POLICY BRIEF

Responsibility challenges and interventions in the pilot regions

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Introduction

tetRRIS project aims at supporting four European pilot territories - Cantabria, Karlsruhe, Tampere, and Szeged-Timisoara - in integrating RRI practices into their territorial research and innovation systems and development approaches. The project promotes mutual learning and interaction between territories and develops tools for good practices and policy recommendations that can be used to integrate RRI in regional development in other European territories. This policy brief aims to highlight the prioritised responsibility dimensions, identified challenges and sought interventions in the four pilot regions.
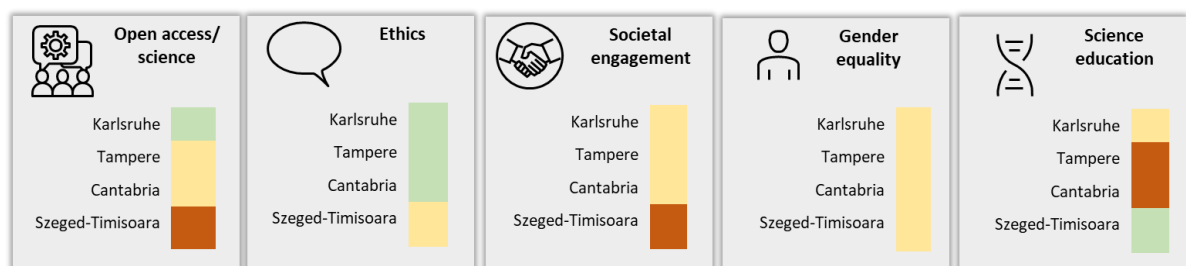
Understanding of responsibility in the pilot regions

The regions differ with regard to their economic size and trajectories, governance and agency, and thickness of business and innovation ecosystems. However, a common characteristic is that RRI as a concept is practically unknown in all the regions. In particular, RRI discourses based on and articulated in the terminology formally defined by the European Commission remain rare, except in the two socio-technically more developed regions, Karlsruhe and Tampere, in where RRI is present in academic domain. In addition, Szeged-Timisoara makes an exception, as academic entrepreneurs introduced the RRI terminology into local planning documents but the RRI was not systematically adopted since piloting of the concept was temporary. Regardless of the unfamiliar concept of RRI, many "de facto RRI" activities are found in each of the regions. These activities include, for example, different types of innovation co-creation practices, engagement and inclusion of stakeholders, and promotion of ethics and sustainability.

The RRI is often expressed in a theoretical language alien to businesses who work in a short-sighted commercial environment. The RRI in businesses resonate in terms such as 'science-industry collaboration', 'corporate social responsibility' and/or 'public stakeholder consultation'. In addition, in this environment an uptake of RRI demand regulatory incentives since being responsible requires additional investments (financial and cognitive). A lack of shared vision of how to embed RRI projects could be a result of deteriorating science-industry relationships or absence of multidisciplinary approaches.

Understanding of RRI differs in the pilot regions, similar to their focuses and actions related to RRI keys. Figure 1 summarises five RRI keys and indicates adoption of the specific dimension in the region. This qualitative assessment bases on regional analyses performed by the partners and pilot regions. The stocktaking studies (Deliverables 2.2 and 3.2) offer full descriptions of the pilot regions, and elaborate the regional RRI understanding in detail.

Figure 1. RRI understanding in the pilot regions

Ethics and gender equality are well understood and integrated in the activities of the pilot regions. It is not however to say that actions are not needed to strengthen these aspects. For many pilot regions, gender equality in research teams and organisations may not be a challenge any longer, however attention should be placed in inclusiveness, diversity and gender dimension in R&D&I contents. Inclusiveness encompasses age, ethnicity and minorities, and touches integration of international experts in local innovation processes. In similar way, research ethics may be well integrated in the regional dialogues in code of ethics and ethics committees that set out the organization's ethical guidelines, whereas regional challenges in ethics might relate to understanding of ethics in specific technology domain, for example.

The benefits of societal engagement are recognised, given its connectedness to open access. In many regions, engagement works with certain stakeholder groups, while engaging versatile groups of stakeholders, like citizens and businesses, deserves more attention. Often, scarcity of time and motivation are challenging participation of certain groups. Further, science education in terms of educational programmes or activities on science and technology are not a concern, while science communication to a broad audience needs emphasis in many of the regions.

To summarize, embedding of RRI thinking in development and innovation practices and in policy-making needs to be based on challenges and requirements in a specific local context and institutional environment shaped by socio-cultural, political and economic factors. Therefore, to succeed it is important to engage closely with the local actors and to identify areas, where RRI may make tangible contributions. In this manner, responsible research and innovation becomes interpreted in language and situated in actions the actors are familiar with - thus bridging cognitive gaps and creating space for diverse, locally and contextually-based definitions of responsibility to emerge.

Identified challenges to implement responsibility in the pilot regions

Engagement is a key responsibility dimension running through the project activities and all the participating pilots. As a challenge, engagement or lack of it manifests differently depending on the specific pilot context in question. In Cantabria, lack of collaborative culture has been identified as one of the most important challenges of the innovation ecosystem in the region. On a practical level, there are currently no significant forums able to act as meeting points bringing together actors of the regional innovation ecosystem. Although in Karlsruhe a regional innovation system is well established and there is a long tradition of public engagement, there is little structures supporting mutual exchange and learning regarding citizen and stakeholder participation and engagement.

In case of Szeged, local level involvement and participation in research and innovation policymaking has been limited as the national governance model and structures in research and innovation are hierarchical and organised in top-down manner. Low level of trust and cooperation call for actions that at the same time increase awareness of responsibility in research and innovation and strengthen mutual engagement and collaboration between actors in Szeged and surrounding region. An ecosystem in Tampere region is in turn characterised by low-hierarchy co-operation culture and existing practices for joint actions among key constituents are active in research and innovation policy making locally. Despite strengths in collaboration, there is need for widening engagement outside of customary circles in innovation and regional policy-making and furthering dialogue with manufacturing sector in the region.

Another challenge emerging from the stocktaking studies concerns the discourse of responsible research and innovation itself. The actors active in innovation ecosystems and policymaking in the pilot regions are rarely familiar with the RRI terminology. However, elements of 'de-facto RRI' - such as co-creation, stakeholder consultations, ethical considerations, inclusiveness and sustainability - are integrated in a substantial number of innovation and development related activities in all the four regions. Still, there is a clear need to increase awareness of responsibility in research and innovation in a manner that adapt and translate the RRI issues into local concerns. See identified pilot challenges related to implementation of responsibility in Table 1.

Table 1. Identified regional challenges related to implementation of responsibility

Cantabria	Karlsruhe	Szeged-Timisoara	Tampere
Modest innovation and cooperation culture	Limited insight into practices, activities, and experiences in other European regions	Low familiarity and exposure to RRI	Lack of practical know-how of RRI among regional actors
Lack of an official open innovation strategy	Little structures for exchange and mutual learning with regard to citizen and stakeholder engagement	Lack of cooperation willingness although economic cooperation through mutual benefit can create an economic surplus	Lack of experience in implementing sustainability and responsibility strategies into practices
Societal challenges in coming years related with rural depopulation, ageing, energy transition, post-industrialisation and/or mobility	Complex regulations and approval processes	Lack of trust: social participation is at a low level	Modest dialogue between the traditional innovation ecosystem and the manufacturing industry in the region
Retention and attraction of talent			

Regarding integration of RRI perspectives in local innovation ecosystem, there are also more general societal challenges and characteristics common between pilot regions. In Karlsruhe technology region and Szeged-Timisoara, development activities and actor-networks span across borders and bridge neighboring regions together. Cross-border regions have a natural setting for mutual learning between localities that are functionally tightly knitted but may differ markedly for instance in terms of governance settings and decision-making power vis-à-vis central government.

Questions related to skilled labor-force are on agenda in all four regions, although with different emphasis. In Cantabria and Szeged, focus is on retention and attraction of educated young people to counter demographic and labor market challenges caused by depopulation and outmigration. In contrast, Tampere region has a positive net migration - however due to changes in demography and skills requirements there are sectors, such as manufacturing in which shortage of skilled workforce is a serious question already today but especially in future. In Karlsruhe, demographic trends are positive but the region faces competition with other regions in attracting experts and skilled workforce.

Planned interventions to address responsibility in the pilot regions

The specific pilot intervention plans build on analysis of the dynamics, challenges and opportunities of each regional innovation ecosystem in terms of responsible research and innovation as well as sustainability. The regional pilots help to develop context specific solutions to overcome identified challenges and strengthen opportunities in collaboration with the regional partners.

Preparation of the regional plans, co-design and co-creation with the regional actors was emphasised to ensure that their concerns constitute the starting point for all the planned actions. This approach is critical for translating responsibility and sustainability aspirations to concrete actions, which integrate into every-day life and practices of actors. Most of the regions already have RRI related "de facto" processes giving a promising starting point to support the further uptake of responsibility and sustainability related practices locally. the pilot regions also widely share understanding that they can learn from each other by sharing their experiences, practices and plans. Table 2summarises the key actions planned in each participating pilot region to strengthen local RRI practices. The list of actions will be updated as the project advances and new opportunities and actions are identified to support uptake of RRI in the pilot regions.

Table 2 . Key actions to strengthen responsible research and innovation in the pilot regions

	Cantabria	Karlsruhe	Szeged-Timisoara	Tampere
Responsiveness & adaptation	Position Cantabria TetRRIS Lab as a meeting point of the regional innovation ecosystem - a forum dedicated to strengthen science-society interactions in the four domains of opportunity identified in Cantabria	Creation of a practitioner network on citizen and stakeholder engagement	Leveraging trust by connecting with ongoing development activities - notably with TalentMagnet and DIH-World projects supporting the S3 strategies towards more inclusive direction	Embed the RRI into the regional development and the smart specialization strategies & forward responsibility and sustainability agenda in the region
Inclusion & diversity	Mobilizing of R&I actors and stakeholders by Lab approach and using current initiatives, projects and other activities to develop pilot actions in each domain	Initiation of an intensified dialogue and exchange between regional innovation and development policy makers in Karlsruhe and Tampere	Embed RRI in the region in cooperation with regional clusters in Szeged and cross-border cooperation and learning with West Region (RO) and tetRRIS partners	Enhance RRI policy learning through collaboration between Tampere and Karlsruhe regions

Openness & transparency	Engaging active participation of Cantabrian society into R&I to enable to address the societal challenges identified in the region		Increase awareness of RRI in the region through Talent Magnet and DIH-World projects & their partner and stakeholder networks	Initiate dialogue on responsibility with manufacturing SMEs through Corporate Responsibility Accelerator Hub

The planned interventions relate mainly to three loosely defined responsibility processes, namely Responsiveness & adaptation; Inclusion & diversity and Openness & transparency.

In respect of responsiveness and adaption, in Cantabria, the project partners have set up the regional pilot by selecting four domains of opportunity aligned with the strengths of research and innovation in the region; Bioeconomies, Health and Post Covid19 society; Blue Economy and Fair Energy Transitions; Responsible Industry 4.0; Territorial Sustainability and Responsibility. The selected domains align with the prioritised research and innovation ecosystems of regional smart specialisation strategy (S3) for the period 2021-2027. Furthermore, the domains reflect societal concerns, expectations and demands in the region that should be taken into account in the pilot actions aiming to strengthen RRI practises in Cantabria. In practise, pilot activities are co-developed jointly with stakeholders of regional research and innovation system following the Social Lab (SL) approach. The project team implements a series of participatory workshops to engage stakeholders, and then jointly define and initiate pilot actions addressing specific regional challenges in the focus domains. The regional aim is to foster the diffusion and adoption of RRI in the innovation ecosystem in Cantabria.

In Karlsruhe region pilot, the focus in this phase of tetRRIS project is on two actions. One of them concerns creation of a practitioner network on citizen and stakeholder engagement, while the other action aims to initiate of an intensified dialogue and exchange between regional policy makers in Karlsruhe and Tampere regions in the context of tetRRIS project. Both of the initiatives emphasise inclusion, improving local diversity and especially learning from an international RRI dialogue. The practitioner network aims to strengthen local fora for open conversations and exchange of experiences with citizen and stakeholder engagement among practitioners in a trusted environment. Structured workshops will explore and address relevant issues such as best practices, public acceptance of new technologies, co-creation processes, or practical challenges. Sharing of experiences and good practices between peers in an environment of trust is seen important by the pilot regions. A concrete step forward to reach this goal is to set up dialogue between regional development policy makers in Karlsruhe and Tampere regions. Preliminary list of topics concern for example how to better involve diverse stakeholders and citizens in regional development strategies and processes, or how to strengthen the mission-orientation and sustainability focus in the local innovation and development strategy. To further improve regional responsiveness, the tetRRIS team in Karlsruhe has identified two other possible pilot activities, one of which relates to the organization of living-lab practitioner workshops and dialogues with regulators, and another the creation of a mobility advisory council.

The Szeged-Timişoara pilot is a "learning pilot" focused on deriving useful lessons and inspirations from the other pilot regions to stimulate first steps towards integrating RRI into the local development and innovation processes. Accordingly, the pilot activities centre on raising RRI awareness among actors and stakeholders in the regional innovation and development

ecosystem in the Hungarian-Rumanian dual region. In a learning phase of RRI, inclusion, responsiveness and adaptation are important dimensions to nourish in the region. In Szeged-Timişoara, awareness raising activities and RRI related messages are channelled through two ongoing strategic projects, TalentMagnet and DIH-World that are based on regional smart specialization strategies. At the same time, these projects implement inclusive processes that take into account regional stakeholders and citizens. Responsible innovation perspectives are embedded in activities of the two projects, such as organising RRI focused meetings and preparing trainings for partners deeper interested in responsibility. Also different types of materials (infographics, animations and leaflets) are prepared to convey most important RRI messages and advantages in easy to understand format that is important for dissemination of responsible innovation approach in the region.

The Tampere region pilot promotes integration and strengthening of RRI and sustainability themes in two priority areas, one focuses on regional development processes and another on manufacturing industry's ecosystem and industrial research, development and innovation practises. The former activity aims to improve regional responsiveness, while the latter focuses strongly in strengthening openness. In the domain of regional development, the project contributes to embedding the RRI dimensions into the regional development strategy and the smart specialization strategy by taking part to the preparatory process. In turn, planned collaboration between Tampere and Karlsruhe regions enables cross-regional exchange of views and practises in the development of regional innovation policy and promotion of institutional change, including issues of RRI and sustainability in policy-making. A concept of Corporate Responsibility Accelerator Hub is a primary tool to reach manufacturing SMEs and enhance understanding about corporate social responsibility. Furthermore, the Tampere pilot collaborates with the regional events to push the responsibility and sustainability agenda forward, like Sprint challenge competition with local students, Ekothon with civil society actors, and RRI Roundtable with RRI researchers.

Concluding comments - a way forward to strengthen regional RRI

The pilot regions are in different phases in their RRI journeys. Some regions need heavy awareness raising activities in order to plant the seed of RRI (Szeged-Timişoara), while other regions focus on integrating RRI into regional activities in order to get RRI institutionalised in the region (Tampere, Karlsruhe, Cantabria). Both approaches are needed and important, since change will not happen without people understanding why responsibility and sustainability are important to address in their processes and activities. In fact, envisaged institutional change in the regions focus largely on the public engagement. In this dimension, we already have good results in Tampere's regional strategy process. Moreover, many initiatives, like RRI guidelines and multi-stakeholder workshops in Cantabria and embedding of RRI dialogues through institutionalised network in Karlsruhe aim to create sustainable change in the local contexts and involved institutions.

Co-creation is in core of RRI approach, and several activities in the regions are dedicated to co-developing. However, RRI demands also true and open dialogue with regional stakeholders that many of the pilots have emphasised in their activities.