show that policymakers are taking a responsible and sustainable approach to decision-making and are considering the needs of various stakeholders. This can lead to more equitable outcomes, greater social impact, and better resource allocation: RRI encourages decision-makers to take a holistic, integrated approach to policy development, considering the social, environmental, and economic impacts of their decisions.

Overall, Sofia’s journey has highlighted the significance of collaboration, adaptability, and inclusivity in shaping a sustainable and equitable future. The co-creation process served as a catalyst for change, while the difficulties and diverse perspectives encountered contributed to valuable learning, empowering the city to more easily navigate the complex landscape of digital transformation and sustainable development.

## 2.3 Conclusion

The strategic relevance of RRI in the territorial context cannot be overstated. Asked which elements of RRI they found most valuable and that they would apply again, experts concurred in the need to perform organisational RRI audits in order to identify loopholes and suitable places for the integration of the framework before it is institutionalised in any shape or form. The intensity of co-creation activities may not be suitable to all policy areas, but it does nevertheless reduce the distance between citizens and the city government and shows that bold decisions go with care for those to be impacted by them.

Our findings show that AIRR dimensions such as anticipation, responsiveness and inclusiveness are fundamental for policymaking aimed at governing deep societal transitions. Cities are responsible for managing increasingly complex multi-scale crises, and to be successful, they need to ensure the broadest possible public support. Therefore, negotiating with all actors to match public needs to the goals of technology and innovation actors becomes a critical policy and administrative task. Societal alignment, meanwhile, relies on the strict observance of research ethics, gender equality and



diversity, and open access to data, which can facilitate a discrimination-free, transparent, and accountable process of research and innovation for public benefit.

The importance of collaboration, embracing diverse perspectives and adaptability emerged as key factors for successful outcomes. To facilitate better integration of the RRI-AIRR framework in the governance of local and regional R&I ecosystems, we make following recommendations:

1. Create an RRI-AIRR framework implementation plan: The city government could develop a comprehensive implementation plan that outlines the steps required to integrate the RRI-AIRR framework effectively. The plan should focus on defining specific actions and goals, outlining timelines for implementation, and assessing progress.
2. Foster collaboration between stakeholders: The successful integration of the RRI-AIRR framework depends on the collective efforts of all stakeholders involved in R&I. This can be achieved through regular meetings and discussions to establish shared objectives, priorities, and actions (e.g., through 'Dialogues on the future of Sofia', as proposed during the citizens' review panel).
3. Strengthen ethical and social aspects of R&I projects: The RRI-AIRR framework emphasises the importance of the ethics and social aspects of R&I projects. Therefore, it is necessary to strengthen ethical and social considerations in the implementation of city R&I projects. This could involve developing ethical guidelines and procedures, training researchers in ethical and social aspects of their work, and engaging stakeholders in the research process.
4. Enhance public engagement in R&I: Public engagement ensures that citizens are involved in research and innovation processes. To achieve this, local authorities could organise public consultations, establish citizens' panels and engage with civil society organisations.
5. Establish an RRI-AIRR monitoring and evaluation framework: Finally, it is crucial to establish a monitoring and evaluation framework to assess the effectiveness of the RRI-AIRR framework's implementation. The monitoring and evaluation framework should include regular assessments of progress, impact assessments and periodic reviews of the implementation plan to ensure that it remains relevant and effective.



## Chapter 3: Thalwil Case Narrative

### 3.1 Introduction

Gemeinde Thalwil



Thalwil is a prosperous suburb of Zürich, Switzerland's main city and commercial and financial centre on the eastern shore of Lake Zürich. Thalwil is well connected via road, rail, and water to Zürich city centre. Thalwil's 18,500 inhabitants are spread over approximately 8,400 households. Around 30% of the population are not Swiss citizens<sup>10</sup>. The residents

of Thalwil are relatively wealthy compared to their cantonal and national peers, and its economy is dominated by small businesses in the service industry. Most of Thalwil's working-age population commute to jobs in other municipalities. Meanwhile, commuters from other parts of the region hold most of the jobs in Thalwil.

Thalwil's residents and businesses use about 500 gigawatt hours (GWh) of energy annually<sup>11</sup> to meet their demands for heating during the winter, personal mobility, and other energy-dependent services. Most energy comes from imported fossil fuels, which are detrimental to the climate and the environment, and expose local consumers to uncertain global energy markets. Through its energy transition strategy, Switzerland aims to shift away from its reliance on fossil fuels and other imports and move towards greater efficiency, domestic renewable energy production and local value creation.

The energy transition strategy is anchored in national and cantonal laws. However, as the strategy necessitates additional policies at all levels of government, municipalities in the federalist Swiss system must also take action.

The Thalwil municipality team selected energy transition for their RRI-LEADERS project application as energy use involves everyone. It requires policymakers to devise subsidies and laws, and investment and behavioural change from all stakeholders, all segments of the population and all businesses. Academic and civil society organisations can assist this transition by providing solutions to problems and raising awareness.

As elsewhere in Switzerland, Thalwil municipality is a direct democracy, with the eligible voting population (Swiss citizens aged 18 and over) holding the primary decision-making power. The voting population elects a nine-member municipal council as an executive body and various committees to deliberate on specific topics (e.g., the social committee and the environment committee) and advise the municipal council. The municipal council can also directly appoint advisory expert committees. The municipal council's composition changed in 2022, when the committee

<sup>10</sup> Gemeindeporträt Thalwil: <https://www.web.statistik.zh.ch/gpv2/> (Accessed 24.10.2023)

<sup>11</sup> Masterplan Klima Gemeinde Thalwil:

[https://www.thalwil.ch/docn/4456310/Masterplan\\_Klima\\_final\\_mit\\_Grafik\\_20221129.pdf](https://www.thalwil.ch/docn/4456310/Masterplan_Klima_final_mit_Grafik_20221129.pdf) (Accessed 24.10.2023)



organisation was restructured. The municipal council is dominated by political groups that range from the centre to the centre-right. FDP The Liberals have four out of nine municipal councillors, including the mayor, while the Centre, the Green Liberal Party, the Social Democratic Party and the Dorfverein Gattikon (a local party representing a neighbourhood in Thalwil) have one councillor each; the only woman on the municipal council is independent.

The environment committee and the sustainability expert committee are the two primary municipal bodies responsible for steering the energy transition. The Umweltkommission (environment committee) provides environmental advice to the municipal council and is responsible for energy planning. This committee consists of five elected members (elected by general election) and two municipal council members. The Fachkommission Nachhaltigkeit (sustainability expert committee) advises the municipal council on strategic sustainability issues and assesses the sustainability of individual projects. It is comprised of three appointed local experts, three municipal administration division heads and one municipal councillor who acts as president.

In addition to these policymakers, other important stakeholders in the territorial energy transition include local NGOs, businesses, and academic institutions. The most active NGO is Oekopolis, a Thalwil-based civil society organisation dedicated to implementing Agenda 21 for sustainable development at the municipal level in Switzerland, following its ratification at the United Nations Earth Summit in Rio de Janeiro in 1992.

Oekopolis has traditionally been heavily involved in local policymaking. Local politicians, including former mayors, have been members of the organisation, which has delegated its members to municipal committees. For example, the predecessor of the sustainability expert committee was composed of delegates from Oekopolis and the municipal council. This arrangement represented a form of institutionalised stakeholder engagement. However, it could also be interpreted as exclusionary. As part of reforming the sustainability and environment commissions in 2022, the structure was changed, and the various committees were further democratised.

Local businesses are organised in the HGV (local business association), which has around 220 members<sup>12</sup> and represents all businesses in the territory. It mainly serves as an exchange network for entrepreneurs in which its members can learn about new laws, taxes and entrepreneurial skills. The HGV is also politically active and vocalises its opinions, especially on spatial planning projects that have an impact on businesses. This connection to politics is strong because many municipal councillors are also business owners and members of the HGV.

Thalwil lacks academic institutions. However, it is near ETH Zürich, the University of Zürich, the Zürich University of Applied Sciences (ZHAW) and the Eastern Switzerland University of Applied Sciences (OST) main campus. Thalwil has already served as a case study for several research projects, partly because the staff (professors, lecturers, and researchers) of these academic institutions live in Thalwil and actively participate in local policymaking.

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<sup>12</sup> Handwerk- und Gewerbeverein Thalwil: <https://hgv-thalwil.ch/ueber-uns/> (Accessed 24.10.2023)



With a long history of sustainability in municipal politics and well-established stakeholder relationships, the municipality felt well positioned to participate in the RRI-LEADERS project. By being involved in such an innovative project, the policymakers hoped to strengthen Thalwil’s leadership in sustainable policymaking and further embed sustainability in all operative and strategic processes in the municipal administration.



Figure 9: The Quadruple Helix of the energy transition ecosystem in Thalwil.

### 3.2 The co-creation process and implementation of the RRI-AIRR paradigm

The story of RRI-LEADERS in Thalwil is one of communication challenges surrounding an abstract concept and a complex research project. It is also a story of the political reality overtaking the progress of the project and a story of continuity and consistency challenges due to frequent staff changes in the methodological partner and territorial partner’s teams. Nevertheless, various organisational and personal lessons were learnt during the project, and new methods and ways of thinking were introduced.

In 2020, representatives of the political leadership and the municipal administration of Thalwil were approached by ZHAW’s Centre for Corporate Responsibility and invited to participate in the RRI-LEADERS project as a territorial partner. As Thalwil considers itself a pioneer not only in aspects of sustainability but also in other areas, it frequently participates in innovative projects that



experiment with novel approaches. However, this pairing of methodological and territorial partners was also a result of pre-existing personal relationships between researchers and policymakers.

At the time, the municipality was starting to implement the national Swiss Energy Strategy 2050 at the local level, and mitigation measures for the climate crisis have begun to appear on the local political agenda. By participating in the project, the municipality hoped to support these political processes. On the one hand, the proposed methods could foster political and societal support for these somewhat controversial topics. On the other hand, the project came with funding for additional human resources, which could contribute substantively to developing an energy and climate action plan. Based on these expectations, in January 2021, the municipal council approved Thalwil's participation in the project. As the project was set up in four different territories, some policymakers hoped for a critical assessment of the processes in Thalwil and to learn from other territories.

The project team in Thalwil consisted of the energy planning project manager in the spatial planning and public works division of the municipal administration – now head of environment and sustainability – and researchers from the methodological partner. The methodological partner's team was primarily responsible for the initial activities of the status-quo evaluation, such as stakeholder mapping, interviews and focus group discussions. After an enthusiastic start and the hiring of dedicated staff embedded in the municipal administration in the summer of 2021, the challenging process of communicating the RRI-AIRR framework and the project's objectives to policymakers and stakeholders began.

As soon as the co-creation processes started, it became apparent that the very abstract RRI-AIRR concept needed to be more easily translatable to the reality of policy practice. This was especially the case as none of the municipal staff involved had any prior training in or knowledge of the concept. They were all technical specialists with little experience in social sciences.

It was especially challenging for policymakers to grasp the multiple layers of the project: the idea of learning across the participating territories, the experimental application of the RRI-AIRR concept to territorial policymaking and the practical co-creation of actions for local energy transition. According to one policymaker, at the beginning, the initiative did not provide territorial partners with a convincing narrative of how this concept had emerged, the potential benefits of its applications to policymaking or what the different key areas and dimensions mean to local policy practice.

The team recruited stakeholders to the first workshops under the premise that they would be advancing the energy transition. During these workshops, the team attempted ad-hoc translations of the RRI-AIRR concept, which may have been counterproductive and confused the stakeholders and experts. Many did not understand why the discussion had shifted to open access or diversity in a workshop about energy transition.

Based on these experiences, the team then chose a pragmatic approach and deliberated with stakeholders on a technical level. It then attempted a backwards translation of the results to the RRI-AIRR framework to satisfy the project's reporting and research requirements. This was, of



course, not helpful in disseminating the RRI-AIRR framework. As a result, only stakeholders who participated in several events were able to gain a partial understanding of the framework.

Despite these difficulties, some policymakers enjoyed the focus group discussions as they presented a forum for deliberation outside the structure of political processes, which are sometimes dominated by ideological debates and party positions. These conversations with diverse stakeholders were also a highlight for the team.

Unfortunately, the findings of the status-quo analysis (territorial RRI-AIRR audit) were not disseminated to stakeholders and policymakers in an easily digestible format. One policymaker voiced his disappointment that the long history of sustainability in Thalwil had not been sufficiently honoured.

The development of policy actions started by defining system elements and carrying out an impact analysis to identify policy objectives and statements for a Delphi questionnaire. The definition of system elements and the impact analysis were new methods for the municipality, and collaboration with the methodological partner helped the municipality to systematically think about potential policy actions.

Strengths, weakness, opportunities, and threats (SWOT), and threats, opportunities, weakness, and strengths (TOWS) analyses were helpful methods for drafting the Delphi questionnaire. At that time, the methodological partner's organisation underwent internal restructuring, which was not beneficial to political support for the project as it disrupted the pre-existing personal connection between the methodological partner and the policymaker who had initially facilitated the participation of the municipality.

The comprehensive Delphi survey on energy transition in Thalwil took place over three rounds between January and April 2022. In the first round of the survey, the participants answered open questions and evaluated best practice examples of energy transition. Their answers and evaluations were then incorporated into statements on methods, barriers, and opportunities for integrating RRI-AIRR, which were evaluated in the second and third rounds (with feedback). There were 37 participants in the first round, 33 in the second and 25 in the third. The respondents represented the project's four stakeholder groups: academia, policymakers, business, and civil society. The respondents were selected based on their expertise or affiliation to professional organisations and associations.



Figure 10: The stages of the co-creation process in Thalwil.

One policymaker who was familiar with the Delphi method pointed out that the questionnaire was too long and time intensive. Another policymaker, while not particularly convinced by the Delphi method, considered the use of online tools for participation to be one of the most promising aspects of the project. They were convinced that participation barriers should be removed, and that online tools are part of the solution. A third policymaker who was unfamiliar with the Delphi method dropped out because they were irritated by repetition of the same questions during the three survey rounds.

This highlights a potential for improvement for a similar project in the future. As directing the content development process was largely left to the territorial partner, who was applying the RRI-AIRR framework and methods for the first time, there was a lack of capacity to perform confidence and implementation checks of the various co-creation and engagement steps. The team learnt that each co-creation step should be designed with participants’ perspectives firmly in mind. There also needs to be a cost–benefit balance for stakeholders. Questionnaires should not be too time consuming for stakeholders and they should be able to profit from participation in some way.

The next task of the project team was to organise and host the World Café. The 15 World Café participants came from all four stakeholder groups. Some participants had taken part in the Delphi survey, while others had another connection to the energy transition in Thalwil. Policymakers who attended this event provided mixed feedback. One policymaker who had experience of similar events was not pleased with the organisation and moderation of the group work. Another policymaker was pleased that, following the arduous Delphi survey, concrete actions were finally being addressed – one-and-a-half years after the start of the initiative.

The development of actions for the transformative outlook was particularly challenging. Each action was intended to meet several requirements. First, it should be based on the results from the territorial audit and the Delphi survey (45 statements of consensus and 12 examples of best practice), as well as input from the World Café. Second, it should be linked to ongoing policy development in the municipality, which might follow completely different timelines. And third, each action should incorporate the RRI keys and AIRR dimensions. Given the abstract nature of the concept, which was confirmed by many policymakers, senior experts on ethics, diversity and education should have been consulted, especially with regard to the third aspect. Despite these challenges, the team formulated draft actions for the citizens’ review panel to deliberate.

As a result of anticipatory planning, the team was able to use synergies with another project on citizen engagement in the canton of Zürich to recruit participants to the citizens' review panel. In the cantonal pilot project, 3,000 randomly selected inhabitants were contacted and asked about their willingness to participate in citizens' panels. Around 300 people expressed an interest and served as a pool for recruiting a diverse panel. Out of these contacted inhabitants in this pool, 52 were willing and able to take part in the citizens' review panel. The team used quota sampling to select 23 of these residents based on pre-determined distributions of age, gender, education, housing situation (owning vs renting) and citizenship (Swiss citizens with voting rights vs non-Swiss citizens without voting rights). On the day of the citizens' review panel, two participants excused themselves due to illness. The final panel of 21 inhabitants fulfilled the desired quotas of gender, housing situation and citizenship, while younger people and people with lower educational background were underrepresented. This is a common challenge for participatory processes.

The citizens' review panel's organisation worked well. Fruitful exchanges with the methodological partners culminated in a participatory event that the participants and the team enjoyed. Participants appreciated the constructive atmosphere and working in diverse groups. However, they criticised the vague formulations of the actions and the non-binding nature of the process.

Thalwil's policymakers were familiar with citizen participation, especially for urban planning projects. They were critical of the high costs and effort associated with citizens' panels and doubted that such formats could address the challenge of including segments of the population that do not normally get involved in politics. The positive effects of citizens' panels appear to benefit citizens more than policymakers or public administration, as citizens are exposed to experts and fellow citizens with varying viewpoints, which facilitates consensus and compromise and reduces polarisation. One policymaker advocated for providing more informal ways of participation. Formal formats, such as the citizens' review panel, can be counterproductive if they are used as a marketing instrument and participants' ideas are not considered and implemented.

Nonetheless, policymakers and stakeholders appreciated that Swiss and non-Swiss inhabitants were recruited for the panel. The inclusion of non-Swiss citizens in local-level democratic decision-making in Switzerland is the topic of an ongoing controversial discussion and will, most likely, be addressed by larger cities or at national level rather than in Thalwil.

The results of the citizens' review panel helped the team to revise the transformative outlook, eliminate actions with low priority and replace them with actions that came closer to meeting inhabitants' expectations. In a final workshop, 16 stakeholders reformulated the assessments and proposals from citizens into implementable actions. The stakeholders represented the quadruple helix and were also experts in the fields of energy, planning, construction, real estate, waste management, education, and communication. One expert policymaker much appreciated these workshops with experts and stakeholders from different fields. At the same time, they opposed the increased participation of non-organised citizens: 'While many people believe that they are experts, working with real experts was the most interesting part.'



### 3.3 Conclusion

The RRI-LEADERS project gave Thalwil the opportunity to try new ways of policymaking. It was able to experimentally test methods it had not previously used. The project raised awareness of the RRI-AIRR framework, which was previously unknown in Thalwil among policymakers and stakeholders. It enabled active co-creation among stakeholders and citizens, and it contributed to political education. From the perspective of local policymakers, the experiment resulted in unsurprising findings, mixed feelings and little perceived added value compared to the status quo.

Some stakeholders and policymakers were very critical at the beginning of the project but changed their minds and considered the project meaningful after participating in the activities. Others were enthusiastic at the start but became disappointed during the course of the project. One policymaker thought that was too early to draw any conclusions on the project. However, they supported the research and Thalwil's participation.

The policymakers involved considered the cost - benefit analysis of the methods used unfavourable because co-creation require extensive pre- and post-processing. As a result, there is only a small likelihood that the framework will be used consistently.

Overall, the RRI-AIRR paradigm, as employed in the project, was too abstract and complex to convince policymakers and stakeholders of its added value. However, policymakers were pleased that the project demonstrated that many elements of the RRI-AIRR framework are already present in the Swiss system of direct democracy and local decision-making. They considered participation (public engagement, inclusiveness, and responsiveness) and transparency (open access) to be strengths of the Swiss governance system. Particularly in Thalwil, with its pioneer status in sustainable policymaking, the policymakers felt validated that they had done and were continuing to perform their duties correctly.

Blind spots, such as gender and diversity, were only acknowledged by one interviewee. One stakeholder stated that, as participation is legally mandated in Switzerland and stakeholders are usually engaged in policymaking, RRI-AIRR is already happening in the direct democratic system. They were of the opinion that, therefore, the framework's application is more suited to parliamentary democracies such as those in the EU.

Transparency in decision-making is guaranteed insofar that all decisions taken by the municipal council are accessible on public request. Further increasing transparency and proactively publishing decisions and data would increase administrative costs and effort, while the added value is uncertain.

Policymakers do not always welcome the involvement of citizens. Opening political processes for wider participation can increase complexity and slow progress. Furthermore, wider participation can give arbitrary power to certain actors, which challenges the authority of the municipal council





and the various committees, which are legitimised through elections. While one policymaker was not (yet) convinced by the participatory advantages of RRI-AIRR, such as the diversity-by-design recruitment of the citizens' review panel, they also admitted that the status quo is far from optimal. In their opinion, the same exclusive group of long-term residents attends the usual municipal information events, dominating public discussions with their insider knowledge and discouraging others from participating.

Some policymakers felt that the learning and knowledge exchange across the four territories participating in the project were of limited usefulness because the territories are too profoundly different. Conversely, stakeholders from other helices (business, academia, and civil society) much appreciated exchanges with stakeholders from the other territories during the policy-learning workshops.

Policymakers admitted that some parts of the framework might be helpful when working on highly controversial topics. The energy transition strategy in Switzerland gained a lot of popular support during the project due to external factors, such as large-scale droughts and floods, and the effects of the war in Ukraine on energy supplies in Europe. While this external pressure was unfortunate to demonstrate the capability and potential added value of the RRI-AIRR framework to tackle complex societal challenges, it accelerated policy action in the municipality in parallel to project activities and, in some instances, overtook the project's progress.

Another policymaker voiced the opinion that energy transition might have been a suboptimal choice for a policy objective. They thought that the participation of the public in this specific topic happened mostly through voting and elections and that it is not useful to co-create policy actions for these issues.

This, however, does not mean that the RRI-AIRR paradigm is not useful for territorial policymaking. The policymakers and stakeholders we interviewed stressed that the methodology needs to be tailored to the specific context and topic. One stakeholder stated that the paradigm would be especially useful for projects in which a variety of local stakeholder knowledge is needed. Rather than using it for policymaking, RRI-AIRR could be helpful in project planning, where it can help identify potential barriers early in the process. Potentially suitable topics suggested by policymakers and stakeholders include public transport, spatial planning and citizen science projects for energy saving in households. Policymakers could then learn from the results of such practical projects and adjust policies where they are lacking or providing the wrong incentives. One policymaker stated that participation would become much more important in the future. Due to population growth and urban densification, each decision made by politicians and public administrators is affecting more and more people. Building capacity among policymakers and public administrators is necessary to make the use of participatory methods more frequent and meaningful.

## Chapter 4: Region of Western Macedonia Case Narrative

### 4.1 Introduction



The Region of Western Macedonia (RWM) is located in northwest Greece and has a population of approximately 255,000<sup>13</sup>. It borders the Republics of Albania and North Macedonia in the north. For the past few decades, it has been Greece's main energy provider, producing more than 70% of the country's total energy supply in the early 1980s and almost 30% today. The region is currently undergoing the huge task of energy transition through the Just Transition Development Plan (JTDP) 2021–2027, which has a total budget of billion €1.63<sup>14</sup>. This programme aims to dramatically influence the financial and social future of the region. Many people consider it to be the final opportunity for RWM to survive and develop, following the harsh effects of energy transition over the past five years. These include the closure of three out of five power plants in the region, with many former Public Power Corporation (PPC) workers now facing unemployment. The programme anticipates a large number of mega investments in the region, as well as extensive support for local SMEs and other societal actors.

As implied above, the overall picture of the regional economy is currently negative. Unemployment rates in RWM have been rising over the past five years due to the extensive delignification of the region and the closure of the local power plants. JTDP represents an opportunity for the region to restore its former economic and political significance. A scheduled switch to renewable energy sources (RES) may transform the local production model and bring a high level of financial development. Investments in RES, innovative technologies and sustainable practices are planned as part of JTDP and aim to regenerate the region's economy.

The main policy focus of RWM is the accomplishment of a clean energy transition strategy based on stakeholder engagement, together with efficient territorial governance and the development of a methodology aimed at a smooth, innovative transition towards an alternative development paradigm. An inclusive clean energy transition strategy, involving the quadruple helix (see Figure 10), may be considered the most effective means of accomplishing maximum benefits for all levels of local society. However, stakeholder engagement is also the biggest challenge for any policymaking body, especially in terms of engaging actors such as academics or citizens who tend to be generally isolated from the core of policymaking. Ideally, such engagement will be followed by effective territorial governance to implement a smooth transition that will not disturb the

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<sup>13</sup> Census results of Population and Housing. *Hellenic Statistical Authority*. [https://elstat-outsourcers.statistics.gr/census\\_results\\_2022\\_en.pdf](https://elstat-outsourcers.statistics.gr/census_results_2022_en.pdf)

<sup>14</sup> Just Transition Development Plan of lignite areas, 2021. [https://www.sdam.gr/sites/default/files/consultation/Master\\_Plan\\_Public\\_Consultation\\_ENG.pdf](https://www.sdam.gr/sites/default/files/consultation/Master_Plan_Public_Consultation_ENG.pdf)





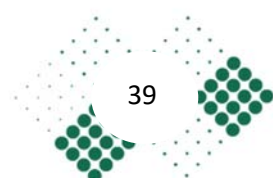
foundations of social peace and everyday life. Policymakers and researchers need to establish a methodology for this governance mechanism to be effective. Furthermore, JTDP anticipates the development of governance mechanisms that are inclusive, responsive, and anticipative, and the RRI-LEADERS project provides useful tools in this respect.

Stakeholders in RWM are differentiated according to their knowledge of energy transition issues, and they often seem to have a different perspective on what should be done and how regarding those issues. For academic stakeholders in the territory, regional research is aligned with the needs of innovation and sustainable development but often seems cut off from local societal and financial needs. In that sense, the principles of RRI provide a supportive tool to transform local research in a way that satisfies everyone, including the local business sector and regular citizens. This is most evident in specific initiatives taken by the local university, such as taking the leading role in the creation of an innovation zone in the region, which will support and help local start-ups in focusing their activities on energy transition and sustainable development issues. This innovation zone will operate in collaboration with local businesses.

The regional authority can be more directly involved in shaping the development environment of RWM. Apart from approving and directing funding for the business and research sectors, local government should embrace the needs of local entrepreneurs in shaping a more flexible and development-focused business environment, decrease bureaucracy and offer better infrastructure and incentives to attract investment. The regional authority of RWM is already implementing the Western Macedonia 2021–2027 programme, which includes a series of developmental activities regarding the local economy, infrastructure, upskilling and reskilling, environmental restoration among others.

In a similar vein, local businesses in RWM have already been involved in specific programmes led by the regional authority and other bodies, and have developed their knowledge capital, their use of RES and other infrastructure, and their research capabilities. For instance, a large number of local businesses in RWM have already installed photovoltaic panels in their facilities to meet their own electricity needs. SME B&T Composites already innovates in alternative energy sources (hydrogen), specifically directing its activities to the energy transition needs set by JTDP, Western Macedonia 2021–2027 and other programmes.

Finally, citizens need to increase their involvement in energy transition and the major issues arising from it. Indeed, citizens often demonstrate passive behaviour towards significant societal changes, feeling powerless. However, major steps have been taken to address this, such as the creation of NGOs (e.g., Cluster of Bioeconomy and Environment (CluBE) and Go Alive), which encourage the participation of large numbers of citizens in energy transition and other important issues. Similarly, the research projects carried out by the local university, the Regional Association of Local Governments of Western Macedonia (LGA-WM) and other bodies attract citizens to participate in numerous energy transition activities in RWM.





The involvement of the quadruple helix discussed above suggests a promising, but challenging, future for RWM in its conquest of the energy transition castle, which is dependent on successfully building on the activities that have already take place.



Figure 11: The Quadruple Helix stakeholders in the Region of Western Macedonia.

## 4.2 The co-creation process and implementation of the RRI-AIRR paradigm

RRI-LEADERS has involved and continues to involve a large number of stakeholders and citizens in all project stages. During this co-creation process, the project team from RWM has had the opportunity to share experiences and lessons learnt. We have also shared the challenges and criticisms made by participating stakeholders and citizens, and been able to process, correct and adapt to them. Our main finding from the co-creation process was that the principal goal of energy transition in RWM should be to achieve inclusiveness, which did not seem to be the case, particularly

with regard to the involvement and participation of specific actors in the region such as those from business and civil society. Other key RRI principles – such as responsiveness to crucial emerging issues and anticipation of effective energy transition planning – were also noted by project participants.

More specifically, stakeholders commented on the absence of specific decision-making mechanisms that would enable decisions about energy transition to be made in a structured, inclusive manner. Stakeholders perceived that addressing this issue was a priority goal. For example, many stakeholders had a negative opinion of the top-down governance model implemented by the national authorities for energy transition. Indeed, the national government in the capital city of Athens did not appear to be an ideal governance approach to implementing energy transition. Decisions about energy transition made in the centralised government located in Athens did not appear to be an ideal governance approach to implementing energy transition. In addition, stakeholders and citizens raised democratic and accountability issues regarding major energy transition decisions. For instance, a decision was made on the introduction of mass RES investment in RWM without taking into consideration local citizens' objections about the creation of non-labour-intensive investments, which could lead to a reduced developmental footprint for RWM; such a decision should have included a mechanism that allowed its reversal or abandonment. Indeed, participating stakeholders highlighted the issue of accountability in lower levels of governance, such as the regional and municipal authorities of RWM. It appears that energy transition in RWM resembles a large set of separate, isolated jigsaw pieces that do not fit together rather than a puzzle that is almost or partially complete.

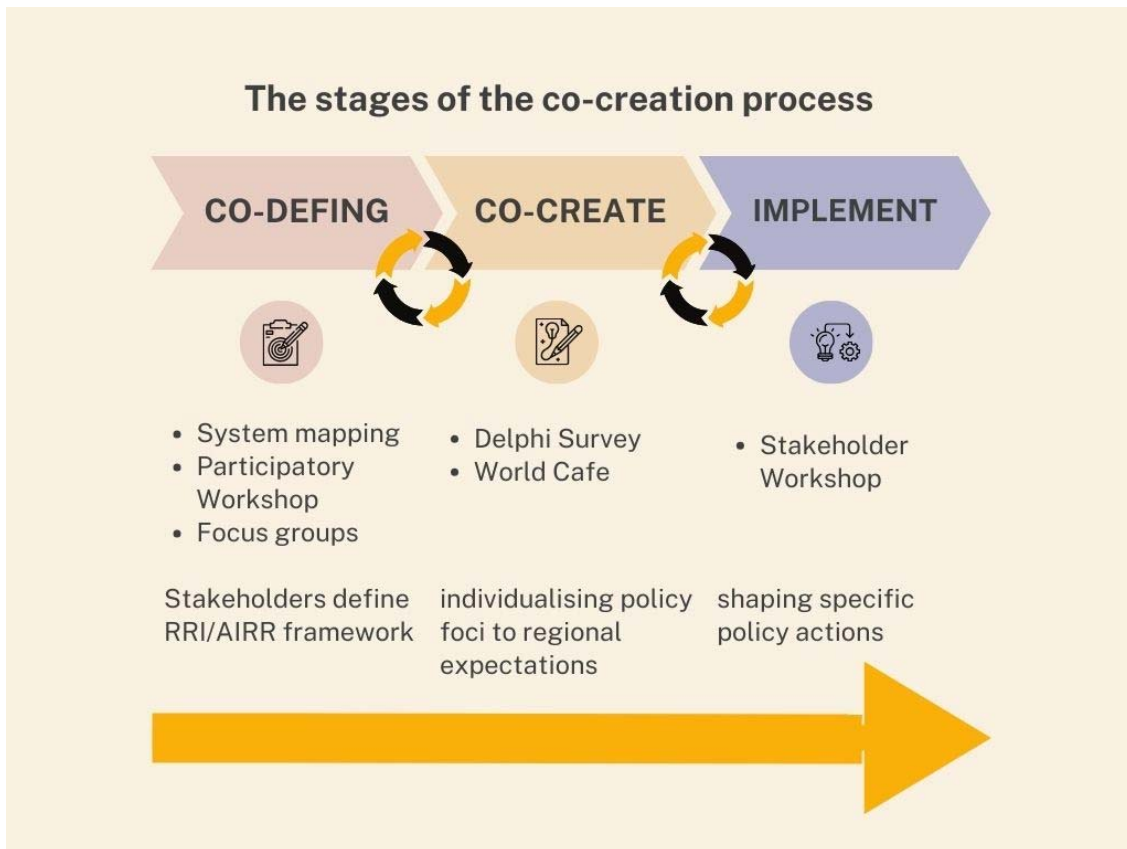


Figure 12: The stages of the co-creation process in RWM.

In order to address the consequences of a non-accountable closed governance system, stakeholders and citizens proposed a series of drastic solutions during the co-creation process of the project: the RRI policy discourse in RWM, the RRI audit report, in particular, and the Delphi survey. Stakeholders repeatedly proposed that the current legislative framework should be modified to obtain societal approval of specific major decisions involving energy transition in the territory, through the use of tools such as local referendums. Other proposals related to the democratisation of decision-making included the creation of open digital platforms that would invite votes and comments from regional citizens on key energy transition issues.

Other important issues raised from the beginning of the project concerned the level of funding and decisions on how it was spent. Indeed, many project participants considered that although the total JTDP funding is significant (€1.63 billion), it is primarily directed at business sectors and investments that are not accessible to many businesses, start-ups, and entrepreneurs – especially those from RWM. Stakeholders also highlighted that the vast number of RES investments in the region are made by large companies that are based far away, so their investment does not greatly benefit RWM. Stakeholders suggested this could be addressed by adjusting the national legislative framework and directing JTDP implementation measures towards supporting local businesses with higher amounts

of funding and subsidies; financially supporting local research that should be adjusted to meet local businesses' needs; and providing financial incentives to citizens to become engaged with financial and research activities focused on implementing a more effective energy transition. All the above should be considered as outcomes of a structured funding policy of energy transition in RWM.

Throughout the project, stakeholders considered that the preservation of the environment should be a priority goal. They stated that businesses and investments should have a completely green footprint in order to be considered sustainable and included in the transition framework of RWM. For instance, they proposed the introduction of an environmental tariff to be imposed on businesses that pollute and which would be increased in parallel with the level of pollution caused. However, this proposal – and the goal – was unanimously opposed by the citizens during the citizens' review panel. The participating citizens shared the view that the primary goals for any investment or professional activity in the region should be the developmental footprint it leaves, the jobs it creates and the financial impact it makes. They believed that non-negotiable environmental protection could be considered a main goal for any investment, but only if this did not threaten its financial viability and growth prospects.

For the project's working group, the co-creation process in this case demonstrated the extent to which different actors in the same society can have a completely or significantly different view of a policy issue (or outcome). While not theoretically contradicting the priority goal of the stakeholders, citizens fully rejected the outcome proposed by the stakeholders for that specific goal, implying that not all goals in energy transition should be equally weighted and that some should be prioritised. This prioritisation of goals may be considered as an output with regard to the goal-making process of the project and energy transition itself. The resounding lesson learnt in this case is that perceptions of experts and citizens on crucial issues are not always similar; indeed, sometimes, they may be completely opposed. This is a key issue for democratisation in both research and policymaking.

Stakeholders repeatedly referred to the establishment of an innovation zone in RWM as a primary output for promoting the goal of sustainable entrepreneurship. Indeed, the innovation zone may be considered the ideal means for promoting sustainable development and technological innovation through the provision of financial incentives, physical assets, and synergies among zone members. Specifically, it was suggested that the local University of Western Macedonia (UoWM) could and should take on the role of intermediary between the companies and the researchers or scientists willing to develop technologies aimed at more effective energy transition in RWM and sustainable development in general. Indeed, stakeholders identified the absence of much-needed connections among local scientific research, the needs of the business sector and the local market as a national phenomenon, so UoWM is not an exception. The main lesson learnt from the implementation process regarding the involvement of local academics and researchers in energy transition and the wider local and financial status of RWM is that they already perform a large, valued set of research activities, but they needed to be directed, connected, and co-implemented with the regional financial system in a more effective way.



Another crucial issue raised by participating stakeholders, mainly during the Delphi study, was the need for designing and implementing a broad, detailed spatial plan that clearly anticipates land usage for every type of financial and social activity in RWM. Despite of the inclusion of such a measure in JTDP, this has not yet been implemented in the region although large investments have already started. There is some scepticism that the introduction of a spatial plan after major investments have been licensed or building works have started is not useful. This is a particular concern in respect of the mass RES installations, which have been licensed, are being built or have been completed, in areas of RWM that, according to many actors in the region, should have a different usage. A lesson learnt in this case is that anticipatory governance should already include such a plan and direct financial activities accordingly. In parallel, responsive governance should prevent any major financial activities and investments from being implemented before such a plan is operational. Thus, implementing sustainable development in RWM should include, as a main output, a spatial plan directing planned investments; however, this should be implemented on time, in order to be considered sufficient and adjusted to local needs.

The preparation of the transformative outlook and the citizens' review panel was the key turning point in the RRI-LEADERS project. This was due to the direct involvement of citizens who were invited to view and comment on the project research team's findings, by evaluating of a set of transformative outlook objectives and actions, devised by the project team and stakeholders. In total, citizens evaluated three main objectives and 11 initial actions, and they proposed 4 additional actions, making a total of 15 proposed actions in the transformative outlook of RWM.

The three main objectives of the transformative outlook were:

1. To promote extensive upskilling of the local workforce through the creation of efficient, decentralised, and innovative procedures, in which local research institutions would play a primary role.
2. To create an entrepreneurial ecosystem in RWM.
3. To develop a regional energy efficiency model, including actions aimed at achieving environmental sustainability.

These objectives included four, three and four actions, respectively. The overall consensus of the citizens' review panel was that most of the actions devised by experts and stakeholders should be accepted and implemented in order to accelerate energy transition under RRI-based principles and for the benefit of the people.

However, citizens made some strong objections about specific actions proposed by stakeholders and scientific experts. For instance, they unanimously opposed the suggestion that an environmental tariff should be imposed on enterprises that pollute the local environment through their activities, and that this tariff should be used for environmental restoration purposes at regional level. One of their main objections was that the local economy had already suffered due to the financial crisis and the negative effects of energy transition (e.g., the closure of mines and power plants, and unemployment) and it would be anti-developmental to impose more financial penalties

in the form of taxes or tariffs. At the same time, some citizens expressed their concerns about whether the money from the tariff would really be used for environmental restoration purposes at regional level, or whether it would be used for other purposes that have nothing to do with energy transition or the region.

Similar objections had been raised by citizens participating in other activities looking at the draft form of the transformative outlook. From the citizens' perspective, some proposed outcomes (actions) should be radically changed or removed as they would not lead to the accomplishment of the goals (objectives).

The results of the citizens' review panel reinforce the lesson that the perceptions of citizens and experts may not only differ sometimes, but that they can be totally opposed. Moreover, experts need to focus more on the needs of the citizens and connect these needs to their policy and scientific conclusions in the form of a holistic scientific–policy–society triptych. In other words, policy and science cannot exist without taking society into consideration, that is, a scientific or policy principle must include a societal dimension.

The stakeholder workshop that took place after the citizens' review panel did not reveal any significant differences in terms of the prioritisation of actions, compared to the citizens' review panel. Stakeholders proposed the following actions:

1. The implementation of a regional study of the upskilling and reskilling needs of local citizens.
2. The introduction of a regional plan for entrepreneurship support in the region for which local authorities would provide financial incentives.
3. The implementation of a study to predict the specific energy needs of the region.

Stakeholders also contributed significantly to improving the actions in terms of making them more practical and precise. For instance, regarding the first action above, one stakeholder indicated that a regional study of the upskilling needs of local citizens is already under way through another European project that his organization is currently participating into, and the results of this study should be incorporated into the holistic study that will be further developed and implemented. Another important action that has been proposed by the stakeholders is the implementation of a spatial plan in the region, forecasting specific activities in particular parts of RWM. One stakeholder proposed the spatial plan to be implemented exclusively for RES facilities as they have been installed, to a large extent, in all parts of the region, incorporating large areas and resulting in high levels of resistance from citizens. Other proposals from stakeholders involved further specific actions. An indicative example is the creation of an innovation zone in the region. Stakeholders proposed that the innovation zone should have distinct thematic axes – entrepreneurship, hydrogen, tourism, agriculture, and one covering multiple themes – that would be distributed in the five major regional cities in Western Macedonia (Kozani, Kastoria, Grevena, Florina and Ptolemaida).

Stakeholders also proposed interesting new actions, for example, that the upskilling of the local workforce should be specifically directed to creative industries and, even more specifically, to the



development of management methods and processes, 5G, AI, big data, cloud-based media asset management and digital rights management. Another proposal was for the introduction of a one-stop-shop facility providing information for citizens and current or potential investors on the energy policies of the region, the current legislative framework, subsidised programmes, and regional job opportunities RWM. A specialised proposal was tabled regarding the establishment of a citizen-oriented key performance indicator for major new investments in the region, that is, a forecast of the number of jobs that will be created by the proposed new investment. This should be put out for public consultation through the regional authority’s internet platform to find out the level of acceptance for the investment proposal among the local community.

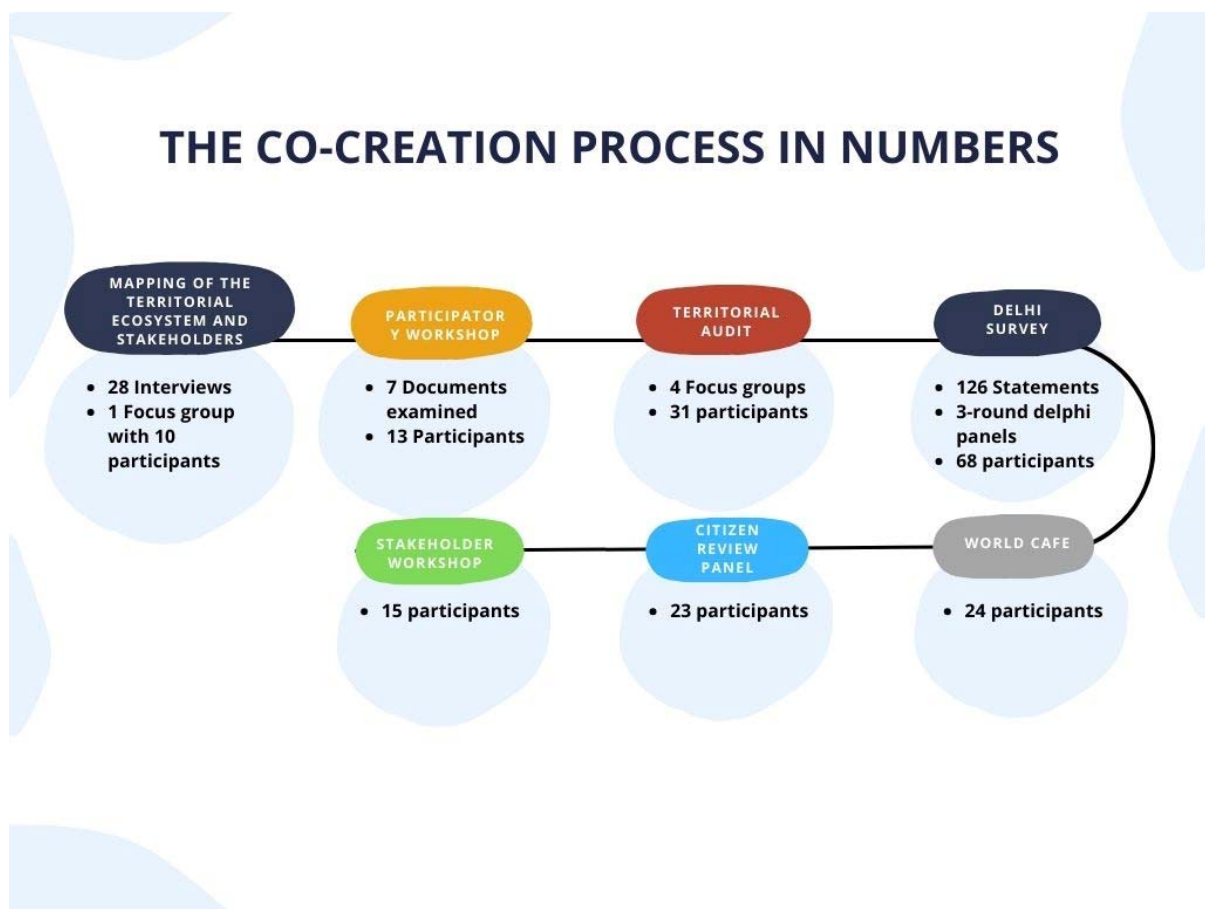


Figure 13: The co-creation process in numbers in RWM.

The findings from the interviews that have been conducted in the various stages of the co-creation process indicated that the implementation approach of the project team was appropriate in terms of achieving maximum inclusiveness of all the bodies involved in the decision-making process of energy transition. Another crucial finding from the interviews was that specific bodies and helices that ought to be heavily involved in the project’s philosophy, and energy transition in general, lack the willingness to participate. This finding was revealed during stakeholders’ participation in the implementation stage of the project, indicating that much more needs to be done to inform specific

actors of the significance of participating in the implementation of the project's policy areas. Furthermore, the issue of open access during the implementation stage of the project has been also raised. While there are plenty of apparently available internet sources and platforms providing information on RRI and the policy area of energy transition, these sources are not always (fully) accessible for interested parties. Moreover, stakeholders highlighted the issue of a lack of awareness about RRI and energy transition. Indeed, they stated their experiences during the project's implementation indicated that the region consists of two types of citizens: the very few who possess detailed knowledge about energy transition and RRI, and the vast majority who do not possess any knowledge about these topics at all. These two categories apply not only to citizens but also to policymakers and academics. Thus, there is no middle ground regarding actors' level of knowledge about RRI in RWM.

### 4.3 Conclusion

Responsibility is at the core of RRI as a scientific and policy concept. This responsibility may be expressed in terms of societal, democratic, environmental, economic, and scientific issues that have their own internal characteristics and which also simultaneously interact with each other. This implies that a policy cannot be characterised as responsible if, for example, it is scientifically valid but not environmentally responsible. In that sense, the actions implemented through the RRI-LEADERS project always aimed to establish the RRI framework through the joint implementation of the RRI key areas and the AIRR dimensions. RWM's clear policy focus of energy transition implementation under the RRI framework enabled the setting-up of distinct activities and specific actions that needed to be designed and implemented. Exclusively regarding the level of implementation of the RRI-AIRR framework in RWM, the co-creation process revealed that specific keys such as open access and science education are adequately implemented in the energy transition policy area. However, major improvements have to be made in the direction of strengthening public engagement and inclusiveness in the current policy making of energy transition, specifically regarding the participation of crucial helices of the quadruple helix such as the businesses and the citizens in the decision-making mechanism. Moreover, the design of policy actions has to be more anticipatory in shaping medium- and long-term effects that may drastically affect specific societal actors and become more predictive in detecting possible negative outcomes for specific helices of the quadruple helix.

As a result, our main recommendation is that RWM's top priority should be to include all parts of the quadruple helix in actions related to setting up an inclusive decision-making framework for energy transition. Stakeholders and experts expressed this view, implying that the implementation of energy transition in RWM has not been on the right track to date, regarding its inclusion especially for the citizens, academia, and business helices. Policymakers responsible for energy transition implementation in RWM should give greater consideration to the indirect effects of implementing measures. The principle means of achieving this are to adjust the current legislative framework for



JDTP decision-making; create open platforms for public consultation; re-evaluate the effects of specific investments that are not characterised as labour-intensive; and ensure greater involvement of UoWM and local research bodies in scientific planning for energy transition.

A major lesson learnt from the project is that policymakers, scientific experts, and citizens may often have totally different perceptions of key societal issues. This was certainly the case regarding energy transition in RWM, whereby citizens expressed completely opposite views on specific developmental actions and measures proposed by the experts and stakeholders. Indeed, the societal dimension of specific implementation measures and proposed actions is often neglected, and the benefit for local citizens is unclear or even absent. A specific aspect of the project that revealed high levels of misconception was the environmental dimension of proposed activities, frameworks, and investments. Experts and stakeholders highlighted this issue as a top priority, but citizens viewed the proposed specific actions and activities as having a negative developmental effect. Citizens also seemed to neglect the environmental aspect of the implementation of measures and investments that may have a positive labour-intensive effect but a clearly negative environmental impact.

The RRI-LEADERS project provided an excellent opportunity for the main experts in the region to come together on several occasions to discuss and process the main steps and actions that need to be taken in order to establish the basis for sustainable and responsible energy transition in RWM. More than 50 experts processed, consulted on, and devised specific activities for responsible governance, effective decision-making, socially beneficial and environmentally friendly investment, research involvement through the university and applicable implementation measures (e.g., open platforms, spatial plan, innovation zone and digital networks), which have the potential to boost the democratization and social acceptance of energy transition in the region.

Furthermore, more than 100 stakeholders participated in the project's activities by expressing their views and evaluating specific policy proposals that were translated into distinct implementation measures. In many cases, citizens presented a totally different perspective on the meaning of socially beneficial activities, providing stakeholders with an alternative view of policymaking that needs to be seriously considered. As many of the participating stakeholders hold key positions in regional policymaking, this outcome is very important. In conclusion, this has been the aim of the RRI-LEADERS for RWM from the beginning: to provide an alternative, more applicable and socially beneficial form of the region's policy focus, adjusted to the characteristics of the region and its people – from all parts of the quadruple helix.

## Chapter 5: Case Narratives Conclusion

The case narratives summarise the RRI journey of each of the four territories involved in RRI-LEADERS, with the aim of systematising the learning from each one. Evident throughout the narratives is the importance of stakeholder engagement and participatory processes in policymaking, which take place in various contexts. Each territory participating in the RRI-LEADERS project had its own distinct policy focus. Despite having similar objectives, the four regions had diverse experiences and faced specific challenges throughout the project. Sabadell's narrative focuses on the challenges of implementing the RRI-AIRR framework in the context of active ageing policies, while Sofia's narrative emphasises the need for digitalisation and inclusivity in urban development policies. Both narratives underscore the value of collaboration and adaptability in shaping sustainable and equitable policies. While both Thalwil's and RWM's narratives focus on energy transition, their experiences differed significantly. Thalwil faced challenges in communicating the abstract RRI-AIRR framework, while RWM dealt with governance issues and disparities in funding allocation. Both regions learnt the importance of considering citizens' perspectives and aligning policies with local needs in the transition to more sustainable energy practices. We summarise the main points arising from the narratives below.

The **Sabadell** Case Narrative, which focuses on active ageing policies, emphasises the importance of the quadruple helix approach (involving civil society, government, academia, and business) for innovation and experimentation. The project had three stages – mapping, analysing, and reviewing – and involved interviews, workshops, a Delphi survey, and a World Café. All three stages faced engagement and participation challenges. However, by the end of the co-creation process, a final version of an active ageing roadmap, containing five objectives and nine actions, had been agreed. The findings from Sabadell show that the RRI key area of public engagement is a cornerstone of the project, while the AIRR dimension of anticipation also has an important place. Other RRI key areas of ethics and gender equality were already widely adopted and systemically applied in policymaking, even though the concept itself was little known. Meanwhile, the final two RRI key areas of open data and science education remain challenging. The Sabadell case narrative also highlights other challenges, including lack of a participatory culture, issues with stakeholder recruitment, low awareness of the RRI-AIRR framework among some stakeholders and problems implementing the framework.

The **Sofia** Case Narrative focuses on the need for digitalisation and challenge-based collaborations for urban development policies. It emphasises the importance of participatory processes and impact assessments in policymaking. The narrative describes a participatory process involving various stages and stakeholders and highlights the importance of communication and anticipatory formats in policymaking. It also discusses differences in perception and the roles of various stakeholder groups. The co-creation process faced several challenges, including issues with terminology and unfamiliarity with the concept of RRI-AIRR among many participants, difficulties in building consensus among the various groups involved and time-related impediments. The Sofia case



narrative advocates for small-win strategies to address urban issues and highlights the challenges of a predominantly hierarchical model of governance. It also emphasises the need for fostering collaboration, communication, trust, inclusivity, responsiveness, and anticipation in policymaking. The narrative concludes by proposing five recommendations for facilitating better integration of the RRI-AIRR framework into the governance of local and regional R&I ecosystems.

The **Thalwil** Case Narrative focuses on sustainability, climate action and alignment with the Swiss Energy Strategy 2050. The co-creation process took the format of workshops, focus groups, an RRI-AIRR audit, a three-round Delphi questionnaire, a World Café and a citizens' review panel to evaluate project findings. The process involved policymakers, stakeholders in territorial energy transition and other areas, NGOs, businesses, academic institutions, and citizens. Active stakeholder and citizen participation in policymaking is common in the Swiss system, but the project enabled participants to experiment with new ways of policymaking and raised awareness about the RRI-AIRR framework. The project team faced several challenges, including communication difficulties in translating the abstract RRI-AIRR framework into real-world policy practices; unfamiliarity with the concept among municipal staff, who were primarily technical specialists; and continuity and consistency issues as a result of staff and organisational changes. This led to challenges in conveying the framework's benefits and purpose. The case narrative highlights the importance of designing co-creation processes with participants' perspectives in mind, including ensuring a cost-benefit balance for stakeholders, and of tailoring the RRI-AIRR framework to specific contexts and practical projects.

The **RWM** Case Narrative focuses on energy transition, with stakeholders and citizens seeking greater inclusiveness. During the co-creation process, stakeholders expressed concerns about the top-down governance model for energy transition decision-making, in which decisions are made far away at national level, and there were calls for greater local decision-making and associated mechanisms to ensure accountability. Stakeholders stated that while there was significant funding for the region's energy transition, it primarily favoured larger companies and non-local businesses. They proposed directing funding and subsidies to local businesses and research, aligned with local needs. They also advocated for the creation of an innovation zone in the territory to promote sustainable entrepreneurship, and they stressed the role of the local university in connecting local research to the business sector. The citizens' review panel highlighted significant differences between the perceptions of citizens and stakeholders, and contrasting views on certain actions. A significant divide emerged between the two groups regarding environmental protection measures in investment proposals. Stakeholders emphasised the need for green and sustainable investment, while citizens prioritised economic viability and job creation. The RWM case narrative underscores the importance of understanding and aligning research and policy with societal needs.

In conclusion, the Case Narratives discuss the findings and outcomes of the RRI-LEADERS project, which focuses on RRI and AIRR frameworks in four diverse territories. The main findings arising are summarised below:





1. **Understanding of RRI and AIRR:** The co-creation process revealed that not all stakeholders have an equal understanding of the concept of RRI and AIRR. Academia and research stakeholders are more familiar with these concepts, while citizens and businesspeople are less so.
2. **Application of RRI-AIRR frameworks:** Public administration plays an important role in implementing RRI and AIRR principles, but awareness is still limited. Many stakeholders do not consciously apply these frameworks in their daily activities.
3. **Key areas and dimensions:** Public engagement and anticipation were identified as crucial key areas and dimensions. Anticipation is seen as the foundation of responsible governance.
4. **Challenging key areas:** Open data and science education were identified as challenging aspects that need more attention in order to better implement the RRI-AIRR framework.
5. **Global coverage:** The integration of RRI and AIRR values into public administration, businesses and civil society requires a global approach. There is a need to formally identify all RRI key areas and AIRR dimensions.
6. **Co-creation process:** The co-creation process was valuable but had some challenges, such as the need for more engaging event formats and a more streamlined process.
7. **Strategic relevance:** RRI is considered strategically relevant in territorial contexts, especially when dealing with complex societal transitions and crises.
8. **Mixed views of policymakers:** Local policymakers had mixed feelings about the project. Some found it valuable, while others were less convinced of its benefits.
9. **Complexity and tailoring:** Policymakers emphasised the need to tailor RRI-AIRR methods to specific contexts and topics. The active involvement of civil society is crucial for this occurrence, due to utilisation of local knowledge and innovation.
10. **Diverse perceptions:** Policymakers, experts and citizens often had differing perceptions of key societal issues, highlighting the importance of inclusive decision-making and the consideration of societal dimensions in policy proposals.
11. **Regional impact:** The project brought together experts and citizens to develop socially beneficial and environmentally friendly policies, enhancing social acceptance and providing an alternative policy focus.

In order to better integrate the RRI-AIRR framework, the main recommendations arising from the Case Narratives are to:

- create an implementation plan
- foster collaboration among stakeholders
- strengthen ethical and social aspects of R&I projects
- enhance public engagement
- establish monitoring and evaluation mechanisms

Overall, the narratives emphasise the importance of responsible and inclusive R&I, along with the need for tailored approaches to different contexts and issues.

