



# **Bringing responsibility and RRI into regional development: From theory to practice**



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**Bringing responsibility and RRI into regional development:  
From theory to practice**



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This booklet is the outcome of a co-creative effort by multiple SeeRRI members working behind the scenes:

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For further information on SeeRRI's activities, please consult our website, <https://seerri.eu/>  
You can also contact [contact@seerri.eu](mailto:contact@seerri.eu).

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# Executive summary

Regional planning is a complex endeavour that requires a collective approach. For two and a half years, the SeeRRI project has been working with pilot territories in Norway, Austria, and Spain to develop and refine a method for integrating RRI principles into regional planning and smart specialisation policy. This booklet presents the method, explains its background, and discusses its implications. The booklet also offers intriguing third-party perspectives from a range of distinguished guest authors.

To set the stage, **Section I** lays out the **motivation** for the SeeRRI project and the booklet itself. SeeRRI Coordinator Nhien Nguyen and five guest contributors – René von Schomberg, Linden Farrer, Marta Truco Calbet, Jackson Nickerson, and Johan Stierna – each provide their brief take on why a booklet such as this is needed. Representatives from SeeRRI's three pilot territories explain why they joined the SeeRRI project.

**Section II** provides an introduction to the SeeRRI project and presents its key outcome, **the SeeRRI method of responsible regional planning**. The method is a concrete yet flexible step-by-step process that can be applied in a variety of regional contexts. In a nutshell, the process comprises three stages, each of which is to be carried out by regional planners in close cooperation with local stakeholders. First, a core challenge for the region is defined. Second, foresight methodology is used to map out possible future scenarios for the region, and a regional strategy is created on the basis of insights from the scenarios. Third, the regional government implements the strategy in cooperation with relevant stakeholders. The process is repeated as necessary in response to changing regional conditions.

In the last part of Section II, representatives from SeeRRI's affiliated territories in Finland, Serbia, Montenegro, and Israel explain how they have been inspired by the SeeRRI method.

SeeRRI is not the only project to tackle the challenge of promoting and implementing RRI in European territories. In **Section III**, a number of other ongoing EU projects – TeRRIFICa, TeRRItoria, TRANSFORM, CHERRIES, RRI2SCALE, TetRRI, MARIE, and DigiTeRRI – **share their experiences of working with RRI at the regional level**. Like SeeRRI, most of these projects belong to the “Science with and for Society” (SwafS) program within Horizon 2020. While each project takes a distinct approach and works with a unique set of pilot territories, the projects are united by a common vision of strengthening the democratic governance of R&I in Europe.

Finally, **Section IV** provides **perspectives on the road ahead**. Seven experts from every branch of the quadruple helix offer their opinion on how the legacy of SeeRRI and its sister projects can be leveraged to create responsible and sustainable R&I ecosystems for the future and which dangers and risks we need to look out for. Topics raised in this section include the potential impact of the Horizon Europe research programme (Linden Farrer); the importance of innovation policy institutions and value-driven R&I (René von Schomberg); the usefulness of the SeeRRI method in tackling wicked problems (Jackson Nickerson); the need for broadening the scope of stakeholder inclusion (Elisabetta Marinelli) and for recognizing the potential dangers of R&I (Rune Dahl Fitjar); the urgent need to unlearn outdated assumptions about RRI (Anne Snick); and the inspirational power of SeeRRI (Klaus Hitzenberger).

# 1. Why this booklet?

## Preface



### René von Schomberg

*Dr. Dr. phil. René von Schomberg is a philosopher and a science and technology studies (STS) specialist. He has been with the European Commission since 1998. More information can be found here: <https://renevonschomberg.wordpress.com>*

Responsible Research and Innovation (RRI) brings public values to the heart of the innovation process. I believe the approach of the SeeRRI project to bring smart specialisation within a framework of RRI is in itself smart. Research and Innovation priority setting, and the shaping of research agendas have to become more open, and co-created with stakeholders.

A quadruple helix approach as SeeRRI and other RRI territorial projects had foreseen may then only be adequate if all the quadruple helix partners become **mutually responsive to each other and go beyond a mere participation approach** and establish commitments on socially desirable outcomes of innovation. I am pleased to see the specific examples from SeeRRI and other RRI territorial projects in this booklet.

### Linden Farrer

*Linden Farrer is Policy Officer in the DG Research & Innovation “Open Science” unit. For several years he has been involved in mainstreaming Responsible Research Innovation across Horizon 2020 and the European Research Area, and in the Science with and for Society part of Horizon 2020.*

There were three main goals to the ‘territorial RRI’ projects launched by the ‘Science with and for Society’ part of the Horizon 2020 programme between 2018 and 2020. The first was to bring science and society closer together using place-based and smart specialisation strategies as the crux. The second was to widen the focus of Responsible Research and Innovation from disciplines, institutions and programmes, to territories. Here, using the very best ideas put forward by applicants in a bottom-up manner, the expectation was that societal actors were more likely to find reason to meaningfully interact with one another centred on the themes or challenges that they held most dear. And the third goal was to deepen evidence on the theory and impacts of open collaboration based on pilots in EU regions.

The insights from the projects in this booklet will be invaluable in finding ways to incorporate the views of different stakeholders and parts of society in regional and territorial-based missions so as to ensure that the directions of research and innovation, and territorial development more generally, **is aligned with the needs, values and expectations of society**. Importantly, the insights can help avoid pitfalls that beset efforts to go in these directions, and improve chances of success.





## Johan Stierna

*Dr. Johan Stierna is team leader and scientific advisor on EU policy at Joint Research Centre (JRC)-Seville. He is currently leading the team on smart specialisation and place-based innovation for sustainability.*

On a planet threatened by the fallout of unconstrained growth, innovation can no longer be an end in itself. This realization poses challenges for innovation policy. In response, researchers at the JRC are developing a new methodology of **Smart Specialisation Strategies for Sustainability (S4)**. The fourth “S” has a number of implications.

First, it introduces a directionality to public innovation strategies at the right level of granularity. S4 is a place-based, mission-oriented policy in which resources and regulations are mobilised in a whole-of-government approach, and where local stakeholders agree on the impact of their efforts from the outset. Second, it creates conditions that enable and incentivise entrepreneurs from the private and public sectors to drive the innovation process. Public policy must ensure that the overall directionality is at the proper level of granularity and create a win-win situation for entrepreneurs. Since the policy outcomes are hard to foresee, the third and last implication of the fourth “S” is continuous policy learning and pivoting. Public bodies responsible for innovation policy and governance must become **learning organisations committed to servant leadership**.

## Nhien Nguyen

*Dr. Nhien Nguyen is the coordinator of SeeRRI. She is a senior researcher at Nordland Research Institute and an associate professor at the Norwegian University of Science and Technology NTNU. Her research expertise is innovation management, RRI, and digital strategy.*

This booklet provides empirical cases to show **how regions can address the responsibility dimension** through a variety of science-based approaches.

It illustrates that bringing responsibility into regional development can be done in many different ways in a co-creative manner, from solving regional challenges for sustainability to creating regional strategy for digital transformation, from collaborating efforts for climate action to designing healthcare solutions for people’s needs.

The booklet is the **first collection of examples** for policymakers to reflect on how they can give citizens a seat at the table, and build their regional innovation ecosystem with Smart Specialisation Strategies for Sustainability (S4).



## Marta Truco Calbet

*Marta Truco Calbet is the project adviser of SeeRRI at the Research Executive Agency of the European Commission (EC). Through more than 12 years of working for the EC – DG Research and Innovation – Marta has developed expertise in supporting and developing R&I strategies at the European, regional, and institutional levels.*

Europe is currently facing deep societal, ecological and economic challenges, all aggravated by the coronavirus crisis. Delivering on Europe's recovery is now the most pressing priority while the green and digital transitions are more important than ever before. All this calls for a step-change in the way we design our policies. It requires a shift towards a transformative R&I policy. This entails stepping up efforts to steering R&I towards long-term sustainability goals through mobilising resources, reforms and better regulation "with directionality". It also calls for a "whole of government" approach while co-creating with a wider set of actors and communities as well as **strengthening evidence-based policy making through strategic foresight, experimentation and anticipation.**

Against this backdrop, the SeeRRI project is an example of this new ambition and innovative policy shift. The framework for designing a responsible regional planning towards sustainability with the learnings from Catalonia, Nordland, Lower Austria and other regions are a key contribution which will help the transitions of the 21st century.



## Jackson Nickerson

*Dr. Jackson Nickerson is the Professor Emeritus of Organization and Strategy at Washington University in St. Louis' Olin Business School. He was a Brookings Institution non-resident Senior Fellow for over a decade and now is the Senior Social Scientist at EPC Learning Labs.*



Societies are facing an increasing number of wicked problems and are looking for answers that can be implemented and solve these problems. Yet, this desire for solutions belies the way forward. Seeking solutions mostly leads to failure because of the missing vital ingredient: a great process. SeeRRI offers such a process for tackling wicked problems on a regional basis.

**The “secret sauce” of this process comes from the word “co”.** When a regional challenge is co-defined and co-formulated then all participants see that same problem and own it. By agreeing to the same formulation of the challenge, co-developing a strategy become straight forward as all participants are evaluating solution approaches based on the same criteria. Commitments from this process lead to co-implementation and success. The three pilot regional challenges illuminated in this booklet testify to the success and repeatability of the SeeRRI process. In a world with a growing number of wicked problems, tackling regional challenges through the SeeRRI process is a source of hope for the progress we all desire.

# 1. Why this booklet?

## Why territories joined this initiative



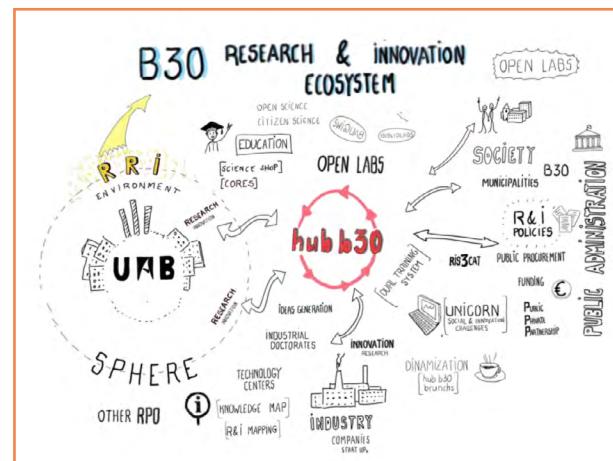
Tatiana Fernández Catalonia/B30

Dr. Tatiana Fernández Sirera is the Head of Economic Promotion - General Directorate of Economic Promotion, Competition and Regulation - Generalitat de Catalunya.

As the unit coordinating and monitoring the Smart Specialisation Strategy in Catalonia, we joined the SeeRRI project to find answers to the following question: *How can RIS3 promote RRI as a means of addressing the SDGs and promoting pathways for a more sustainable and inclusive development?* Together with the UAB team, we saw that SeeRRI offered us an excellent opportunity to **experiment with new frameworks, methodologies and tools** to address together (administrations, academia, businesses and civil society) territorial challenges more effectively. At the end of the project we can say that SeeRRI has provided us with new perspectives and tools that have transformed our way of understanding and integrating RRI into public policies.



Lower Austria workshop drawing



B30 workshop drawing

Harald Bleier Lower Austria/ecoplus

Harald Bleier is the Manager of the Plastics- & Mechatronics-Cluster at ecoplus.  
Niederösterreichs Wirtschaftsagentur GmbH in Austria.

The poor image of plastics is largely due to the fact that value chains and recycling circles are not closed, and to the low manufacturing cost of plastics. This has led to the problems we see in the media today. In the SeeRRI project, this was dealt with intensively in order to create awareness of the consequences of innovation processes. The association ÖCC2 was established to create a basis for future holistic consideration by stimulating and developing circular solutions together with industry representatives, researchers, and companies. SeeRRI has convinced me that **visibly taking responsibility for the sins of the past and dealing with the damage** can initiate a positive image change in the plastics industry.





## Dag Bastholm & Liv Rask Sørensen Nordland/Nordland County Council

*Dag Bastholm is the Senior Advisor at the Department of Community and Social Development at Nordland County Council. Liv Rask Sørensen is the Deputy County Director of Nordland County Council.*



When Nordland County Council (NCC) joined the SeeRRI project, the Council was faced with several major strategic planning tasks. NCC embraced the SeeRRI approach, which emphasizes the early and active participation of a broad range of interest groups in regional planning. The participatory methodology of SeeRRI helped mobilize the knowledge and expertise of stakeholders in Nordland that are not usually consulted at such an early planning stage. The methodology has subsequently served as inspiration for internal seminars at NCC focusing on participation processes and involvement, and will continue to inspire the implementation of the regional planning strategy. Above all, participating in SeeRRI has reinforced NCC's focus on **knowledge-based development in which outreach and involvement are important measures** to achieve regional goals.

## Anders Paulsen & Eivind Sommerseth NHO Nordland

*Anders Paulsen is a Senior Advisor at NHO (The Confederation of Norwegian Enterprise) - Nordland. Eivind Sommerseth is a former Senior Advisor at NHO Nordland and former Coordinator of EU Network Nordland.*

From a Norwegian perspective, the “SeeRRI way” may seem familiar. There is a long-standing tradition in Norway of promoting many of the values embedded in the concept of RRI, such as co-creation, openness, inclusivity, gender equality, and education. The invaluable contribution of the SeeRRI project in Nordland is **a framework and methodology for bringing the community together** to discuss how best to implement these values. At the Confederation of Norwegian Enterprise, we have been happy to serve as a link connecting SeeRRI to the local business sector and help ensure participation from this sector at the SeeRRI workshops.



Nordland workshop drawing

## 2. Responsible Regional Planning: The SeeRRI way

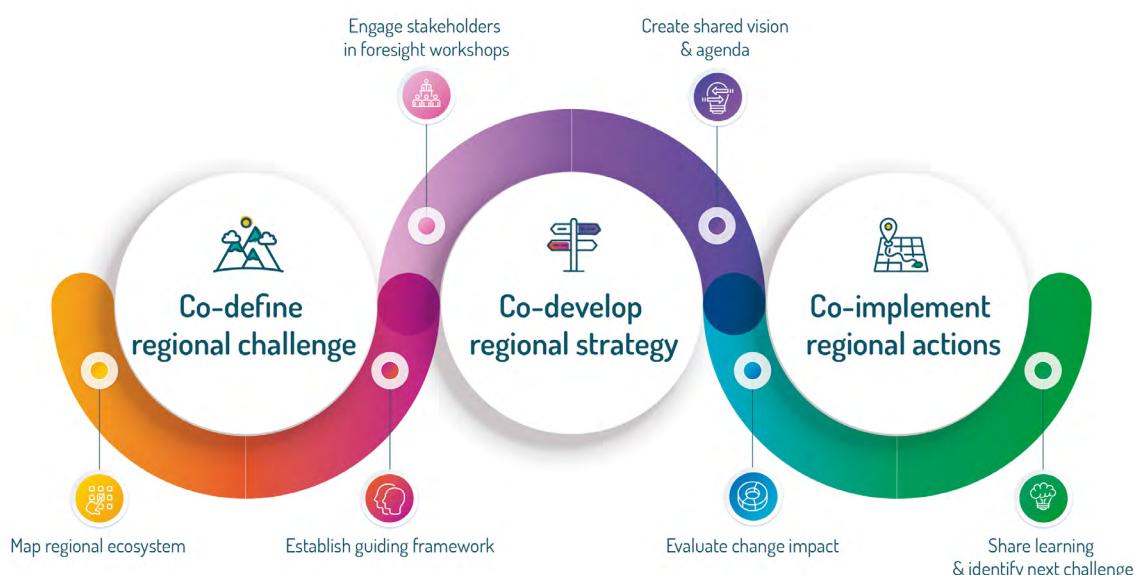


The SeeRRI project starts with a mission of bringing responsibility into regional planning. Our approach is to integrate responsible research and innovation (RRI) principles into Regional Innovation Strategy for Smart Specialisation (RIS3). In this section, we first explain the SeeRRI process and the project outcomes in the three pilot territories (Catalonia, Nordland, and Lower Austria). We then generalize our findings and suggest recommendations for policy. Finally, we propose a conceptual framework and implementation pathway for other territories who want to conduct responsible regional planning. Implications for the Network Associated Territories (NAT) are also addressed.

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### 2. The SeeRRI way **SeeRRI process**

In SeeRRI, bringing RRI into regional planning means designing a process where all stakeholders can share the responsibility of developing regional innovation strategy and implement it together. Our process for designing responsible regional planning includes 3 stages as illustrated in the figure below:



In the first stage, the regional government **defines a core regional challenge** that the strategy will address. This focus on a specific challenge serves to reduce the complexity of the planning process and make it more manageable for the stakeholders who will be involved in the next step. *Mapping exercises* help identify networks of innovators and RRI activities in the regional innovation ecosystem. An *RRI guiding framework* will be established to address the challenge.

Next, *foresight workshops* are organized at which *key stakeholders* from the region are invited to participate. In accordance with the RRI principle of inclusion, and to ensure a balanced representation of social interests, the entire “quadruple helix” of government, academia, industry, and civil society must be represented. At the workshops, the invited stakeholders work together to envision possible future scenarios for the region and suggest measures the region can take today to put itself on a trajectory towards a desirable future. *Shared vision and agenda* are created together by everyone. The regional government synthesizes the outputs from the workshops to produce a coherent **regional strategy**.

Finally, the strategy is **co-implemented** and the *change impact is evaluated*. The experiences and lesson learned from the co-creation process are *shared and exchanged* with other regions interested in the SeeRRI approach through a series of transnational learning workshops and seminars. When the next challenge is identified, the process will start all over again.

In the figure above, each activity (from “Map regional ecosystem” through to “Share learning and identify next challenge”) is depicted at a specific point in time along the winding path that constitutes the SeeRRI process. However, it is important to emphasize that each activity takes place over a *span* of time and that activities may overlap with each other. The points shown in the figure should be understood as the points in time when each activity is expected to generate an output for the next stage. It is also important to note that the SeeRRI process should not be interpreted as a one-time intervention. Ideally the method should be applied cyclically, starting over at regular intervals in response to changes and developments in the regional ecosystem, with no ultimate end point.

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The SeeRRI team

## 2. The SeeRRI way

### Outcomes in the pilot territories: The SeeRRI cases

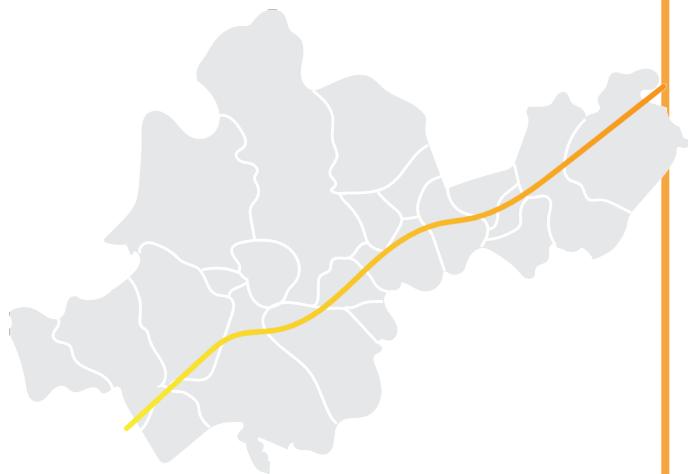
**From:** 01/01/2019 – 30/10/2021

**Territory:** B30 in Catalonia, Spain

**Keywords:** RRI shared agendas, circular economy, smart specialisation strategies, public engagement

**Authors:** Xavier Ariño and Tatiana Fernández

**Grant agreement n° 824588**



## Regional challenge

**The B30 is an area with a high concentration of industry and a high population density, and therefore with a delicate balance between socioeconomic development and sustainability.**



A workshop in B30

**The B30** territory is located in central Catalonia, close to Barcelona (B30 is the name of the road that once crossed this territory). The territory consists of 23 municipalities with a combined area of 485 km<sup>2</sup> and a population of 1,018,166, as well as 30,173 companies and 387,478 people employed. The B30 territory it is not delimited by administrative boundaries, but by being the main industrial hub for innovation, research and entrepreneurship in Catalonia, with many relevant players in Catalonia's smart specialisation strategy. The 23 municipalities have formed the association Àmbit B30.

The B30 is an area with a high concentration of industry and a high population density, and therefore with a delicate balance between socioeconomic development and sustainability. In this context, one of the territory's main systemic challenges is **making the transition to a circular economy**. In order to address this transition, the challenge of the territory addressed in the SeeRRI project is the co-design of frameworks, mechanisms, and processes to become a more responsible and sustainable research and innovation ecosystem which addresses the SDGs and promotes pathways for more sustainable, inclusive, and fair development.

## Ambition

The B30 territory is one of the main industrial and innovation hubs in Southern Europe and it wants to become one of the main hubs in responsible research and innovation.

This is a research and innovation ecosystem in which quadruple helix stakeholders **work together to develop and implement innovative solutions** addressing the most pressing social, environmental and economic challenges of the territory.



A workshop in B30

In the SeeRRI project, the Universitat Autònoma de Barcelona, a main actor in the B30, has promoted an **RRI shared agenda** together with other regional stakeholders (such as the association Àmbit B30) to address the transition towards a circular economy. The agenda is based on a shared vision for the territory, which has been defined as follows: The B30 is a highly competitive, inclusive territory with a high quality of life which through its decarbonised, waste-free economic development model creates wealth based on the resources it has, generates, and receives. The SeeRRI workshops have been key for building this shared agenda. The main challenge in this process has been to articulate a governance model that encourages the commitment, alignment, and engagement of regional stakeholders with this RRI shared agenda.

## Core activities

The main challenge in this process has been to articulate a governance model that encourages the commitment, alignment and engagement of regional stakeholders.

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## Outcomes and impact

SeeRRI has had a relevant and lasting impact in the B30 territory and in Catalonia's smart specialisation strategy since the frameworks, mechanisms, and methodologies developed in SeeRRI have been integrated in the strategies and actions of the regional stakeholders. A good example is the "**HubB30, Beyond Circularity**" project, a €5 million RRI shared agenda towards circularity promoted by six entities of the B30 territory (the UAB, the municipalities of Cerdanyola and Mollet, Eurecat, EsadeCreàpolis, the UAB Research Park Foundation, and the Àmbit B30 Association), with financial support from the RIS3CAT and the Catalan Government. This project is a **strategic element for articulating the governance model** of the B30 RRI ecosystem.

## 2. The SeeRRI way

### Outcomes in the pilot territories: The SeeRRI cases

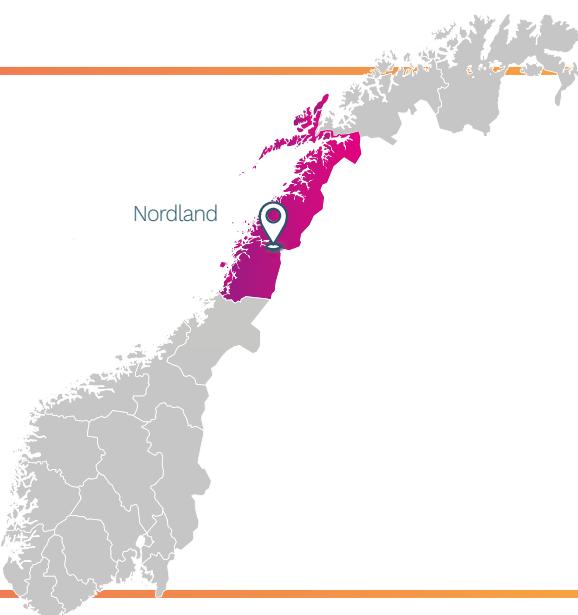
**From:** 01/01/2019 - 30/10/2021

**Territory:** Nordland, Norway

**Keywords:** Responsible Coastal Management, Spatial Planning, Public Engagement, Regional Planning Strategy

**Authors:** Jens Ørding Hansen & Nhien Nguyen

**Grant agreement n° 824588**



## Regional challenge

**How can Nordland manage conflicting interests in coastal development?**



A workshop in Nordland

Situated in northern Norway and straddling the Arctic Circle, Nordland County is home to just 4.5% of Norway's population but contains 25% of its coastline. The economy of the region reflects its geography: marine industries such as fishing and fish farming are of vital importance. The maritime character of Nordland's economy and society are also reflected in SeeRRI's activities in the region. When Nordland County Council (NCC) embarked on the journey of implementing the SeeRRI model in Nordland together with other local SeeRRI partners, they defined **responsible coastal management as the core regional challenge**: From a governance perspective, how can Nordland manage conflicting interests in coastal development? How can the region strike a balance between creating incentives for industry and protecting the environment?

## Ambition

Before joining SeeRRI, NCC already had an ambition of strengthening the involvement of the public in regional planning processes. As the main governing body in Nordland, NCC is legally required to conduct public hearings before launching significant new plans and policies. However, such hearings are aimed at soliciting feedback from the public only after plans have been drafted. **NCC wanted to go beyond the minimum requirements of the law and involve the public at a much earlier stage of planning.** SeeRRI provided an opportunity for NCC to experiment with a radical new approach to achieving this.



The Nordland team

The SeeRRI process in Nordland followed the steps of the SeeRRI model described earlier in this section. Three stakeholder workshops were held onsite in Bodø, the capital of Nordland, in 2020, and a fourth workshop was carried out digitally in 2021. Using foresight methodology, stakeholders representing the quadruple helix in Nordland co-created 4 distinct future scenarios for the region. The scenarios **highlighted trade-offs between economic growth and environmental protection and between local control and global interconnectedness**, among other themes. The final workshop in the series was devoted to discussions of **how to navigate towards an attractive future through concrete actions by different stakeholders**. Inputs from the workshops were used by NCC to create a formal regional strategy document.

## Core activities

**Three stakeholder workshops were held onsite in Bodø, the capital of Nordland, in 2020, and a fourth workshop was conducted digitally in 2021.**

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## Outcomes and impact

In assessing the value and potential long-term impact of SeeRRI in Nordland after the workshops, the NCC team emphasized three key points. First, the workshops were successful in bringing together stakeholders with **widely divergent interests and points of view** (e.g. representatives from the oil industry and environmental organizations, respectively) and engaging them in **constructive discussion** – a success that NCC feels inspired to repeat in the future. Second, the meticulous analysis of “drivers” as a step in the foresight methodology is more than just preparation for scenario building. The drivers reflect the external conditions under which regional planning takes place, and have value as a shared framework that stakeholders and planners can use to exchange views about the future. Third, the SeeRRI project was a catalyst for launching activities that NCC always wanted to engage in but didn’t have the time and resources to initiate. With the experience and learning from SeeRRI, NCC is now in a better position to do **public engagement in the early stages** of regional planning processes.

## 2. The SeeRRI way

### Outcomes in the pilot territories: The SeeRRI cases

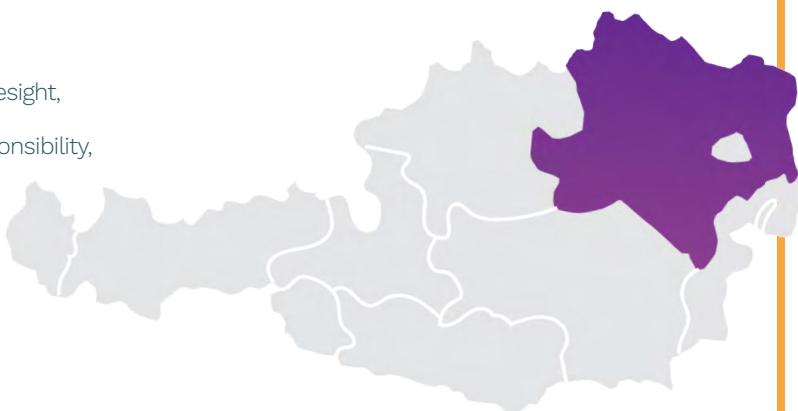
**From:** 01/01/2019 - 30/10/2021

**Territory:** Lower Austria, Austria

**Keywords:** Plastics sector, value chains, foresight, stakeholder engagement, sustainability, responsibility, coordinated actions

**Authors:** Harald Bleier, Simone Hagenauer, Marianne Hörlesberger, Andrea Kasztler

**Grant agreement n° 824588**



## Regional challenge

**How can the plastics industry develop an awareness of its own responsibility so that the whole system can act better in the future?**



A workshop in Lower Austria

Located in the centre of Europe, Lower Austria is an important business location with significant economic growth. The core of the Lower Austrian Regional Innovation and Smart Specialisation Strategy (RIS3) is to transform research and innovation into value creation in the region's fields of strength through technopoles, clusters, and open innovation platforms managed by the Business Agency of Lower Austria, ecoplus. Within the SeeRRI project, Lower Austria defined their regional challenge and vision as follows: "The plastics industry in Lower Austria will contribute significantly to a **climate-compatible, environmentally friendly, resource-conserving** economy through research and development of products taking into account the entire value chain." From a governance perspective, the challenge is for the plastics industry to develop an awareness of its own responsibility so that the whole system can act better in the future.

## Ambition

The image of the plastics industry is currently very poor. Society lacks awareness of the importance of polymers and their responsible use. Lower Austrian representatives asked themselves how R&D could help address the problem, e.g. by integrating new technologies and environmental and societal challenges and considering people's well-being. The defined focus aims at **responsible actions from the plastics sector** in order to establish meaningful results for as many people as possible.



The Lower Austria team

In the SeeRRI process, the Lower Austrian plastics industry had to consider the environmental impact of the entire product life cycle, including the carbon footprint and ecological damage caused by plastics in the past. By applying a **foresight process**, four physical workshops were conducted, guiding quadruple helix stakeholders in creating systems key drivers, their interdependencies, future shapes, and formulating four future scenarios.

The developed **scenarios covered a wide range** from completely closed circuits through a strong plastics industry condemned by ecological activists to a total prohibition of polymers. Participants mentioned that thinking of such concrete and diverse future scenarios was a crucial exercise for them that **opened their minds and helped them take action**.

## Core activities

**... was a crucial moment for them that opened their minds and helped them to take action.**



Marianne Hörlsberger at a Lower Austria workshop

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## Outcomes and impact

The willingness to innovate was already very strong in Lower Austria and was further enhanced by the project. Following the SeeRRI process in Lower Austria, the local project team indicated that **responsibility in innovation processes and holistic thinking** have been introduced in the **regional plastics sector** through SeeRRI. Bringing together stakeholders with different points of view has broadened the spectrum of collaborators. Now representatives from public authorities, NGOs, civil society, and the entire waste management sector work together to promote a circular economy. The Lower Austrian project team found that the professional accompaniment of the SeeRRI process was a key condition for success. Now the team is heading towards implementation of the developed strategies to increase and broaden SeeRRI's impact. The most important first step towards concrete activities was the **foundation of the association ÖCC<sup>2</sup> (Austrian Carbon Cycle Circle)** which aims at promoting the holistic development of an economic and ecological carbon cycle. Within ecoplus, **a new position coordinating innovation projects towards CO<sub>2</sub> reduction** was established to promote future sustainable actions. For example, an experimental technology centre on the ground of an abandoned landfill is being planned. In the long run, **Lower Austria wants to be a pioneer in transforming the approach from former plastics garbage strategies towards sustainable high-tech solutions**, delivering best practice and application examples which may spread to other regions by an intensive knowledge exchange.

## 2. The SeeRRI way

### Recommendations for policy

To implement policies effectively for responsible regional planning it is necessary to **confront the complexity by implementing a variety of methodological approaches** to solve the specific territorial challenges. This includes involving the relevant stakeholders with knowledge and influence of the policy landscape in a process of learning and negotiation. The participants cooperate to co-define the regional challenge, co-design a regional plan to address the challenges, and finally co-implement a regional strategy tailored to address the specific policy problem.

Responsible regional planning is a process involving emergent policies. It requires a **strong network of trained facilitative actors**, such as local partners from quadruple-helix organizations who function as facilitators for the involvement of the local stakeholders in the processes in a visible and coordinated way.

To address the context specificity of the various policy problems, it is crucial to construct **shared understanding of the issues** for the various actors involved in the planning strategies. This is done by involving **knowledge institutions** such as universities or research organizations in the innovation process to assist the **territorial stakeholders** in developing the most appropriate methodologies to face the complexity of the specific territory. This is especially needed for the mapping of the regional innovation ecosystems and the assessment of change and impact due to the implementation of RRI strategies. It is also important to foster the identification and promotion of business collaboration initiatives within the region through continuous interaction with leading **businesses and trade associations** in the region.

Finally, to build reciprocity in the planning and multi-level governance of smart specialization, it is crucial to build **clear roles and establish enduring trust** among different actors at the outset of the discovery process. This implies that after the formulation of a shared vision and agenda for the stakeholders, mutual learning is facilitated through open dialogue and the support of each other's strategies. The design and implementation of regional planning policies will have greater impact on the innovation ecosystem when there is **mutual recognition** of the other stakeholders participating in the process including all those with the power of influencing it.



Alan Hartman



Eran  
Vigoda-Gadot



Itai Beeri



Donatella  
Casale

## 2. The SeeRRI way

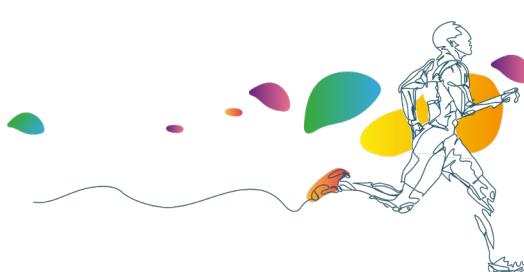
### SeeRRI Conceptual Framework & Implementation Pathway

SeeRRI creates the **conditions for a new kind of responsible regional planning**. It addresses societal challenges and public policies through a leading edge Conceptual Framework and an Implementation Pathway successfully tested in territories. Societal challenges are many and they could provoke decline and distress. Existing visions and policies are often siloed and not designed to work together. The purpose of SeeRRI is to make RIS3 responsible, in a wider context including the UN Agenda 2030 and the Next Generation programme. **How to combine policies together?**

To policy-makers and stakeholders the task may look daunting. Complexity and uncertainty create disorientation. Also, Covid-19 made obvious that splitting challenges is not an option. Trade-offs seem to be necessary but do we have a compass? And if citizens feel that responses are inappropriate, the trust in institutions is challenged. SeeRRI integrates all these considerations into a **Conceptual Framework based on latest complex systems thinking**. Interdependencies are the key characteristic of innovation ecosystems, and the way to unlock the drive for communities to work together towards equitable wellbeing within a healthy biosphere. The ultimate essence of SeeRRI is mutual learning, as the quality making transformation possible.

In practical terms, SeeRRI unfolds along an **Implementation Pathway** made of autonomous but coordinated lines of activity. **Mapping** ensures a proper understanding of the regional R&I ecosystem, its potential and key stakeholders. The **engagement of stakeholders** is key to success, and it happens through the Foresight workshops, in which influencing factors and future scenarios as well as their consequences are identified and translated into strategic options. **Regional Implementation** ensures that all inputs are woven together to deliver a co-designed strategy built on a Shared Vision and Agenda, and concrete actions. **Evaluation** brings to the whole a practice of self-reflection, ensuring that the effectiveness of SeeRRI is maximized.

Through SeeRRI, regional policy-makers, stakeholders and citizens obtain new instruments to build better R&I ecosystems: a **Shared Agenda**, a number of actions for **Institutional Change**, a practice of **Mutual Learning** and a set of **Policy Recommendations** allow them to navigate complexities in a fruitful way. New regional innovation policies are emerging, along the S4 paradigm proposed by the EU JRC: Smart Specialisation Strategies for Sustainability. SeeRRI is the best way to live this challenge and capture the opportunities of a sustainable future, full of promises for wellbeing in the biosphere.



**Carlos Álvarez Pereira**

## 2. The SeeRRI way

### A visualization of the SeeRRI Implementation Pathway



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The stylized three-stage SeeRRI process figure presented at the beginning of Section II looks simple because it condenses many complex activities into a few distinct points.

In reality, as mentioned on the previous page, the SeeRRI implementation pathway involves several parallel lines of activity. These are illustrated in the figure on the next page. The **“Mapping” line L1** delivers important information on the regional innovation ecosystems. Using a foresight process with multiple stakeholder engagement, the **“Co-creation” line L2** co-creates regional future scenarios in order to develop suitable strategies and shared agendas within regional planning. These activities are monitored and evaluated by the **“Co-governance” line L3** to make sure SeeRRI is a learning system. Note that the specific task “Evaluate activities” on L3 involves evaluation of all the activities on L2, hence the dotted line in the figure.

A detailed description of each “station” on the implementation pathway can be found on the SeeRRI website ([seerri.eu](http://seerri.eu)).

SeeRRI Implementation Pathway Taskforce (Nhien Nguyen, Ángel Honrado, Andrea Kasztler, Angela Santangelo, Jens Ørding Hansen, Xavier Ariño, Carlos Alvarez Pereira, Alan Hartman, Marianne Hörlesberger, Júlia Prat, Mario Magaña)

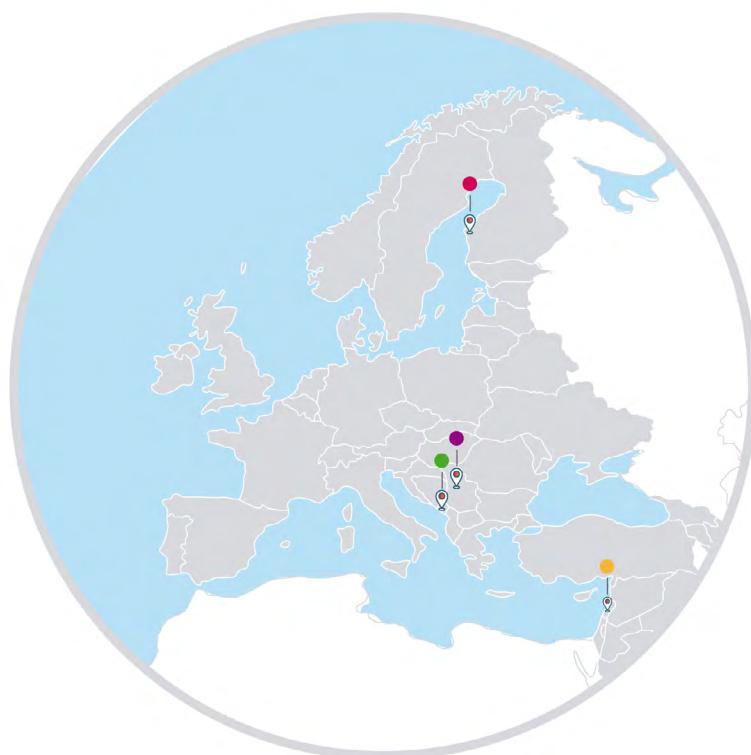


## 2. The SeeRRI way

### Implications for the Network of Associated Territories (NAT)

Given the importance of expanding the collaboration with potential end users for ensuring wider acceptance of the SeeRRI toolbox and ensuring its scalability and sustainability beyond the project life, the Consortium has established collaboration with the so-called **Network of Associated Territories (NAT)**. NAT members are non-partner territories with certain similarities to the three SeeRRI territories regarding regional development policies and innovation ecosystems.

NAT members have participated in key project discussions and provided inputs for improving the SeeRRI concept and framework, with the objective of contributing to their replication in other R&I ecosystems internationally. The following figure lists and locates the four territories that are part of SeeRRI's NAT:



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	Territory members	Affiliated organizations
●	Haifa (IL)	Municipality of Haifa University of Haifa
●	Montenegro (ME)	PRONA (Montenegrin Science Promotion Foundation) Minister of Science of Montenegro
●	Serbia (RS)	Intersection (Center for Science and Innovation) Ministry of Science of Serbia
●	Ostrobothnia (FI)	Regional Council of Ostrobothnia University of Vaasa

## 2. The SeeRRI way

### Implications for the Network of Associated Territories (NAT)



Authors:

Nina Radulovic, Nikša Bulatović, Jovan Mirković

## Montenegro

Montenegro is a small European and Mediterranean country with a population of only 620,029 citizens inhabiting an area of 13,812 km<sup>2</sup>. It is treated as a single unit in the NUTS classification. Montenegro's economy is highly influenced by global trends due to its openness and dependence on imports.

## Background

Tourism is an important business sector in Montenegro, accounting directly for 7.6% and indirectly for 23.6% of GDP (2017). Moreover, it has demonstrated a high growth tendency in the last ten years. Along with tourism, the construction and agriculture sectors show the strongest impact on national GDP, each directly accounting for a share of 6.4% (2019). The country has turned into a vast construction site, with ongoing capital infrastructural projects that trigger exorbitant costs and related public debt. Agriculture has absorbed huge investments but is still on a low technological level and has poor processing outcomes.

## Challenge

The Covid-19 crisis during 2020 has revealed, as the most important challenge, a need to restructure the economy and make it less dependent on tourism as a crucial export sector. A need for diversification of industries has been confirmed together with the necessity to develop a variety of quality products for international competition. It is especially important to involve the academic sector in innovation, since this sector tends to be alienated from the real economy. This also presumes a rewiring of capital flows, particularly by attracting private capital towards innovation activities in S3 priority areas, while observing RRI requirements.

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## Applying the SeeRRI pathway

The quadruple-helix model for strategy design was in place during identification of promising industries with both innovation and export potential. However, the public sector has failed to put into motion the planned mechanisms for continuous social dialogue that should enable stakeholders to be proactive. The SeeRRI pathway should reassure the implementation phase by developing public policy instruments that contribute to merging RRI and S3. Mechanisms for raising stakeholders' awareness of the impact of economic development and innovation on society and the environment should be put in place.

## 2. The SeeRRI way

### Implications for the Network of Associated Territories (NAT)



**Authors:**  
Alan Hartman, Eran Vigoda-Gadot, Itai Beeri,  
Donatella Casale

## Haifa

Haifa is the third largest city in Israel and the largest city in the Northern region of Israel. It has a number of unique attributes that contribute to the problem of poor air quality and others that can be leveraged to alleviate the problem.

## Background

The southern section of Haifa Bay is dominated by heavy industry (oil refineries, chemical plants, etc.). Haifa is also the home of the most important technology university in Israel, the Technion. The tourism sector in Haifa is much weaker than the rest of the country – due to an absence of well-developed Jewish, Christian, and Muslim sites. However, it is the worldwide centre of the Baha'i faith, with its outstanding gardens and temples. The high-tech sector is well developed, with many multinational companies operating large research centres in Haifa due to the availability of engineering talent supplied by the Technion. The Israeli startup culture is not well established in Haifa – most startups are based in the centre of the country.

## Challenge

The municipality has set itself the goal of transferring the heavy polluting industries away from the bay and replacing them with clean-air employers. There is clear resistance to this from the established interests, unions, port management, and factory owners.

The focus is on encouraging a startup culture – to retain the young talent in the city and attract newcomers, and improve the tourism profile with a new international airport and by developing tourist attractions, moorings, commerce, and housing.

The complex nature of this transformation will benefit from the collaboration of all stakeholders to find win-win strategies.

## Applying the SeeRRI pathway

The first step is to identify the key stakeholders from academia, industry, government, and civil society based on their power, legitimacy, and urgency. The aim is to create a shared vision for the future of the Haifa Bay area, both physically and from a human perspective. The working group will meet and propose policy initiatives at the municipal level to promote sustainable entrepreneurial activities with a view to reducing air pollution while providing attractive employment opportunities.

## 2. The SeeRRI way

### Implications for the Network of Associated Territories (NAT)



Author:  
**Jerker Johnson**

## Ostrobothnia

The Region of Ostrobothnia, Finland is a small, open economy that is heavily affected by globalization owing to a high export propensity. The core of the export base is a sophisticated energy cluster. Currently over 70% of the production of the Vaasa energy cluster is being exported, and this generates large down-stream effects.

## Background

The large companies within the energy sector also play a central role in the region's innovation system, accounting for a great part of research and innovation actions. However, most companies fall into the category of small and medium-sized enterprises (SMEs).

The success of the region depends on maintaining competitiveness. Huge sums are currently being invested by the EU and globally to promote a green recovery. This creates vast opportunities but also stiff competition following the increase in demand. In addition to the investment in the green transformation, the market-driven transfer to industry 4.0 forms a challenge for the region.

## Challenge

There is a need for a wide societal green transformation. This requires public organizations to think about new solutions for managing regional development and the transition to a greener future. It is a huge opportunity for companies but also a challenge for all of society. The most visible challenge is in supplying the labour force and in producing the skills required. Due to the demographic structure of the region, it is anticipated that skills also need to be supplied from outside Ostrobothnia. This need has become more pronounced with recent positive news about possible large-scale foreign direct investment (FDI) in the region.

## Applying the SeeRRI pathway

The triple-helix innovation mode is working in the region, but it needs to be expanded and increasingly the public sector needs also to act on the conclusions. The SeeRRI model is useful in this context as it provides a way to implement the process of change. Stakeholders need to co-create to not only see the challenges around the corner but also the wider implication of these. This enables a proactiveness in the planning and that will help not only in softening the adverse effects of the transition, but also in seizing the opportunities.

## 2. The SeeRRI way

### Implications for the Network of Associated Territories (NAT)



Author:  
Aleksandra Drecun

## Serbia

The tumultuous modern history of Serbia – involving wars, sanctions, isolation, etc. – has provided a climate where sound economic management practices have struggled to take hold. The socio-economic context of Serbia therefore differs significantly from that of most EU countries.

## Background

Despite the implemented reforms and moves undertaken to resolve accumulated problems, Serbia is still at the middle level of development, so the need to come out with a package of measures that would make significant progress in productivity has matured. With that aim, Smart Specialization Strategy Serbia (4S), as a new paradigm of innovation policy, gathered decision-makers, academic and business communities, and civil society, and focused on a number of priority economic areas (Food for Future, Information and Communication Technologies, Future Machines and Manufacturing Systems, and Creative Industry), while simultaneously supporting structural diversification of the Serbian economy.

## Challenge

The entrepreneurial discovery process (EDP), however, showed that Serbian businesses were exceptionally poorly aware of the importance of R&D and had little confidence in the domestic R&D sector, even though Serbian researchers are highly successful when measured by strict global criteria. On the other hand, the EDP stakeholders were also greatly appreciative of the networking opportunities afforded by the EDP for cooperation within the quadruple helix. These findings pointed to a need to design a package of policy measures that could foster stronger ties between R&D and businesses and create an environment that acknowledged the significance of R&D for competitiveness of both society and businesses and its role in ensuring future welfare.

## Applying the SeeRRI pathway

The 4S paradigm stresses the continuation of EDP activities: conducting dialogue and workshops with stakeholder groups, collecting inputs for calls for funding for innovative projects, establishing a publicly available research infrastructure roadmap, promoting tax relief for R&D, creating incentives for innovative start-ups, training and incentivising researchers to collaborate with industry, incorporating training relevant to 4S into university curricula, involving practitioners in teaching, establishing a programme to fund industrial doctoral courses in 4S fields, etc. The SeeRRI pathway, stimulating uptake of both RRI and Smart Specialization principles, is of great value in this process.

### 3. Integrating RRI into regional policy: Approaches from other RRI territorial projects

SeeRRI is not the only project to tackle the challenge of promoting and implementing RRI in territories. In this section, a number of other currently ongoing EU projects share their experiences of working with RRI at the regional level. Like SeeRRI, most of these projects belong to the “Science with and for Society” (SwafS) program within Horizon 2020. While each project takes a distinct approach and works with a unique set of pilot territories, the projects are united by a common vision of strengthening the democratic governance of R&I in Europe.



### 3. Approaches from other RRI territorial projects

#### TeRRIFICA

**Duration:** 3.5 years

**Territories:** Barcelona, Belgrade, Brittany, Normandy and Pays de la Loire, The Poznań Agglomeration, Minsk and Oldenburger Muensterland

**Keywords:** Community Engagement, Citizen Participation, Sustainability

**Authors:** Marta Cayetano & Norbert Steinhaus

**Grant agreement n° 824489**

#### Collaborative efforts for climate action



"Cool Down the City" action in Belgrade

## Regional challenge

Heat waves, drought, heavy rain – many Europeans are already feeling the effects of climate change. Climate change is the defining challenge of our time, and mitigating its impacts will require fundamental changes to societies and behaviours all over the world. The project Territorial Responsible Research and Innovation Fostering Innovative Climate Action (TeRRIFICA) was launched to influence climate change mitigation and adaptation policies and **foster competence for climate change adaptation and mitigation** in six European regions.

## Ambition

### Involving Citizens in the Agenda-Setting Process Corresponding to Climate Change Challenges

The issue of climate protection has reached the general public and many options for action are known from individual to political level. However, **most citizens do not get involved in climate action** until they are personally affected by the consequences of climate change. This is where TeRRIFICA comes in, not to discuss climate change at a 'meta-level' but to foster competence for climate change adaptation among stakeholders, starting in pilot regions and cities. The integration of environmental and climate concerns into a wider range of policy areas should generate solutions that are economically, socially and environmentally sustainable.

The TeRRIFICA project pursues a **creative bottom-up citizen science** approach. At the beginning of the project, **reflective workshops** were organised and stakeholders from each pilot region were selected to work at a regional/local level. In each pilot region, co-creation teams were formed with stakeholders from the Quadruple Helix.

With the help of an interactive participation map, the **TeRRIFICA crowdmapping tool**, citizens are involved in the collection of relevant data and can participate in further co-creative processes of climate change adaptation. The collected data will form the basis for Europe-wide recommendations and thus contribute directly to increased innovative climate action at European level.

TeRRIFICA is organizing six national and one international **Summer Schools** at which visions for the future will be developed by stakeholders. These visions will illustrate how science and society can collaborate, how responsible research and innovation can be integrated into Climate Action, and how new forms of innovation can be co-created in an open environment of exchange.

## Core activities



Screenshot of TeRRIFICA crowdmapping tool results  
<http://climatemapping.terrifica.eu/>



Climate workshop in Minsk

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## Lessons learned

The TeRRIFICA pilot region teams have carried out a number of case studies of regional community-academia research partnerships. These are collected in the TeRRIFICA Case Studies Report. The report highlights common elements across the case studies in order to draw **lessons for future climate actions** involving community-academia research partnerships.

The TeRRIFICA Guide on engagement and co-creation aims at fostering stakeholder engagement and co-creation within the context of climate mitigation and adaptation. The guide provides a **starting point for launching stakeholder engagement and co-creation** processes within climate change policymaking in the pilot regions. It disseminates “good practices”, i.e. methodologies and experiments that may be transferable to other regions in Europe.

The TeRRIFICA project has also published the Policy Brief I: Citizen Participation Matters – Fostering Co-Creation for Climate Change Mitigation and Adaptation. Directed at the European Commission and national policymakers, this Policy Brief **integrates guidelines and recommendations on enabling participatory processes through policy**.

## Social media

<https://terrifica.eu/>

TeRRIFICA project

@terrifica\_

TeRRIFICA Community of Practice - Territorial RRI fostering Innovative Climate Action group

terrifica@wilabonn.de

### 3. Approaches from other RRI territorial projects

#### TRANSFORM

**From:** 01/01/2020 - 31/12/2022

**Territories:** Lombardy (Italy), Brussels-Capital (Belgium), Catalonia (Spain)

**Keywords:** Citizen engagement, RRI, Smart Specialisation Strategy (S3)

**Authors:** Angela Simone & Lucia Princikova

**Grant agreement n° 872687**

**Give citizens a seat at the table**



**TRANSFORM**

## Regional challenge

Every day, the COVID-19 crisis reminds us of how crucial research and innovation are in rising to both local and global challenges. And yet, it also reminds us that they are not enough. Tackling a complex problem such as a pandemic also requires a fine-grained analysis of its social impacts. As taxpayers who fund research, and as beneficiaries of its results, citizens have the right to see their needs, expectations and values taken into account and to be engaged at all stages of the governance of science and technology. TRANSFORM aims at **exploring and testing three sound citizen engagement methods** - as an entry point for a meaningful RRI implementation - for the regional R&I policymaking, in particular in the context of S3.



A workshop in Catalonia



Screenshot of Lombardy online meeting

## Ambition

Citizens are involved throughout the activities of TRANSFORM in co-designing and co-creating better R&I policies for the common good and to improve the openness and inclusiveness of regional R&I ecosystems. If properly implemented, **widespread societal participation** is a feasible way to increase transparency and trust in science and innovation, and to turn society's needs and aspirations into engines of regional equitable growth.

Participatory methods are increasingly being recognized by the European Union. For instance, citizens will be involved in grounding the five Missions Areas at the core of its R&I framework program Horizon Europe, through structured participatory processes. Thus, TRANSFORM is perfectly aligned with the "new wave" of responsible governance of R&I in the EU.

In TRANSFORM three citizen engagement methodologies have been piloting: **participatory research agenda setting** in Lombardy (Italy), **citizen science** in Catalonia (Spain), and **design thinking for social innovation** in Brussels-Capital (Belgium).

In Lombardy, **deliberative methods** have been grounded to identify citizens' needs around which the new regional 3-year R&I Strategic Plan revolves.

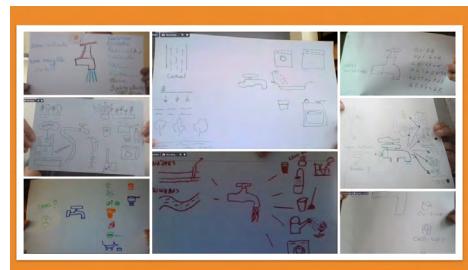
The Catalan region is working towards transforming regional R&I projects from the triple to the quadruple helix by **incorporating citizen science** as a means of integrating RRI into S3. In particular, two pilots on local waste management and one pilot on better diagnosis of diseases specific to women have been conducted.

In the Brussels-Capital territory, **innovation catalysts** have developed quadruple helix-based innovations for the **Circular Economy** by experimenting with iterative dynamic processes to evaluate R&I projects in the region and make them better adapted to societal needs.

The three implementing regions are also engaging in **mutual learning within and beyond Europe**, pairing with a co-design initiative (CC-PES) in Boston (U.S.).

## Core activities

**The three implementing regions are also engaging in mutual learning within and beyond Europe.**



Screenshot of Brussels-Capital participatory exercise

## Social media

<https://www.transform-project.eu/>

- TRANSFORM project
- @TRANSFORM\_eu
- Supporting the development of territorial Responsible Research and Innovation (RRI) group
- info@transform-project.eu

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## Lessons learned

Each R&I ecosystem is unique and “best practices” for RRI-place-based implementation should therefore be **adapted to the specific regional context** (not a one-size-fits-all solution). Furthermore, the implementation of meaningful RRI requires:

- 1) a solid understanding** of and a **genuine commitment** towards RRI by the policymakers involved;
- 2) an honest dialogue based on mutual trust between RRI promoters** (practitioners of RRI and citizen engagement) and RRI enablers (policymakers who can foster RRI in the territory);
- 3) an in-depth analysis of the context** (local research and innovation ecosystem) in which RRI will take place;
- 4) a shared timeline and common objectives** in order to agree on what is feasible to achieve, when and how;
- 5) the valorisation of the particular contribution that citizens can bring into the policy making process** by sharing perspectives, needs and expectations, as well as creativity, ideas and experiences that can be very different from those stemming from the “usual” stakeholders in R&I.

### 3. Approaches from other RRI territorial projects

#### tetRRIS

**Duration:** 36 months

**Territories:** 4 pilot regions (Finland, Germany, Spain, Hungary); the project consortium also involves participants from Belgium and the Netherlands

**Keywords:** RRI, co-creation, RIS

**Authors:** Mika Nieminen

**Grant agreement n° 872550**

**Aligning regional strategy with RRI**



## Regional challenge

While there are common challenges across Europe, different territories are faced with specific challenges, which need to be discussed and solved with relevant actors in a responsible, transparent and inclusive manner. The major question is: How to support regions, create a sustainable way to initiate and root new social practices, instead of conducting mere one-off project intervention?

This is what tetRRIS wants to tackle. The project seeks the **adoption of RRI-related practices** and targets a **systemic institutional transformation** in the four pilot territories. Systemic change emphasises the need of an inclusive approach for the shared understanding and joint action of various actors and stakeholders.

## Ambition

TetRRIS aims to support **four European pilot territories** in **integrating RRI practices** into their regional R&I systems and their development approaches. The project promotes mutual learning and interaction between the four territories with the involvement of the research partners. It will develop tools, good practices and policy recommendations that can be used to integrate RRI in regional development in other European territories.

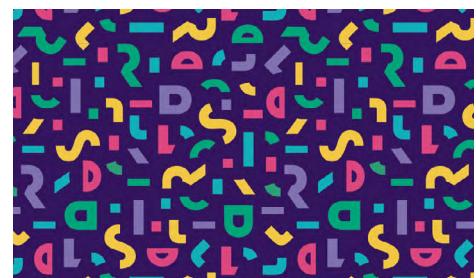
The **regional partners** of the consortium are **regional governments and regional development agencies**, which have a capacity of bringing together the various regional actors and enhance needed multi-level regional governance structures for a change towards responsible R&I.

TetRRIS wants to marry RRI with regional smart specialisation strategies in the pilot regions by 4 phases of activities. In phase 1, the project **identifies innovation and business ecosystems of actors** and analyses the regional dynamics affecting the uptake of RRI. Phase 2 focuses on **co-creation and inclusive development** of RRI with regional actors. Phase 3 is **orchestration** in which the project team will support regional pilots in co-designing and deploying their activities. The final phase is **learning, iteration, and scaling up** in which implemented actions are reflected upon and developed further in an iterative manner. The takeaways will also be disseminated more widely for territorial use beyond the pilot cases.

In the mapping, the project identifies all the relevant key actors of the innovation and business ecosystems to be included in the development networks. In the pilots, an attempt is made to integrate these actors in the active redefinition and revision of their strategies and operations from the perspective of responsibility. In the next phase, tetRRIS will organise several **policy labs as a space for structured exchange** between the regional partners and stakeholders, to facilitate mutual learning, networking, and the creation of enriching synergies between the regions. The labs will be organised in four sessions at the European level, to bring together the pilots and other regions: 3 sessions focusing on thematic issue related to RRI, and a final one drawing together and validating the key learnings generated in the labs and pilots.

## Core activities

The labs will be organised in four sessions at the European level, to bring together the pilots and other regions.



The graphic style of tetRRIS



Graphic of tetRRIS partners

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## Lessons learned

The project has been running for a year. Until now, **the project has mapped and analysed regional innovation systems**. The findings confirm the hypothesis that RRI needs to be significantly tailored regionally and contextually, e.g., taking into account region-specific structures and cultures, different branches of industry, applied technology, and business environments. As “one size does not fit all”, the project advocates **tailor-made and region-specific approaches** since their targets, motivations, narratives, structures, actions, impacts, etc. differ contextually. On this basis, the project supports approaches in which **challenges are discussed and solutions co-created together with regional actors**.

**Social media**  
<https://tetrris.eu/>

@tetrris\_project

TetRRIS Project

tetrris@eurada.org

### 3. Approaches from other RRI territorial projects

#### MARIE

**Duration:** 5 years (plus 1 year for Additional Activities)

**Territories:** Romagna (IT), Bucharest-Ilfov (RO), Athens (EL), Galicia (ES), Tampere (FI), Southern Region (IE), Centre Val de Loire (FR), Schleswig-Holstein (DE)

**Keywords:** Interregional Cooperation, Innovation Value Chain, Policy Change

**Authors:** Jessica Huntingford & Giulia Bubbolini

**Grant agreement nº PGI02115**

**Enabling RRI through existing policy tools**



Photomontage from the MARIE project



Photomontage from the MARIE project

## Regional challenge

Research and innovation policies must respond to the needs and ambitions of society, reflect social values, and be responsible. EU regions are starting to address Responsible Research and Innovation (RRI), but they face the common challenges of perceived complexity of the concept and means of application, lack of appropriate approaches for public authorities, and lack of awareness of its huge potential impacts.

How can policymakers through RRI harvest not only **scientific and economic development** but also **environmental sustainability, social inclusion**, and ultimately **intergenerational fairness?**

## Ambition

In MARIE, partners from 8 regions address RRI together in order to improve regional support programmes for innovation. These policy changes are expected to lead to a greater awareness of the socio-economic benefits of responsibility. The aim is to support the diffusion of RRI into enterprises' product, process and service design, production and distribution.

Not focusing on designing new policy instruments, MARIE truly is about putting RRI in practice through regional existing governance tools.

MARIE achieves this through exchanging experiences on **3 types of support action** contained in the RRI framework: **Quadruple Helix; Open Innovation; Information & Tools for RRI application.**

Using interregional activities, communication and stakeholder engagement, partners develop Action Plans that result in **improved policy instruments**, more and better targeted funding for RRI delivery, increased capacity among innovation actors, and consolidated partnerships of quadruple helix innovation chain stakeholders.

MARIE partners set up **regional stakeholder groups**, which accompanied them throughout the project. The groups were created to represent the whole innovation ecosystem across the region. How each partner did this, and exactly whom they involved, varied according to their territorial characteristics.

In Centre-Val de Loire, e.g., MARIE brought together the economic development ecosystem and the social innovation community. In Schleswig-Holstein, partners worked with the regional community and stressed greater SME involvement. In Bucharest-Ilfov, partners created an all-new RRI community to assist public and private stakeholders to understand RRI principles and to take measures to integrate them in their daily work.

**The following commitment is common to all partners:**  
**Engagement of the innovation system for better public policy.**

## Core activities

**The groups were created to represent the whole innovation ecosystem across the region.**

### Social media

<https://www.interregeurope.eu/marie/>

 @MARIEinterreg



Photomontage from the MARIE project

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## Lessons learned

**Thanks to MARIE, partners learned that it is possible to integrate RRI into regional policies, in a variety of ways.** In Tampere Region, e.g., RRI criteria were integrated into the ERDF funding for the very first time. They tested on a pilot call for Artificial Intelligence projects and have replicated it in a further two calls. The region of Attica in Greece is working along the same lines.

**RRI can become part of regional strategies**, directing the way that policy is rolled out, as in the case of the multi-annual strategy for a Chamber of Commerce of Romagna of Galicia's responsible Digital Innovation Strategy, or the 10-year regional spatial strategy of Southern Regional Assembly, Ireland with updated RIS3.

Some partners engaged in mainstreaming by publicly funded soft-support measures: **creation of communities, networks and helpdesks that can help build capacity among regional stakeholders.**

**Finally, MARIE has confirmed that linking RRI to funding allocation can make a real difference.** It can help to raise awareness about RRI among applicants AND it can help to put concrete, responsible innovation projects into place.

### 3. Approaches from other RRI territorial projects

#### RRI2SCALE

**From:** 01/01/2020 – 31/12/2022

**Territories:** Crete (Greece), Vestland (Norway), Galicia (Spain), Overijssel (the Netherlands)

**Keywords:** Smart specialisation, Regions, Stakeholder engagement

**Authors:** Thomas Bakradsas

**Grant agreement nº 872526**

**Smart regions co-shaped by citizens**



## Regional challenge

In our modern fragmented societies, every societal agent has their own values regarding what sustainable and ethical regional R&I implies. The question is simple but critical: how can **every stakeholder** impacted by these changes (students, the elderly, researchers, policymakers, etc.) become **empowered** and thus **actively co-shape** regional R&I policies? How to achieve regional innovation governed by the principles of Responsible Research and Innovation that **leaves nobody behind**, while **delivering high-quality technological innovation** that leads to socio-economic prosperity?

The aim of the RRI2SCALE Project is to directly address this dilemma in four pilot European regions: Vestland (Norway), Overijssel (Netherlands), Crete (Greece) and Galicia (Spain).

## Ambition

Including both urban centres and rural areas, the challenges of the regions are manifold: privacy and safety, sustainability and pollution, depopulation, urbanization, and inefficient mobility. the project zooms in on engaging regional stakeholders from the **Quadruple Helix**.

By giving an **equal chance to everyone** to participate in the project's activities, RRI2SCALE recognises the importance of integrating every voice in **designing RRI-driven smart cities, energy solutions, and mobility schemes** under a comprehensive regional ecosystem, forging multistakeholder partnerships. These domains are highly technology-oriented and of immediate concern to citizens and regional stakeholder groups. **Coupling technology with inclusiveness and ethics** is not an easy task practically, and this is exactly what RRI2SCALE strives for.

RRI2SCALE engages stakeholders through a **large-scale survey with almost 8,000 citizens** from the four regions and a round of 16 interviews with key stakeholders. Through these, the project has highlighted sensitive R&I trade-offs and potential conflicts among stakeholders. Apart from trade-offs, stakeholders have revealed past good practices of regional RRI that can be replicated and scaled up in the future. The recipe is simple, but often underestimated: **If something already exists, build on it!**

Additionally, **future scenarios in R&I were designed** – two per smart domain. The developed six future scenarios support the pilot regions in their R&I planning concerning intelligent cities, transport, and energy. The scenarios were visualised to become intelligible, and then citizens virtually validated and deliberated on the scenarios.



Galicia, Spain



Vestland, Norway



Overijssel, the Netherlands

## Lessons learned

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The RRI2SCALE campaign **reached more than 31,000 people**. Almost half of them watched the videos, more than 2,000 people clicked on the survey link, and 279 valid replies were received. In the large-scale regional survey, results showed that citizens approach the same challenges – areas of R&I investments, trade-offs in innovation, willingness to participate in R&I policy dialogues – in a different way. This underlines the necessity of **endogenously developing tailored R&I solutions**, through intra-regional stakeholder consultation.

Lastly, citizens can reveal critical problems in R&I that policy experts often cannot. During the validation of scenarios, citizens brought up, through their comments, important trade-offs in regional R&I not initially foreseen. The most critical were the implications of R&I in the future health of citizens, their working conditions, and the impact of climate change on younger generations. Since most citizens appear rather pessimistic about future life in their region, **more dialogue is needed** to address hidden repercussions of R&I.

## Social media

<https://rri2scale.eu/>

RRI2SCALE project

@rri2scale

RRI2SCALE Project

info@rri2scale.eu

### 3. Approaches from other RRI territorial projects **CHERRIES**

**From:** 01/01/2020 - 31/12/2022

**Territories:** Murcia (Spain), Örebro (Sweden), Cyprus

**Keywords:** Demand-side, challenge-orientation, co-creation

**Author:** Stefan Philipp

**Grant agreement nº 872873**

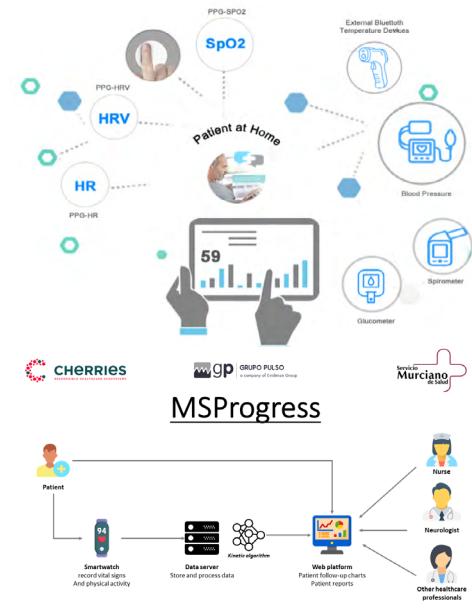
**Healthcare for people's needs**



## Regional challenge

The healthcare sector is facing constant pressure to reduce costs while improving quality. Innovation is often seen as critical because of the requested high quality and safety needs in this sector. Therefore, many new approaches, despite their proven benefit, are not scaled and spread.

Facing innovation challenges at the regional level corresponds well to the service character of the healthcare industry, its hidden innovations and the high degree of customisation.



Graphics from the CHERRIES project

## Ambition

To enhance the development and acceptance of new healthcare solutions in the selected regions, RRI works as a process of alignment, aiming at developing innovation that has a high societally beneficial impact. Important in this context is **involving key stakeholders at an early stage of innovation processes**. Regional contexts allow for intensive exchange.

RRI serves as an open process involving all kinds of stakeholders, and even those who are normally not involved. This brings a culture of open discussion and open innovation to the regions. RRI is introduced as **RRI by design** by embedding its principles but not explicitly calling it RRI. The CHERRIES partnership includes **regional hospitals, healthcare managing authorities and regional policymakers as entry points into the place-specific ecosystems**. In order to open existing routines, we aim at including all stakeholders irrespective of their age, gender, and socio-economic background in the process of reflection and need identification.

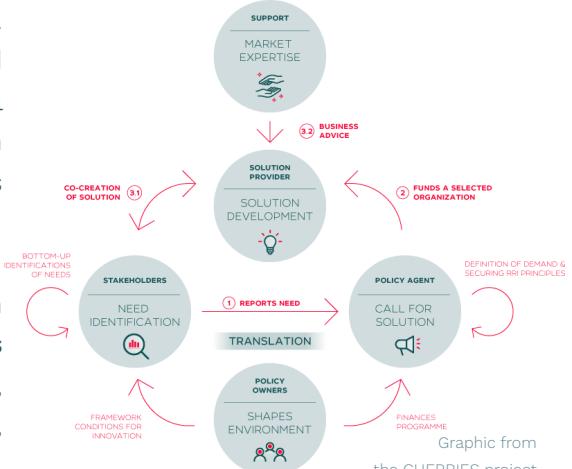
The core activity of CHERRIES is the **bottom-linked creation of new and widely demanded healthcare solutions**, developed and adapted to the people's needs.

These **societal innovation needs were identified via “Call for Needs”** which addressed all stakeholders in the regions and beyond to bring in their specific ideas and needs for innovation. **However, the most important source of innovation needs are healthcare professionals, patients and patient interest groups.** This process is followed by a validation of identified innovation needs by people with specific sectoral knowledge. This is why the process can be described as bottom-linked rather than bottom-up. The collected and validated societal needs served as a basis for the “Call for Solutions”, which encouraged regional actors to bring in their specific solutions addressing the collected people's needs.

Based on this open innovation process, the selected solution providers are currently co-creating **new tools and processes** that e.g. detect the progression of multiple sclerosis early, mitigate the burden of involuntary loneliness on the elderly, or provide medical care to people living in remote areas.

## Core activities

**The collected and validated societal needs served as a basis for the “Call for Solutions”, which encouraged regional actors to bring in their specific solutions addressing the collected people's needs.**



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## Lessons learned

It is an important outcome that through **early public engagement** citizens' needs can be detected very early in the process. In this way it is possible to **pick up the right solutions** and make sure they are adopted among a broader group of stakeholders than usual.

Very often, opening an innovation process to the public and to all different kinds of stakeholders, all with their specific interests, is a very time-consuming action that leads to a lot of discussions and may hinder the quick development of new solutions. However, CHERRIES provides an approach that **leads to a faster innovation process from ideas and needs to beneficial healthcare solutions that are needed, co-developed and adopted by society.**

Finally, in order to support an innovation with a higher likelihood for successful adaptation, **the identification of an actual demand, characterised by a willingness to pay, is crucial.**

The CHERRIES community and mirror regions are a resource to learn about the model and to exchange experiences with peers.

## Social media

<https://www.cherries2020.eu/>

@CHERRIES\_eu

CHERRIES\_EU

philipp@zsi.at

### 3. Approaches from other RRI territorial projects

#### TeRRItoria

**Duration:** 36 months

**Territories:** Central Macedonia (Greece), Emilia Romagna (Italy), Trøndelag (Norway), Gabrovo (Bulgaria), North-East Romania

**Keywords:** Territories, citizen engagement, collective RRI-driven activities

**Authors:** Maria Michali, Nikos Zaharis, Adam Brandstetter-Kunc, Ildi M. Ipolyi

**Grant agreement nº 824565**

**Territorial RRI Through the involvement of local R&I Actors**

**TeRRItoria**

## Regional challenge

TeRRItoria experiments with the adoption of RRI in European territorial R&I ecosystems for responding to the **crises of territoriality and mistrust towards science** due to **the lack of inclusiveness and variety of visions and stakeholder values** in research and innovation. TeRRItoria also addresses these challenges by attempting to integrate RRI principles to Smart Specialisation and by strengthening the meaningful relations among regional innovation actors.



Group from Bologna, Emilia Romagna (Italy)



Thessaloniki, Central Macedonia (Greece)

## Ambition

The application of territorial RRI can contribute to **responsible territorial development and to pairing scientific excellence with social awareness and territorial responsibility**. This application is not automatic; one must comprehend how RRI can be integrated into the territorial dynamics, with particular attention to local actors and their concerns. However, once effectively applied, territorial RRI can promote **new response-able forms of R&I governance, of citizen engagement and co-creation**, and it can strengthen territories' social cohesion by enhancing their re-territorialization – defined as the development of new meaningful relations among actors, and between them and their territory.

TeRRItoria integrates the principles of **co-creation and collective experiences** while aiming to evoke sustainable institutional changes. Towards this direction, the project developed a knowledge base by examining and analysing **bottom-up governance innovation and RRI practices**. This knowledge is diffused among TeRRItoria partners (and beyond) and further functions as an inspiration point for the initiation of collective RRI-driven activities.

Transformational activities have also integrated the **co-creation/“socio-constructionist”** approach. In each territory, Quadruple Helix stakeholders collaborate for **jointly achieving the target institutional changes** – effectively achieved when built on collective knowledge and coordinated action expanding at territorial level, rather than at the level of individual organisations.

The respective territorial and institutional changes TeRRItoria evokes refer to: a **Gender Equality Plan in the R&I field** of the Region of Central Macedonia (Greece); **inserting RRI in RIS3** in Emilia Romagna (Italy) through Public Engagement and Science Education; developing a **consultative tool for agenda setting** in local mountain communities in North-East Romania; engaging the public in a **municipal plan** for innovation in Gabrovo (Bulgaria); and establishing a **permanent dialogue between rural and urban** areas (Trøndelag, Norway).

## Core activities

**This knowledge is diffused among TeRRItoria partners (and beyond) and further functions as an inspiration point for the initiation of collective RRI-driven activities.**

### Social media

<http://territoriaproject.eu/>

YouTube TeRRITORIA

Twitter @Territorial\_RRI

LinkedIn TeRRITORIA Project

E-mail territoria@esf.org



Bologna, Emilia Romagna (Italy)

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## Lessons learned

Effective territorial RRI implementation needs to consider RRI both from an action-oriented and a theory-oriented perspective, while detecting and engaging the key actors in the RRI ‘mission’. It is also important to attribute a sense of ownership to the target stakeholders –thus making them feel ‘problem owners’– as well as to leverage upon **territorial networking and establish RRI territorial networks** that exhibit a better territorial and social proximity. This territorial networking has proven to be beneficial for intra-territorial scaling of project results, and at a later stage for their ‘anchoring’ in the territory.

RRI language also affects various initiatives. RRI terminology cannot be translated/efficiently rendered to the various local languages, while the new language of ‘responsibility’ introduces new linguistic and specialized terms. Therefore, and since the territorialisation of RRI also signifies the **RRI ‘translation’ in different languages**, one should provide to target recipients a comprehensive account of RRI –by paraphrasing, thorough-explaining, employing dynamic translation equivalents and practical examples.

Insights finally refer to the differentiated engagement of the **Quadruple Helix groups**: society representatives and citizens are often more hesitant compared to academia and industry. In that regard, establishing a context-based science communication can engage various stakeholders in fruitful and reciprocal RRI-oriented dialogues.

### 3. Approaches from other RRI territorial projects

#### DigiTeRRI

**From:** 01/01/2020 - 31/12/2022

**Territories:** Grand Est (France), Styria (Austria), Värmland (Sweden)

**Keywords:** Digitalisation, territories, Local engagement

**Authors:** Marianne Hörlesberger

**Grant agreement n° 873010**

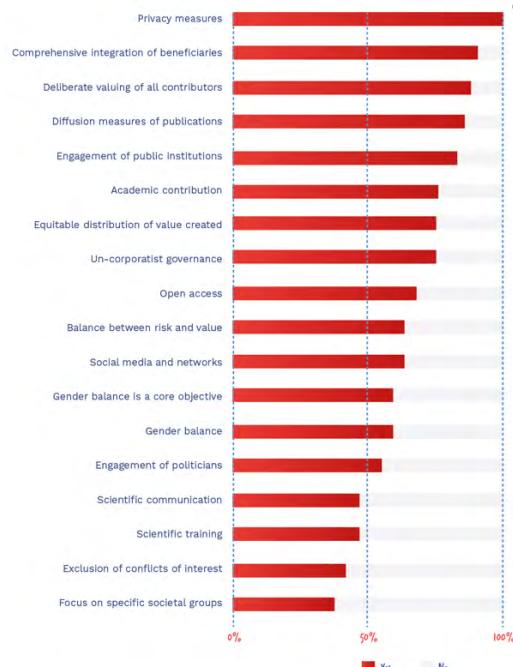
#### Responsible digital transformation



## Regional challenge

Digitalization is a major concern in the three territories which are part of the DigiTeRRI project. The three regions, Värmland in Sweden, Styria in Austria, and Région Grand Est in France, are characterized by traditional manufacturing and processes industries like steel, wood, and paper as well as mechanical engineering, especially automotive, rolling stock, and aerospace supply, with an acknowledged need to catch up in the digital transformation process.

DigiTeRRI now asks the question of **how digitally transforming territories can adapt to the changes** in their industries and stay competitive by **creating new value** to products and services, AND responsibly taking into account **societal and environmental demands**.



Graphic of RRI in DigiTeRRI



Example of a DigiTeRRI territorial vision

## Ambition

DigiTeRRI's approach is to induce forward-looking co-creation processes in the territories which include all kinds of regional stakeholders and their specific interests, such as in addition to representatives from industry and research & education also public authorities, media, and civil society in order to set the digital path in a broader context.

These co-creation processes aim at **maximum openness, diverse thinking, democratic accountability, and responsiveness** in the development of measures and action plans for a responsible digital transformation in the three regions.

In order to promote self-sustaining innovation ecosystems in the three territories their **R&I landscapes were mapped** as a basis for obtaining a comprehensive picture of the of the territories under consideration. Using these results and stimulating forward-thinking in the regions, in co-creation workshops each territory developed **a vision guiding their responsible digital transformation.**

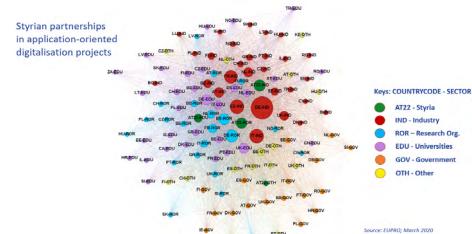
DigiTeRRI works in a participatory RRI process in and across the three territories aiming at the creation of **roadmaps into responsible digitalization.** These roadmaps will comprise very concrete actions which will partly be implemented throughout the project.

In the way DigiTeRRI broadly engages civil society, education, policy, industry, and research its approach differs a lot to traditional R&I roadmap processes with rather closed industry and research collaborations.

**Defining future goals and actions** in a maximally diverse group of territorial representatives gives the opportunity to address challenges of digitalisation and reflect their opportunities and risks in a much broader context than was done in classical R&I roadmap processes. In this way broad **societal and environmental demands and needs can be integrated at an early stage.**

## Core activities

**DigiTeRRI works in a participatory RRI process in and across the three territories aiming at the creation of roadmaps into responsible digitalization.**



Graphic of DigiTeRRI Styria partnerships

## Social media

<http://www.digiterri.eu>

- DigiTeRRI
- @digiterri
- DigiTeRRI Project
- info@digiterri.eu

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## Lessons learned

The application of RRI principles such as openness, co-creation, democratic accountability, and responsiveness in the development of measures and action plans comprising resources, schedule, and responsibilities creates **direct impact** on the way the digital transformation of the territories takes place.

The development of the roadmaps in the three project territories (Värmland, Région Grand Est, and Styria) will impact their own short-term strategies as a result of the use of **co-creation workshops** involving stakeholders from government, academia, business, and citizens.

Medium-term impact will be perceived from the DigiTeRRI roadmaps of the three territories. Within five years beyond the project, these areas will have developed actions that open up and **transform their R&I ecosystems in a responsible way.**

In the longer term, we intend a raised competitiveness of European industry and awareness for RRI that will bring value to the people in the territories and become widespread through **a set of best practices and implementation guidelines**, as well as through a conference on change and improvement of territories that will target any European territory.

# 4. Future directions

## Linden Farrer

*Mr. Linden Farrer is a Policy Officer in the DG Research & Innovation “Open Science” unit*

The story of territorial RRI does not end with ‘Science with and for Society’ in Horizon 2020. Cross-programme learning and dissemination of knowledge has already taken place, as attested to within this booklet, and this will help ensure that practices and learnings get taken up in more regionally-focused programmes as well as those that are more focused on R&I. Moreover, in Horizon Europe we expect to see renewed attention to the territorial dimension of research and innovation across the programme.

## René von Schomberg

*Dr. Dr. phil. René von Schomberg is a philosopher and a science and technology studies (STS) specialist*

The institutions that govern innovation do this predominantly by indirect means, notably through risk management. Whenever new risks of products of new technologies are identified, we have the institutional capacity to respond. However, we need to establish new institutions that not only address the risks but also anticipate desirable outcomes. Smart specialisation can only lead to desirable outcomes when an RRI approach is adopted, as the SeeRRI project has sought to do.

Research and innovation must become value-driven rather than only seen as a means for fostering economic prosperity. We may have now reached a point where research funding all over the world is addressing the sustainable development goals. Yet it is imperative that a value-driven approach allow for democratic deliberation of the values underlying innovation and take into account specific local cultural circumstances. Consider climate change: a rise in temperature of 2°C has very different implications for Canada than for Bangladesh. Conflicts between competing public interests underscore the need for a careful articulation of public values in the implementation of innovation processes. This is why the SeeRRI project, as part of a portfolio of projects with a regional approach, is so important.

## Jackson Nickerson

*Dr. Jackson Nickerson is the Professor Emeritus of Organization and Strategy at Washington University in St. Louis’ Olin Business School*

To solve wicked societal problems, political institutions on their own are rarely sufficient. In a world of increasing polarization, political solutions, should they get implemented, invite being overturned when political control is lost to the opposition.

Large multinational gatherings and coalitions aren't much better because all too often they are the result of a political process with no real commitment to implementation.

The SeeRRI process is different. It offers a new approach that emphasizes the involvement of all relevant stakeholders and avoids the political aspects that can produce conflict. Co-defining the challenge, co-developing the strategy, and co-implementing solutions brings people and institutions together to create a harmonious path forward.

To realize the full potential of the SeeRRI process, investments in expertise and pilot projects are needed. Like the adoption and diffusion of any innovation, momentum needs to build, more wicked regional problems need to be solved, and more booklets like this one need to spread the word that the SeeRRI process is available to help regions successfully tackle their own wicked problems.

## Elisabella Marinelli

*Dr. Elisabella Marinelli is an economist by training, specialised in regional development and research, higher education and innovation policy*

RRI is about fostering inclusive and sustainable research, technology, development and innovation activities, by systematically anticipating and assessing their broader potential implications. This is because research and innovation are not seen as neutral to society, nor automatically positive. Within the RRI approach, those involved in research and innovation must also reflect on the value systems and theories underpinning a given research project and must pursue meaningful stakeholders' participation accepting that the latter may well affect the project's overall trajectory.

European Regional policy has always stressed the importance of stakeholders' engagement within and beyond innovation policy, however, this needs to be taken to the next level. The notion of stakeholders needs to be broadened beyond the actors of the innovation systems, beyond users and producers of innovation. Stakeholders now include citizens who face challenges that require RRI, or actors who may face intended or unintended consequences of innovation. A much closer relationship with the territory is therefore required. New challenges and rewards await policymakers!

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## Rune Dahl Fitjar

*Dr. Rune Dahl Fitjar is the pro-rector for innovation and society and a professor of innovation studies at the University of Stavanger*

The question of how to promote innovation is increasingly at the core of economic development policy at multiple scales, from the international through to the local and regional. This makes it increasingly important that approaches to innovation in these policies recognise and incorporate issues from the broader landscape of research and innovation policy and governance. When innovation is seen as the main vehicle for economic development, one can be misled into believing that innovation is always

for the good. However, innovation is a neutral phenomenon and the dark side of innovation is receiving increasing attention from researchers and policymakers alike, including in the context of regional development. Regional development policy built on innovation needs to include perspectives on how to innovate responsibly and to plan for practices that ensure responsible innovation.

## Anne Snick

*Dr. Anne Snick is an independent researcher and change enabler, member of the Club of Rome and fellow of the World Academy of Arts and Science*

Given the potentially catastrophic impact of today's crises – dubbed “code red for humanity” – it is crucial to make RRI the standard for research and innovation now. The EU Green Deal aims at restoring human and planetary health and rightly states that this requires a shift across the economy based on different values. However, as SeeRRI revealed, this involves an often difficult learning process since it means unlearning assumptions about territorial success, economic growth, and technological advancement that gave Western nations unseen wealth yet blinded them for the disastrous impacts on the planet and communities in most of the world. It means conceding that human progress cannot be commensurate to the exploitation and alteration of nature, even if most Western R&I is built on precisely that premise. For RRI to have an impact, higher education must equip all learners with ‘bifocal glasses’ that combine the narrow focus of specialist disciplines and technological control with a broad, novel perspective on what it takes to thrive together on this planet. It takes imagination.

## Klaus Hitzenberger

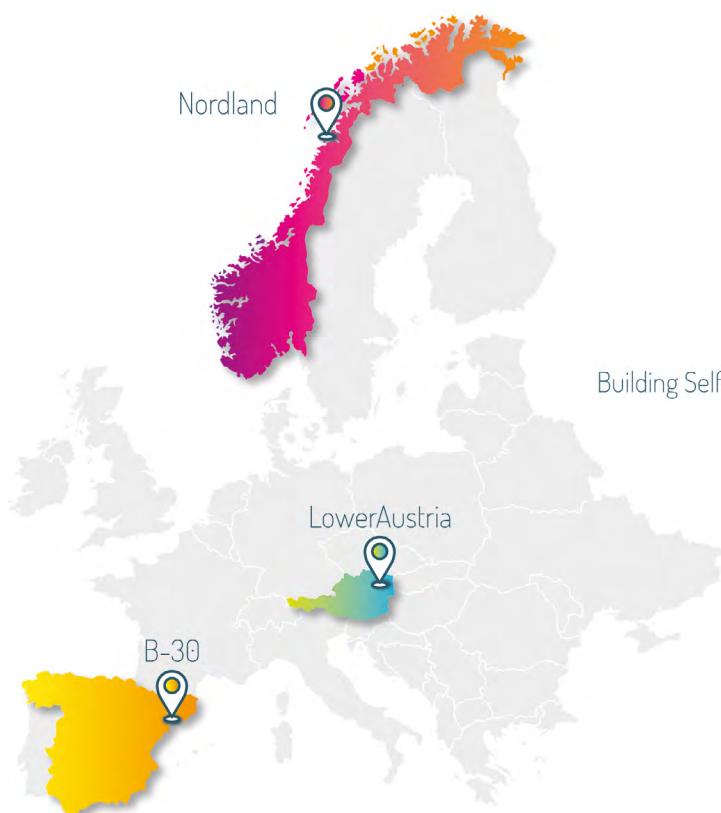
*Mr. Klaus Hitzenberger is the founder of Innovationsoptimierer: Consultant for Innovation, Digitalisation and Climate Change*

Can a Horizon 2020 project change your life? SeeRRIously: “Yes”. When I was asked to join this project on the Strategic Advisory Board, to bring in my innovation expertise, of course I was pleased. When I found out that this project was about bringing sustainability into the Regional Innovations Systems, I was challenged. It finally turned out that this project helped me to get myself and the region where I live into new fields: From projects in elderly care to projects in health promotion, from projects in circular economy to projects about mitigation of companies' carbon footprint. The SeeRRI project not only brought me new possibilities, in my opinion the whole project team made a big step forward. I hope that SeeRRI will be a role model inspiring a lot of other people about the RRI methodology, because we have no other planet than this earth.

So please work together and join me as a “Fighter against the climate crises with Innovation and Digitalisation!”. Yes, SeeRRIously!



**Thank you!**



Building Self-Sustaining Research and Innovation Ecosystems in Europe through  
Responsible Research and Innovation

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