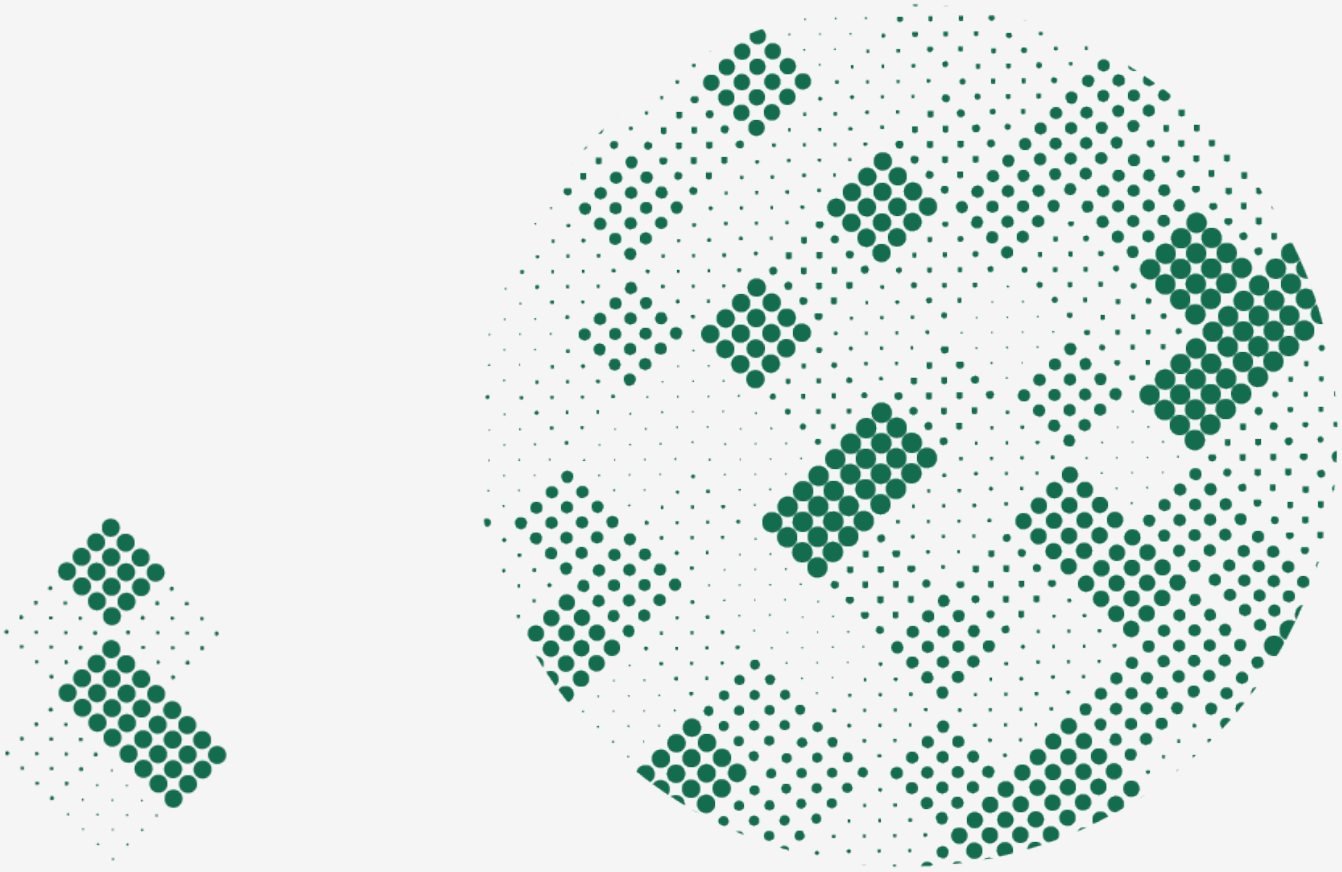
RESPONSIBLE RESEARCH AND INNOVATION IN TERRITORIES

RRI LEADERS

Deliverable 3.3

Compendium of territorial reports with orientations for the development of the transformative outlooks



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Deliverable 3.3

Compendium of territorial reports with orientations for the development of the transformative outlooks

Deliverable leader	Partner 5 – Zurich University of Applied Sciences (ZHAW)
Lead author	Pascal Lienert (ZHAW) Christopher Hartwell (ZHAW) Gabriel Happle (THA) Benjamin Ueltschi (THA) Martin Schmitz (THA) Anna Puiggros (PES SL) Belen Lopez (FCRi) Snezhina Gabova (SDA) Lefteris Topaloglou (LGA-WM) Pavlos Kilintzis (LGA-WM)
Contributors	Richard Blaese (ZHAW) Fridolin Brand (ZHAW) Alexandra Grammenou (ZHAW) Michael Erdin (ZHAW) Monica Molina (PES SL) Iolanda Repullo (PES SL) Svetlana Lomeva (SDA) Denitza Lozanova (SDA) Marko Hajdinjak (ARC Fund) Elpida Samara (UoWM)
Editors	Julia Miljevic Jakobsen (DBT) Maya Vestergaard Bidstrup (DBT) Nico Pfändler (ZHAW) Elpida Samara (UoWM)
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P5	ZURICH UNIVERSITY OF APPLIED SCIENCES	ZURCHER HOCHSCHULE FUR ANGEWANDTE WISSENSCHAFTEN	ZHAW
P6	REGIONAL ASSOCIATION OF LOCAL GOVERNMENT OF WESTERN MACEDONIA	PERIFEREIAKI ENOSI DIMON DYTIKIS MAKEDONIAS	LGA-WM
P7	SOFIA DEVELOPMENT ASSOCIATION	АСОЦИАЦИЯ ЗА РАЗВИТИЕ НА СОФИЯ (ASSOTSIATSIA ZA RAZVITIE NA SOFIA)	SDA
P8	MUNICIPALITY OF THALWIL	GEMEINDE THALWIL	THA
P9	ECONOMIC DEVELOPMENT AGENCY OF SABADELL CITY COUNCIL	PROMOCIO ECONOMICA DE SABADELL	PES SL

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List of acronyms / abbreviations used in this document

AIRR – Anticipation, Inclusiveness, Reflexivity, Responsiveness
DTSS – Digital Transformation Strategy for Sofia
DTNS – Digital Transition and New Skills
EC – European Commission
ICT – Information and Communication Technologies
IS3 – Innovation Strategy for Smart Specialisation of Sofia
NGO – Non-Governmental Organisation
PO – Policy Objective
PPC – Public Power Corporation
R&I – Research and Innovation
RES – Renewable Energy Sector
RRI – Responsible Research and Innovation
SM – Sofia Municipality
SI – Support for Innovation
SUD – Sustainable Urban Development
SYS – Sofia Youth Strategy
TO – Transformative Outlook
YEE – Youth Employment and Entrepreneurship

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About the project

The project "Leveraging Leadership for Responsible Research and Innovation in Territories" (RRI-LEADERS) explores the relevance of responsible research and innovation (RRI) to territorial governance in four European territories, representing different cultural and socio-economic backgrounds, different scope of territorial oversight, different institutional and decision-making infrastructures, different R&I landscapes and different dynamics among territorial actors.

The objectives of RRI-LEADERS are:

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

The central goal of RRI-LEADERS is to elaborate future-oriented strategy and action plans, or territorial outlooks, for the future potential of RRI as a guiding framework in territorial R&I governance. Outlooks will be developed through a multi-stage co-creation process, which will mobilise quadruple-helix stakeholders, i.e., academia, policymakers, industry and civil society, from the participating territories.

RRI-LEADERS involves four different territories: Sofia (Bulgaria), Thalwil (Switzerland), Western Macedonia (Greece) and Sabadell (Spain), representing a diverse range of opportunities and implications for responsible research and innovation (RRI), which will enable to carry out a thorough assessment of the RRI relevance to territorial governance. The involved territories will thus act as demonstrators for the potential of RRI on sub-national level. The accumulated knowledge will be used to chart a detailed outlook for the future potential of RRI as a guiding framework in territorial governance of R&I and will aim to provide an evolutionary perspective on RRI for the Horizon Europe programme.

The project adopts the dominant understanding of RRI, as defined by von Schomberg: "A transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products."[1] It diverges only slightly from this definition in that it does not promote the separation of innovators from the rest of the societal actors, and instead seeks to include societal actors as co-creators in the innovation processes, and enable leadership in the development of policies with a future outlook. In doing so, RRI-LEADERS interpretation of RRI, draws heavily on the extension of the RRI framework proposed by Stilgoe, Owen and Macnaghten, who emphasise the prospective notion of responsibility by introducing four dimensions of RRI –

[1] von Schomberg, R. (2011). "Prospects for technology assessment in a framework of responsible research and innovation". In: Dusseldorp, M., Beecroft, R. (Eds.), *Technikfolgen Abschätzen Lehren: Bildungspotenziale Transdisziplinärer*. Vs Verlag, Methoden, Wiesbaden.

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anticipation, inclusiveness, responsiveness and *reflexivity*, largely known as the AIRR dimensions.[2] RRI-LEADERS integrates these four dimensions into its methodological design and operational implementation.

RRI-LEADERS attempts to leverage leadership through three complementary tiers of planned intervention around RRI. For each of these tiers the RRI-LEADERS exemplifies leadership as a proactive, shared and responsible taking of action towards setting ambitions for change and societal transformations, driving collaboration and agreement across societal actors, and striving for excellence and lasting impact in the pursuit of these ambitions. The three tiers of leadership intervention are interlinked into an operational progression, whereby each tier supports and enables the others as the project progresses:

1. Leveraging leadership in understanding of RRI proliferation and opportunities in the four territories.
2. Leveraging leadership in examining RRI construct relevance to territorial applications and its transformative potential.
3. Leveraging leadership in the reaffirming of the RRI concept with a view of providing tighter integration of territorial aspects into a renewed RRI construct.

Website of RRI-LEADERS: www.rri-leaders.eu

[2] Stilgoe, J.; Owen, R. & Macnaghten, Ph. (2013). "Developing a framework for responsible innovation". In *Research Policy*, vol.42(9), pp.1568-1580.

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Executive Summary

This document represents *Project Deliverable 3.3,* the Compendium Report to lay the groundwork for transformative outlooks in the territories under the RRI-Leaders project. This report was developed within the framework of *WP3 Delphi exploration of consensus about future orientations for RRI in the participating territories* and builds on the reporting of the Delphi questionnaire (Deliverable 3.2) to identify feasible future pathways for better RRI integration for each one of the four involved territories chosen here for analysis. During this process, barriers, solutions, and ways to integrate the RRI-AIRR approach were examined for each policy focus in each territory. The number of Delphi questionnaires conducted under the study varied between the four territories:

- In the municipality of Sofia (Bulgaria), four Delphi questionnaires were conducted to investigate four policy areas, including support for innovation; sustainable urban development; youth employment and entrepreneurship; and digital transition and new skills.
- In the Region of Western Macedonia (Greece), one Delphi questionnaire was utilized, combining three policy foci within the territory: developing a stakeholder engagement strategy within the course of the post-coal transition road map; strengthening of policymaking systems involving different modes of territorial governance of the post-coal transition strategy; and developing a methodology aiming to a smooth and innovative transition from the coal value chain towards an alternative development 'paradigm'.
- In the city of Sabadell (Spain), one Delphi questionnaire was implemented, concerned with the policy focus of Active Ageing.
- In the municipality of Thalwil (Switzerland), one Delphi questionnaire investigated the policy focus of the energy transition.

The results of these studies were then discussed in a "World Café", which took place in each of the four territories. Following the common guidelines adopted by the project partners, the event was structured as a conversational process for knowledge sharing in which groups of people discuss a topic at several tables (like in a café).

From **Sofia**, the results of the Delphi study and the World Café added a new perspective on the importance of an **inclusive**, **participative, open and sustainable policymaking process**. In particular, there was an emphasis on **science education and research ethics**, as well as a recognition of the need to embed the various AIRR dimensions via **digitalisation of management processes and services.** Along these lines, participants of both processes stressed the need to utilize **experimentation-driven policy process**, in technology but also generally throughout public sector processes.

With regard to the **Western Macedonian** Delphi study and World Café, the **promotion of entrepreneurship** was considered a top priority in the framework of the energy transition in the Region by the participating stakeholders, followed closely by **energy efficiency** and **governance of the transition**, signalling a desire for green energy investments that would accelerate the process of energy transition in the Region alongside creation of an effective multilevel governance system which includes all strata of society. As elsewhere, the World Café event in Western Macedonia was an assessment tool of the statements regarding dimensions of the Delphi survey, and the recommendations which resulted focused on **prioritizing completion of spatial and urban planning,** a **transformation of the current legal investment framework to ease and promote investments**, and

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a move by national and local bodies to **invest in ICT platforms that may ease and accelerate public consultation**. Finally, **training and retraining to modern and innovative skills related to clean energy technologies** was seen as an absolute prerequisite for the local workforce to cope with the harsh effects of energy transition.

Sabadell came to different conclusions via the Delphi study and World Café processes, with much of the emphasis on active ageing and involving the elderly. In particular, participants focused on the need to **identify the needs of elderly people** and on **designing a methodology/strategy to guarantee their participation** in the transition. Beyond acknowledgements of the difficulties of an ageing society, the results of both processes also resulted in concern on the cost of any move towards greener processes, including **focusing on new ways to finance solar panels** and **dispersing knowledge on the benefits of solar and other technologies.**

Finally, in **Thalwil**, the Delphi study focused on the energy transition, i.e., a transformation of the territorial energy sector to net-zero greenhouse gas emissions. The findings of both the Delphi study and subsequent World Café discussion highlighted that **the municipal administration should act as a role model** via implementing and communicating energy-efficient and sustainable measures for mobility, buildings and procurement. Moreover, participants felt that **the municipality should plan for the energy transition;** this would include **creating new networks of stakeholders, developing a comprehensive sustainability communication concept** using social and traditional media, and **establishing new funding programmes for building renovations and investments in renewable energy generation**. As a final point, participants touched on a highly local issue, namely **improving recycling opportunities** in order to promote a circular approach to the economy in Thalwil.

Overall, the Delphi study and World Café processes, despite being spread out over four very diverse regions, returned important results related to both specific local issues and universal obstacles to RRI and energy transitions more generally. The most important common thread which emerged was **the amount of work that will be needed across all stakeholders in society** – but especially for policymakers – to lay the groundwork for research and innovation at the territorial level. This would mean more participatory mechanisms but also a reorientation of territorial processes from "business as usual" if these policy foci were to be tackled successfully.

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Chapter I: General Introduction

RRI-LEADERS: Leveraging Leadership for Responsible Research and Innovation in Territories, involves four different territories: Sofia (Bulgaria), Thalwil (Switzerland), Western Macedonia (Greece) and Sabadell (Spain), representing a diverse range of opportunities and implications for responsible research and innovation (RRI), which will enable to carry out a thorough assessment of the RRI relevance to territorial governance. The involved territories will act as demonstrators for the potential of RRI on sub-national level. The accumulated knowledge will be used to chart a detailed outlook for the future potential of RRI as a guiding framework in territorial governance of R&I and will aim to provide an evolutionary perspective on RRI for the Horizon Europe programme.

RRI-LEADERS attempts to leverage leadership through three complementary tiers of planned intervention around RRI. For each of these tiers the RRI-LEADERS exemplifies leadership as a proactive, shared and responsible taking of action towards setting ambitions for change and societal transformations, driving collaboration and agreement across societal actors, and striving for excellence and lasting impact in the pursuit of these ambitions. The three tiers of leadership intervention are interlinked into an operational progression, whereby each tier supports and enables the others as the project progresses:

- Tier 1 - Leveraging leadership in understanding of RRI proliferation and opportunities in the four territories.
- Tier 2 - Leveraging leadership in examining RRI construct relevance to territorial applications and its transformative potential.
- Tier 3 - Leveraging leadership in the reaffirming of the RRI concept with a view of providing tighter integration of territorial aspects into a renewed RRI construct.

This document represents *Project Deliverable 3.3,* the Compendium Report to lay the groundwork for transformative outlooks in the territories under the project. This report was developed within the framework of *WP3 Delphi exploration of consensus about future orientations for RRI in the participating territories* and builds on the reporting of the Delphi questionnaire (Deliverable 3.2) to identify feasible future pathways for better RRI integration for each involved territory. It is directed to the European Community to inform about the transformative outlooks in the four territories mentioned above.

The report features the following chapters:

- Chapter I General Introduction gives an introduction to RRI-LEADERS project and explains the current report in the project's development. It also includes a short explanation of the RRI framework and the AIRR dimensions, as well as an introduction into the overall applied methodology
- Chapter II presents the territorial report of Bulgaria, Sofia.
- Chapter III provides the territorial report of Greece, Western Macedonia

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- Chapter IV presents the territorial report of Spain, Sabadell
- Chapter V provides the territorial report of Switzerland, Thalwil, and
- Chapter VI is the concluding chapter where we analyse the aggregated results of the four territories.

RRI and AIRR Definitions

The **RRI policy framework** of the European Commission includes **five thematic keys**: Research Ethics, Public Engagement, Science Education, Gender Equality, and Open Access.

- **Public Engagement** is about bringing together researchers, policymakers, industry and civil society organisations and NGOs, as well as citizens, to deliberate on matters of science and technology.
- **Gender Equality** is about fostering gender balance in research teams, ensuring gender balance in decision-making in research, and integrating gender dimension in research and innovation content.
- **Open Access** is about making research findings available free of charge for readers.
- **Science Education** is about making science more attractive to young people (STEM – science, technology, engineering, and mathematics) as well as teaching and learning of science to non-scientists, such as school children, college students, or adults within the general public.
- **Ethics** is about conducting research in such a way that allows others to have confidence and trust in the methods and findings of research.

AIRR Dimensions

- **Anticipatory Governance** is focused on harnessing the collective intelligence and wisdom of collaborating organisations and citizens from a given territory (city, region, or state) to address strategic risks while at the same time capitalises on emerging opportunities so as to meet the set policy goals of the said territory.[3] Anticipation approaches include foresight, technology assessment, horizon scanning, scenarios, vision assessment, etc.
- **Inclusiveness** deals with the integration of perspectives from a wide range of societal actors (including non-organised and non-institutionalised citizens and community groups) and their involvement in multi-stage co-creation processes in a wide range of policy areas.
- **Reflexive Governance** implies encouraging reflection about societal circumstances in order to reassess practices and adjust initiatives.[4]

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[3] Jose Ramos (Action Foresight), Ida Uusikyla and Nguyen Tuan Luong (UNDP Viet Nam) (2020). *Anticipatory Governance — A Primer*. Posted on February 18, 2020, at https://www.vn.undp.org/content/vietnam/en/home/blog/AnticipatoryGovernance.html.

[4] Peter H. Feindt & Sabine Weiland (2018). 'Reflexive governance: exploring the concept and assessing its critical potential for sustainable development.' Introduction to the special issue, *Journal of Environmental Policy & Planning*, 20:6, 661-674, DOI: 10.1080/1523908X.2018.1532562.

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- **Responsive and Accountable Governance** places societal needs in the focus of plans and actions of public leadership and governance, and as well engages society in the processes of policy design and decision-making, as well as policy implementation, monitoring, and evaluation. It further develops institutions, structures, systems, and practices that promote the involvement and participation of the people and ensure equal access to services by all.[5]

Overall Methodology

The Delphi method is often used to collect the input from an expert panel on a predefined topic.[6] It includes multiple rounds of data collection and thus represents an iterative way to structure decision-making processes. In a classical Delphi study, the first round is used to collect participants' ideas and/or opinions on a certain topic. In the subsequent rounds, participants receive anonymised feedback on the statements generated in the previous round and are then asked to re-evaluate their answers, considering the answers of the other panellists. While the Delphi method historically was used to make predictions, it is nowadays most often applied to reach consensus among experts on complex topics.[7]

In RRI-Leaders, Delphi studies were conducted across various locales with the aim to develop consensus among experts on how to advance the policy foci in the different territories. During that process, barriers, solutions, and ways to integrate the RRI-AIRR approach were examined for each policy focus in each territory. The number of Delphi studies conducted varied between the territories:

- In the municipality of Sofia (Bulgaria), the Delphi study was conducted consisting of four Delphi questionnaires investigating four policy foci, i.e., Support for innovation; Sustainable urban development; Youth employment and entrepreneurship; and Digital transition and new skills.
- In the Region of Western Macedonia (Greece), the Delphi study was conducted combining the three policy foci within the territory (i.e., developing a stakeholder engagement strategy within the course of the post-coal transition road map; strengthening of policymaking systems involving different modes of territorial governance of the post-coal transition strategy; developing a methodology aiming to a smooth and innovative transition from the coal value chain towards an alternative development 'paradigm').
- In the city of Sabadell (Spain), the Delphi study investigated the policy focus of the active ageing.

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[5] Department of Economic and Social Affairs – United Nations (2015). *Responsive and Accountable Public Governance. 2015 World Public Sector Report*. Publication ST/ESA/PAD/SER.E/187, accessible at https://publicadministration.un.org/publications/content/PDFs/World%20Public%20Sector%20Report2015.pdf.

[6] Diamond, I. R., Grant, R. C., Feldman, B. M., Pencharz, P. B., Ling, S. C., Moore, A. M., & Wales, P. W. (2014). Defining consensus: a systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of clinical epidemiology*, 67(4), 401-409. https://doi.org/10.1016/j.jclinepi.2013.12.002

[7] Keeney, S., McKenna, H., & Hasson, F. (2011). *The Delphi technique in nursing and health research*. John Wiley & Sons.

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- In the municipality of Thalwil (Switzerland) the Delphi study investigated the policy focus of the energy transition.

Panel Composition

A two-step approach was followed to identify suitable experts for inclusion in the Delphi panels. In the first step, the most important system elements and change factors were identified for each policy focus by the partners in each territory. In a second step, experts that are closely linked to these leverage points and thus have the power to make the necessary changes to advance the policy focus were identified. For each Delphi study, at least 30 experts were identified and asked to participate. It was ensured that each expert panel included different stakeholder groups, that is, policy makers, business representatives, researchers, and representatives from civil society (such as NGOs).

Questionnaire Content for Round 1

In the first step in each territory, the basic content of the questionnaire was defined. To this end, the policy focus under investigation (e.g., energy transition) was divided into different topics (e.g., mobility). Next, policy objectives that have a high impact on the policy focus at hand and are steerable on the level of the territory were identified by the project partners for each topic (e.g., CO2-neutral car fleet within the municipality until 2050). No more than ten policy objectives were included in each questionnaire to keep the length manageable for the participants. In addition, best practices were identified for each topic. Specifically, a scientific literature review was conducted to identify strategies and/or measures that have proven efficient to advance the respective policy foci. In addition to the policy objectives and the best practices, participant characteristics were assessed at the beginning of the questionnaire in each round. These included age, gender, level of education, and the stakeholder group they were representing.

Finally, before the start of Round 1, all questionnaires were pilot tested by at least four people from inside or outside partners' organisations and their feedback regarding content, structure, and user friendliness was incorporated to improve the quality of the questionnaires.

Data Collection

Data collection took place between January and April 2022. All Delphi studies consisted of three rounds. In each round, panellists were invited via email to take part in the study. Data were collected using an online tool (Unipark) and the panellists had at least two weeks to provide their answers. It was possible to interrupt the completion of the questionnaire and continue at a later point in time. After one week, all participants received a reminder email. If necessary, phone calls were carried out to increase the response rate and to avoid dropouts.

For Round 2 and Round 3, all participants that were asked for their participation at the beginning of the Delphi study were contacted again and invited to participate, regardless of whether they had participated in previous rounds or not. While this might not be standard practice in Delphi studies, it

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can be beneficial in the sense that it leads to a better representation of opinions of the initial panel and can help to avoid false consensus.[8]

Round 1

Data collection for Round 1 started at the end of January 2022 and lasted until mid-February. The online questionnaire included open and closed questions. After the questions regarding the participants' characteristics and a short introduction to the policy area and to the policy objectives, participants were asked to indicate a maximum of three barriers, solutions, and out-of-the-box solutions to achieve each policy objective, as well as a maximum of three ways to integrate the RRI-keys and AIRR-dimensions in this process. After providing their answers in an open format, participants were presented with best practices for each topic and asked to rate the importance of these best practices on a Likert-scale from 1 ("not important at all") to 7 ("very important"). The same scale was used across the territories and across the different rounds. Only in the Delphi study conducted in the Region of Western Macedonia (Greece), a scale from 1 ("not important at all") to 5 ("very important") was used in all rounds.

Round 2

Data collection for Round 2 took place in March 2022. The online questionnaire included closed questions only. The open answers by the panellists from Round 1 regarding the barriers, solutions[9], and ways to integrate the RRI-AIRR concept were categorised using qualitative content analysis. This process resulted in statements for each policy objective across the different topics which were included in the questionnaire. In case that the panellists' statements and the best practices combined for more than 120 items, the most mentioned and important statements were selected by the research teams to make sure that the length of the questionnaire remained manageable for the participants and to avoid dropouts.

For each topic and each policy objective in every Delphi study, panellists rated the importance of the statements (i.e., barriers, solutions, and ways to integrate the RRI keys and AIRR dimensions) using the same 7-point scale from Round 1. In addition, participants received anonymised feedback on the panel's answers regarding the importance of the best practices for each topic from Round 1 in the form of statistical measures (i.e., Median and Standard Deviation) as well as Column Charts showing the distribution of the answers. The feedback was directly incorporated into the questionnaire and participants were then asked, with this information at hand, to re-evaluate the importance of the best practices, using the same scale from Round 1.

[8] Boel, A., Navarro-Compán, V., Landewé, R., & van der Heijde, D. (2021). Two different invitation approaches for consecutive rounds of a Delphi survey led to comparable final outcome. *Journal of Clinical Epidemiology*, 129, 31-39.

[9] For the sake of simplicity, the "out-of-the-box solutions" generated in Round 1 were also called "solutions" in the subsequent rounds.

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Round 3

Data collection for Round 3 took place in April 2022. The online questionnaire included closed questions only. Participants received feedback on the panel's answers regarding the importance of the barriers, solutions, and ways to integrate the RRI-AIRR concept for each policy objective from Round 2 in the form of statistical measures (i.e., Median and Standard Deviation) as well as Column Charts. Again, the feedback was directly incorporated into the questionnaire and participants were then asked to re-evaluate the importance of the statements, using the same scale from Round 1 and Round 2. The best practices included in Rounds 1 and 2 were not included in the third round. This was to make sure that all items included in the questionnaire were rated twice across the different rounds. Specifically, the importance of the best practices was rated by the panellists in Round 1 and Round 2, while the importance of the statements generated by the panellists was rated in Round 2 and Round 3.

Definition of Consensus

The goal of the Delphi studies was to develop a consensus among the experts on how to advance the policy focus at hand. Consensus was defined as percent agreement regarding the expert ratings. Specifically, consensus was reached if 75% of the experts rated the importance of the statement or best practice with a 6 or a 7 on the 7-point scale. The chosen cut-off of 75% corresponds to the median threshold identified in a systematic review of Delphi studies[10] and was applied in all Delphi studies in Sofia (Bulgaria), Sabadell (Spain), and Thalwil (Switzerland). The only exception was the Delphi study conducted in Western Macedonia (Greece), where consensus was reached if 85% of participants rated the importance with a 4 or a 5 on a 5-point scale.

[10] Diamond, I. R., Grant, R. C., Feldman, B. M., Pencharz, P. B., Ling, S. C., Moore, A. M., & Wales, P. W. (2014). Defining consensus: a systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of clinical epidemiology*, 67(4), 401-409.

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Chapter II: Territorial Report Bulgaria, Sofia

Introduction

This Chapter presents the results of the Delphi study and the World Café held in Sofia. The key findings indicate a high level of correspondence between the selections and ratings of the policy-related measures made by the experts in the three Delphi rounds and by the World Café participants. Overall, there was over 60% agreement between the solutions in the Delphi study and those selected by the World Café participants. The percentage of agreement regarding solutions linked to RRI/AIRR integration is even higher, reaching nearly 71%. The similarities between the two groups of participants are observed with respect to the general solutions proposed (measures linked to the achievement of pre-defined policy objectives in four policy areas), so-called out-of-the-box solutions, as well as specific solutions aimed to better integrate the RRI/AIRR framework within the institutional procedures and practices of Sofia Municipality and relevant quadruple helix stakeholders. The four policy areas concerned include Support for Innovation, Digital Transition and New Skills, Youth Employment and Entrepreneurship, and Sustainable Urban Development.

The Chapter is based on a qualitative and quantitative analysis of the Delphi results and the discussions in the World Café. The analysis compares the levels of agreement reached in the Delphi study and in the World Café and highlights those solutions that hold the most potential to induce positive change in the territorial governance practices. Extended summaries of the World Café discussions indicate perceived obstacles to the practical implementation of the identified solutions and, at the same time, offer ways for improving the policymaking process through participative, RRI-based approaches. The analysis also looks at areas of divergence and disagreement, for instance, where statements for which consensus has been reached in the Delphi study are considered as not relevant and not applicable by World Café participants. The share of these cases is low, in comparison to the overall level of agreement. There are a few cases in which statements that have not obtained a high percentage of consensus in Delphi study and are even below the 75% threshold are rated as most important by the World Café participants. The policy area with the lowest level of consensus in Delphi is Support for Innovation, with 27.9%; the highest level of consensus, over 60%, was obtained in the Youth Employment and Entrepreneurship area.

In terms of demographic distribution of participants, more women than men took part in both the Delphi study and the World Café. Representatives of academia/research organizations and civil society representatives were most active, followed by policymakers; participants from the industry and business were least represented. In fact, no questionnaires were completed by experts from this sector in the 3rd Delphi round.

Overall, the results of the two methods of expert assessment of policy objectives and measures provide a good basis for outlining the key future priorities for Sofia Municipality in the four policy areas and the possible ways to address them in the transformative outlook.

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The Chapter is structured as follows: the first section discusses the three rounds of the Delphi study, held in the period February – May 2022 and describes the ranking of the solutions and best practices proposed by the experts. Next, the report describes the results of the World Café sessions, which were held at the end of June 2022. In the final section, the report formulates conclusions relevant to the elaboration of the transformative outlook for Sofia.[11]

Methodology in Sofia

The following section outlines the methodologies for the Delphi study and the World Café; in both cases, the overall set-up of the activities proposed by the task leader was followed and only minor adjustments were made to fit the local context.

Methodology for the Delphi Study in Sofia

The general methodology for the Delphi study, including the questionnaire design, the panel composition and the data collection was elaborated by the consortium partners. The survey itself was implemented through an online system, Unipark.

The three-stage Delphi study was carried out with the use of questionnaires and expert panels. Each questionnaire included statements related to specific policy objectives. The policy objectives for Sofia Municipality were identified by the teams of the territorial and the methodological partners, respectively, SDA and ARC Fund. The goal of the Delphi study was to develop a consensus among the experts on barriers, solutions, best practices, and the importance of the integration of the RRI-AIRR concept in the context of the respective policy area. Consensus was defined based on the percentage of stakeholders who rated the importance of statements at the upper extremes of the Likert scales used across the questionnaires of the four territories. The cut-off for reaching consensus was set at 75%.

The Delphi study in Sofia was more complex compared to the other three territories participating in the project as it focused on four different policy areas. Consequently, Sofia used four questionnaires, one for each policy area with some overlap in respondents across questionnaires. The four questionnaires consisted of open and closed statements and included a total of 14 policy objectives. The total number of statements in all questionnaires was 196.

Delphi Study Panel Composition

With regard to the panel's composition, a two-step approach was followed to identify experts for inclusion in the Delphi panels. In a first step, the most important system elements and change factors in territorial governance were identified for each policy focus. In the second step, experts that are closely linked to these key elements and thus have the leverage to make the necessary

[11] Special thanks are due to the moderators of the World Café for their assistance during the event and for their input in drafting this report, including Marko Hajdinjak (ARC Fund), two experts from the Sofia Municipality, and an independent expert (kept anonymous for reasons of data protection).

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changes to advance the policy focus were identified, seeking an even representation of experts from local quadruple helix organizations, that is, academia, policymakers, NGOs, and businesses.

Table 1. *Overview of dates, number of contacts and participants in Delphi in Sofia*

Round	Dates	Total number of contacts	Total number of participants
First round	31/01/2022 - 15/02/2022	67	40
Second round	15/03/2022 – 30/03/2022	40	28
Third round	14/04/2022 – 30/04/2022	40	16

Data Collection

Data collection for Round 1 started at the end of January 2022 and lasted until mid-February. The online questionnaires included open and closed questions. For each policy area and each topic, 3 to 4 policy objectives were identified by the research team and presented to the participants. Participants were asked to indicate a maximum of three barriers, solutions, and out-of-the-box solutions to achieve each policy objective, as well as a maximum of three ways to integrate the RRI-keys and AIRR-dimensions in this process. After providing their answers in an open format, participants were presented with best practices for each topic and asked to rate the importance of these best practices on a scale from 1 ("not important at all") to 7 ("very important").

Data collection for Round 2 took place in March 2022. The online questionnaires included closed questions only. The open answers from Round 1 regarding the barriers, solutions, and ways to integrate the RRI-AIRR concept were analysed and categorised by the territorial partner SDA, using qualitative content analysis. This process resulted in statements for each policy objective which were included in the questionnaire and participants rated their importance using the same scale as well as column charts.

Round 3 was conducted in April 2022. The online questionnaires included closed questions only, compiled by the methodological partner, ARC Fund. Participants received feedback on the panel's answers regarding the importance of the barriers, solutions, and ways to integrate the RRI-AIRR concept in each policy objective from Round 2 in the form of statistical measures (i.e., median, and standard deviation areas).

Consensus was defined as percentage agreement in all studies across the territories. Specifically, consensus was reached if 75% of the experts rated the importance of the statement or best practice with a 6 or a 7 on the 7-point scale.

Methodology for the World Café in Sofia

The methodology which was followed for the World Café organization included the following steps.

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Participant selection

Invitations for the World Café were sent to experts from quadruple helix (academia/research, policymakers, industry & business, and civil society) organizations in Sofia. Some of the experts had taken part in the Delphi study, others had not taken part in any of the previous project activities. Altogether, 37 invitations were sent by email.

World Café Setup

The event was structured as a conversational process for knowledge sharing in which groups of people discuss a topic at several tables like those in a café. Participants rotated at four tables to discuss the results of the Delphi in the specific policy area (one table was dedicated to one policy area). External moderators were invited to facilitate table discussions. Participants were randomly divided into four groups, which rotated every 25-30 minutes, so that each group had a chance to exchange views on each of the four policy areas. Each group included representatives of the four helix sectors (policymakers, NGOs, academia/research, business).

Prior to the event, information materials about the Delphi results and worksheets per policy area were prepared and sent to the moderators; each worksheet listed the policy objectives of the policy area and the results of the Delphi study, indicating the percentage of consensus reached per statement (i.e., solutions, solutions related to the integration of the RRI/AIRR framework in the policy implementation, and best practices). A moderators-only session was held prior to the World Café to review the instructions and the World Café procedures.

The following questions were used to guide the discussions during the World Café:

- Which of the statements that have reached consensus are especially important to advance the policy focus within the territory?
- Which of the statements hold the most transformative potential within the territory, including through the integration of RRI/AIRR?
- Which of the statements that have reached consensus might not be feasible/practicable within Sofia Municipality?
- Which of the statements that have not reached consensus might still be important for the policy area and the advancement of RRI/AIRR?
- Please, provide alternative solutions linked to the implementation of the policy & achievement of the policy objectives.

During the table discussions, each person was asked to mark their agreement/disagreement with the statements selected in the Delphi for the respective policy objective using coloured post-its and/or coloured markers.

Collectively, each group also had to select three solutions from the respective policy area, as identified in the Delphi study, and to explain why they are considered most important for the implementation of the policy objectives. In addition, each group had to agree on the two most adequate solutions linked to the RRI/AIRR integration. Finally, each group had to suggest their own alternative solutions – whether general or specifically linked to RRI/AIRR – for each policy area.

Discussions in each group were recorded for the purpose of preparing this Chapter.

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Following the group discussions and the rotations, each moderator presented the results in a plenary session. A short Mentimeter questionnaire was run at the end of the event, asking the participants to rank selected policy solutions and to provide feedback on the event.

Results in Sofia

Participants' Characteristics in Sofia

Delphi Study Participants' Characteristics

- Participants invited to the Delphi study were representatives of local quadruple helix stakeholders, namely, public bodies, academia/research, NGOs, and industry/business.
- The average age of the participants was 44 in round 1, 45 in round 2 and 46 in round 3. The youngest participant was 25, and the oldest 71 years old. All participants have higher education. A brief overview of participants in each of the three Delphi rounds is given in the next table.

Table 2. *Overview of participants in Delphi by age, gender, and quadruple helix sector*

	Total number of participants	Female	Male	Academia and research	Policy-makers	Industry and business	Civil society
First round	40	29	11	10	10	9	11
Second round	28	18	8	9	5	6	8
Third round	16	11	5	8	2	0	6

When invited to participate in the Delphi study, participants were asked to complete min. two surveys: some were asked to complete Support for innovation and Sustainable urban development surveys, while the others worked with Digital transition and new skills, and Youth employment and entrepreneurship policy areas. However, some participants, and in fact a large majority of them in the third round, completed all four questionnaires. The table below compares the number of completed questionnaires in the three rounds.

Table 3. *Distribution of participants and completed questionnaires per policy area in Delphi*

	Number of completed surveys	Female	Male	Academia and research	Policy-makers	Industry and business	Civil society
First round	84						

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Support for innovation	25	19	6	7	8	5	5
Sustainable urban development	17	10	7	5	5	3	4
Digital transition and new skills	24	18	6	8	7	3	6
Youth employment and entrepreneurship	18	15	3	5	5	3	5
Second round	62						
Support for innovation	11	10	2	2	4	1	4
Sustainable urban development	12	7	5	2	3	3	4
Digital transition and new skills	20	14	5	9	3	3	5
Youth employment and entrepreneurship	19	13	5	8	3	2	6
Third round	53						
Support for innovation	15	11	4	8	2	0	5
Sustainable urban development	13	9	4	7	1	0	5
Digital transition and new skills	13	10	3	8	1	0	4
Youth employment and entrepreneurship	12	9	3	7	1	0	4

World Café Participants' Characteristics

The World Café took place in person on 27 June 2022, in SofiaLab, and was organized by SDA. Only four of the participants had taken part in the Delphi study; two had been interviewed in the first half of the RRI LEADERS project. The distribution of participants per age and quadruple helix sector is shown below.

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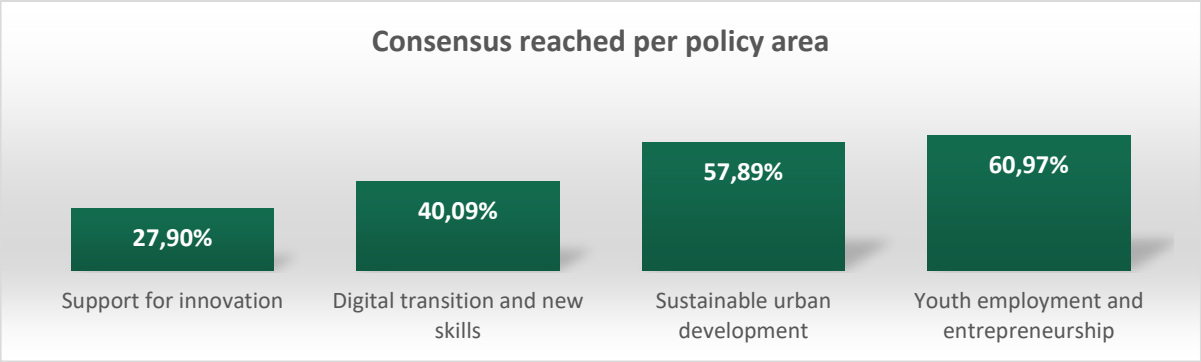
Table 4. *Participants' characteristics World Café*

	Total number of participants	Female	Male	Academia and research	Policy-makers	Industry and business	Civil society
World Café	24	16	8	2	5	2	15

Delphi Study Results in Sofia

Overall, consensus was reached in only some of the four policy areas and objectives. In fact, compared to the other three territories participating in the project, the Delphi study in Sofia shows the lowest percentage of consensus reached - 47.69%. The policy area with the lowest level of consensus is Support for Innovation, with 27.9%; the highest level of consensus, over 60%, was obtained in the Youth Employment and Entrepreneurship area. The chart below represents the consensus reached for general solutions, out-of-the-box solutions, and solutions linked to RRI integration; it does not include the identified barriers or best practices which were also part of the questionnaires.

Illustration 1. Percentage of Consensus Reached per Policy Area in Delphi



According to the statistical analysis of the findings, the keys that appear most often among the questionnaire statements are Public Engagement and Science Education. Open Access comes next, while Gender Equality and Ethics emerge least frequently. Regarding the AIRR dimensions, Inclusiveness and Responsiveness are the dimensions with the highest percentage of occurrences, followed by Anticipatory Governance and Reflexivity, which appears in the smallest number of statements in the set of questionnaires. It has to be noted that these dimensions are not explicitly referred to in the Delphi statements.

The tables below sum up the selected rating and consensus reached for each of the four policy areas tested by Delphi participants.

Table 5 shows the number of statements in policy area **Support for Innovation** for which consensus was reached, indicating also the number of overall statements included in the questionnaires and the number of statements which were selected by the participants. As can be seen, most support is given to the solutions for policy objective 3, developing *Flagship projects for*

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public sector innovations. Only one good practice was selected as relevant for the implementation of the policy objectives, and it is also linked to innovations in the municipal administration.

Table 5. *Overview of statements for which consensus was reached in Delphi for policy area Support for Innovation*

	Barriers	Solutions	Out-of-the-Box Solutions	Solutions for RRI Integration	Best Practice
Policy Objective 1: Building horizontal communication links with stakeholders from research & academia, private and civic sectors on RRI-AIRR approach in policies by 2023.	1/3	0/3	0/3	0/3	0/2
Policy Objective 2: Setting up funding instruments for support to innovation start-ups and companies by 2030.	2/3	0/3	0/3	1/3	0/2
Policy Objective 3: Sofia Municipality develops and implements Flagship projects for innovations in the public administration area by 2030.	3/3	3/3	1/3	0/3	1/1
Total	**6**	**3**	**1**	**1**	**1**

In policy area **Digital Transition and New Skills,** all of the proposed 12 solutions were approved in the Delphi study. Policy objectives 1 and 3 received the most support; all policy objectives linked to digital transition, e-governance, digitisation of administrative processes and communication with citizens, as well as open data measures were rated the highest. The RRI key open access and the AIRR dimensions inclusiveness and responsiveness were most often reflected in the proposed solutions in Delphi study.

Table 6. *Overview of statements for which consensus was reached in Delphi for policy area Digital Transition and New Skills*

	Barriers	Solutions	Out of the Box Solutions	Solutions for RRI Integration	Best practice
Policy Objective 1: Improving the connectivity and technical infrastructure in Sofia Municipality through environmentally friendly, user-	3/3	3/3	1/3	3/3	1/4

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friendly, smart and cost-effective solutions by 2025.					
Policy Objective 2: Improving social inclusion especially of vulnerable groups and minorities, creating new social e-services adapted to people with disabilities, providing an accessible and inclusive environment for senior citizens by 2025.	3/3	3/3	2/3	2/3	0/1
Policy Objective 3: New data policy allowing for optimising the dissemination of information to the public, including open data of the municipality, as well as internal communication of data and information amongst municipal units by 2025.	3/3	3/3	3/3	1/3	2/2
Policy Objective 4: Include the gender dimension in the Innovation Strategy for Smart Specialisation of Sofia by 2027.	0/3	3/3	0/3	2/3	0/0
Total	9	12	6	8	3

Ratings and selections in the policy area **Sustainable Urban Development** have also received a high percentage of consensus. Solutions linked to a new data policy (collection, storage, sharing of data) were ranked almost unanimously as important. The same applies also to the solutions for skilling/re-skilling/upskilling of the municipal staff, in particular for using new technologies. Least support was given to the solutions for public procurement based on RRI.

Table 7. *Overview of statements for which consensus was reached in Delphi for policy area Sustainable Urban Development*

	Barriers	Solutions	Out of the box solutions	Solutions for RRI integration	Best practice
Policy objective 1: Introducing social and economic impact assessment (besides ecological	1/3	2/3	3/3	3/3	0/3

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impact) of policies for sustainable urban development by 2025					
Policy objective 2: New public procurement procedures developed, which include RRI keys/AIRR dimensions by 2025	0/3	1/3	1/3	1/3	1/3
Policy objective 3: Developing staff training programmes for municipal administration for public sector innovations by 2025	3/3	3/3	2/3	2/3	0/0
Policy Objective 4: By 2025, develop a data policy framework for Sofia municipality; using data for evidence-based policy making, where the processes of collection, sharing, storing and opening of data are well defined.	3/3	3/3	1/3	3/3	0/3
Total	**7**	**9**	**7**	**9**	**1**

The policy area **Youth Employment and Entrepreneurship** has achieved the highest level of overall consensus in the Delphi study in Sofia. Wide support was given to the introduction of **gender equality** and diversity measures in strategic policy documents. **Inclusiveness, responsiveness**, reflexiveness were key dimensions included in the solutions for embedding RRI/AIRR.

Table 8. *Overview of statements for which consensus was reached in Delphi for policy area Youth Employment and Entrepreneurship*

	Barriers	Solutions	Out of the Box Solutions	Solutions for RRI integration	Best practice
Policy Objective 1: Secure municipal funding for young innovators and start-ups and increase funding by 5% by 2030.	1/3	3/3	2/3	2/3	0/2
Policy Objective 2: Financing an innovative Start-ups	2/3	2/3	2/3	2/3	0/2

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Programme of the Municipal Guarantee Fund for SMEs and introducing new financial instruments for youth entrepreneurship by 2030.					
Policy Objective 3: Include gender equality measures in a revised Youth Strategy of Sofia Municipality 2023.	3/3	3/3	1/3	2/3	0/1
Total	**6**	**8**	**5**	**6**	**0**

In the sections which follow, the final ranking of statements and best practices per policy area and policy objective resulting from the Delphi study is presented. A separate column in each table indicates the correlations (difference or agreement) in choice and ranking of the same statements between the Delphi study and the World Café participants.

Policy Area Support for Innovation

As pointed out above, the policy objectives and solutions proposed in this policy area received the lowest level of consensus from the Delphi participants. Improving the capacity and expertise of the municipal administration, transition to digital services, and ongoing communication with the citizens have drawn the support of most of the participants in the Delphi study. For this area, participants had to rank 36 statements related to 3 policy objectives.

Table 9. *Results of the Delphi study and rating of statements in policy area Support for Innovation*

POLICY OBJECTIVE 1: Building horizontal communication links with stakeholders from research and academia, the private and civic sectors on RRI-AIRR approach in policies by 2023	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Lack of funding, incentives and motivation, needed to engage universities and businesses with local policies.	64%	80%	18%	Yes	
2: Lack of a coordination unit and mechanisms for establishing horizontal links, including ones for the engagement of citizens and civil society organisations in the process.	36%	40%	29%	No	

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3: Low level of trust between stakeholders.	55%	60%	25%	No	
Solutions					
SOLUTION 1: Establishment of an analytical R&D unit in Sofia Municipality, which shall carry out the horizontal links and communication with academia, business associations and NGOs in the respective fields.	27%	20%	8%	No	
SOLUTION 2: Effective use of ICT, building an online platform/portal and communication channels for cooperation with all stakeholders.	45%	60%	9%	No	
SOLUTION 3: Developing a strategy with key priorities for horizontal cooperation, addressing the needs of stakeholders, as well as measures for implementation and provision of feedback.	27%	27%	17%	No	
OUT OF THE BOX 1: Organising events, festivals, competitions, hackathons, annual awards for initiatives that contribute to the objective.	27%	33%	2%	No	
OUT OF THE BOX 2: Applying the living labs method to experiment and scale innovations (social, technological), which shall be then introduced throughout the city.	55%	43%	18%	No	Ranked important by three groups
OUT OF THE BOX 3: Creating a joint (by the administration, universities and businesses) research infrastructure to address topics of societal interest.	64%	64%	- 25%	No	Ranked important by one group
Ways to integrate RRI-AIRR					
1: Conducting a communication and information campaign, targeted at the general public to get people acquainted with the benefits of RRI/AIRR.	36%	64%	-2%	No	
2: Promotion of innovative achievements by research institutes, universities, businesses, to facilitate the adoption of ideas and outputs in territorial governance and the provision of public services.	82%	71%	20%	No	Ranked important by one group

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3: Establishment of multifunctional or thematic working groups for advocacy and capacity building, through horizontal links between stakeholders.	64%	57%	17%	No	

Best Practices Policy Objective 1	1st rating	2nd rating	Difference between the ratings	Consensus reached?
BP 1/1-1 Promoting the use of online consultations with citizens	68%	45%	-23%	No
BP 1/1-2 Foster experimentation and urban manufacturing	72%	45%	-27%	No

POLICY OBJECTIVE 2: Setting up funding instruments for support to innovation start-ups and companies by 2030	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Lack of sufficient funds for sustainable support of start-ups.	75%	93%	18%	Yes	
2: Insufficient administrative and expert capacity to manage such instruments.	56%	71%	15%	No	
3: Rapidly changing innovation environment, a lot of start-ups on the market and lack of interest by beneficiaries.	55%	80%	25%	Yes	
Solutions					
SOLUTION 1: Establishment of a coordination unit in Sofia Municipality with a program for innovation management and financial instruments, and clearly defined annual thematic/sectoral priorities.	45%	53%	8%	No	Ranked important by one group
SOLUTION 2: Establishing partnerships with existing private funds in order to design new financial instruments and ensure support for start-ups and innovation companies.	64%	73%	9%	No	Ranked important by 4 groups
SOLUTION 3: New grants for long-term programs such as ones supporting innovative green projects as well as	36%	53%	17%	No	

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cultural, social or environmental projects.					
OUT OF THE BOX 1: Set up a sustainable fund by making deductions from the profit of already supported start-ups, combine it with crowdfunding.	45%	47%	2%	No	
OUT OF THE BOX 2: Set up a facility/physical space where mentoring, consulting and expert support for innovative start-ups is available.	55%	73%	18%	No	Ranked important by one group
OUT OF THE BOX 3: Organising hackathons, datathons for the design of funding tools for start-ups and innovative companies.	45%	20%	-25%	No	
Ways to integrate RRI-AIRR					
1: Establishment of a municipal unit/advisory council with the participation of experts to manage, monitor and evaluate project applications.	55%	53%	-2%	No	
2: Funding programs should include requirements for application of RRI/AIRR by the beneficiaries.	73%	93%	20%	Yes	Ranked important by 3 groups
3: Set up funding instruments for women and other unrepresented groups to pursue innovations.	36%	53%	17%	No	
Best Practices Policy Objective 2	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
BP ½-1 Support the creation of sustainable business start-ups	72%	55%	-17%	No	
BP ½-2 Stimulating youth employment by start-up support programmes	84%	73%	-11%	No	
POLICY OBJECTIVE 3: Sofia Municipality develops and implements Flagship projects for innovations in the public administration area by 2030	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking

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Barriers					
1: Lack of administrative and expert capacity as well as experience in implementing such innovations.	75%	93%	18%	Yes	
2: A lot of administrative structures that find it difficult to adapt to change and innovation.	56%	71%	15%	Yes	
3: Lack of funding for such projects.	73%	87%	14%	Yes	
Solutions					
SOLUTION 1: Introducing innovations in specific fields and municipal units through pilot projects, which are then implemented on a larger scale.	64%	87%	23%	Yes	Ranked important by 4 groups
SOLUTION 2: The Ministry of Innovation and Growth to develop a special program for innovation and for improving governance at local and national level.	82%	80%	-2%	Yes	
SOLUTION 3: Developing capacity for creating and managing innovations in Sofia Municipality through exchange of good practices and involvement of stakeholders' experts.	73%	87%	14%	Yes	
OUT OF THE BOX 1: Establishment of a specialised unit for Flagship projects in Sofia Municipality, which shall coordinate the innovations in public governance.	55%	67%	12%	No	
OUT OF THE BOX 2: Promoting digitalisation, the use of new technologies and artificial intelligence public administration.	82%	87%	5%	Yes	Ranked important by 1 group
OUT OF THE BOX 3: Attracting experts from other fields to management positions in Sofia Municipality to implement such projects.	55%	73%	18%	No	
Ways to integrate RRI-AIRR					
1: Introduction of open access to data and information, constant feedback from stakeholders.	82%	73%	-9%	No	Ranked important by 4 groups
2: Citizens monitoring and control of the implementation of the policies for open data and free access to data.	73%	73%	0%	No	

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3: Strict application of a code of ethics to increase the trust of data controllers and users in the system.	45%	67%	22%	No	
Best Practices Policy Objective 3	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
BP 1/3-1 Encourage digitisation on a local, regional and international level	92%	100%	8%	Yes	
BP 1/3-1 Bring creative entrepreneurs to abandoned shopping areas	72%	45%	-27%	No	
BP 1/3-1 A support point for entrepreneurs	75%	64%	-11%	No	

Policy Area Digital Transition and New Skills

In this policy area the Delphi participants have given unanimous support to only 40% of the statements. Solutions linked to digitization of all administrative processes have received high rates of support. With regard to RRI/AIRR, cooperation with the stakeholders and the creation of joint research and digital infrastructure, as well as citizen involvement in monitoring policy implementation (through open access), are the solutions for which consensus has been reached. For this policy area, participants had to rank 48 statements related to 4 policy objectives. The table below provides the details of the Delphi selections.

Table 10. *Results of the Delphi study & rating of statements in policy area Digital Transition & New Skills*

POLICY OBJECTIVE 1: Improving the connectivity and technical infrastructure in Sofia Municipality through environmentally friendly, user-friendly, smart and cost-effective solutions by 2025.	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Lack of an overall approach and administrative capacity.	75%	93%	18%	Yes	
2: Lack of funding, needed for such an infrastructure.	70%	92%	22%	Yes	
3: Lack of transparent procedures for funding.	50%	92%	42%	Yes	
Solutions					

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SOLUTION 1: Cooperation with the IT sector and engagement of stakeholders and citizens in decision-making and implementation of the objective.	80%	85%	5%	Yes	Ranked important by 1 group Considered not applicable by 1 group
SOLUTION 2: Digitisation of all processes with open access and open data for stakeholders.	80%	92%	12%	Yes	Ranked important by 3 groups
SOLUTION 3: Increasing the capacity and digital competencies of the administration.	100%	100%	0%	Yes	Ranked important by 1 group
OUT OF THE BOX 1: Allowing private companies to create free of charge tech solutions while respecting property rights and access to data.	50%	69%	19%	No	
OUT OF THE BOX 2: Participation in European funding programs or consultation in the field of digitalisation.	60%	85%	25%	Yes	
OUT OF THE BOX 3: Organising competitions, contests for finding innovative solutions by start-ups, universities, etc.	55%	54%	-1%	No	
Ways to integrate RRI-AIRR					
1: Using the expert potential of local universities, research units and businesses to achieve the objective.	70%	92%	22%	Yes	
2: Implementation of partnership projects, involving businesses, municipal experts, citizens and other stakeholders.	65%	77%	12%	Yes	Ranked important by 1 group
3: Providing open access to data, facilitating third-party technology solutions.	75%	77%	2%	Yes	Ranked important by 1 group
Best Practices Policy Objective 1	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
BP 3/1-1 Maintain and improve the public space and revive commercial zones by increasing civic involvement	92%	100%	8%	Yes	

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BP 3/1-2 Create a digital solution which will reduce the approval process for building applications	72%	45%	-27%	No	
BP 3/1-3 Introduce citizens and tourists to history through the digitisation of cultural sites	75%	64%	-11%	No	
BP 3/1-4 Implement smart grid technologies throughout the city	87%	60%	-27%	No	
POLICY OBJECTIVE 2: Improving social inclusion especially of vulnerable groups and minorities, creating new social e-services adapted to people with disabilities, providing an accessible and inclusive environment for senior citizens by 2025.	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Lack of adequate data, analysis of the problem and a comprehensive strategy for solving it.	75%	93%	18%	Yes	
2: Public and institutional neglect of the problem and of vulnerable groups.	56%	71%	15%	No	
3: Lack of internet access, digital devices and digital skills by the target groups.	70%	77%	7%	Yes	
Solutions					
SOLUTION 1: Research on the needs and participation of the target groups in finding a systematic solution to the problem.	65%	92%	27%	Yes	Ranked important by 3 groups
SOLUTION 2: Creating financial instruments, aiming to develop technological solutions, in partnership with businesses and target groups.	55%	92%	37%	Yes	
SOLUTION 3: Providing training and information, access to digital devices and digital services to target groups.	75%	92%	17%	Yes	
OUT OF THE BOX 1: Establishment of centres for shared access to digital devices and to the internet for the target groups.	55%	85%	30%	Yes	

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OUT OF THE BOX 2: Implementation of joint projects with universities or start-ups for the technological creation of services.	55%	85%	30%	Yes	
OUT OF THE BOX 3: Technological solutions such as a chatbot, designed specifically for the elderly in order to facilitate them when using digital services and devices.	45%	46%	1%	No	
Ways to integrate RRI-AIRR					
1: Engaging vulnerable groups in finding solutions and their implementation.	80%	85%	5%	Yes	Ranked important by 3 groups
2: Representatives of the target groups to be appointed in the administration and to consult the search of solutions to the problems.	40%	46%	6%	No	
3: Integration of the e-infrastructure and service platform for the target groups into a smart city platform.	75%	92%	17%	Yes	Considered not applicable by 1 group
Best Practices Policy Objective 2	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
BP 3/2-1 Improve living conditions by creating a one-stop shop that encompasses various mechanisms for home renovation	54%	66%	12%	No	
POLICY OBJECTIVE 3: New data policy to optimise the dissemination of information to the public, including open data of the municipality, as well as internal communication of data and information amongst municipal units by 2025.	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Lack of administrative capacity (cyber security) and methodology for data collection and management according to a unified format.	90%	92%	2%	Yes	

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2: Outdated and insufficient technological infrastructure and solutions to achieve the objective.	85%	85%	0%	Yes	
3: Lack of proactive action, unwillingness to change, resulting from fear of losing one's job.	60%	85%	25%	Yes	
Solutions					
SOLUTION 1: Recruiting staff with the necessary skills, attracting young people to the administration.	80%	92%	12%	Yes	Ranked important by one group
SOLUTION 2: Conducting specialised trainings for handling data/digital technologies for the administration.	80%	92%	12%	Yes	
SOLUTION 3: Digitalisation of administrative processes and services.	100%	92%	-8%	Yes	
OUT OF THE BOX 1: Active work with IT businesses and research institutes, using their R&D programs to develop non-conventional solutions.	80%	85%	5%	Yes	
OUT OF THE BOX 2: Rating of services, evaluation by citizens as an incentive to implement the policy.	65%	77%	12%	Yes	
OUT OF THE BOX 3: Establishment of a virtual office, general information desk of Sofia Municipality.	80%	85%	5%	Yes	Considered not applicable by 1 group
Ways to integrate RRI-AIRR					
1: Open access to data and information, constant feedback from stakeholders.	80%	77%	-3%	Yes	Ranked important by one group
2: Citizens monitoring and control of the implementation of open data policies and free access to data.	80%	62%	-18%	No	Ranked important by one group
3: Strict application of a code of ethics to increase the trust of data controllers and users in the system.	50%	62%	12%	No	
Best Practices Policy Objective 3	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
BP 3/3-1 Building e-governance	75%	85%	10%	Yes	

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BP 3/3-2 Digital Economy and Society Index (DESI)	54%	84%	30%	Yes	
POLICY OBJECTIVE 4: Include the gender dimension in the Innovation Strategy for Smart Specialisation of Sofia by 2027.	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Lack of accurate data for tracking and measuring gender equality, lack of information about the problem.	50%	69%	19%	No	
2: Misunderstanding and neglect of the principles of equality and diversity and their social significance.	70%	69%	-1%	No	
3: Lack of a recognition that there is a problem with gender equality in Bulgaria.	40%	23%	-17%	No	
Solutions					
SOLUTION 1: Implementation of European rules and directives as well as good European practices.	70%	85%	15%	Yes	
SOLUTION 2: Conducting an information campaign, promoting good examples and role models to achieve the objective.	65%	77%	12%	Yes	Ranked important by one group
SOLUTION 3: Regular data collection, analysis, monitoring of performance indicators, evaluation of measures.	80%	92%	12%	Yes	Ranked important by one group
OUT OF THE BOX 1: Media campaigns, cultural programs, engaging celebrities in promoting good practices to achieve the objective.	70%	69%	-1%	No	Considered not applicable by 1 group
OUT OF THE BOX 2: Introduction of standards for gender equality and diversity in the administration.	70%	69%	-1%	No	
OUT OF THE BOX 3: Advisory council composed of women to Sofia Municipality, to assist in developing the strategy.	35%	31%	-4%	No	
Ways to integrate RRI-AIRR					

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1: Extensive consultations and involvement of organisations and experts in the decision-making process.	75%	85%	10%	Yes	Ranked important by one group
2: Support measures for young people and women in science, minority and vulnerable groups.	75%	85%	10%	Yes	Ranked important by one group
3: Informing the public, creating incentives and awards for good practices that support equality and diversity.	60%	69%	9%	No	

Policy Area Sustainable Urban Development

This policy area has received the second highest percentage of consensus, close to 58%; solutions linked to data collection, sharing, and open access are rated highest. So are the policy objectives for introducing procedures for social impact assessment of policies by 2025, as well as capacity building for the staff. For this policy area participants had to rank 48 statements for 4 policy objectives.

As the table shows, several solutions have been backed up by 100% of the Delphi participants. These are linked to policy objective 4, introducing a data policy in the municipality to streamline the process of data collection and sharing and to synchronize the administrative procedures across units and departments. In terms of RRI, the inclusion of citizens and vulnerable groups is seen as key for policy implementation. Engagement of and collaboration with stakeholders have also received consensus. The next table details the distribution of statements and votes per policy objective and solution.

Table 11. *Results of the Delphi study & rating of statements in policy area Sustainable Urban Development*

Policy objective 1: Introducing social and economic impact assessment (besides ecological impact) of policies for sustainable urban development by 2025	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Insufficient publicity of the processes.	25%	54%	29%	No	
2: Lack of capacity, experience and understanding about the importance of evaluation.	58%	77%	19%	Yes	
3: Difficulty to reach a political consensus about the introduction of the practice.	50%	69%	19%	No	

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Solutions					
SOLUTION 1: Unification of the social and the economic impact assessment of policies, digitalisation of the process.	42%	69%	27%	No	
SOLUTION 2: Increasing the administrative and expert capacity of Sofia Municipality.	67%	92%	25%	Yes	Ranked important by 2 groups
SOLUTION 3: Development of rules, methodology and criteria for evaluation and control, with the participation of stakeholders.	42%	85%	43%	Yes	
OUT OF THE BOX 1: Creating a digital platform for smart governance and provision of services, related to RRI.	67%	85%	18%	Yes	Ranked important by 1 group
OUT OF THE BOX 2: Introducing RRI into all administrative procedures of Sofia Municipality.	33%	77%	44%	Yes	Considered not applicable/ not practical
OUT OF THE BOX 3: Creating databases with solutions and open access tools that can be used by all stakeholders.	58%	77%	19%	Yes	
Ways to integrate RRI-AIRR					
1: Engagement of citizens and stakeholders in the process – NGOs, businesses, academia.	67%	85%	18%	Yes	
2: Creating conditions for transparency, accountability and monitoring through open data.	58%	77%	19%	Yes	Ranked important by 2 groups
3: Using the expert potential of businesses, academia and NGOs through a platform for exchange of information.	67%	77%	10%	Yes	Ranked important by 2 groups
Best Practices Policy Objective 1	1st rating		2nd rating	Difference between the ratings	Consensus reached?
BP 2/1-1 Enforce EMAS (Eco Management and Audit Scheme) Regulations on public transport tenders	76%		33%	-43%	No
BP 2/1-2 Developing smart cities through the Social, Management,	64%		33%	-31%	No

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Economic, Legal, Technology and Sustainability (SMELTS) framework BP 2/1-3 Enhancing impact investing for addressing social challenges	53%		25%	-28%	No
Policy objective 2: New public procurement procedures developed, which include RRI keys and AIRR dimensions by 2025	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: This will lead to additional bureaucracy and complication of procedures.	33%	46%	13%	No	
2: Unclear benefit from introducing these elements in public procurement procedures.	42%	38%	-4%	No	
3: Risk of conflict of interests in their implementation.	42%	31%	-11%	No	
Solutions					
SOLUTION 1: Development of a methodology and specialised trainings for introduction of the procedures.	58%	62%	4%	No	
SOLUTION 2: Application of good practices, cooperation with businesses in order to introduce the procedures.	50%	69%	19%	No	
SOLUTION 3: Pilot testing, assessment of experience and introduction in all administrative structures	92%	77%	-15%	Yes	Considered not applicable/ not practical
OUT OF THE BOX 1: Annual award for the most successful public procurement, executed in line with RRI/AIRR	42%	15%	-27%	No	
OUT OF THE BOX 2: Creating a register of sustainable public procurement practices/ good practices.	50%	92%	42%	Yes	Ranked important by one group
OUT OF THE BOX 3: Introduction of blockchain management for public procurement processes and resources	58%	62%	4%	No	
Ways to integrate RRI-AIRR					

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1: Development of manuals for conducting public procurement procedures in line with the principles of RRI/AIRR as well as establishment of a helpdesk service for the municipal administration.	67%	85%	18%	Yes	Ranked important by one group
2: Establishment of a citizens' board that exercises control over the administration during the implementation of the procedures.	50%	46%	-4%	No	
3: Organising an information campaign that explains the benefits of public procurement, executed in line with RRI.	50%	31%	-19%	No	

Best Practices Policy Objective 2	1st rating	2nd rating	Difference between the ratings	Consensus reached?
BP 2/2-1 Implement a green public procurement plan	82%	67%	-15%	No
BP 2/2-2 Facilitate green public procurement and develop technical specifications related to its implementation	76%	83%	-7%	Yes
BP 2/2-3 Facilitate sustainable public procurement	59%	58%	-1%	No

Policy objective 3: Developing staff training programmes for municipal administration for public sector innovations by 2023	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Lack of funding and resources for the implementation of such programs.	67%	85%	18%	Yes	
2: Lack of motivation to change by members of the administration.	67%	85%	18%	Yes	
3: Unclear definition of public innovation, which will affect the quality and effectiveness of training programs.	83%	85%	2%	Yes	
Solutions					
SOLUTION 1: Introduction of standards regarding the competencies of the administration	58%	77%	19%	Yes	Ranked important by 2 groups

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as well as certification of the administration.					
SOLUTION 2: Implementation of curricula that involves universities and research organisations.	58%	77%	19%	Yes	Ranked important by 1 group
SOLUTION 3: Creating appropriate incentives for career development in the administration.	83%	85%	2%	Yes	
OUT OF THE BOX 1: Conducting internal competitions/ hackathons in order to gather ideas about the content of programs as well as about innovations to be introduced by the administration.	25%	38%	13%	No	
OUT OF THE BOX 2: Development of a modern ICT platform that allows flexible training and self-learning.	67%	92%	25%	Yes	
OUT OF THE BOX 3: Organising design seminars and innovation camps for the municipal administration and other stakeholders in order to create programs.	67%	77%	10%	Yes	
Ways to integrate RRI-AIRR					
1: Creating programs through co-design ateliers, research, consultations with universities and businesses.	42%	54%	12%	No	
2: Inclusion of cases, related to innovations, aimed at different target groups, in the training programs.	67%	77%	10%	Yes	
3: The curriculum should include modules, dedicated to the application of RRI.	67%	77%	10%	Yes	Ranked important by one group.
Policy Objective 4: Developing a data policy framework for Sofia municipality; using data for evidence-based policy making, where the processes of collection, sharing, storing and opening of data are well defined by 2025	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					

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1: Risks of lack of transparency, conflict of interests.	58%	85%	27%	Yes	
2: Lack of adequate technical infrastructure for data management.	100%	85%	-15%	Yes	
3: Unclear rules and lack of operationalised definitions about the objects and processes, related to data registration.	100%	100%	0%	Yes	
Solutions					
SOLUTION 1: Creation of a unified model/format for data collection in accordance with the requirements of national legislation and European regulations.	100%	100%	0%	Yes	Ranked important by 2 groups
SOLUTION 2: Necessity to have rules for coordination and synchronisation of the units that are involved in data management processes in Sofia Municipality.	100%	100%	0%	Yes	
SOLUTION 3: Improving the digital skills of the administration.	100%	100%	0%	Yes	
OUT OF THE BOX 1: Conducting hackathons, contests, competitions that support the achievement of this goal.	58%	46%	-12%	No	
OUT OF THE BOX 2: Building a cloud server for the municipal administration, which allows access to data of employees who are outside of the municipal network.	92%	77%	-15%	Yes	Considered not applicable / not practical
OUT OF THE BOX 3: Inclusion of PhD students from universities and research institutes, who are specialising in ICT.	67%	54%	-13%	No	
Ways to integrate RRI-AIRR					
1: Engaging stakeholders in the process of policy development, implementation and evaluation.	75%	92%	17%	Yes	
2: Use of open data, open code, full publicity and transparency of the process.	83%	77%	-6%	Yes	Ranked important by one group.
3: Cooperation with representatives of scientific and research institutes	75%	77%	2%	Yes	Ranked important

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and businesses in order to provide an optimal technical structure.					by one group.
Best Practices Policy Objective 4	1st rating		2nd rating	Difference between the ratings	Consensus reached?
BP 2/4-1 Enhancing participatory urban planning	42%		25%	-17%	No
BP 2/4-2 Including citizens perspectives in circular economy policies	35%		33%	-2%	No
BP 2/4-3 Improving open data release of local governments	76%		67%	-9%	No

Policy Area Youth Employment and Entrepreneurship

The fourth policy area relates to policy objectives for the advancement of youth employment and entrepreneurship. This area, as mentioned above, has drawn the highest level of support from the Delphi participants. The solutions which have been ranked highest are linked to the introduction of gender equality and diversity measures in strategic policy documents, for example, the Youth Strategy for Sofia. In terms of ways to integrate RRI/AIRR, collaboration among stakeholders, open access and providing data to youth start-ups, campaigns to focus the public attention on youth entrepreneurship issues have drawn the support of most participants. Participants had to rank 36 statements for 3 policy objectives.

Table 12. *Results of the Delphi study and rating of statements in policy area Youth Employment and Entrepreneurship*

POLICY OBJECTIVE 4/1: Secure municipal funding for young innovators and start-ups and increase funding by 5% by 2030.	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Insufficient capacity for financial management among the youth and lack of programs to increase it.	74%	83%	9%	Yes	
2: Lack of an ecosystem that supports young innovators and start-ups.	74%	50%	-24%	No	
3: Lack of interest from innovators and start-ups and lack of adequate projects.	47%	67%	20%	No	
Solutions					
SOLUTION 1: Development of a preliminary financial program with a clear commitment by the	79%	83%	4%	Yes	

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responsible structures and institutions.					
SOLUTION 2: Creating an ecosystem that supports young innovators and start-ups (technological parks, research institutes, digital innovation hubs).	89%	83%	-6%	Yes	Ranked important by 3 groups Considered not applicable by one group
SOLUTION 3: Active use of European programs and funds from the Municipal Guarantee Fund for SMEs to achieve the objective.	68%	92%	24%	Yes	
OUT OF THE BOX 1: Establishment of a local innovation/acceleration hub, provision of space, mentoring and infrastructure to young innovators.	74%	67%	-7%	No	
OUT OF THE BOX 2: Development, implementation, evaluation of the funding program in collaboration with youth organisations (including during the selection of projects).	79%	92%	13%	Yes	
OUT OF THE BOX 3: Linking funding to the implementation of pilot projects/ innovations, related to specific municipal policies, target groups, etc.	84%	83%	-1%	Yes	Ranked important by 2 groups
Ways to integrate RRI-AIRR					
1: The funding program shall include requirements for the application of RRI/AIRR by all beneficiaries.	68%	58%	-10%	No	
2: Regular surveys among young people, innovators, founders of start-ups, etc. in order to anticipate their long-term needs and plan appropriate financial instruments in collaboration with them.	84%	92%	8%	Yes	

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3: Collaboration with research institutes, businesses and linking funding with educational programs or joint initiatives with the business.	89%	92%	3%	Yes	Ranked important by 3 groups

Best Practices Policy Objective 1	1st rating	2nd rating	Difference between the ratings	Consensus reached?
BP 4/1-1 Provision of subsidised employment	39%	37%	-2%	No
BP 4/1-2 Stimulate youth entrepreneurship and facilitate the realisation of business projects	72%	63%	-9%	No

Policy Objective 4/2: Financing an innovative Start-ups Programme of the Municipal Guarantee Fund for SMEs and introducing new financial instruments for youth entrepreneurship by 2030.	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Overlap with other programs and private funds.	42%	67%	25%	No	
2: Insufficient funds for long-term funding of projects as a result of financing SMEs in Sofia Municipality.	68%	92%	24%	Yes	
3: Long and difficult application procedures as well as poor preparation of potential applicants.	74%	83%	9%	Yes	
Solutions					
SOLUTION 1: Development of mentoring programs and ensuring conditions that support young entrepreneurs in testing and implementing their ideas.	84%	67%	-17%	No	Ranked important by 2 groups
SOLUTION 2: Collaboration with universities, laboratories and businesses during the implementation of projects.	74%	83%	9%	Yes	
SOLUTION 3: Collaboration with businesses and European programs, aiming to provide	74%	92%	18%	Yes	

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additional funding for young entrepreneurs.					
OUT OF THE BOX 1: Establishment of municipal entrepreneurship centres that provide specialised support to young entrepreneurs.	68%	67%	-1%	No	
OUT OF THE BOX 2: Reinvesting profits from already funded companies back into the program in order to refill resources.	74%	75%	1%	Yes	Ranked important by 3 groups
OUT OF THE BOX 3: Including measures targeted at certain target groups – women, migrants, disadvantaged people in order to address their needs and to reduce deficits in the municipal economy.	74%	83%	9%	Yes	Ranked important by one group Considered not applicable by one group
Ways to integrate RRI-AIRR					
1: Open access to data and research results, provision of access to data for start-ups.	79%	67%	-12%	No	Ranked important by one group
2: Development of a local strategy for innovation and start-ups in collaboration with research units and businesses.	63%	92%	29%	Yes	Ranked important by 2 groups
3: The funding program should include requirements about open access, gender equality, ethics and public engagement.	74%	75%	1%	Yes	

Best Practices Policy Objective 2	1st rating	2nd rating	Difference between the ratings	Consensus reached?
BP 4/2-1 Create a business centre that will attract smart, sustainable businesses	61%	37%	-24%	No
BP 4/2-2 Promoting returnee entrepreneurship	66%	74%	8%	No

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POLICY OBJECTIVE 4/3: Include gender equality measures in a revised Youth Strategy of Sofia Municipality 2023.	1st rating	2nd rating	Difference between the ratings	Consensus reached?	World Café ranking
Barriers					
1: Lack of understanding about the importance of gender equality as an issue of public concern.	58%	75%	17%	Yes	
2: Lack of a clear strategy, addressing gender equality.	63%	75%	12%	Yes	
3: Lack of measures and financial resources for the implementation of the objective.	68%	83%	15%	Yes	
Solutions					
SOLUTION 1: Conducting joint consultations with youth organisations, which are active in the Advisory Council on Youth Policies at Sofia Municipality.	74%	83%	9%	Yes	Ranked important by 2 groups
SOLUTION 2: Organising forums with the participation of stakeholders (academia, civil society organisations, business, state administration) in order to discuss targeted measures and actions to reach the objective.	74%	75%	1%	Yes	Ranked important by 2 groups
SOLUTION 3: Extensive information campaign and support to organisations, working on the topic.	74%	75%	1%	Yes	
OUT OF THE BOX 1: Requirement about having their own organisational plans for gender equality, inclusion and diversity (for programme Europe, programme Culture etc.) when funding youth initiatives.	63%	75%	12%	Yes	Considered as not applicable by one group
OUT OF THE BOX 2: Legislation that determines quotas for certain positions, which are dominated by one of the genders.	42%	42%	0%	No	

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OUT OF THE BOX 3: Position rotation/quotas for young people in the administration.	47%	58%	11%	No	
Ways to integrate RRI-AIRR					
1: Organising trainings and informing youth organisations and other stakeholders about RRI/AIRR.	74%	83%	9%	Yes	Ranked important by 2 groups
2: Public discussion about the measures and the implementation of the Youth Strategy, involvement of youth organisations in the process of reporting and evaluation of results.	68%	83%	15%	Yes	
3: Regular sociological surveys regarding the level of gender equality, inclusion and diversity on the territory of Sofia Municipality.	58%	50%	-8%	No	
Best Practices Policy Objective 3	1st rating	2nd rating	Difference between the ratings		Consensus reached?
BP 4/3-1 Promote entrepreneurship among women by addressing inequalities and other gender-related issues	56%	58%	2%		No

World Café Results in Sofia

Results for Policy Area Support for Innovation

The following table sums up the results of the selection and rating of the statements for policy area Support for Innovation. The results shown are for all four groups participating in the World Café and reflect the choice of the general solutions regarded most relevant to the policy objectives as well as the solutions regarded most relevant for RRI integration.

Table 13. *Results of World Café Discussions for policy area Support for Innovation*

Number of participants	**24** (policymakers, NGOs, academia/ research, business)
Length of discussion	30 minutes

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Main findings **Ranking of Statements**	The groups ranked the solutions selected in the Delphi study as follows (from highest to lowest): 1. Establishing partnerships with existing private funds in order to create new financial instruments and ensure support for start-ups and innovation companies (solution selected by all 4 groups) 2. Introducing innovations in specific fields and directorates through pilot projects and pilot areas, which are then implemented on a larger scale (solution selected by 3 groups) 3. Creating a joint (by the administration, universities and businesses) research infrastructure in order to address topics of public importance (solution selected by 2 groups) 4. Applying the living labs method in order to experiment and scale innovations (social, technological), which shall be then introduced throughout the city (solution selected by 2 groups) 5. Creating a physical space where mentoring, consulting and expert support for innovative start-ups is available (selected by 1 group) 6. Promoting digitalisation, the use of new technologies and artificial intelligence in the management of administrative processes (selected by 1 group). The following solutions linked to the integration of RRI/AIRR were ranked from highest to lowest: 1. Introduction of open access to data and information, constant feedback from stakeholders (selected by all 4 groups) 2. Funding programmes should include requirements for application of RRI/AIRR by the beneficiaries (selected by 3 groups) 3. Promotion of achievements in the field of innovation by research institutes, universities, business, in order to integrate appropriate ideas and products in the management of Sofia Municipality and in the provision of public services (selected by one group).
Reasons for selecting these statements	• According to the participants, the first solution – establishing partnerships with existing private funds in order to create new financial instruments and ensure support for start-ups and innovation companies – is one of the most efficient ways to finance innovative ideas. This solution can also include crowdfunding, but for now this method is not envisaged in the Bulgarian legislation and appropriate legal texts would need to be amended. **This solution did not reach a consensus in the Delphi study.** • Concerning solution #6 (digitalization and use of new technologies), most participants considered it very important for achieving Policy Objective 3 (development of *Flagship projects for public sector innovation in Sofia Municipality*), but others were sceptical that applying it could bring about a real change in the territorial development.

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	• Interestingly, solution #3 did not reach consensus during the Delphi study, but World Café participants noted that this could be an important measure for realising Policy Objective 1. • Participants supported also solution 3, joint research infrastructure, with the argument that it has the biggest potential to achieve change, however, it would take a long time to implement, and the timeframe of 2025 is not feasible. • Participants also noted as a problem the lack of trust towards the public administration, both local and national. This could be improved by establishing effective one-stop shops and good information campaign about available financing and support mechanisms of the municipality. With regard to solutions for RRI integration, all groups agreed that the introduction of **open access** to data and information is **the most important and urgent measure**, which is a necessary precondition for numerous other steps towards integration of RRI principles in the territorial policymaking. • The group considered that solution 2 is both an important and applicable measure that can actually contribute to endorsement and uptake of RRI in the Bulgarian research and innovation ecosystem. • Several participants objected to the wording of PO1/2_RRI INTEGRATION 3 (*Including funding instruments, targeted at women and other unrepresented groups, willing to innovate*), saying that women play an exceptionally important role in the innovation sector and that labelling them as "underrepresented group" is biased and inaccurate.
Further remarks	One of the groups proposed an **alternative solution** (combining 2 statements): *Applying the living labs method in order to create a joint (administration, universities and businesses) research infrastructure to address topics of public importance.*

Results for Policy Area Digital Transition and New Skills

The following table sums up the results of the selection and rating of the statements for the policy area Digital Transition and New Skills. The results shown are for all four groups and reflect the choices of general solutions as well as RRI-related solutions.

Table 14. *Results of World Café Discussions for policy area Digital Transition and New Skills*

Number of participants	**24** (policymakers, NGO representatives, research/academia, business)
Length of discussion	30 minutes

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Main findings Ranking of Statements	From the solutions, identified in the Delphi study, the participants ranked the following statements (from highest to lowest): 1. Digitisation of all processes with open access and open data for stakeholders (selected by 3 groups) 2. Research on the needs and participation of the target groups in finding a systematic solution to the problem (selected by 3 groups) 3. Cooperation with the IT sector and engagement of stakeholders and citizens in decision-making and implementation of the objective. 4. Inclusion of measures, supporting young people and women in science, support for minority and vulnerable groups. 5. Attracting and selecting staff with the necessary skills, recruiting young people to the administration. 6. Conducting an information campaign, promoting good examples and role models to achieve the objective. 7. Increasing the capacity and digital competencies of the administration. 8. Regular data collection, analysis, monitoring of performance indicators, evaluation of measures. Concerning the measures for **RRI integration**, the participants selected and ranked the following solutions: 1. Engaging vulnerable groups in the search for solutions and their implementation (selected by 3 groups) 2. Introduction of open access to data and information, constant feedback from stakeholders (selected by 2 groups). 3. Citizens monitoring and control of the implementation of the policies for open data and free access to data (selected by 1 group)
Reasons for selecting these statements	• Participants discussed that while solutions linked to open access and open data are very important, they are difficult to implement in Sofia. The same arguments were given concerning the digitalisation of administrative processes and services. • **Four of the solutions, proposed in the Delphi study, were considered not applicable** in the municipality, namely, (i) Establishment of centres for shared access to digital devices and to the internet for the target groups; (ii) Integration of the e-infrastructure and service platform for the target groups into a smart city platform; (iii) Media campaigns, cultural programs, engaging celebrities in promoting good practices to achieve the objective and (iv) Establishment of a virtual office, general information desk of Sofia Municipality. For comparison, **statements (i), (ii) and (iv) received consensus in the Delphi study**. • One of the groups also agreed that the application of quotas would not have added value to achieving gender equality and narrowing the digital divide; therefore, the following solution was rated not applicable to the implementation of the digital transition policy: *Introduction of standards for gender equality and diversity in the administration.* That solution did not receive consensus in the Delphi study, either.

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Further Remarks	No alternative solutions were proposed by the participants.

Results for Policy Area Sustainable Urban Development

The following table sums up the results of the selection and rating of the statements for the policy area Sustainable Urban Development. The results shown are for all four groups and reflect the choices of general solutions to the policy objectives as well as RRI-related solutions.

Table 15. *Results of World Café Discussions for policy area Sustainable Urban Development*

Number of participants	**24** (policymakers, NGO representatives, academic/ research organisations, business)
Length of discussion	30 minutes
Main findings **Ranking of statements**	The solutions, identified in the Delphi study, and ranked by the four groups (from highest to lowest), include: 1. Increasing the administrative and expert capacity of Sofia Municipality (selected by 3 groups) 2. Creation of a unified model/format for data collection in accordance with the requirements of national legislation and European regulations (selected by 3 groups) 3. Introduction of standards regarding the competencies of the administration as well as certification of the administration (selected by 2 groups) 4. Implementation of curricula that involves universities and research organisations (selected by 1 group) 5. Creating a digital platform for smart governance and provision of services, related to RRI (selected by 1 group) 6. Creating a register of sustainable public procurement practices/good practices (selected by 1 group). Concerning the measures for **RRI integration**, the groups selected the following: 1. Using the expert potential of businesses, academia and NGOs through a platform for exchange of information (selected by 2 groups) 2. Creating conditions for transparency, accountability and monitoring through open data (selected by 2 groups) 3. Use of open data, open code, full publicity and transparency of the process (selected by 1 group) 4. The curriculum [for training of municipal staff] should include modules, dedicated to the application of RRI (selected by 1 group). 5. Cooperation with representatives of scientific and research institutes and businesses in order to provide an optimal technical structure (selected by 1 group).

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Reasons for selecting these statements	The arguments concerning the ranking of the solutions were the following: • A unified model for data collection was considered the most consequential for data sharing, analysis and planning of sustainable urban measures; • Increasing the administrative and expert potential of the administration was considered by most to be the strongest driver for change; • On the other hand, there was no agreement reached regarding the solution *Creating a register of sustainable public procurement practices/ good practices;* **one of the groups ranked this solution as not important (whereas in the Delphi that statement has received consensus).** • Two groups considered as inapplicable two solutions, (i) the introduction of standards for competence of the administration and (ii) the use of a cloud server, as well as the development of case-based training programs. **Both of the above-mentioned solutions have reached consensus in the Delphi study.** With regard to the integration of RRI, the groups agreed that using appropriate tools for data sharing and collaboration with experts in business, academia and NGO are important prerequisite for embedding RRI principles in the social and economic impact assessments in urban development. • Two groups considered that *Introducing RRI into all administrative procedures of Sofia Municipality*, is not feasible, given the complexity, diversity and regulatory regime applicable to the various administrative units. **For comparison, this statement reached a consensus in the Delphi;** • **In contrast to the Delphi study,** the groups considered the solutions for developing methodologies and training on the new procurement as very important for achieving this objective.
Further remarks	No alternative solutions were proposed.

Results for Policy Area Youth Employment and Entrepreneurship

The following table sums up the results of the selection and rating of the statements for policy area Youth Employment and Entrepreneurship. The results shown are for all four groups and reflect the choices of general solutions to the policy objectives as well as RRI-related solutions.

Table 16. *Results of World Café Discussions for Policy Area Youth Employment & Entrepreneurship*

Number of participants	**24** (representatives of NGOs, policymakers, academia/research, business)
Length of discussion	30 minutes

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Main findings Ranking of Statements	The following solutions, identified in the Delphi study, were selected and ranked by the groups (from highest to lowest): 1. Reinvesting profits from already funded companies back into the program in order to refill resources (selected by 3 groups) 2. Creating an ecosystem that supports young innovators and start-ups (technological parks, research institutes, digital innovation hubs) (selected by 3 groups) 3. Conducting joint consultations with youth organisations, which are active in the Advisory Council on Youth Policies at Sofia Municipality (selected by 2 groups) 4. Development of mentoring programs and ensuring conditions that support young entrepreneurs in testing and implementing their ideas (selected by 2 groups) 5. Organising forums with the participation of stakeholders (academia, civil society, business, state administration) in order to discuss targeted measures and actions to reach the objective (selected by 2 groups) 6. Linking funding to the implementation of pilot projects/ innovations, related to specific municipal policies, target groups, etc. (selected by 2 groups) 7. Including measures targeted at certain target groups - women, migrants, disadvantaged people in order to address their needs and to equalize deficits in the municipal economy (selected by 1 group). Concerning the measures for **RRI integration**, the groups selected the following: 1. Organising trainings and informing youth organisations and other stakeholders about RRI/AIRR (selected by 2 groups) 2. Collaboration with research institutes, businesses and linking funding with educational programs or joint initiatives with the business (selected by 3 groups) 3. Development of a local strategy for innovation and start-ups in collaboration with research units and businesses (selected by 2 groups) 4. Open access to data and research results, provision of access to data for start-ups (selected by 1 group).
Reasons for selecting these statements	In contrast to the Delphi study, several solutions which have reached consensus were considered by one or more groups as **not feasible and not applicable.** These include, for example**,** (i) *Creating an ecosystem that supports young innovators and start-ups (technological parks, research institutes, digital innovation hubs*); (ii) *Requirement about having their own organisational plans for gender equality, inclusion and diversity when applying for municipal funding;* (iii) *Linking funding to the implementation of pilot projects/ innovations, related to specific municipal policies, target groups*, etc. The last solution **has reached consensus in the Delphi study.**

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	Other solutions that **reached consensus in the Delphi study,** *including measures targeted at certain target groups - women, migrants, disadvantaged people in order to address their needs and to equalize deficits in the municipal economy*, was voted by one of the groups as not feasible to implement. On the other hand, a solution linked to RRI integration **which did not reach consensus in the Delphi study,** was considered as important by one group, namely**,** *Open access to data and research results, provision of access to data for start-ups.* Regarding **RRI INTEGRATION**, the participants argued that one solution, *The funding program shall include requirements for the application of RRI/AIRR by all beneficiaries*, should not apply to all applicants. Instead, the requirements should be differentiated per target group of beneficiaries and per program priority. The requirements should be recommended but not obligatory; in addition, the requirements shall refer to the most relevant RRI/AIRR keys & dimensions, instead of asking all beneficiaries to follow the full set of keys.
Further Remarks	The following **alternative solutions** were proposed: 1. Developing a standalone internship program for young people in Sofia Municipality 2. Capacity building and improving the entrepreneurship competencies of young people (knowledge, skills, attitudes), through hackathons, trainings, and mentoring programs.

Discussion in Sofia

The World Café discussions, to a large extent, confirmed the results of the Delphi study. There was over 60% agreement between the choice of solutions in the Delphi study and those selected by the World Café participants, as presented in the chart below. The percentage of agreement with regard to solutions linked to RRI/AIRR integration was even higher, reaching nearly 71%. In some cases, solutions for which consensus has been reached in the Delphi were considered by the World Café participants as not feasible and not applicable/practical to implement on the territory of Sofia. In other cases, a solution for which no consensus has been reached in the Delphi study, was considered important by the groups. Only one group came up with alternative solutions and one group suggested slight rephrasing/reformulation of the Delphi statements by combining the given solutions.

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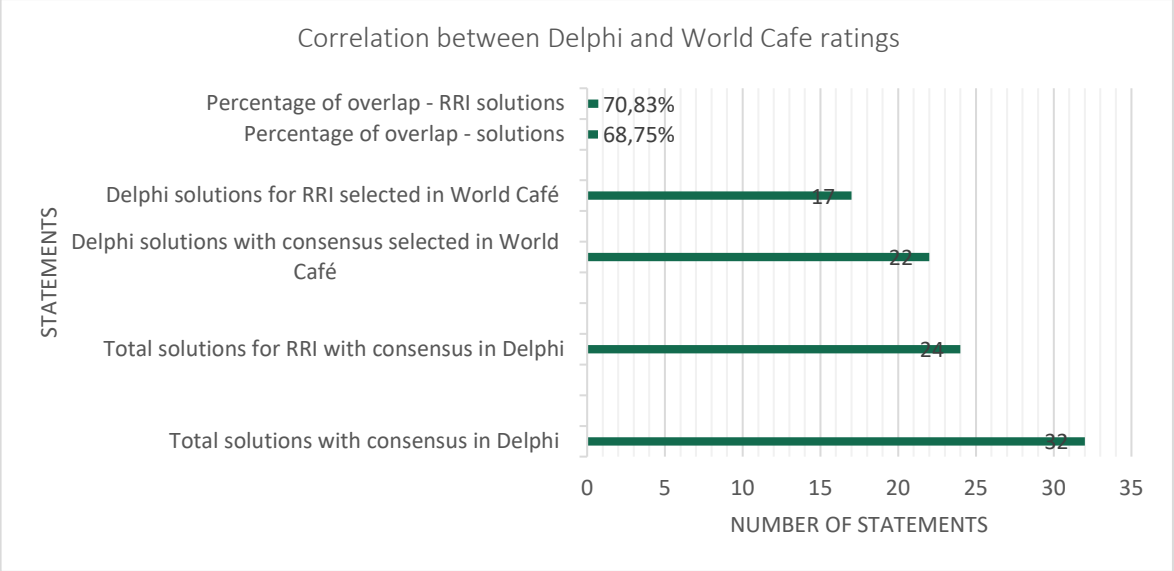
Illustration 2. Correlation between Delphi and World Café ratings



In the World Café, differences in opinion and ranking were noted both within each group and between the four groups with regard to the same policy area and policy objectives. Overall, these variations can be put down to differences in the professional background of the participants and their level of expertise regarding the policymaking process (as well as the RRI/AIRR framework), rather than to a particular ideological leaning towards one solution or another. Some participants were in agreement with the solution proposed but thought that the timeframe for achieving the policy objective was either too short or too long. Participants coming from the city administration pointed out that some of the solutions (or certain aspects of them) are already being implemented or are in the process of being introduced at municipal level.

In the case where given solutions have been agreed upon in the Delphi study but were not considered relevant by the Café participants, the reasons had to do with duplication with existing services/programs; insufficient resources for implementation; inadequate timeframe, lack of preparedness; or assigning tasks to local government bodies and organisations that do not fall within their remit.

In terms of the overall methodology of the Delphi study and the World Café, one suggestion was that it would have been more productive to use a Delphi-type study for the initial formulation of the policy objectives and related solutions, instead of asking experts to assess and rank pre-defined solutions.

Discussion Delphi Study in Sofia

Implementation

As mentioned in the previous sections, the number of participants and questionnaires filled in the Delphi study varied from round 1 through round 3, with the total number of participants dropping from 40 to 16. The number of female participants was double that of male participants throughout

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the three rounds. Most active were the representatives of civil society organisations and academia, while policymakers and business representatives were considerably less active, in particular the businesses. This may come down to the fact that while practices consistent with both RRI and open innovation have been more widespread in academia and research organisations, RRI uptake by the private sector remains very limited (this was confirmed also during the interview phase in the beginning of the project).

In terms of the number of questionnaires filled in per policy area, the distribution is as follows: 57 questionnaires were completed for policy area digital transition and new skills; 51 for support for innovation; 49 for youth employment and entrepreneurship, and 43 for sustainable urban development. An almost equal number of surveys in all four policy areas were completed by representatives of academia/research and by civil society.

While no definitive conclusions can be made regarding the number of completed questionnaires and the percentage of consensus reached, noticeable is a difference in the ratings given to the same statements in the second and the third rounds. In many cases solutions which have passed the 75% threshold in the 2nd round, have received 15-20% lower ratings in the 3rd round; the reverse is also observed. The biggest variations between the two rounds are seen in the ratings of the best practices.

Ranking of Solutions: RRI keys

Concerning the level of consensus reached across the four policy areas in the Delphi study, the statements that have been rated most favourably concerning the thematic **areas** (according to percentage, from highest to lowest) were noted in Tables 13 to 16 above. With regard to the **RRI/AIRR framework**, the Delphi study includes 6 statements/solutions referring specifically to ways of integrating either the overall framework or one or more of its keys. The formulation of these statements is based on the definition of RRI adopted by the project, but it also reflects the descriptions/interpretations of the *de facto* RRI practices or RRI-like practices that have been identified in the research undertaken prior to the Delphi (e.g., interviews, focus groups, territorial audits, etc.) In the first Delphi round participants were asked also to provide their own ideas on integrating the RRI/AIRR framework, some of which explicitly mentioned one or more of the keys. In the 2nd and the 3rd rounds participants were asked to rate competing practical solutions but not to evaluate the overall RRI/AIRR approach.

The RRI-related solutions with the highest rating across the four policy areas, aim to first, solidify the internal capacity for and the regulatory framework of policymaking, ensuring the **uptake of research and innovation in local governance** (e.g., co-creation and co-design of training programs for the municipal staff with universities or creating a digital platform for smart governance and RRI-based services). Second, to **strengthen the local R&I ecosystem and stakeholder capacity**, through trainings, information, consultations and joint projects. Third, **outreach to potential beneficiaries and end users of municipal funding** programs, through which to promote the integration of RRI/AIRR as sustainable, horizontal principles of operation of quadruple helix organisations. For example, some of the solutions envision, that applicants are required to have gender equality plans (policy area YEE, approval 75%). Overall, **all solutions for embedding RRI in territorial policymaking imply a context-based adaptation of the framework to local processes, services, and ecosystems.**

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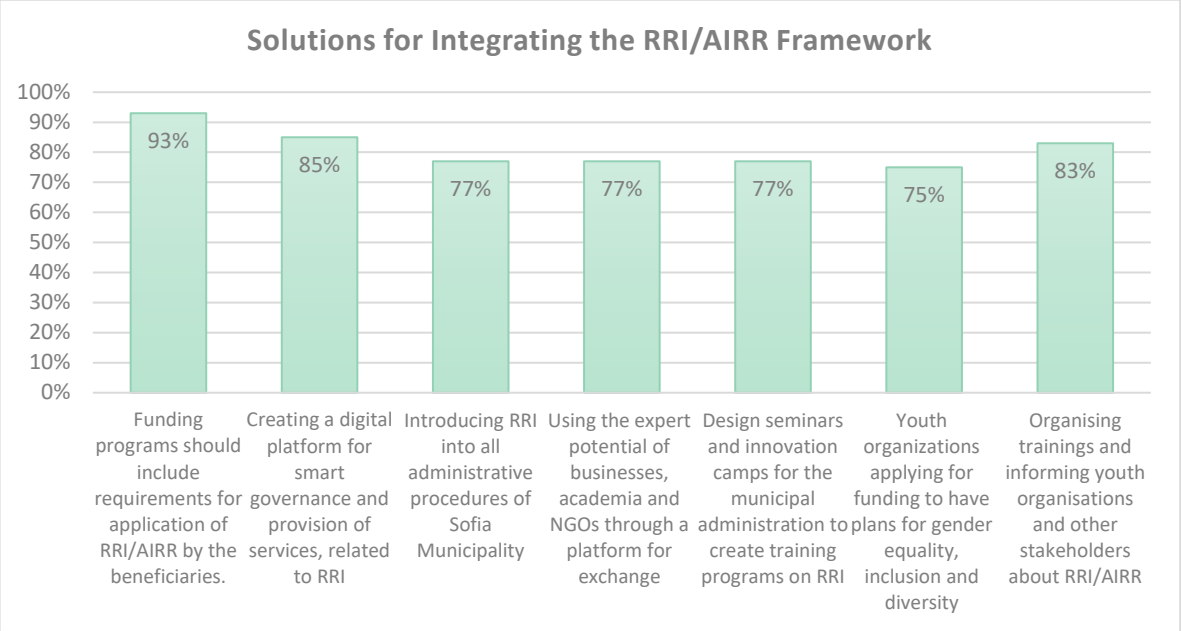
The following chart presents the types of solutions and the approval received in the Delphi study.

Illustration 3. Solutions in Delphi for Integrating the RRI/AIRR Framework



With regard to the **individual RRI keys** and AIRR dimensions, the following main conclusions can be drawn.

Public engagement is featured in all four policy areas; most prominent are solutions linked to the collaboration with universities, laboratories, and businesses through projects, engaging young people as beneficiaries of municipal funding instruments, running public campaigns, events, etc. (92% consensus reached). Public engagement models cover a full array of opportunities, from more limited "consultations," "discussions," and "information fora" to hands-on involvement in "co-creation" and "co-design" activities and pilot actions (policy areas DTNS, SUD, YEE; approval range 75-85%). Some of these solutions rely on and promote open access and digital technologies.

Gender equality is included in several Delphi statements across the policy areas DTNS, SI, YEE; they range from long-term **strategic policy objectives** (i.e., inclusion of gender equality provisions in the RIS3 strategy and Sofia Youth Strategy), to conducting **research and data collection** on gender balance, to measures for targeted support (through funding instruments for women and other unrepresented groups, willing to innovate) and implementation of good European practices. One solution in policy area YEE envisions that municipal funding program include requirements about Open Access, Gender Equality, Ethics and Public Engagement for program applicants, in addition to having dedicated gender equality plans. Support for these measures ranged from 75% to 92%. No support is given to a statement for introducing gender quotas for public office positions.

Open access statements are included in all four policy areas which highlights the importance of this RRI key as a **cross-sector framework condition** for building the local the R&I ecosystem;

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facilitating the **coordination** of administrative units and processes of **data management**; giving **support to the research and business** community through open data; and, finally, enabling citizen **monitoring and feedback** on policy implementation. With respect to policy area Sustainable Urban Development, Open Access is linked to developing a unified model for data collection in accordance with the requirements of national legislation and European regulations (100% consensus). The integration of a service platform for vulnerable target groups into a smart city platform is based on open access and has also received a high level of support (92%.)

With regard to **science education**, no specific statements referring to the key are included in the Delphi study. The role of science education is implied in solutions linked to utilising the expert potential of research/academia stakeholders (DTNS, 92%); implementation of training programs in cooperation with academia (policy area SUD, range of approval 77-92%); cooperation with representatives of scientific and research institutes and businesses in order to provide an optimal digital infrastructure (SUD, 92%).

Similarly, **ethics-related** aspects are included in statements linked to the introduction of requirements for gender equality policies, equal treatment and inclusion of underrepresented (and vulnerable) groups in the co-design of solutions, etc. Some of these statements cross-reference to aspects of AIRR, notably, to responsive and reflexive forms of governance.

Ranking of Solutions: AIRR Dimensions

Though not covered explicitly, **anticipatory governance** is implied in statements linked to conducting research on the needs of target groups and looking for systematic solutions (policy area DTNS, 92% consensus). In terms of **long-term visioning** and strategic planning, one key solution concerns the development of a local strategy for innovation and start-ups in collaboration with research units and businesses (policy area YEE, 92% consensus). Anticipatory governance is implied in the use of research and science for participatory development of programs and policies (e.g., conducting regular surveys among young people, innovators, founders of start-ups about their long-term needs and joint planning of appropriate financial instruments, as formulated in policy area YEE, 92% consensus). In terms of building capacity and human capital, anticipatory measures are also included in a solution proposing the recruitment of highly-skilled young people in the administration (policy area DTNS, 92% approval).

Some of the solutions related to anticipatory governance are also applicable to **inclusive policies** (minimum 6 solutions included in the Delphi study). These range from measures **for joint development, implementation, evaluation of funding programs** with youth organisations (policy area YEE, 92% consensus), to the provision of training and information, programs for underrepresented groups, **access to digital devices and digital services to vulnerable groups** (policy area DTNS, 83-92% approval). The integration of the e-infrastructure and service platform for vulnerable groups into a smart city platform is also supported by Delphi participants.

Responsiveness within a (good) governance framework implies capacity for and processes that support open decision-making and communication with stakeholders and citizens. One measure in the Delphi study concerns the solution to have rules for coordination and synchronisation of the units that are involved in data management in Sofia Municipality, based on open access, open data and transparency. Regarding digital transition policies, improving the digital skills of the

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administration is also deemed important. Creating conditions for transparency, accountability and monitoring through open data (included in policy area SUD), has also received support in the Delphi study (77%).

While **reflexivity** is not specifically included in the Delphi study, it correlates in many ways with responsiveness, as both require consideration of and (re)thinking of the regulatory environment, norms and values underpinning the administration's actions, in adherence to the objectives of transparency, accountability, and integrity.

Discussion World Café in Sofia

Ranking of Solutions: Results per Group and per Policy Area

Looking at the overall rankings in both the Delphi study and the World Café, we see that despite the variations, there are specific topics and solutions that draw the support of the majority of the respondents (this is also visible in the results of the *post*-Café Mentimeter, see *Annex 1* for details).

Only two solutions out of those included in the Delphi study in the policy area **Support for Innovation** have received 100% support in the Café. The first one deals with establishing partnerships with private funds to create new municipal grant programs for start-ups and entrepreneurs. Oddly enough, this solution has failed to obtain consensus in the Delphi study. The second one urges for the provision of **open access, open data and information** (consensus reached in the Delphi). The solution for RRI integration which received 75% relates to introducing new requirements for beneficiaries of the municipal grant programs to follow the RRI/AIRR framework.

Each of the three highest ranked solutions in policy area **Digital Transition and New Skills** have received 75% support; one focuses on **digitisation of all processes** with open access and open data; the second relates to the **participation of the target groups in finding systematic solutions** to societal issues; and the third encourages **inclusiveness and engagement of vulnerable groups** in policy definition and implementation. In contrast to policy area Support for Innovation, open access and open data have received only 50% by the Café participants.

The highest ranked solutions in policy area Sustainable Urban Development, both with 75% support are two: (i) Increasing the administrative and expert capacity of Sofia Municipality and (ii) Creation of a unified model/format for data collection and data management in accordance with the requirements of national legislation and European regulations. Both solutions have a cross-cutting character and are considered indispensable (with the **greatest potential for generating change and impact**) for transforming the governance models at local level in the coming years (consensus is reached for both solutions in the Delphi). The solutions for introducing standards for competence of the administration and for transparency, accountability and monitoring through open data receive 50% support each.

The highest ranked solutions in the policy area **Youth Employment and Entrepreneurship** are, first, the idea for **reinvesting profits of municipally funded start-ups and companies** back to the grant programs to guarantee sustainability (75% support). The second solution focuses on **collaboration between research institutes, businesses and public bodies** for linking youth-related funding with educational programs. One important solution for strategic forward-looking development in this policy area is the development of a **local strategy for innovation and start-**

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ups in collaboration with research/academia and businesses; this solution has received 50% support. Groups discussing this policy area agreed that the engagement of youth organisations and youth experts should be mandatory at all stages of the process, from the initial design to implementation and evaluation of policies.

The following table shows the level of correspondence between the selections and ranking of solutions by the Delphi experts and the participants in the World Café. The table lists statements for which consensus has/has not) been reached in the Delphi study and the respective selections made by the World Café participants. **For 6 of the 28 statements no consensus has been reached in the Delphi study, yet these statements have been ranked as most important in the Café.** Overall, the table shows that there is a 78.5% correspondence in the ratings between the Delphi study and the World Café.

Table 17. *Comparison between the ranking of statements in the World Café and consensus reached in Delphi per policy area & solutions*

Policy area	Policy objectives & solution ranked "Most important" in the World Café	Consensus reached in the Delphi?
Support for innovation	Applying the living labs method in order to experiment and scale innovations (social, technological), which shall be then introduced throughout the city.	No
	Creating a joint (by the administration, universities and businesses) research infrastructure in order to address topics of public importance.	No
	Establishment of a coordination unit in Sofia Municipality with a program for innovation management and financial instruments, which has clear thematic/sectoral priorities for each year.	No
	Establishing partnerships with existing private funds in order to create new financial instruments and ensure support for start-ups and innovation companies.	No
	Creating a physical space where mentoring, consulting and expert support for innovative start-ups is available.	No
	Introducing innovations in specific fields and directorates through pilot projects and pilot areas, which are then implemented on a larger scale.	Yes
	Promoting digitalisation, the use of new technologies and artificial intelligence in the management of administrative processes.	Yes
Digital transition and new skills	Cooperation with the IT sector and engagement of stakeholders and citizens in decision-making and implementation of the objective.	Yes
	Digitisation of all processes with open access and open data for stakeholders.	Yes
	Increasing the capacity and digital competencies of the administration.	Yes
	Research on the needs and participation of the target groups in finding a systematic solution to the problem.	Yes

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	Attracting and selecting staff with the necessary skills, attracting young people to the administration.	Yes
	Conducting an information campaign, promoting good examples and role models to achieve the objective.	Yes
	Regular data collection, analysis, monitoring of performance indicators, evaluation of measures.	Yes
Sustainable Urban Development	Increasing the administrative and expert capacity of Sofia Municipality.	Yes
	Creating a digital platform for smart governance and provision of services, related to RRI.	Yes
	Introducing RRI into all administrative procedures of Sofia Municipality.	Yes
	Creating a register of sustainable public procurement practices/ good practices.	Yes
	Introduction of standards regarding the competencies of the administration as well as certification of the administration.	Yes
	Implementation of curricula that involves universities and research organisations.	Yes
	Creation of a unified model/format for data collection in accordance with the requirements of national legislation and European regulations.	Yes
Youth employment and entrepreneur-ship	Creating an ecosystem that supports young innovators and start-ups (technological parks, research institutes, digital innovation hubs).	Yes
	Linking funding to the implementation of pilot projects/ innovations, related to specific municipal policies, target groups, etc.	Yes
	Development of mentoring programs and ensuring conditions that support young entrepreneurs in testing and implementing their ideas.	No
	Reinvesting profits from already funded companies back into the program in order to refill resources.	Yes
	Including measures targeted at certain target groups - women, migrants, disadvantaged people in order to address their needs and to equalize deficits in the municipal economy.	Yes
	Conducting joint consultations with youth organisations, which are active in the Advisory Council on Youth Policies at Sofia Municipality.	Yes
	Organising forums with the participation of stakeholders (academia, civil society organisations, business, state administration) in order to discuss targeted measures and actions to reach the objective.	Yes

The next table sums up the results of the selection and ranking of the solutions that are specifically related to the integration of RRI/AIRR in both the Delphi study and the World Café (the table presents the 2 RRI-related statements that have been ranked “most important” by each group

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during the Café discussions). **Seventeen out of 20 statements, for which consensus has been reached in the Delphi study, have also been ranked as most important for achieving the policy objective by the Café participants, which equals 85% of agreement.**

Table 18. *Comparison between the ranking of statements in the World Café and consensus reached in the Delphi regarding RRI integration per policy area*

Policy area	Policy objective & solution ranked for RRI integration "Most important" in the World Café	Consensus reached in the Delphi?	RRI/AIRR key
Support for innovation	Promotion of achievements in the field of innovation by research institutes, universities, businesses, in order to integrate appropriate ideas and products in the management of Sofia Municipality and in the provision of public services.	No	Public engagement
	Funding programs should include requirements for application of RRI/AIRR by the beneficiaries.	Yes	RRI framework integration
	Introduction of open access to data and information, constant feedback from stakeholders.	Yes	Open access, inclusiveness
Digital transition and new skills	Implementation of partnership projects, involving consultants, businesses, municipal experts, citizens and other stakeholders.	Yes	Public engagement, science education
	Providing open access to data, facilitating third-party technology solutions.	Yes	Open access
	Engaging vulnerable groups in the search for solutions and their implementation.	Yes	Inclusiveness
	Citizens' monitoring and control of the implementation of the policies for open data and free access to data.	No	Reflexiveness, public engagement, open access
	Engaging vulnerable groups in the search for solutions and their implementation.	Yes	Inclusiveness, responsiveness
	Extensive consultations and involvement of organisations and experts in the decision-making process.	Yes	Public engagement, inclusiveness,
	Inclusion of measures, supporting young people and women in science, support for minority and vulnerable groups.	Yes	Inclusiveness, gender equality
	Creating conditions for transparency, accountability and monitoring through open data.	Yes	Open access, reflexiveness

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Sustainable urban development	Using the expert potential of businesses, academia and NGOs through a platform for exchange of information.	Yes	Science education, public engagement
	Development of manuals for public procurement procedures in line with the principles of RRI/AIRR as well as establishment of a helpdesk service for the municipal administration.	Yes	Responsiveness, self-evaluation
	The curriculum should include modules, dedicated to the application of RRI.	Yes	RRI framework integration
	Use of open data, open code, full publicity and transparency of the process.	Yes	Open access, ethics, public engagement
	Cooperation with representatives of scientific and research institutes and businesses in order to provide an optimal technical structure.	Yes	Science education
Youth employment & entrepreneurship	Collaboration with research institutes, businesses and linking funding with educational programs or joint initiatives with the business.	Yes	Science education
	Open access to data and research results, provision of access to data for start-ups.	No	Open access, ethics
	Development of a local strategy for innovation and start-ups in collaboration with research units and businesses.	Yes	Anticipatory governance, responsiveness
	Organising trainings and informing youth organisations and other stakeholders about RRI/AIRR.	Yes	Public engagement, responsiveness

Based on the above comparisons, we can outline several clusters of policy objectives and solutions, resulting from the Delphi study and the World Café which can be considered cornerstones of the municipal policymaking in the four policy areas, and which will also build the foundation for the **Transformative Outlook** (more on this below). These clusters are as follows:

- (i) The role of the local government for initiating and maintaining collaboration and communication with all quadruple helix stakeholders and target groups; **Sofia Municipality as a *facilitator, enabler, early adopter, promoter and procurer* of RRI-based solutions**.
- (ii) Building the capacity of the administration for designing and streamlining inclusive, transparent governance processes and communication with the citizens, and within the administration itself (including through digital technologies). While some Café participants did not consider the introduction of standards for competence in the administration as

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applicable, differences in the level of competence are identified as a major cause of disproportionate quality of performance within the municipality in all areas of operation.

- (iii) Digitalisation, open access, and open data, constant communication and feedback from citizens and stakeholders. These solutions appear in various formulations in all four policy areas and are a *conditio sine qua non* for the transformation of Sofia into a smart city testbed and sandbox for policy experimentation.
- (iv) Solutions linked to the integration of RRI in organisational routines and practices (within the administration) but also in organisations which are partners and beneficiaries of the municipality. To achieve the objective, further information and awareness raising will be needed. RRI/AIRR should not be imposed top-down and made obligatory for all; it should be recommended as a good practice to follow based on the profile of each stakeholder organisation.

Conclusions in Sofia

Way Forward: Orientations for the Transformative Outlook of Sofia Municipality

The results of the Delphi study and the World Café added a new perspective on the importance of an inclusive, participative, open and sustainable policymaking process. The comparative analysis has shown that there exists broad support for certain policy objectives and measures in the four policy areas addressed by Sofia Municipality in this project. During the 3 rounds of the Delphi study, the panellists were given an opportunity to formulate RRI-driven short- and long-term measures, indicating also which strategy and planning tools are most suitable to facilitate the desired transformations in the scope and scale of each policy. Both the Delphi study and the World Café formats have helped to focus the attention on specific territorial challenges related to the four policies and on how the RRI elements can be employed by policymakers and stakeholders to overcome them.

The two research formats have reinforced some of the already established policy priorities; have called for rethinking and reformulating some of those objectives and solutions; and have also outlined new fields for exploration and (expert and citizen) engagement. The key conclusions from the Delphi study and the World Café are helpful for reaffirming the priorities that may be expected to shape the city's policy agenda in the next 5-10 years (the timeframe of the transformative outlook extends until 2030). The solutions that have the potential to generate change and impact have been described above; in what follows, the main points of reference and strategic guidance are outlined.

- Objectives and solutions leading to improved administrative and expert capacity of the municipal administration; continued learning process through collaboration with research and innovation stakeholders on the territory of the municipality (this is also an opportunity to reinforce **science education and research ethics**).
- Digitalisation of management processes and services; open access and open data for stakeholders, data management. A digital platform for smart governance will increase the transparency and accountability (facilitating the **embedding of AIRR dimensions**) and will

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facilitate the administration's transition into a (fully) digital working environment. The TO could focus on identifying solutions for a just digital transition for vulnerable groups and programs for easy access to digital services.

- Public sector innovations. World Café participants urged for support to foresight and technology assessment methods. That means, encouraging an **experimentation-driven policy process**; scaling out and scaling up successful pilot initiatives (within the administration, at city level, and engagement of different stakeholders and target groups). The TO should aim to propose adequate measures for implementation in each policy area.
- Support for building up a sustainable R&I and entrepreneurship ecosystem. The TO should formulate concrete solutions for funding schemes and opportunities for established enterprises and for start-ups within a 5-year timeframe.
- Focus on **inclusiveness and public engagement**. World Café discussions pointed out the importance of a constructive, needs-based inclusion of all target groups in the full cycle of policymaking and implementation. This is a means to prevent any form of exclusion but also to come to terms with the lack of trust in public institutions. The municipality needs to (re)gain the status of a trusted and valuable partner.

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Chapter III: Territorial Report Greece, Western Macedonia

Introduction

This Chapter constitutes the Deliverable 3.3 (Task 3.4) territorial report that includes the findings and the analysis of the results of the three Delphi rounds conducted in the Region of Western Macedonia, as well as the findings of the World Café event regarding the aforementioned tasks. The purpose of the Chapter is to synthesise the results of the Delphi rounds to support the development of a concrete transformative outlook for the Region, in WP4. The Delphi rounds accrued from Tasks 3.1, 3.2, and 3.3, foresaw the development of a Delphi study. The Delphi instrument that has been developed was based on the chosen territorial policy areas of the region of Western Macedonia. In detail, these concerned the development of a stakeholder engagement strategy within the course of the post-coal transition road map, the empowerment of the current policy-making systems involving different modes of territorial governance of the post-coal transition strategy, and the development of a methodology aiming to a smooth and innovative transition from the coal value chain towards an alternative development 'paradigm'.

Methodology in Western Macedonia

This section describes the methodology implemented in the two main activities constituting D3.3, namely the three-phase Delphi study and the World Café event.

Methodology for the Delphi Study in Western Macedonia

Table 19. *Delphi study summary*

Round	Dates	Total number of contacts	Total number of participants
First round	29/1/2022 – 28/02/2022	48	25
Second round	14/03/2022 – 06/04/2022	48	23
Third round	18/04/2022 – 28/04/2022	48	20

Regarding the three-phase Delphi study, it was implemented as follows: The first step of the preparation phase included the development of the questionnaire for the first Delphi round, followed by the definition of the expert panels in each territory, and concluded by the pilot testing of the questionnaires. This last stage was implemented with selected territorial stakeholders and the accrued feedback was embedded into the final questionnaire.

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Regarding the panel composition, a two-step procedure was implemented to detect the most suitable experts to be included in the Delphi panels. The first step included the most important change factors and system characteristics that were identified for the policy focus of each territory. The second step included the identification of those experts that are closely linked to these key elements and have the capability and the necessary background to implement the necessary changes to progress the Region's policy focus. This step contained different stakeholder groups such as researchers, policymakers, business experts, and representatives of Non-Government Organisations (NGOs).

For the Region of Western Macedonia, one Delphi study was conducted with one questionnaire containing all three policy areas mentioned above. Therefore, the policy area that the survey questionnaire focused on was:

- Clean energy transition strategy based on stakeholder engagement, efficient territorial governance and development of a methodology aiming to a smooth and innovative transition towards an alternative development 'paradigm'.

The questionnaire included twelve policy objectives and was divided into five topics, namely:

1. Fostering Entrepreneurship
2. Energy Efficiency
3. Environmental Sustainability
4. Promoting research and innovation and integrating modern technology
5. Governance of the transition

with a total number of 150 statements used in the questionnaire.

Three Delphi rounds were implemented to reach a consensus regarding obtainable future paths for a more effective RRI/AIRR integration in the Region of Western Macedonia.

The Delphi study was conducted in the period of January to April 2022. For each separate round, stakeholders were invited through email to participate in the study. Questionnaire responses were collected using the online tool Unipark and the participants were given two weeks to complete the questionnaire. Those who had not answered since then, they received a reminder email one week later. Those who still had not answered, they received extra phone calls to increase the overall response rate of the survey.

1st Round

Response collection for the 1st round took place from January 2022 to mid-February. The online questionnaire contained both open and closed questions. For each distinct policy area and separate topic, specific policy objectives were identified by the project team members and were presented to the participating stakeholders. A brief introduction to the policy focus and to the policy objectives was preceded, under which the participating stakeholders were asked to point out a maximum of three barriers, three solutions, and three out-of-the-box solutions regarding each policy objective and three ways to embed the RRI-keys and AIRR-dimensions into the whole procedure. After receiving the participants' answers, the participating stakeholders were

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presented with best practices for each separate topic and were given the choice to evaluate the significance of those practices on a scale ranging from 1 ("not important at all") to 5 ("very important").

2nd Round

Response collection for the 2nd round was conducted in March 2022. The digital questionnaire exclusively included closed questions. The previously set of open answers gathered from Round 1 about the barriers, solutions, and ways to integrate the RRI-AIRR concept, were classified according to a qualitative analysis. This analysis introduced statements representing each policy objective constituting the questionnaire, and the stakeholders graded their importance using the same 5-point scale from the first Round.[12] Furthermore, participants received clarification information on the panel's answers in the form of statistical measures, with regard to the importance of the best practices for each topic from the first round, (i.e., median and standard deviation), and the column charts. This extra information was fully embedded into the questionnaire and participating stakeholders were then asked to re-grade the significance of the best practices, using the same scale from the 1st Delphi round.

3rd Round

Response collection for the 3rd round took place in April 2022. The digital questionnaire again exclusively included closed questions. Stakeholders received clarifying information about the panel's answers, specifically regarding the significance of the barriers, solutions, and ways to integrate the RRI/AIRR framework for each policy objective of the 2nd round in the form of statistical measures (i.e., median, and standard deviation) and column charts. Once again, the received feedback was directly embedded into the questions and participating stakeholders were then asked to re-grade the significance of the statements, using the scale used in the 1st and the 2nd Delphi round.

The general aim of the Delphi study was to reach a consensus among the participants about feasible future development policies for the Region. The consensus was determined as the percentage agreement in all studies across the Regions. In detail, consensus was obtained if 75% of the participating experts rated the importance of the statement or best practice with a 4 or a 5 on the 5-point scale. The selected cut-off of 75% represents the median threshold uncovered at an in-depth review of Delphi studies by Diamond et al. (2014)[13]. For the Region of Western Macedonia, an exception was implemented after the second round, according to which consensus was reached if 85% of the participating experts rated the importance with a 4 or a 5 on the 5-point scale, due to the relatively high amount of consensus noted for the Region.

[12] In case of combining the panelists' statements and the best practices for more than 120 questions, the most repeated and significant statements were chosen by the project team to ensure that the length of the questionnaire was kept short-enough for the participants to be able to complete,

[13] Diamond, I. R., Grant, R. C., Feldman, B. M., Pencharz, P. B., Ling, S. C., Moore, A. M., & Wales, P. W. (2014). Defining consensus: a systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of clinical epidemiology*, *67*(4), 401-409. https://doi.org/10.1016/j.jclinepi.2013.12.002

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Methodology for the World Café in Western Macedonia

The World Café event was organised by LGA-WM in collaboration with the University of Western Macedonia and took place on June 30, at the offices of LGA-WM. At the event, the results of the Delphi study regarding Responsible Research and Innovation for Western Macedonia were presented. A discussion on the results then followed, which led to a prioritisation of the statements considered most important for creating an effective transformational outlook for the Region of Western Macedonia.

More specifically, the event began with a greeting from the president of LGA-WM, who emphasised the importance of incorporating the concept of Responsible Research and Innovation into the planning of the just transition development plan of the Region.

This was followed by a short presentation of the RRI-LEADERS project by the scientific manager of the project, emphasising its purpose, which was to elaborate a future-oriented territorial outlook for the Region, for the future potential of RRI as a guiding framework in the territorial R&I governance. Then, the Delphi method used to derive the main conclusions was briefly presented.

This was followed by the presentation of the three-round Delphi study results, carried out in the context of the project, giving the attendees eight printed tables in which, the results were summarised. These tables were translated into Greek and included the most important statements that led to high rates of consensus from the keys and dimensions of the RRI-AIRR concept, apart from the Ethics key, for which the statements in which it appeared had very low rates of consensus.

After the presentations were completed, instructions were given to conduct the discussions. There were three moderators who were taken to three different rooms in LGA's offices. Two of them had three elements of the RRI-AIRR concept to discuss with the attendees, while the third had the two remaining. The purpose of the discussion was for the attendees to comment on the level of importance of the statements that were on each table and then proceed with a prioritisation of each on the printed tables that were given to them. More precisely, stakeholders were given three questions to comment regarding the statements:

- Which of the statements that reached consensus were particularly important for Western Macedonia? Prioritise the solutions/suggestions and briefly justify your point of view.
- Which of the statements that reached consensus might not be feasible/practical for Western Macedonia?
- Do you have any other suggestions/solutions to make?

After the process was completed in each room, the attendees were transferred to the next one so that, with the moderator there, they could comment on the next three elements of the RRI-AIRR concept. The cycle was completed when all attendees had passed through all three rooms and filled in all eight forms with the statements.

The results were then processed by the project partners while the attendees took a short break, and excel tables were created that captured the overall picture of the prioritisation of statements for each key and dimension. The methodology of calculation of the World Café results included the aggregation of the rating of each separate statement by the participants, starting from the

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highest to the lowest. Starting from the most important (grade equal to 1) to the least important statement (depending on the number of statements, i.e., out of 19 statements, the least important statement was rated with 19), the tables in section 3.3 indicate the total results. That implies that the statements with the lowest number are considered the most important and vice versa.

The final phase included the presentation of these results in the meeting room and the concluding commenting on them to achieve the goal of the event, which was to capture the suitable statements for the Region of Western Macedonia in order to create an effective transformative outlook. Some moments of relaxation and creative social interaction between the attendees with light lunch and some music followed and the event ended with great success.

Results in Western Macedonia

Participants' Characteristics in Western Macedonia

Delphi Study Participants' Characteristics

The first round lasted from February 6 to February 23. The second round started on March 14 and concluded on April 6 and the third and final round took place between April 18 and April 26. The following table provides a brief overview of participants in each of the three Delphi rounds.

Table 20. *Participants in the Delphi survey for the Region of Western Macedonia*

	Total number of participants	Female	Male	Academia and research	Policy-makers	Industry and business	Civil society
First round	25	8	13	16	2	6	0
Second round	23	7	15	12	2	8	1
Third round	20	6	13	10	2	7	1

Regarding the level of education, in the first round 96% of the participants had higher education and 4% did not answer. In the second round, 90% of the participants had higher education and 10% did not answer. The average age of the participants was 46 years in the first round, 43 years in the second, and 41 years in the third round. The youngest participant was 23 years old and the oldest was 58 years old.

World Café Participants' Characteristics

The World Café event for the Region of Western Macedonia took place on the 30th of June at the LGA-WM's premises. All the participating stakeholders had a high education level. The vast majority of participants (aggregated 90%) belonged to either Academia and Research or to the Policy-making sector.

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Table 21. *Participants in the World Café for the Region of Western Macedonia*

Total number of participants	Female	Male	Academia and research	Policymakers	Industry and business	Civil society
30	15	15	14	13	1	2

Delphi Study Results in Western Macedonia

The findings from the analysis of the three-round Delphi questionnaires are shown in the following topic-categorised tables. For the Region of Western Macedonia, the questionnaires were divided into five topics listed below:

- 1. Fostering Entrepreneurship
- 2. Energy Efficiency
- 3. Environmental Sustainability
- 4. Promoting research and innovation and integrating modern technology
- 5. Governance of the transition

Each topic consisted of one or more policy objectives, which totalled twelve. The policy objectives were identified for the policy area and topic for the Region by the research team.

The tables below present the percentages of consensus of the two Delphi rounds, as well as the statements that finally resulted in consensus.

Table 22. *Items per policy objective that reached consensus*

Topic	Policy Objectives	Best Practices	Barriers	Solutions	RRI-AIRR Integration
Fostering Entrepreneurship	Transforming and evolving the competitiveness of existing companies that need support to transition to a zero-emission economy by 2030	7/8	2/2	3/4	1/2
Fostering Entrepreneurship	Establishment and attraction of new businesses that create jobs and lead to economic diversification, modernisation, and transformation of the existing production model	2/4	2/2	4/4	2/2
Fostering Entrepreneurship	Linking research to production, promoting start-up	4/5	2/2	4/4	2/2

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	entrepreneurship, and creating business spin-offs				
Fostering Entrepreneurship	Upskilling and reskilling of employees of businesses that need support for their transition to a zero-emission economy	1/5	2/2	3/4	2/2
Energy Efficiency	Improvement of energy efficiency in affordable systems and "clean" energy infrastructure	3/4	2/2	3/4	2/2
Energy Efficiency	Strengthening affordable and clean energy systems and infrastructure, including storage technologies	3/4	2/2	3/4	2/2
Energy Efficiency	Hydrogen technologies and their use in post-lignite Regions	3/3	2/2	4/4	2/2
Environmental Sustainability	Restoration of degraded areas and facilities and their change of use	4/7	2/2	4/4	2/2
Promoting research and innovation and integrating modern technology	Development of supporting digital infrastructures and services of smart communities	3/4	2/2	4/4	2/2
Governance of the transition	Development of an effective system of transition governance by involving regional structures in governance	5/5	2/2	4/4	2/2
Governance of the transition	Development of a more effective social dialogue between the actors of the quadruple helix	1/2	2/2	4/4	2/2
Governance of the transition	Development of a social security framework	1/3	1/2	4/4	2/2

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Topic 1: Fostering Entrepreneurship

The development of a robust, modern, and diversified economy in the Region of Western Macedonia can be done through interventions in the infrastructure of the area, access to financial resources to support entrepreneurship and the development of SMEs, institutional arrangements, and the creation of a culture of public and private sector partnerships in all sectors of the economy.

Table 23. *Results of Policy Objective: Transforming and evolving the competitiveness of existing companies that need support to transition to a zero-emission economy by 2030*

Transforming and evolving the competitiveness of existing companies that need support to transition to a zero-emission economy by 2030	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
Lack of financial assets / incentives	100%	-	-	Yes
Low-level existing infrastructure subsidies, tax cuts, etc.	96%	-	-	Yes
Solutions				
Provision of flexible financial assets by central/local authorities in the form of subsidies, tax cuts, etc.	96%	-	-	Yes
A holistic roadmap towards a zero-emission economy	87%	-	-	Yes
Creation of an Open Laboratory of Entrepreneurship and Innovation in collaboration with market executives	61%	80%	19%	No
Utilization of existing infrastructure for new investments, in particular infrastructure from PPC, municipal buildings, etc.	87%	-	-	Yes
Ways to integrate RRI-AIRR				
Implementation of a holistic investment plan that will include specific economic objectives (Forecast - Expectation)	96%	-	-	Yes
A framework for cooperation between research/academics and businesses (Responsiveness)	100%	-	-	Yes

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Table 24. *Results of Best Practices of Policy Objective: Transforming & evolving the competitiveness of existing companies that need support to transition to a zero-emission economy by 2030*

Best Practice: Transforming and evolving the competitiveness of existing companies that need support to transition to a zero-emission economy by 2030	1st rating	2nd rating	Difference between the ratings	Consensus reached
Implementation of an effective carbon emissions trading system	25%	87%	62%	Yes
Offer of financial incentives for the application of green technologies	79%	-	-	Yes
Electronic Portal for Research and Innovation	38%	91%	53%	Yes
Integrated Information System (IIS)	35%	87%	52%	Yes
Electronic Portal for The Enhancement and Monitoring of Employment	26%	83%	57%	No
Investor Support Network (ISN)	46%	96%	50%	Yes
Align investment incentives and disincentives to support a low-carbon agenda	50%	87%	37%	Yes
Creation of clusters to strengthen local industries	42%	96%	54%	Yes

Table 25. *Results of Policy Objective: Establishment and attraction of new businesses that create jobs and lead to economic diversification, modernisation, and transformation of the existing production model*

Establishment and attraction of new businesses that create jobs and lead to economic diversification, modernisation, and transformation of the existing production model	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
High Taxation	83%	100%	17%	Yes
Lack of organised investor receptors in the Region, combined with incomplete digital transformation	96%	-	-	Yes
Solutions				
Tax breaks for industries to encourage investment	100%	-	-	Yes
Creation of networks of investors interested in public procurement of innovation and their access to finance for investments in the Region	91%	-	-	Yes
Regional fund - with the participation of Municipalities - to finance start-ups and existing businesses	78%	85%	7%	Yes
Free concession of land from the former mines for investment and agri-food activities	87%	-	-	Yes
Ways to integrate RRI-AIRR				
Inclusion of all segments of society (working citizens, businesses, students, unemployed) in providing a framework of economic incentives	83%	95%	12%	Yes
Integration into the local production model of findings related to the link between research and	87%	-	-	Yes

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entrepreneurship, as well as their impact on the local community				

Table 26. *Results of Best Practices of Policy Objective: Establishment and attraction of new businesses that create jobs and lead to economic diversification, modernisation, and transformation of the existing production model*

Best Practice: Establishment and attraction of new businesses that create jobs and lead to economic diversification, modernisation, and transformation of the existing production model	1st rating	2nd rating	Difference between the ratings	Consensus reached
Provision of land by the regional Authority for the establishment of new businesses and relocation of existing local enterprises	54%	96%	42%	Yes
IT facilities, bio- & nanotechnology, as well as medical facilities	38%	83%	45%	No
Strengthening of research infrastructures, innovation hubs, areas of cooperation	71%	100%	29%	Yes
Call for employees with similar skills to coal workers	25%	61%	36%	No

Table 27. *Results of Policy Objective: Linking research to production, promoting start-up entrepreneurship, and creating business spin-offs*

Linking research to production, promoting start-up entrepreneurship, and creating business spin-offs	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
Lack of cooperation between Research and Entrepreneurship (University and Business)	100%	-	-	Yes
Lack of financial incentives for both businesses and academia	96%	-	-	Yes
Solutions				
Package of research programs related to industry, oriented towards local industrial sectors (alternative forms of energy, use of lignite, etc.)	96%	-	-	Yes
Creation of a flexible legal framework for start-ups, by reducing/eliminating bureaucracy	100%	-	-	Yes
Creating an innovation zone with generous incentives and benefits for start-ups and spin-offs	100%	-	-	Yes
Changing the legal framework of spin-offs to provide real incentives for their creation at local level	96%	-	-	Yes
Ways to integrate RRI-AIRR				

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Commitment of all local bodies (Local Authorities, Public Bodies, Entrepreneurship, Citizens, University) for continuous and strong promotion of start-up	100%	-	-	Yes
Design of projects and creation of sustainable mechanisms, considering the international experience	100%	-	-	Yes

Table 28. *Results of Best Practices of Policy Objective: Linking research to production, promoting start-up entrepreneurship, and creating business spin-offs*

Best Practice: Linking research to production, promoting start-up entrepreneurship, and creating business spin-offs	1st rating	2nd rating	Difference between the ratings	Consensus reached
Establishment of an Innovation Zone	54%	100%	46%	Yes
Establishment of Academic Institutes	49%	87%	38%	Yes
Creation of a Green Data Centre and Mega Computer Centre	46%	78%	32%	No
Financial support for start-ups	75%	-	-	Yes
Development of start-ups and spin-offs	63%	100%	37%	Yes

Table 29. *Results of Policy Objective: Upskilling and reskilling of employees of businesses that need support for their transition to a zero-emission economy*

Upskilling and reskilling of employees of businesses that need support for their transition to a zero-emission economy	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
Lack of an adequate existing level of education	77%	95%	18%	Yes
Lack of skills in critical areas	82%	85%	3%	Yes
Solutions				
Creation of effective and decentralised mechanisms to identify education and retraining needs	100%	-	-	Yes
An integrated approach to upskilling and reskilling including training and guidance	95%	-	-	Yes
Creating an effective and up-to-date platform to connect demand with the labour market	86%	-	-	Yes
Synergies with other relevant Regions	73%	75%	2%	No
Ways to integrate RRI-AIRR				
Creation of effective, decentralised, and flexible training and retraining mechanisms that can meet	100%	-	-	Yes

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society's expectations and the challenges of the market and climate change				
Measures to enhance sustainable competitiveness so that workers can work more effectively and prevent inequalities in the labour market	91%	-	-	Yes

Table 30. *Results of Best Practices of Policy Objective: Upskilling and reskilling of employees of businesses that need support for their transition to a zero-emission economy*

Best Practice: Upskilling and reskilling of employees of businesses that need support for their transition to a zero-emission economy	1st rating	2nd rating	Difference between the ratings	Consensus reached
Counselling – Training and Employment Activities	63%	100%	37%	Yes
Business grant program for the employment of the unemployed	65%	78%	13%	No
Special preparation program for unemployed young people, aged 18-29 years	54%	83%	29%	No
Short courses or training at work	42%	70%	28%	No
Development of a new curriculum and a customised educational content to facilitate and reorient the employees of the lignite sector in the RES industry	46%	70%	24%	No

Topic 2: Energy Efficiency

The overall strategy for the transition to Just Development in Western Macedonia is built upon five pillars, the first and most important of which is the advancement of clean energy. The development of at least 2.5 GW of photovoltaic projects by a number of businesses, including PPC, RWE, Greek Oils, etc., is an example of this direction.

Table 31. *Results of Policy Objective: Improvement of energy efficiency in affordable systems and "clean" energy infrastructure*

Improvement of energy efficiency in affordable systems and "clean" energy infrastructure	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
Lack of liquidity on the part of businesses and households	96%	-	-	Yes
he unregulated development of RES systems and infrastructure (Photovoltaic, Wind) in the Region of Western Macedonia	96%	-	-	Yes
Solutions				
Completion of spatial and urban planning / interventions	96%	-	-	Yes
Incentivising attracting investment in green energy	87%	-	-	Yes

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Subsidies (on the part of the State and/or local authorities) for the purchase of electric cars and energy-friendly electrical appliances to the population of the Region	83%	65%	-18%	No
Provision of free land by the Region and the Municipalities to local businesses for the creation of energy communities that will invest in RES	100%	-	-	Yes
Ways to integrate RRI-AIRR				
Spatial and urban planning that will include elements of forecasting, vision evaluation and evaluation of developments in the field of technology	96%	-	-	Yes
Increased funding for green, proven high value-added projects by companies	83%	95%	12%	Yes

Table 32. *Results of Best Practices of Policy Objective: Improvement of energy efficiency in affordable systems and "clean" energy infrastructure*

Best Practice: Improvement of energy efficiency in affordable systems and "clean" energy infrastructure	1st rating	2nd rating	Difference between the ratings	Consensus reached
Energy upgrades of local public infrastructure	71%	83%	12%	No
Energy upgrades of office buildings and production units	75%	-	-	Yes
Energy upgrades of public / municipal buildings	71%	87%	16%	Yes
Support of energy communities	67%	91%	24%	Yes

Table 33. *Results of Policy Objective: Strengthening affordable and clean energy systems and infrastructure, including storage technologies*

Strengthening affordable and clean energy systems and infrastructure, including storage technologies	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
Absence of technologies and intention to develop storage technologies	91%	-	-	Yes
Lack of network capacity for additional energy infrastructure	87%	-	-	Yes
Solutions				
Generous financial support (from central and local authorities) for the adoption of clean systems	96%	-	-	Yes
Upgrading and improvement of local energy infrastructure	96%	-	-	Yes

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Implementation of synergies for clean energy infrastructure with the participation of PPC, the Region, energy municipalities and electricity storage companies	87%	-	-	Yes
Bilateral agreements directly with producers without the intervention of the Energy Exchange	70%	80%	10%	No
Ways to integrate RRI-AIRR				
Collaborations between research organisations and companies	87%	-	-	Yes
Creation of an innovation zone focusing on energy technologies	91%	-	-	Yes

Table 34. *Results of Best Practices of Policy Objective: Strengthening affordable and clean energy systems and infrastructure, including storage technologies*

Best Practice: Strengthening affordable and clean energy systems and infrastructure, including storage technologies	1st rating	2nd rating	Difference between the ratings	Consensus reached
Hydrogen and Energy Saving Node	46%	87%	41%	Yes
Development of smart energy systems	67%	91%	24%	Yes
Construction of heating and/or cooling units with heat and RES pumps	50%	82%	32%	No
Promotion with clean fuels and development of charging and supply networks	46%	87%	41%	Yes

Table 35. *Results of Policy Objective: Hydrogen technologies and their use in post-lignite Regions*

Hydrogen technologies and their use in post-lignite Regions	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
Insufficient existing infrastructure for hydrogen investments	83%	95%	12%	Yes
Insufficient know-how	82%	95%	13%	Yes
Solutions				
Implementation of the necessary infrastructure	87%	-	-	Yes
Direct promotion and implementation of the hydrogen technology development proposal of the "White Dragon" consortium	87%	-	-	Yes
Design of a roadmap for the development and manufacture of hydrogen in the Region	83%	90%	7%	Yes
Synergies with the university and local research centres	100%	-	-	Yes

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Ways to integrate RRI-AIRR				
Creation of Centres of Excellence	91%	-	-	Yes
Appropriate training of local engineers and workers in the use of hydrogen recovery and storage methods	91%	-	-	Yes

Table 36. *Results of Best Practices of Policy Objective: Hydrogen technologies and their use in post-lignite Regions*

Best Practice: Hydrogen technologies and their use in post-lignite Regions	1st rating	2nd rating	Difference between the ratings	Consensus reached
Development of a new green hydrogen laboratory	50%	86%	36%	Yes
Construction of hydrogen plants	71%	91%	20%	Yes
Storage and use of green hydrogen	75%	-	-	Yes

Topic 3: Fostering Environmental Sustainability

While new sustainable energy models (such as precision and organic farming, hydroponics) can boost agricultural production and give environmental and economic benefits, lignite mine rehabilitation and an educated workforce can support tackling environmental concerns. With lignite operations coming to an end, there will be a chance to revive the land by hosting sustainable agricultural endeavours or boosting afforestation. Given that major urban centres are less than 1.5 hours distant by road, the lignite mines of Western Macedonia can provide tourism potential by drawing both domestic and foreign visitors.

Table 37. *Results of Policy Objective: Restoration of degraded areas and facilities and their change of use*

Restoration of degraded areas and facilities and their change of use	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
High costs of rehabilitation of the areas	91%	-	-	Yes
Absence of public consultation (to capture/manage the needs of local authorities, local community)	96%	-	-	Yes
Solutions				
Implementation of holistic model for the rehabilitation of degraded areas	91%	-	-	Yes
Legal obligation of PPC to release the huge areas it has committed, for the creation of photovoltaics, so that they can be used for productive activities	87%	-	-	Yes
Synergies (between businesses and local bodies) for production, recreation, and environmental upgrading actions	83%	95%	12%	Yes

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Creation of overlapping areas of cultivation, which will divide the area based on the topography into longitudinal vegetation flows, movements, uses	91%	-	-	Yes
Ways to integrate RRI-AIRR				
Creation of an open interactive information platform on field developments (Open Access)	87%	-	-	Yes
Collaborative participation of public bodies / research institutions / businesses in the rehabilitation process (Science and Inclusive Society / Public Commitment)	91%	-	-	Yes

Table 38. *Results of Best Practices of Policy Objective: Restoration of degraded areas and facilities and their change of use*

Best Practice: Restoration of degraded areas and facilities and their change of use	1st rating	2nd rating	Difference between the ratings	Consensus reached
Soil restoration and land use adjustment	73%	100%	27%	Yes
Monitoring of air pollution and biodiversity	42%	91%	49%	Yes
Energy crops on run-down areas	17%	78%	61%	No
Free land provision	46%	87%	41%	Yes
Development of Wind Park	4%	61%	57%	No
Development of a Solar Park	8%	78%	70%	No
Applications of geothermal energy or hydroelectric energy	29%	87%	58%	Yes

Topic 4: Promoting Research and Innovation and Integrating Modern Technology

More than 20% of the local workforce is employed in the primary sector of the economy, which includes agriculture, forestry, and livestock. By creating incentives, enhancing the quality of life, and implementing smart agriculture programs, the district can exploit these advantages to attract people to rural areas and bring in new residents. To further enhance the tourism industry and the local economy, the area can also explore its natural surroundings, ease of access to other urban areas, and proximity to other urban areas (e.g., 1.5 hours from Thessaloniki and Igoumenitsa's ports and airports).

Table 39. *Results of Policy Objective: Development of supporting digital infrastructures and services of smart communities*

Development of supporting digital infrastructures and services of smart communities	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
Lack of knowledge & culture about the usefulness of smart communities	87%	-	-	Yes
Low existing level of digital infrastructure	91%	-	-	Yes

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Solutions				
Integration of digital transformation infrastructure	100%	-	-	Yes
Building a network of smart communities at inter-regional and international level	87%	-	-	Yes
Increase funding for the creation of such infrastructure for businesses and public institutions	91%	-	-	Yes
Ensure the involvement of representatives of civil society, including the social partners, consumer organisations and other stakeholders, in the formulation, implementation and monitoring of the policy objective	91%	-	-	Yes
Ways to integrate RRI-AIRR				
Participation of research bodies for the development of digital infrastructures	100%	-	-	Yes
Educating the public in services that integrate research and innovation	91%	-	-	Yes

Table 40. *Results of Best Practices of Policy Objective: Development of supporting digital infrastructures and services of smart communities*

Best Practice: Development of supporting digital infrastructures and services of smart communities	1st rating	2nd rating	Difference between the ratings	Consensus reached
Integrated Information System	52%	91%	39%	Yes
Development of applications and solutions for smart tourism and culture	54%	83%	29%	No
Investing in smart and sustainable local mobility	50%	96%	46%	Yes
Smart Farming	75%	-	-	Yes

Topic 5: Governance of the Transition

The development of partnerships, the strengthening of social dialogue, and the more effective absorption of resources based on a multi-level governance structure are crucial elements of the just transition governance mechanism. However, in practice, the suggested structure turned out to be polycentric, reflecting a solid top-down approach. To be more precise, the central coordinating intergovernmental committee is primarily responsible for organising, approving, and carrying out crucial actions. On the other hand, the influence of local factors is more suggestive and less decisive. As a result, local actors can hardly take ownership of the transition plan. International laws are also necessary in areas moving toward a transition that strengthens the local community's active and significant participation.

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Table 41. *Results of Policy Objective: Development of an effective system of transition governance by involving regional structures in governance*

Development of an effective system of transition governance by involving regional structures in governance	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
Bureaucracy	100%	-	-	Yes
The non-involvement of local government and civil society in the co-formulation of transition policies and project management	83%	95%	12%	Yes
Solutions				
Decentralisation of the governance system	87%	-	-	Yes
Creation of structures/collaborations with representatives of the quadruple helix (Scientific Bodies, Enterprises, Governance Bodies, Civil Society)	100%	-	-	Yes
Networking at municipal/regional and interregional level	87%	-	-	Yes
Independent body for monitoring and controlling administrative/procedural decisions on the transition	91%	-	-	Yes
Ways to integrate RRI-AIRR				
Involvement of local government, academia, business, and citizens in governance	91%	-	-	Yes
Integration of modern monitoring and evaluation tools	100%	-	-	Yes

Table 42. *Results of Best Practices of Policy Objective: Development of an effective system of transition governance by involving regional structures in governance*

Best Practice: Development of an effective system of transition governance by involving regional structures in governance	1st rating	2nd rating	Difference between the ratings	Consensus reached
Improving the regulatory framework	54%	91%	37%	Yes
The Transition Observatory	42%	95%	53%	Yes
Multilevel system of governance	58%	87%	29%	Yes
Planning decision process based on more than a regional level	63%	96%	33%	Yes
Financial resources for the transition	92%	-	-	Yes

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Table 43. *Results of Policy Objective: Development of a more effective social dialogue between the actors of the quadruple helix*

Development of a more effective social dialogue between the actors of the quadruple helix	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
Lack of well-documented and well-elaborated opinions and proposals	96%	-	-	Yes
Conflicts of interest	78%	95%	17%	Yes
Solutions				
Equal participation of all parts of the quadruple helix	96%	-	-	Yes
IT and ICT solutions (e.g., open digital platforms) for social dialogue and public consultation	100%	-	-	Yes
Implementation of flagship investments that will set the tone and help boost the optimism of stakeholders and the need to participate in the public debate	91%	-	-	Yes
Participation of representatives of social and productive bodies in the committee of university research programs	96%	-	-	Yes
Ways to integrate RRI-AIRR				
Promoting open access to disseminate the results among quadruple-helix stakeholders for transparent knowledge transfer, innovations, and collaborations	96%	-	-	Yes
Promoting open access to disseminate the results among quadruple-helix stakeholders for transparent knowledge transfer, innovations, and collaborations	91%	-	-	Yes

Table 44. *Results of Best Practices of Policy Objective: Development of a more effective social dialogue between the actors of the quadruple helix*

Development of a more effective social dialogue between the actors of the quadruple helix	1st rating	2nd rating	Difference between the ratings	Consensus reached
Development of a digital platform for open dialogue Best Practice	48%	91%	43%	Yes
Systematic consultation between social partners	57%	83%	26%	No

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Table 45. *Results of Policy Objective: Development of a social security framework*

Development of a social security framework	1st rating	2nd rating	Difference between the ratings	Consensus reached
Barriers				
Absence of a long-term strategy in the field of social security	83%	90%	7%	Yes
The insurance monopoly and the lack of flexibility of the insurance legislative framework	83%	80%	-3%	No
Solutions				
Actions for the restoration of confidence (by the institutions), with the citizens co-shaping the policies for changing the productive model of the Region	87%	-	-	Yes
Integrated support services (training, guidance, coaching) for new and existing enterprises	91%	-	-	Yes
Clear financial framework for interventions towards the social security framework	91%	-	-	Yes
Policy and social agreement for the development and implementation of a social security framework in the long term	91%	-	-	Yes
Ways to integrate RRI-AIRR				
Postponement of the transition to a later time to ensure	70%	85%	15%	Yes
The development of a monitoring mechanism for the inputs – outputs of the social security framework	96%	-	-	Yes

Table 46. *Results of Best Practices of Policy Objective: Development of a social security framework*

Development of a social security framework	1st rating	2nd rating	Difference between the ratings	Consensus reached
Direct payments, subsidies, compensations for active and former workers in the lignite sector	58%	91%	33%	Yes
Termination of work in the lignite sector, transfer of former lignite employees to another public organisation	25%	48%	23%	No
Early retirement or voluntary retirement scheme	38%	52%	14%	No

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World Café Results in Western Macedonia

The methodology of calculation of the World Café results included the aggregation of the rating of each separate statement by the participants, starting from the highest to the lowest. Starting from the most important (grade equal to 1) to the least important statement (depending on the number of statements, i.e., out of 19 statements, the least important statement was rated with 19), the tables in this section indicate the total results. The participants' answers for each statement have been aggregated, constituting the total grade of each statement. That implies that the statements with the lowest number are considered the most important and vice versa. The following three tables depict the most prominent statements of the specific RRI keys/AIRR dimensions, while the last table in this section shows implementation ideas and challenges of each one of the most prominent statements.

Table 47. *Statements of Group 1 in the World Café Analysis*

Number of participants / Length of discussion	**Group 1:** 12 participants (5 from Academia & Research, 5 from Policymakers, 1 Industry and business, 1 from Civil society) / 30 minutes
Ranking of statements	Group 1 ranked five most important solutions proposed in the Delphi survey regarding the RRI keys of Public Engagement, Gender Equality and Open Access as follows: Public Engagement: 1. Design of decision-making systems based on a logic of multilevel governance (e.g., local, regional, national, European). 2. Involvement of local government, academia, businesses, and citizens in governance of the transition. Gender Equality: 1. Measures for a sustainable competitiveness in which gender inequalities in the labour market are prevented. Open Access.: 1. Establishment of decentralised mechanisms for open access to public consultation. 2. Effective ICT solutions (e.g., open digital platforms) for social dialogue and public consultation.
Reasons for selecting these statements	Public Engagement: According to the group, the implementation of decision-making based on a logic of multilevel governance is critical since this is the most effective way to include all levels of society to the energy transition process. So far, the main policy focus is primarily driven by the central policy making actor. Moreover, full involvement of all the four helices of the quadruple helix in the governance of transition may constitute the second reasonable step, since all actors will actively participate in the process

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	from the decision-making to the implementation stage, rather than just taking decisions about it. Gender Equality: Measures of sustainable competitiveness in which gender inequalities are prevented is crucially important since the female factor is not equally represented so far, and this may constitute one of the main reasons that there is a noticeable lack of competitiveness in the Region of Western Macedonia. Open Access: Establishment of decentralised mechanisms for open access to public consultation has been pointed out by the participants of the group as extremely important. The course of the energy transition so far does not involve public consultation on crucial societal issues and citizens of the Region do not have access to critical decision-making processes. Furthermore, effective ICT solutions should be promoted on a priority since current digital infrastructures do not allow social dialogue and public consultation to be efficiently implemented. For instance, a user-friendly digital platform that would allow local citizens and bodies to express their views on the policy focus would drastically accelerate public consultation.

Table 48. *Statements of Group 2 in the World Café Analysis*

Number of participants / Length of discussion	**Group 2:** 10 participants (5 from Academia & Research, 4 from Policymakers, 1 from Civil society) / 30 minutes
Ranking of statements	Group 2 ranked the five most important solutions proposed in the Delphi survey regarding the RRI key of Science Education and the AIRR dimensions of Anticipation and Inclusiveness as follows: Science Education: 1. Creation of effective mechanisms to detect the needs of education and retraining. Anticipation: 1. Creating an innovation zone with attractive incentives and benefits for start-ups and spin-offs with a specific focus on energy technologies. 2. Spatial and urban planning that will include elements of forecasting, evaluating a vision and evaluation developments in the field of energy technology. Inclusiveness:

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	1. Commitment of all local bodies for continuous and strong promotion of start-up entrepreneurship at the regional level. 2. Synergies with the university and local research centres.
Reasons for selecting these statements	Science Education: The creation of effective mechanisms to detect the needs of education and retraining is critical since the current education profile of the Region does not involve adequately skilled professionals that are filled with energy transition-related capabilities. Such mechanisms may include the implementation of surveys in the university and the local businesses as well as relevant scientific studies. Anticipation: It is critical to anticipate the ongoing and upcoming needs of the market by creating an innovation zone that will be focused on accommodating start-ups that will be activated in the latest technological trends. A scientific focus on energy transition technologies is expected to maximize the benefits for the Region. Furthermore, the design and implementation of a completed spatial plan will create opportunities for investments in the Region and protect at the same time crucial primary productive activities such as agri-food and farming. Inclusiveness: It is significant for all the major territorial and local actors to be committed to supporting start-up entrepreneurship at a regional level. So far, there has been observed an uneven treatment of start-up entrepreneurship by specific local actors in comparison to others, implying that there is no common stance of all the local actors to support such a goal. Synergies of the local businesses with the university and research institutes are critical, since there has been noted a gap in the current scientific focus of the latter, regarding energy transition. This can negatively affect the course energy transition in the medium and long term.

Table 49. *Statements of Group 3 in the World Café Analysis*

Number of participants / Length of discussion	**Group 3:** 8 participants (4 from Academia & Research, 4 from Policymakers) / 30 minutes
Ranking of statements	Group 3 ranked the four most important solutions proposed in the Delphi survey regarding the AIRR dimensions of Reflexivity and Responsiveness as follows: Reflexivity: 1. Creating a flexible legal framework for start-ups, reducing / eliminating bureaucracy.

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	2. Reducing taxes on industries to encourage investment. Responsiveness: 1. Completion of spatial and urban planning. **2.** Creation of a framework of cooperation between research/academia and business.
Reasons for selecting these statements	Reflexivity: It is crucially important to create a legal framework that is specifically promoting start-up investment and support, since start-ups are considered amongst the best multipliers of added value return and can effectively accelerate the regional development. Moreover, the taxation levels in Greece are considered significantly high, depriving businesses of valuable capital for investments. Possible reduction in the taxation levels for investments specifically located in the Region of Western Macedonia is considered a must. Responsiveness: The completion of a holistic spatial and urban planning is a prerequisite for the implementation of an investment framework that will be applied in four directions: clean energy investments, start-ups / spin-offs, primary production, local business investments. The distinction of land for each one of the aforementioned uses would accelerate the energy transition. Moreover, the creation of a cooperation framework between the local businesses and the research/academia helix is expected to set the basis for long-term investments specifically focused on the energy transition.

Table 50. *Implementation ideas & challenges of the statements*

Statements of consensus with high priority	Selected by	Implementation ideas of participants	Implementation challenges perceived by participants
Design of decision-making systems based on a logic of multilevel governance (e.g., local, regional, national, European).	Participants	• Decisions should consider all levels of governance. • Implementation of public consultation / referendums on important issues. • Initiation of digital voting in user-friendly platforms set by local / national authorities	• Address the weak culture of public engagement in important decisions by the local community. • Central and local authorities should more actively civil society and academia. • Just transition policy should be designed and

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			implemented regardless of the election cycles
Involvement of local government, academia, businesses, and citizens in governance of the transition.	Participants	• Citizens should be included by publicly voting on important issues. • Local university should be actively involved in local and national policy making. • Local business should be involved in the transition investments.	• The university should be focused more actively on research related to the energy transition. • Citizens should be better informed about the effects of the energy transition on the Region, in the medium and long term. • Local businesses should be activated into innovation activities related to the transition
Measures for a sustainable competitiveness in which gender inequalities in the labour market are prevented.	Participants	• An obligatory percentage should be imposed regarding the equal participation of women in investments about the energy transition. • Businesses and organizations should be benefitted from engaging women in their activities at increased levels. • Women should be trained and educated in innovative competencies and transition-related skills.	• The culture of local businesses should favour the involvement of women in more practical activities. • Current energy transition and subsidy programs do not sufficiently include extra scoring for the female labour force. This should be addressed. • Women should be better informed about the prospects of the energy transition.
Establishment of decentralised mechanisms for open access to public consultation.	Participants	• A public consultation / referendum tool should be implemented at a local level, regarding key decisions about the implementation of the regional policy focus.	• Local actors should be mobilised in public consultation through open access and user-friendly mechanisms (participating in relative events, etc.).
Effective ICT solutions (e.g., open digital platforms) for	Participants	• The university should be directly involved in the creation of a digital platform that will be run	• Local policy making organisations should cooperate in creating and using a common ICT tool

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social dialogue and public consultation.		by the local regional authority and the local municipalities. • Enhanced digital infrastructure should be installed in the Region, in order to support an interactive digital tool that is able to support active social dialogue and public consultation.	that will be accessed by everyone. • Current digital infrastructures (networks, etc) are insufficient to support active public consultation and should be either upgraded or replaced.
Creation of effective mechanisms to detect the needs of education and retraining.	Participants	• Regular public informative events and information campaigns should be implemented in the regional education/research organisations. • The university should plan its educational/research framework on the demands of the energy transition. • The university should be actively consulted by the local authorities, local businesses, and local community, on their educational / professional / scientific needs regarding the energy transition and direct its programs towards the fulfilment of those needs. • Foreign educational / research organisations that have already successfully participated in the energy transition procedures, should be consulted and their	• Local university is insufficiently connected with the local policy making and negligibly connected with the local business community. • The current educational / research projects that the university is involved in, are insufficiently or only partially related to the energy transition, to a large extent.

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		programs should be evaluated.	
Creating an innovation zone with attractive incentives and benefits for start-ups and spin-offs with a specific focus on energy technologies.	Participants	• Attract participating companies from foreign areas that have already passed through energy transitions. • Provide free land for start-ups and spin-offs as well as low-cost energy (Municipalities and the regional Authority can be involved in this). • Drastically increased research and education courses about the energy transition, which will provide a constant flow of highly skilled professionals and scientists for the innovation zone. • Regional and local authorities can provide direct financial incentives to start-ups and spin-offs and participate as partners and co-owners.	• Build a completed spatial plan that is currently absent. This will provide the necessary operational space for an innovation zone. • Transform and reshape the current educational framework in the local university, by switching to modern energy technologies-related courses. • Build a culture of cooperation between research academia and businesses that is currently absent.
Spatial and urban planning that will include elements of forecasting, evaluating a vision and evaluation developments in the field of energy technology.	Participants	• Actively involve societal actors and businesses' views in the spatial planning about the distribution and the use of land. • The regional authority, the local municipalities and other public organisations should be involved by providing great amounts of lands. • PPC should participate and be also obliged to provide some of its own	• There is no ascertained willingness by the central authorities to design a holistic plan or by the key players (PPC, Municipalities, etc) to participate on that. • The current Just Transition Plans involves to large areas for RES investments, neglecting other possible land uses that could contribute to local development.

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		lands for use other than energy production (agriculture production, innovation zone areas, etc). • A public consultation should take place about the amount and the use of land in the Region, involving all helices of the quadruple helix.	
Commitment of all local bodies for continuous and strong promotion of start-up entrepreneurship at critical level regional level.	Participants	• Specific binding agreements should be implemented, under specific rules and targets, that will be equally applied by all participating parties. • National, regional, and local authorities (municipalities) should be accountant for not doing enough or implementing their own agreements. An independent observatory of the energy transition should take the role of indicating what deals have been implemented or not.	• No national, local (municipal) or regional authorities are bound to specific targets and implementing specific agreements regarding the promotion of entrepreneurship in the framework of the policy focus (energy transition). • The local policy making (regional authority and municipalities) need to be more drastically focused on promoting start-up entrepreneurship in the Region.
Synergies with the university and local research centres.	Participants	• Systematic participation of both the university and research institutions to research projects regarding the energy transition. • Local university and research centres should be constantly participating in all public consultations regarding energy transition.	• 'Demo' days and relative events should be initiated about possible partnerships between research institutions, local businesses and businesses on critical investments should be organised on a frequent basis by local authorities.

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Creating a flexible legal framework for start-ups, reducing / eliminating bureaucracy.	Participants	• Central authorities should lift bureaucratic rules that may slow down crucial investments in the policy focus in the Region of Western Macedonia. • Local authorities (regional authority and municipalities) should agree on and implement a common rule framework regarding investments in the energy transition. • Digitisation should be maximised on a local level, allowing businesses to submit and traffic documents/licenses through a user-friendly digital platform.	• There are many overlapping legislation rules between the national and the regional legislation framework. They should be detected and transformed towards simplicity. • National, regional and local authorities lack cooperation culture in creating an attractive framework. • There is a severe lack of digital infrastructures (platforms, portals, etc) at a local level, regarding start-up creation and support.
Reducing taxes on industries to encourage investment.	Participants	• The national authorities can initiate a horizontal reduction of tax rate (e.g., 5%) for investments regarding energy transition at a both national or regional level. • Taxes can be reduced indirectly by initiating a reduced tax rate to materials and services used for energy transition investments (e.g., construction works, RES materials, etc).	• The fiscal situation at a national level does not allow crucial tax reductions. • A tax reduction does not guarantee that investments will be directed at the Region for energy transition purposes. The legal framework must be correspondingly transformed.
Completion of spatial and urban planning.	Participants	• Rather than attributing this task to a single body, there must be an Involvement of extra actors in the completion of the plan, such as local businesses,	• Insufficient funding on spatial planning activities so far. Spatial just transition strategy should be sped up.

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		representatives of local civil organisations. • Leverage extra funding from EU sources and the private sector for the completion of the plan.	• Regional policy-making bodies are not bound to implement such a plan due to local conflict of interests.
Creation for a framework of cooperation between research/academia and business.	Participants	• Cooperation must be specified at certain elements such as the level of funding for participating members, the (energy transition) technologies to be developed through research, etc. • Businesses must be trained through specific programs, to new energy transition-related activities where the local research / academia sector must have the primary organization role.	• The culture of cooperation between academia and business is weak, especially in the businesses' side. • Current cooperation programmes do not provide adequate financial incentives to businesses to participate in such programmes.

Public Engagement

The table shows the significance of the statements that took place during the World Café event in Western Macedonia, specifically regarding the RRI key of Public Engagement. As already mentioned, the lowest number in the 'importance' column indicates the highest level of importance, since the participants rated each statement with '1' indicating the most important statement to '10', '11', '12'… etc., indicating the least important statements. The aggregation of each participants' statements makes up the total level of importance. According to this, the statement of the design of decision-making systems based on a logic of multilevel governance is the most important amongst the 9 solutions, followed closely by the involvement of local government, academia, businesses, and citizens in the governance of the transition. Likewise, the development of a holistic roadmap toward a zero-emission economy is the least important solution for the key of Public Engagement.

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Table 51. *Public Engagement Statements*

1. PUBLIC ENGAGEMENT		
SOLUTIONS	**CONSENSUS**	**IMPORTANCE**
Design of decision-making processes based on a logic of multilevel governance (e.g. local, regional, national, European).	96%	42
Facilitating networking and investor access to financing opportunities for investments in the region related to public procurement of innovation.	91%	76
Involvement of local government, academia, businesses and citizens in governance of the transition.	91%	48
Effective cooperation of public bodies / research institutions / businesses in the process of land reclamation.	91%	85
Development of a digital platform for open consultation and interactive dialogue.	91%	107
Developing a holistic roadmap towards a zero-emission economy.	87%	130
Creation of an open interactive information and monitoring platform on developments in the field of implementation of just transition policies.	87%	127
Initiatives to restore the trust of citizens by the institutions in the perspective of co-shaping the policies for changing the productive model of the region.	87%	111
Regional Fund for the Financing of start-ups and existing enterprises with the participation of the Municipalities of Western Macedonia.	85%	129

Gender Equality

The following table indicates the significance of the two statements (solutions) regarding the RRI key of Gender Equality. According to the given results, the participants focused on the equal participation of both sexes and the corresponding measures that have to be taken in order to avoid this inequality that is mainly expressed through the limited participation of women. This unbalanced distribution is noted at all four helices of the quadruple helix.

Table 52. *Gender Equality Statements*

2.GENDER EQUALITY		
SOLUTIONS	**CONSENSUS**	**IMPORTANCE**
Measures for a sustainable competitiveness in which gender inequalities in the labour market are prevented	96%	26
Ensuring equal participation of both genders from all sections of the quadruple helix (administration, academy, businesses, citizens)	96%	31

Open Access

The following table includes the statements regarding the RRI key of Open Access. Three statements showed the highest number of importance, with the establishment of generalised mechanisms for open access, specifically contributing to public consultation for the policy focus of

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the Region, which is the post-coal transition to be on top. The creation of a user-friendly digital platform that will ease and promote public consultation was also pointed out as a top priority, with the initiation of a Just Transition Observatory that will closely record the transition procedures, pointing out abnormalities and diversions from the initial plans to follow at similar levels of importance.

Table 53. *Open Access Statements*

3.OPEN ACCESS		
SOLUTIONS	CONSENSUS	IMPORTANCE
Effective ICT solutions (e.g. open digital platforms) for social dialogue and public consultation.	100%	60
Establishment of decentralised mechanisms for open access to public consultation.	100%	56
Integration of digital transformation infrastructure into a common interactive system that will allow full access at every level.	100%	67
Promoting OA to disseminate results among quadruple helix stakeholders for transparent transfer of know-how, innovation and partnerships.	96%	88
Establishment of a Just Transition Observatory.	95%	62
Development of an Integrated Information System (ISS).	91%	123
Operation of a platform linking demand to the labor market.	86%	99
Electronic Portal for the enhancement and monitoring of employment.	83%	128

Science Education

The following table shows the most important statements of the Science Education RRI key. By far, the most important statement was the creation of effective mechanisms to detect the need for education and retraining. This solution actually implied the inefficient mechanisms that already exist, regarding the academic and research focus on the technologies and scientific solutions for energy transition in the Region of Western Macedonia. The integration of digital transformation infrastructure was also pointed out as a significant measure that may enhance science education in the Region.

Table 54. *Science Education Statements*

4.SCIENCE EDUCATION		
SOLUTIONS	CONSENSUS	IMPORTANCE
Creation of effective and decentralised mechanisms to identify the needs of education and retraining.	100%	24
Digital transformation infrastructure integration.	100%	36
Immediate promotion and implementation of the proposal for the development of hydrogen technology.	87%	54

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Anticipation

The following table indicates the statements regarding the AIRR dimension of Anticipation. In that case, there were two statements that gathered the highest – almost identical – score of importance. The first solution was about the creation of an innovation zone with attractive incentives and benefits for start-ups and spin-offs with a specific focus on energy technologies. Equally important, the spatial and urban planning that will include elements of forecasting, evaluating a vision and evaluating developments in the field of energy technology was also pointed out. According to the same table, the exclusive scientific focus on premature energy alternative solutions such as geothermic or hydrogen was not important. That was pointed out, probably due to the need for a more overall scientific scope to multiple and combined energy solutions (that would include both the above), which may replace the energy mix in the Region.

Table 55. *Anticipation Statements*

5. ANTICIPATION		
SOLUTIONS	**CONSENSUS**	**IMPORTANCE**
Creating an innovation zone with attractive incentives and benefits for start-ups and spin-offs with a focus on energy technologies.	100%	48
Designing projects and creating sustainable implementation and monitoring mechanisms based on international experience.	100%	65
Spatial and urban planning that will include elements of forecasting, evaluating a vision and evaluating developments in the field of green technology.	96%	49
Provision of flexible financial assets by central/local authorities in the form of subsidies, tax cuts, etc.	96%	88
Implementation of holistic investment planning that will include specific financial objectives and indicators.	96%	122
Creating an Investor Support Network (ISN).	96%	126
Creating an innovation zone focusing on energy technologies.	91%	100
Establishment of an Independent Monitoring and Control Body.	91%	144
Design of a roadmap for the development and production of hydrogen in the region.	90%	157
Aligning investment incentives and disincentives to support a low-carbon agenda.	87%	152
Promotion of clean fuels, development of electric vehicle charging and power supply networks (network capacity).	87%	171
Release from PPC of areas that it has reserved, for the creation of photovoltaics, so that they can be used for production activities.	87%	145
Geothermal or hydropower applications.	87%	185

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Inclusiveness

The level of importance of the AIRR dimension of Inclusiveness statements is shown in the following table. According to this, the commitment of all local bodies for the continuous and strong promotion of start-up entrepreneurship at a critical level regional level. This solution implied that the four helices of the quadruple helix in the Region were not equally focused on promoting start-up entrepreneurship. This was primarily concerning the helix of local authorities which was the main decision-maker and the helix responsible for including other actors and policies in its decisions. The importance of promoting synergies with the local research actors and specifically the university was also pointed out as a significant statement. In fact, this statement indicated the long problem on non-connection of the science/research helix (primarily expressed through the university) with the needs of the local business sector and local society. At the bottom of the table the statement of the creation of a network of smart technologies at international level was noted. This statement was directly connected with the fact that the inclusion framework should include all the local actors as a priority, rather than involving interregional or foreign actors. On a similar scope, the statement of synergies between PPC, local municipalities and businesses for promoting clean energy infrastructures was perceived as equally (un)important probably due to the fact that a more inclusive and holistic approach is probably demanded rather than focusing on the synergies of PPC S.A. with specific local actors.

Table 56. *Inclusiveness Statements*

6.INCLUSIVENSS		
SOLUTIONS	**CONSENSUS**	**IMPORTANCE**
Commitment of all local bodies (Local Authorities, Public Bodies, Businesses, Citizens, University) for continuous and strong promotion of start-up entrepreneurship at central and regional level.	100%	28
Synergies with the university and local research centers.	100%	47
Creation of structures / collaborations with representatives of the quadruple helix (Scientific Bodies, Businesses, Governance Bodies, Civil Society).	100%	59
Participation of representatives of social and productive bodies in the selection of university research programs.	96%	83
Synergies (between businesses and local bodies) for productive actions, recreational actions and environmental upgrade actions.	95%	97
Integration of all segments of society (working citizens, businesses, students, unemployed) in the provision of a framework of economic incentives.	95%	89
Supporting energy communities.	91%	109
Implementation of synergies for clean energy infrastructure with the participation of PPC, the Region, energy municipalities and electricity management companies.	87%	125
Creation of a network of smart communities at interregional and international level.	87%	125

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Reflexivity

The following table indicates the statements of importance regarding the AIRR dimension of Reflexivity. Two statements gathered the maximum significance according to the participants. The creation of a flexible legal framework for start-up promotion was perceived as the most important statement by the participants. In fact, the current bureaucratic legal framework and its absences of financing opportunities were drastically limiting the initiation of start-ups as a measure of facing the negative consequences in the Region. The reduction of taxes was included in the same frame of measures, showing the necessary level of reflexivity from the policy making side. The decentralisation of the system of governance appears at the bottom of the table. This was rated as such, not because decentralisation was a negative parameter in the governance mechanism (the opposite) but probably because the decentralisation was not expected to make the governance system more reflective, if it was not accompanied by the necessary changes and reforms regarding other key parameters (elimination of bureaucracy, digital governance infrastructures, etc.). According to the same logic, the integration of modern monitoring and evaluation tools must be followed by the implementation of other key solutions, in order to contribute to the implementation of Reflexivity into the policy focus of the Region.

Table 57. *Reflexivity Statements*

7. REFLEXIVITY		
SOLUTIONS	CONSENSUS	IMPORTANCE
Reducing taxes on industries, to encourage investment.	100%	65
Strengthening research infrastructures, innovation hubs, areas of cooperation.	100%	67
Creating a flexible legal framework for start-ups, reducing/eliminating bureaucracy.	100%	62
Create effective and decentralised mechanisms to identify training and retraining needs.	100%	77
Land reclamation and land-use adaptation.	100%	75
Integration of modern monitoring and evaluation tools.	100%	123
Changing the legal framework of spin-offs to provide real incentives for their creation at the local level.	96%	116
Increase funding for the creation of infrastructure for businesses (business parks) and public bodies.	91%	99
Direct payments, subsidies, compensation for active and former workers in the lignite sector.	91%	126
Decentralisation of the system of government.	87%	125

Responsiveness

Table 58 shows the importance level of the statements that are related to the AIRR dimension of Responsiveness. In that table – which included the highest number of statements in comparison to the rest of the keys/dimensions – the statement of the completion of a spatial and urban planning for the Region of Western Macedonia attracted the highest level of importance. Indeed, the total absence of a completed urban planning that was destined to resolve emerging issues and problems for land uses and re-uses, has been pointed out by the participants as the most important issue that the current energy transition in Western Macedonia plan has to resolve. The governance mechanism would show a significant level of Responsiveness to multiple requests by investors, farmers, business executives and local citizens if such a plan were implemented from

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day 1 of the energy transition. Second on the list was the creation of a framework that may initiate, prioritise, and set the details of cooperation between research/academia and business. In fact, the long-standing gap between the connection of the businesses' needs and the research/academia priorities was causing a significant lack of responsiveness on behalf of the local policy-making. The upgrading of the local energy infrastructure was not perceived as significantly important at all by the participants. That may be so, probably due to the already adequate energy infrastructures that currently exist in the Region (or being currently built – especially in the RES sector). Likewise, an investor support network was not perceived as equally important if it was not able to provide direct (financial) benefits to investors and the local community or respond to immediate local needs. According to the participants, there were more important issues that the local policy-makers must resolve, in order to integrate Responsiveness in the policy focus of energy transition.

Table 58. *Responsiveness Statements*

8. RESPONSIVENESS		
SOLUTIONS	**CONSENSUS**	**IMPORTANCE**
Creation of a framework for cooperation between research/academia and business.	100%	104
Creating an innovation zone with generous incentives and benefits for startups and spin-offs.	100%	171
Creation of an Innovation Zone.	100%	132
Creation of effective and decentralised mechanisms to identify the needs of education and retraining.	100%	152
Provision of flexible financial assets by central/local authorities in the form of subsidies, tax cuts, etc.	100%	178
Completion of spatial and urban planning.	96%	78
Implementation of a holistic investment plan that will include specific financial goals.	96%	195
Investor Support Network (ISN).	96%	262
Provision of land by the Regional Authority for the establishment of new businesses and relocation of existing local businesses.	96%	172
Generous financial support (from central and local authorities) for the adoption of clean systems.	96%	224
Upgrading and improvement of local energy infrastructure.	96%	285
An integrated approach to upskilling and retraining, including education and mentoring.	95%	240
Increased funding for green, proven projects of high added value by companies.	95%	214

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Discussion in Western Macedonia

Discussion Delphi Study in Western Macedonia

The following findings and observations came across in the context of the quantitative analysis of the Delphi study results for the Region of Western Macedonia. Among the 150 statements constituting the five topics of the questionnaire, the topic of "Fostering Entrepreneurship" gathered 36% of the statements, the topic of "Energy Efficiency" and "Governance of the Transition" had 23% of the statements each, "Environmental Sustainability" covered 10% of the statements and "Promoting research and innovation and integrating modern technology" gathered 8%.

Regarding barriers, 63% reached consensus from the first round, and 96% reached consensus in total. The topic with the highest barrier consensus rate was "Fostering Entrepreneurship". In fact, 35% of the barriers that met consensus or, in other words, 33% of the total barrier statements belonged to this topic. As regards the solutions, 85% of the statements reached consensus from the first round and 92% in total. The most prominent topic for the solutions was "Fostering Entrepreneurship", while 32% of the solutions that reached consensus, or 29% of the total solutions, belong to this topic. Concerning the ways to integrate the RRI-AIRR approach, 88% of the statements reached consensus from the first round. Once again, the topic of "Fostering Entrepreneurship" gathered the most statements, but the topics of "Energy Efficiency" and "Governance of the transition" also had a high number. Particularly, 33% of the ways to integrate RRI-AIRR belong to "Fostering Entrepreneurship", while "Energy Efficiency" and "Governance of the transition" concentrated 25% each. As for the best practices, only 11% of the statements reached consensus in the first round and 69% in total. Similarly with the previously mentioned categories of statements, for the best practices, "Fostering Entrepreneurship" reached the highest consensus rate among the five topics. 38% of the statements reached consensus and 26% of the total statements belong to this topic.

It is evident that the Delphi study participants strongly agreed on solutions, barriers, and the ways to integrate the RRI-AIRR approach for the Region of Western Macedonia. Although, with regard to the best practices, the total rate of consensus dropped to 69%. In further analysis, each one of the five topics of the questionnaire had very high consensus rates regarding the category of the statements (barrier, solution, way to integrate RRI-AIRR keys, and best practices).

The topic of "Fostering Entrepreneurship" included 54 statements, consisting of 8 barriers, 16 solutions, 8 ways to integrate RRI-AIRR keys, and 22 best practices. Regarding this topic, 81% of the solutions proposed and 88% of the ways to integrate RRI-AIRR keys reached consensus in the first round, while in the second round, the rate reached 88% and 100%, respectively. On the other hand, 63% of the barrier statements and 9% of the best practices of this topic reached consensus in the first round, while in the second round, the percentages reached 100% and 64%, respectively. The statements that appeared to have the highest rate of consensus regarding this topic, concerned the development of a framework for collaboration between the academic and research communities, the encouragement of start-up and spin-off companies, and the establishment of an innovation zone. The existence of financial incentives and measures that strengthen start-ups was also rated of great importance. As it was stated by the stakeholders, according to the Just Transition Development

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Plan[14], the vision for the "next day" in Western Macedonia is based on five principles, with Industry manufacturing activities and trade being one of them, therefore fostering entrepreneurship is considered crucial and the statements mentioned above constitute important integration policies to the Transformative Outlook that will be designed for Western Macedonia.

Regarding the topic of "Energy Efficiency", 35 statements were questioned. 6 barriers, 12 solutions, 6 ways to integrate RRI-AIRR keys, and 11 best practices. In the first round, 67% of the barriers, 75% of the solutions, 83% of the ways to integrate RRI-AIRR keys, and 18% of the best practices of this topic reached consensus. Moving to the second rating, 100% of the barriers and the ways to integrate RRI-AIRR concept, 83% of the solutions, and 82% of the best practices of this topic reached consensus. Free land provision by the Region and the municipalities to local businesses for the creation of energy communities and synergies with the university and local research centres reached the highest levels of consensus regarding "Energy Efficiency". It should be emphasized that with regard to energy communities, stakeholders indicated that a change in the institutional framework is required in order for them to be more efficient and sustainable.

Concerning the third topic, "Environmental Sustainability", which included 15 statements (2 barriers, 4 solutions, 2 ways to integrate RRI-AIRR keys, and 7 best practices), most of the statements reached consensus in the first round. In particular, 100% of the topic's barriers and ways to integrate the RRI-AIRR keys and 75% of the solutions reached consensus in the first round. In the second round, all the solutions reached consensus. On the contrary, 57% of the best practices reached consensus in the second round. While the best practice of soil restoration and land use adjustment received broad support, the absence of public consultation emerged as a very significant barrier to the restoration of the degraded areas and the facilities, as well as, to their change of use. Sustainable development to promote social and environmental sustainability constitutes another principle of the Just Transition Development Plan to achieve a smooth transition of the regional labour market to the post-lignite era.

As for the topic of "Promoting research and innovation and integrating modern technology", which included 12 statements (2 barriers, 4 solutions, 2 ways to integrate RRI-AIRR keys, and 4 best practices), all barriers, solutions, and ways to integrate RRI-AIRR keys reached consensus in the first round. Among the 4 best practices, 1 reached consensus in the first round and 2 more in the second. High levels of consensus have been established on statements relating to the development and integration of digital infrastructures, particularly as it relates to the involvement of research bodies. Additionally, it appears to be extremely important to invest in smart, sustainable, and local mobility.

Finally, for the last topic, "Governance of the transition", consisting of 34 statements (6 barriers, 12 solutions, 6 ways to integrate RRI-AIRR keys, and 10 best practices), all solutions reached consensus in the first round. Furthermore, 83% of ways to integrate RRI-AIRR concept, 33% of barriers, and 10%

[14] Government Committee SDAM. Just Transition Development Plan—Current Situation and Prospect for Areas in Energy Transition in Greece. 2020. Available online: https://www.sdam.gr/sites/default/files/consultation/Current_situation_and_prospects_for_areas_in_energy_transition_in_Greece_EN.pdf.

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of best practices reached consensus in the first round, while the rates in the second round reached at 100%, 88%, and 70%, respectively. In the context of the "Governance of the transition", the biggest barrier appears to be bureaucracy. Greece has long been known to have an extraordinarily complex, paper-based bureaucratic system, one that many felt was overly complicated and even lent itself to corruption. The development of structures and partnerships for the representatives of the quadruple helix, the integration of mobile monitoring and evaluation tools, as well as IT and ICT solutions for the social dialogue and public consultation, were nonetheless highlighted by the survey respondents as being of utmost importance.

The topic with the largest percentage of statements leading to consensus, was “Promoting research and innovation and integrating modern technology” (92%), followed by “Energy Efficiency” (89%), while “Environmental Sustainability” statements showed the lowest rate (80%).

Discussion World Café in Western Macedonia

Regarding the RRI key of Public Engagement, the design of decision-making processes based on a logic of multilevel governance (e.g., local, regional, national, European) (grade 42) and the involvement of local government, academia, businesses, and citizens in governance of the transition (grade 48) were considered the most important statements by far. Participants mentioned that there is no applicable Public Engagement if the actual decision-making processes in the Region do not also involve local governance (specifically) under which the local community actively takes part in the local policy focus (energy transition). Moreover, in that local governance system, participants pointed out that policymakers should not be the only ones taking decisions, but the rest of the actors of the (local) quadruple helix should also participate in the decision making, giving particular emphasis to the helix of society.

The RRI key of Gender Equality contained a significantly smaller number of statements (2). The most important statement (grade 26) was the measures for a sustainable competitiveness in which gender inequalities in the labour market are prevented. This implies that the inequalities between the two sexes that are noticed in the local competitive model should be lifted by involving women at a higher degree. The second statement also showed similar levels of importance (grade 31) and referred to the insurance of equal participation of both genders from all sections of the quadruple helix (administration, academy, businesses, citizens). That is so, since especially in the local administration (decision-making) and business sectors of the Region of Western Macedonia, the participants considered that there is a crucial gap in the equal participation of women in those two specific sectors.

According to the participants, Open Access can be drastically enhanced if there is an establishment of decentralised mechanisms for open access to public consultation. This statement implies that firstly there is a need to create decentralised mechanisms that may promote public consultation in the process of the energy transition. Furthermore, this consultation should equally include all societal actors and be considered by the local and central decision-makers. Furthermore, effective ICT solutions such as easy-to-use open digital platforms for social dialogue and public consultation should also be implemented by the local and central authorities, to give the needed space for all societal members to participate under no limitations.

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Science Education could be strengthened by the creation of effective and decentralised mechanisms to identify the needs for education and retraining. This statement implied that the education framework in the Region of Western Macedonia was not adequately focused on the new specialties and innovative technologies and competencies that were needed to locally promote energy transition at the most effective way (grade 24). Equally important, digital transformation infrastructure should be promoted and integrated on the local educational and training structures, allowing the latest digital technologies to be used and maximise the local Science Education level (grade 36).

Regarding the AIRR dimension of Anticipation, two major statements accrued from the participants. Creating an innovation zone with attractive incentives and benefits for start-ups and spin-offs with a focus on energy technologies was pointed out by the participants as the most important statement (grade 48). The approach of this statement involved the creation of an innovation zone that will implement projects that are specifically articulated into energy transition and the indirect projects that could follow this cause. This could effectively support anticipation on practical terms, by creating projects that could effectively fulfil the energy transition needs at the local level (grade 48). Almost identically, the statement of spatial and urban planning that will include elements of forecasting, evaluating a vision and evaluating developments in the field of green technology also gathered the highest rating by the participants (grade 49). In fact, (the absence of) spatial and urban planning was considered a great limitation of the implemented energy transition in Western Macedonia so far. Distributing the land and allowing specific uses could promote the investments at a local level to a high degree and ease the negative effects on the local community at the same time (e.g., abandoned agriculture production).

The AIRR dimension of Inclusiveness could be most effectively integrated to the local policy focus if the commitment of all local bodies (Local Authorities, Public Bodies, Businesses, Citizens, University) for a continuous and strong promotion of start-up entrepreneurship at central and regional level (grade 28) was implemented. By that statement, the participants indicated two things: At first, start-up entrepreneurship should be considered the best means to include the most promising societal segments in the energy transition process (youth, high-tech scientists) and secondly, this should be decided and implemented by all local bodies as a top priority. Secondarily, participants stated that synergies with the university and local research centres should also be promoted, since the local scientific workforce could be absorbed and more effectively integrated into energy transition that way (grade 47).

The participating stakeholders stated that Reflexivity could be integrated into the territorial policy focus by creating a flexible legal framework for start-ups and by reducing/eliminating bureaucracy. In fact, Greek bureaucracy is negatively affecting both the current local entrepreneurial activities as well as the proposed investment framework according to the Just Transition Plan (grade 62). The initiation of a flexible legal framework that could be specifically focused on easing the creation of start-ups would show the necessary levels of Reflexivity by the central and local policy makers. Almost equally important, the reduction of taxes on industries, could actively encourage investment (grade 65). At this point, stakeholders indirectly stated the general severe lack of liquidity that the Greek business community suffers from and the considerably high Greek taxation levels that mostly affect start-up companies.

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The AIRR dimension of Responsiveness was the one with the highest number of statements, according to the table of section "World Café Analysis Results". Amongst 28 statements, the most prominent statement by far, proved to be the initiation of an effective spatial and urban planning (grade 78). Separating the proposed lands for capital-intensive investments, RES investments, start-up investments, innovation zones, agriculture production, touristic activities and other sustainable development activities could ease the implementation of the proposed investment framework and support the local community to adopt energy transition at the most effective way. The initiation of a detailed framework for cooperation between research/academia and business was also pointed out by the participants as a mean to integrate Responsiveness in the local policy focus (grade 104). In fact, the lack of cooperation between academia and business is a general issue in the whole Greek educational framework that has long been criticised for not being articulated to the business and production needs. The same is the case for Western Macedonia, which currently implements an extremely ambitious energy transition plan. The third most prominent statement by the participating stakeholders was the provision of increased financial resources for the transition (grade 116). The increased financial support that should be given to all societal segments taking part in the transition, was pointed out by the participants as an effective mean of indicating Responsiveness to the local policy focus.

Conclusion in Western Macedonia

The Delphi study that took place in the Region of Western Macedonia demanded an extensive quantitative analysis since the total number of statements during the three rounds was considered particularly high (150). The overall examination of the results showed a few clear tendencies regarding specific aspects of the analysis. Amongst the five different topics of the questionnaire, the topic of "Fostering Entrepreneurship" indicated the highest percentage of the statements, implying a clear tendency in comparison to the others. In fact, the promotion of entrepreneurship was considered a top priority in the framework of the energy transition in the Region by the participating stakeholders and a prime mean of coping with the harsh effects of the demanded transformation of the regional production model. This should be taken into serious consideration by the policymakers, since the current gap in the employment levels of the Region of Western Macedonia is expected to get even worse, and this element could jeopardise energy transition in the medium and long-term. The topics of "Energy Efficiency" and "Governance of the Transition" followed closely, showing an identical number of statements. This finding implies the significance of either the initiation of green energy investments that would accelerate the process of energy transition in the Region or the creation of an effective multilevel governance system that will include the four helices of the quadruple helix and mostly the society, which is considered the least-presented actor in the decision-making of energy transition so far. "Environmental Sustainability" covered a relatively low level of the statements, indicating that the environmentally sustainable practises are considered less significant by the participating stakeholders, if they are not accompanied by financial and developmental measures that would secure mid- and long-term development in the Region, as well as social cohesion. "Promoting research and innovation and integrating modern technology" contained the lowest number of statements. The linkage of research innovation and modern

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technology was considered significant for the helix of academia but the representatives of the rest of the helixes considered the topic less important in comparison to the rest.

Considering the consensus rate of the barriers, again the “Fostering Entrepreneurship” topic showed the highest number of barriers. According to the participants, entrepreneurship promotion is particularly significant for the energy focus of the Region and faces the greatest barriers at the same time, in order to be effectively implemented. The significance of the same topic was also verified in the solution statements, which were directly proportionate to the barriers. Regarding the ways to integrate the RRI /AIRR approach, the “Fostering Entrepreneurship” topic was placed first once again. All the above elements indicate the significance of the topic that was pointed out by the participants and the variety of solutions and out-of-the-box proposals that included ways to integrate the RRI framework. In total, the general finding is that “Fostering Entrepreneurship” is the prime means to effectively implement energy transition and the RRI framework can be effectively integrated in order to bring a positive outcome for the Region. The rest of the topics followed with smaller but similar percentages of statements regarding barriers, solutions, and ways to integrate the RRI framework, following a similar pattern with the total number. However, the most obvious finding was the high consensus levels among the participants regarding the solutions, the barriers, and the ways to integrate the RRI-AIRR approach for the Region of Western Macedonia. Best practices however, showed a considerably lower rate of consensus in comparison to the rest.

The World Café event showed valuable findings, regarding the re-assessment of the statements of the Delphi study and their future embedment in the RRI framework regarding the policy focus of the Region of Western Macedonia. To start with, the World Café event did not aim to compare different topics, RRI keys or AIRR dimensions, but rather to individually evaluate the statements regarding every single RRI key or AIRR dimension separately. In that sense, important statements that have to be taken seriously into account by policymakers have emerged. For instance, the significance of the initiation of an effective spatial and urban planning was particularly pointed out by the participants as a drastic measure of accelerating energy transition and integrating at the same time the RRI framework into the energy transition process. Similarly, statements that involved the effective cooperation between different actors of the quadruple helix and the equal participation of every single one of them in the policy decision-making showed an increased effect in more than one RRI key or AIRR dimension. In fact, the increased cooperation and equal involvement in the key policy area of the Region, had been exclusively highlighted by the participating stakeholders in the event. This may include the creation of an effective and flexible legislation framework that would ease the cooperation between actors of each helix, the installation of mechanisms (such as open platforms) that is designed to do the same or the usage of supplementary tools/mechanisms. Furthermore, the initiation of innovative and green investments such as the installation of an innovation zone in the Region was also pointed out. The increased support by the central and local policy making for the development of investments and maintaining the local workforce, especially in purely financial terms, was also particularly highlighted in several statements. The increased funding specifically directed to the weakest and the most productive actors of the quadruple helix, was considered a key mean to effectively implement the RRI framework to the energy transition.

Taking into consideration the event’s findings, the following policy recommendations are proposed:

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- A multi-level governance is an absolute prerequisite for the effective implementation of energy transition. So far, representatives from crucial actors such as civil society and research / academia are excluded from the current decision-making model. This may drastically ease the integration of Public Engagement into the territorial policy focus.
- The completion of spatial and urban planning must be prioritised for the local and regional policy makers. For that cause, a full cooperation between the involved actors (local, regional, national authorities, business sector, civil organizations, research/academia) is necessary. Anticipation and Responsiveness may be more effectively integrated into the policy focus that way.
- The transformation of the current legal investment framework that may ease and promote investments is crucial. The transformation may take place to the direction to a more flexible, less bureaucratic and more investment-friendly framework which will increase the level of Reflexivity on the policy-making side, towards the fulfilment of the potential investors' needs.
- An investment by the national and local bodies (administration bodies and research/academia) in ICT platforms that may ease and accelerate public consultation, decision-making and lift bureaucratic limitations in investments is highly suggested. This may ease the integration of Open Access to all participating actors (especially citizens and academia).
- The completion of the currently built innovation zone may promote anticipation on the policy-making side since the mid-term and future needs of the local business sector will be significantly fulfilled, strengthening businesses and start-ups.
- Training and retraining to modern, innovative skills related to clean energy technologies is an absolute prerequisite for the local workforce to cope with the harsh effects of energy transition. This is a sign of Science Education integration that may also constitute a means of responsiveness to cope with the modern business needs and latest technology trends.

In total the World Café event did not show any significant differences in comparison to the findings made during the Delphi study. However, it gave the participants a more holistic view of the statements, allowing them to re-consider and re-assess some of them, re-locating them in the pyramid of significance regarding their feasible and sustainable implementation and integration into the RRI framework.

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Chapter IV: Territorial Report Spain, Sabadell

Introduction

Sabadell is the fifth most populous city in Catalonia, with a total population of 216,500. Sabadell's current goal is to promote projects encouraging innovation, new technologies, knowledge, and activities associated with the industry. It is committed to the revitalisation of the local economy, based on a strategy focused on five main axes: healthcare, logistics, research and technology, aeronautics and design and fabrics. Moreover, sustainability represents a cross-cutting vector in these processes. The city of Sabadell has been engaged in the deployment of Smart Specialisation Strategies (RIS3) in Circular Economy, Active Ageing, and Intelligent Design in Industry, meant to build competitive economic advantage.

Given the current importance of the healthcare sector in the city and the clear interest on the Active Ageing topic by the participants, most of whom took part in some of the participatory activities of WP2, the policy focus was narrowed throughout the Delphi study process. Active Ageing was regarded as having the greatest potential for the inclusion of the RRI approach in future local policies and thus was the only policy focus chosen for this process.

Methodology in Sabadell

Methodology for the Delphi Study in Sabadell

The topic of the Delphi study was "Active ageing", introduced by the following explanation:

> Capitalizing on the knowledge and experience of elderly people will make them an important asset of the territory in the service of the Vallès and Catalan industry. At the same time, it is convenient that they are part of the solutions to current social challenges like climate change or digitalisation. The intention is for elderly people to mark the trends of innovation in the field of active and healthy aging, while participating in the process of creating new products and services of which they will be the main consumers / users. This approach will allow companies to diversify their activities in the active and healthy aging sector, or to create new ones that respond to the specific needs of the elderly.

Five policy objectives were established with at least one best practice each:

Table 59. *Best practices per policy objectives*

Policy objectives	Best practice
1. **Increase by 15% the number of photovoltaic panels installed in public and private nursing homes by 2030.**	• Boa Vista city (Brazil) purchases photovoltaic solar panels using its own funds, grants from national or regional government, or by borrowing money using municipal bonds. • FOSTERinMed Guidelines on building integration of photovoltaic elements into the building envelope in the Mediterranean area.

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2. Create a senior lab: elderly people directly participating in the creation process of new products and services (showing the trends) by 2023.	• Senior Lab is a Swiss interinstitutional and interdisciplinary of applied research and development platform, focusing on issues of quality of life and autonomy for elderly people. It works according to the principles of a "living lab" with a community formed by individuals, public agents, associations, universities, and companies to offer and test innovative solutions.
3. Prepare good professionals for attending elderly people by 2023.	• Employees over 50 years of age take on the function of training and assessing younger workers. • Polibienestar (University of Valencia, Spain) has one initiative consisting of detecting the needs of people in labour exclusion risk and those of older people and match them.
4. Create a participatory tool for identifying the challenges of elderly people by 2023.	• ActivAge is building the first European interoperable and open IoT ecosystem enabling the deployment, at a large scale, of IoT based services for Active and Healthy Ageing.
5. Development of pilot projects for the design of technology-based products focused on active ageing by 2023.	• PRODUTECH Digital Innovation Hub Platform's mission is to foster the digital transformation of the manufacturing industry, via the gathering of a critical mass of capacities, the networking of stakeholders and the nurturing of the ecosystem, towards the deployment of added value support services that enables, potentiates and furthers industry modernization.

30 experts (13 males and 17 females) in active ageing from academia and research, policy makers, industry and business and civil society were invited to participate in the three rounds of the Delphi study. In the first round a 67% of them participated (20), whereas on the second round a 53% did (16) and in the final one a 47% did (14), as shown on the table below:

Table 60. *Delphi survey rounds*

Round	Dates	Total number of contacts	Total number of participants
First round	28/01/2022 – 16/02/2022	30	20
Second round	14/03/2022 – 29/03/2022	30	16
Third round	06/04/2022 – 20/04/2022	30	14

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Methodology for the World Café in Sabadell

The World Café was a very interesting opportunity to exchange knowledge and opinions among experienced participants about active ageing and innovation policies. It was held on 14th July in Sabadell from 12:00 p.m. until 14:30 p.m. and followed along the lines of the other World Cafés detailed in the other chapters of this report. The agenda for the Café in Sabadell was structured as it follows:

Table 61. *Structure of the World Café*

Nr.	Theme	Duration
1	Welcome - Introduction	5 Min
2	Presentation of the project RRI-LEADERS and Sabadell's Policy Focus	15 Min
3	Presentation of Delphi Results	15 Min
4	Round table discussion	
4.1	Introduction to the World Café dynamics	10min
4.2	First round	25min
4.3	Second round	25min
4.4	Third round	25min
5	Wrap- Up- Brief presentation of table results	10min
6	Closing message- Acknowledgements	5min

Participants were divided between 3-4 people per table to allow more inclusion in the discussion. The statements from the Delphi study to be discussed were presented in a flipchart to each of the tables with a brief presentation of them by the table moderator. Discussions were followed by a digital vote. The participants rotated every 20-25 minutes to another table. A total of 2 rotations were completed, with the goal of reaching a consensus on the most important barriers and solutions rated in the Delphi survey.

Results in Sabadell

Participant Characteristics in Sabadell

Delphi Study Participants' Characteristics

More males (13) than females (7) engaged in the first round, whereas in the second and in the last round that trend was reversed (5 males and 7 females). It must be highlighted that while the number

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of females was practically the same during the three rounds, the number of dropouts in men was significant (less than half finalised the survey).

The participants coming from the academic and research sector were the majority and their numbers did not vary significatively during the three rounds. The situation of the rest of the stakeholders, policymakers and industry and business is different, since their low numbers even decreased as the rounds were progressing. As expected, engaging policymakers and industry & business representatives in these kinds of surveys is challenging. Regarding civil society's representatives, only one person participated in the first two rounds and two did it in the last round.

Table 62. *Participants' profiles in the Delphi survey*

	Total number of participants	Female	Male	Missing	Academia and research	Policymakers	Industry and business	Civil society
First round	20	7	13	0	12	5	2	1
Second round	16	10	3	3	8	5	2	1
Third round	14	7	5	2	10	2	0	2

World Café Participants' Characteristics

17 people (11 males and 6 females) in total were recruited from business/industry, academia, civil society and public administration. However, only 11 people (8 males and 3 females) took part in the event (six of them, for whatever reason, did not show up). Only 3 of the participants who took part in the World Café had been involved in the Delphi study. The profiles of participants are summarised in the table below:

Table 63. *Participants' profiles in the World Café.*

	Total number of participants	Female	Male	Previous participation in Delphi surveys	Academia and research	Policymakers	Industry and business	Civil society
World Café	11	3	8	3	2	2	4	3

Delphi Study Results in Sabadell

Table 64. *Items that reached consensus per policy objective*

Topic	Policy objectives	Good practices	Barriers	Solutions	RRI integration
Active ageing	PO 1: Solar panels in nursing homes: Increase by 15% the number of photovoltaic panels	1/2	1/4	2/8	1/4

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	installed in public and private nursing homes by 2030				
	PO 2: Create a senior lab: elderly people directly participate in the creation process of new products and services (showing the trends) by 2023	1/1	1/4	6/8	3/4
	PO 3: Prepare good professionals in the socio-sanitary field to attend elderly people by 2023, considering the expertise of senior professionals	1/2	3/4	4/8	3/4
	PO 4: Create a participatory tool for identifying the challenges of elderly people by 2023	0/1	4/4	5/8	3/4
	PO 5: Development of pilot projects to design technology-based products, that include protocols for citizen participation and end-user with elderly people by 2023	0/1	4/4	7/8	4/4

Policy Focus: Active Ageing

Table 65. *Rating and consensus in policy objective 1*

PO 1: Solar panels in nursing homes: Increase by 15% the number of photovoltaic panels installed in public and private nursing homes by 2030	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barriers				
Lack of financial investment (public and private)	**75%**	**93%**	**18%**	**Yes**
Heavy, slow, and unclear administrative bureaucracy	56%	71%	15%	No
Need to have a specific infrastructure and appropriate space for their installation	50%	57%	7%	No

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Unawareness of solar panels yields and real benefits (Additional)	6%	7%	1%	No
Solutions				
Grant/Subsidy for the installation of photovoltaic panels	**81%**	**93%**	**12%**	**Yes**
Elaboration of specific regulations/law that make their financing clear and regulate the obligation of having photovoltaics panels in nursing homes (Additional)	**63%**	**79%**	**16%**	**Yes**
Carry out a proper communication and dissemination campaign	63%	71%	9%	No
Change of energetic model. No public roof without photovoltaic panels (Additional)	63%	64%	2%	No
Consider citizen in decision making	56%	57%	1%	No
Establishment of public-private alliances (from planning and installation to communication of benefits)	50%	57%	7%	No
Apply discounts in the users' electric invoice according to the savings made with green energy consumption	50%	57%	7%	No
Perform crowdfunding campaigns	6%	0%	-6%	No
Ways to integrate RRI-AIRR				
Understand the new needs of the society/populations (Additional)	**63%**	**93%**	**30%**	**Yes**
Ability to readjust key elements to achieve the goals	63%	71%	9%	No
Facilitate/Improve the participation of the quadruple helix (academia/research, policy makers, industry/business and civil society)	50%	71%	21%	No
Previous analysis to anticipate needs	63%	64%	2%	No

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Table 66. *Rating and consensus in policy objective 2*

PO 2: Create a senior lab: elderly people directly participate in the creation process of new products and services (showing the trends) by 2023	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barrier				
Lack of a plural and constant participation of elderly people	**94%**	**80%**	**-14%**	**Yes**
Lack of interest from the involved institutions (Additional)	50%	71%	21%	No
Lack of engagement of all the involved people/stakeholders (illiteracy, educational limitations, special needs, etc)	50%	50%	0%	No
Lack of incentives to participate	38%	43%	5%	No
Solutions				
Carry out a proper communication and dissemination campaign	**69%**	**93%**	**24%**	**Yes**
Look for participation in well-known meeting spaces (community centres/municipal centres, elderly people centres, etc	**75%**	**86%**	**11%**	**Yes**
Generate an open creation process and participation of all the agents (Additional)	**75%**	**86%**	**11%**	**Yes**
Personalized participation according to situation and needs: face-to-face or online (depending on mobility and availability) and/or at home if it is necessary (participation of volunteers who assist the person during the process)	**63%**	**86%**	**23%**	**Yes**
Ensure a plural representative sample	**75%**	**79%**	**4%**	**Yes**
Guarantee an intergenerational participation/involvement	**63%**	**79%**	**16%**	**Yes**
Ensure the commitment of public institutions	69%	71%	3%	No
Perform a benchmarking of other initiatives and establish possible alliances (Additional)	45%	29%	-16%	No

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Ways to integrate RRI-AIRR				
Enhance the inclusion of users	**100%**	**100%**	**0%**	**Yes**
Definition of good ethics and ethics quality (Additional)	**69%**	**93%**	**24%**	**Yes**
Commitment of the quadruple helix	**63%**	**93%**	**30%**	**Yes**
Ensure the transparency and open access	50%	57%	7%	No

Table 67. *Rating and consensus in policy objective 3*

PO 3: Prepare good professionals in the socio-sanitary field to attend elderly people by 2023, considering the expertise of senior professionals	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barrier				
Healthcare professionals' low salary	**88%**	**100%**	**13%**	**Yes**
Healthcare professionals are not valued enough	**94%**	**93%**	**-1%**	**Yes**
Lack of resources to train good healthcare professionals (Additional)	**63%**	**79%**	**16%**	**Yes**
Difficulty in transferring experiences	44%	71%	28%	No
Solutions				
Wage improvement/economy incentives	**100%**	**100%**	**0%**	**Yes**
Improvement of working conditions	**94%**	**100%**	**6%**	**Yes**
Incorporation of social incentives that facilitate their commitment (public acknowledge/recognition, internal promotion, work-life balance, etc)	**88%**	**93%**	**5%**	**Yes**

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Insert new ways and initiatives such as co-payment, public-private, self-managed cooperative, experiential workshops, "council of elders" or transfer programs	**31%**	**93%**	**62%**	**Yes**
Senior healthcare professionals have less workload in exchange for training junior professionals (Additional)	69%	71%	3%	No
Senior healthcare professionals are the ones who define training	31%	71%	40%	No
Co-creation projects between senior and junior healthcare professionals (Additional)	56%	50%	-6%	No
Dissemination campaigns about the work of social and healthcare personnel	25%	43%	18%	No
Ways to integrate RRI-AIRR				
Tackle issues in a transversal way	**88%**	**93%**	**5%**	**Yes**
Ability to incorporate new knowledge to new needs	**69%**	**93%**	**24%**	**Yes**
Reflect about the work done and their implications	**75%**	**86%**	**11%**	**Yes**
Integrate gender perspective in training (Additional)	81%	71%	-10%	No

Table 68. *Rating and consensus in policy objective 4*

PO 4: Create a participatory tool for identifying the challenges of elderly people by 2023	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barrier				
Not achieving the participation of the different socioeconomic profiles of elderly people (Additional)	**75%**	**100%**	**25%**	**Yes**
Lack of interest in participating	**63%**	**100%**	**38%**	**Yes**
Existence of digital gap	**81%**	**93%**	**12%**	**Yes**

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Lack of a methodological concretion of the tool (design, application, data collection and analysis, etc)	**63%**	**86%**	**23%**	**Yes**
Solutions				
Guarantee the participation of all the agents from the quadruple helix	**81%**	**100%**	**19%**	**Yes**
Guarantee plural participation	**81%**	**93%**	**12%**	**Yes**
Free workshops to bring elderly people closer to technology (digital training)	**69%**	**93%**	**24%**	**Yes**
Develop a barometer that allows to evaluate the tool	**56%**	**86%**	**29%**	**Yes**
Perform several actions in the city that give visibility to the tool (Additional)	**56%**	**79%**	**22%**	**Yes**
Work with already existing groups (Additional)	50%	50%	0%	No
Guarantee age diversity	44%	50%	6%	No
Design an excellent communication and dissemination campaign to make this tool widely known	50%	36%	-14%	No
Ways to integrate RRI-AIRR				
Continuous evaluation of the tool effectiveness for its improvement	**81%**	**100%**	**19%**	**Yes**
Guarantee the commitment of all the agents (Additional)	**75%**	**100%**	**25%**	**Yes**
Representation of all social realities, guaranteeing the plurality of participants	**81%**	**93%**	**12%**	**Yes**
Systematic reflection on the possible pros and cons of the tool	50%	36%	-14%	No

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Table 69. *Rating and consensus in policy objective 5*

PO 5: Development of pilot projects to design technology-based products, that include protocols for citizen participation and end-user with elderly people by 2023	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barrier				
Digital illiteracy and digital gap	**75%**	**100%**	**25%**	**Yes**
Not all the available technology reaches everybody	**88%**	**93%**	**5%**	**Yes**
Lack of participation or low participation	**75%**	**86%**	**11%**	**Yes**
Not fitting the real needs of the population (Additional)	**63%**	**79%**	**16%**	**Yes**
Solutions				
Direct end-user participation through participation programs	**94%**	**100%**	**6%**	**Yes**
Systemic evaluation by elderly people	**81%**	**93%**	**12%**	**Yes**
Prepare professionals with didactic capacity	**88%**	**86%**	**-2%**	**Yes**
Ensure the most representative sampling	**69%**	**86%**	**17%**	**Yes**
Carry out a proper dissemination campaign (Additional)	**69%**	**86%**	**17%**	**Yes**
Provide technological training to elderly people	**63%**	**86%**	**23%**	**Yes**
Promote intergenerational projects	**63%**	**86%**	**23%**	**Yes**
Creation of a quality stamp that validates the suitability of the product for elderly people (Additional)	69%	71%	3%	No
Integration				

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Implement technological tools that could be used by a vast majority of the population	**88%**	**100%**	**13%**	**Yes**
Guarantee the open access through suitable participation processes	**81%**	**93%**	**12%**	**Yes**
Co-creation of good practices (Additional)	**70%**	**93%**	**22%**	**Yes**
Commitment of all the agents	**69%**	**93%**	**24%**	**Yes**

Table 70. *Rating and consensus in best practices*

Best Practices: Active Ageing	1st rating	2nd rating	Difference between the ratings	Consensus reached?
BP 3: Employees over 50 years of age take on the function of training and assessing younger workers. The more experienced older employees work alongside their younger colleagues carrying out the same tasks mentoring them on various aspects of the job. This process allows the transfer of experience, as well as technical and methodological knowledge, from older to younger workers. In other words, the older employees not only carry out the required production tasks, but also provide on-the-job training.	**75%**	**94%**	**19%**	**Yes**
BP 2: Senior Lab is a Swiss interinstitutional and interdisciplinary of applied research and development platform, focusing on issues of quality of life and autonomy for elderly people. It works according to the principles of a "living lab" with a community formed by individuals, public agents, associations, universities, and companies to offer and test innovative solutions. The mission is to develop concrete and innovative solutions in the active aging field with and for elderly people.	**70%**	**94%**	**24%**	**Yes**
BP 1: Boa Vista (Brazil) city purchases the photovoltaic solar panels using its own funds, grants and national or regional government, or by borrowing money using municipal bonds. It has become a national leader in the photovoltaic solar energy generation distributed through six projects on municipal roofs and a large self-generation plant.	**75%**	**88%**	**13%**	**Yes**

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BP 1: FOSTERinMed Guidelines on building integration of photovoltaic in the Mediterranean area. To integrate photovoltaic elements into the building envelope (such as museums, civic centres, public institutions etc), establishing a symbiotic relationship between the architectural design, functional properties, and economic regenerative energy conversion. The photovoltaic modules thus replace conventional construction materials, taking over the function that these would otherwise perform.	55%	69%	14%	No
BP 3: Polibienestar (University of Valencia) has one initiative consisting of detecting the needs of people in labour exclusion risk and those of elderly people. Once they have been detected, the next step is to develop strategies to increase the opportunities of people in labour exclusion risk of finding a job through their training in the social and health care field to improve the quality of life of elderly people. This action contributes to the sustainability and efficiency of public policies. The main challenge is making health care systems sustainable (promoting the quality of life, creating jobs, promoting sustainable home care, incrementing the customer's satisfaction).	45%	63%	18%	No
BP 4: ActivAge is building the first European interoperable and open IoT ecosystem enabling the deployment, at a large scale, of IoT based services for Active and Healthy Ageing. This ecosystem will be integrating thousands of devices to collect and analyse environmental and lifestyle information, identify needs, and provide customised solutions, while ensuring data privacy and security	40%	38%	-3%	No
BP 5: PRODUTECH Digital Innovation Hub Platform's mission is to foster the digital transformation of the manufacturing industry, via the gathering of a critical mass of capacities, the networking of stakeholders and the nurturing of the ecosystem, towards the deployment of added value support services that enable, potentiate, and further industry modernization. PRODUTECH Cluster's DIH Platform gathers regional initiatives and stakeholders in a one-stop gateway for digitalization support and further levering cooperation at European scale (e.g., networking of pilot initiatives and services under Vanguard Initiative).	30%	38%	8%	No

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World Café Results in Sabadell

The World Café methodology allowed to discuss all the statements that had reached consensus in a simple and effective format. Main findings on the 5 policy objectives discussed in the World Café can be summarised as it follows:

Main Results World Café Policy Objective 1

Table 71. *Main results. Policy objective 1*

Number of participants	11 people
Main findings in the ranking of statements	Participants ranked 3 solutions proposed in the Delphi study for this policy area as it follows (from highest to lowest): **Grant/subsidy for the installation of photovoltaic panels.** **Elaboration of specific regulations/law that make their financing clear and regulate the obligation of having photovoltaics panels in nursing homes).** **Consider citizen in decision making.** Concerning the integration of RRI-AIRR principles, these were the most rated ones: **Consider citizen in decision making.** **Understand the new needs of the society/populations.**
Reasons for selecting these statements	Participants mainly focused on the solutions. They reached consensus on the importance of **Finding a way to grant the installation of photovoltaic panels**. They also showed interest in the following solution: **Perform a crowdfunding campaign**. Although, this statement didn't reach consensus in the Delphi study and didn't get a high ranking during the World Café, it was considered as part of a new solution. Thus, the merge of both statements brought a new solution: perform a crowdlending campaign where not only the nursing homes could be involved but also the whole community, creating energy communities.

Main Results World Café Policy Objective 2

Table 72. *Main results. Policy objective 2*

Number of participants	11 people
Main findings in the ranking of statements	Participants ranked 3 solutions proposed in the Delphi study for this policy area as it follows (from highest to lowest): **Personalized participation according to situation and needs: face-to-face or online (depending on mobility and availability) and/or at home if it is necessary (participation of volunteers who assist the person during the process).** **Carry out a proper communication and dissemination campaign.**

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	Look for participation in well-known meeting spaces (community centres/municipal centres, elderly people centres, etc. Concerning the integration of RRI-AIRR principles, this was the most rated: **Ensure the transparency and open access.**
Reasons for selecting these statements	Participants mainly focused on the solutions. Although it was not the most rated statement, the solution **Guarantee an intergenerational participation/involvement** was considered relevant to advance the policy focus. This solution was reinforced with two of the most rated solutions: **Carry out a proper communication and dissemination campaign** and **look for participation in well-known meeting spaces (community centres/municipal centres, elderly people centres, etc.)**. All these solutions were considered especially important to implement the policy focus in the territory.

Main Results World Café Policy Objective 3

Table 73. *Main results. Policy objective 3*

Number of participants	11 people
Main findings in the ranking of statements	Participants ranked 3 solutions proposed in the Delphi study for this policy area as it follows (from highest to lowest): **Improvement of working conditions.** **Co-creation projects between senior and junior healthcare professionals.** **Wage improvement/economy incentives.** Concerning the integration of RRI-AIRR principles, this was the most rated: **Integrate gender perspective in training.**
Reasons for selecting these statements	Participants paid special attention to the **Healthcare professionals' low salary** barrier. Consequently, they rapidly moved towards the solutions. **Improvement of working conditions** was considered a crucial solution to advance in this policy objective, which they considered as clearly linked with two other solutions: **Wage improvement/economy incentives** and **Incorporation of social incentives that facilitate their commitment (public acknowledge/recognition, internal promotion, work-life balance, etc).**

Main Results World Café Policy Objective 4

Table 74. *Main results. Policy objective 4*

Number of participants	11 people

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Main findings in the ranking of statements	Participants ranked 3 solutions proposed in the Delphi study for this policy area as it follows (from highest to lowest): **Guarantee the participation of all the agents from the quadruple helix.** **Design an excellent communication and dissemination campaign to make this tool widely known.** **Guarantee age diversity.** Concerning the integration of RRI-AIRR principles, this was the best rated: **Systematic reflection on the possible pros and cons of the tool.**
Reasons for selecting these statements	Participants paid special attention to the barrier **Lack of a methodological concretion of the tool (design, application, data collection and analysis, etc).** Consequently, they suggested that the goal of this policy objective should be to emphasize knowledge transfer to the elderly in line with their needs. The best ranked solutions above were considered as important to reach this objective.

Main Results World Café Policy Objective 5

Table 75. *Main results. Policy objective 5*

Number of participants	11 people
Main findings in the ranking of statements	The group ranked 3 solutions proposed in the Delphi study for this policy area as it follows (from highest to lowest): **Direct end-user participation through participation programs.** **Creation of a quality stamp that validates the suitability of the product for elderly people.** **Provide technological training to elderly people.** None of the integration of RRI-AIRR principles statements was considered as very relevant.
Reasons for selecting these statements	Participants reinforced the following statements: **Digital illiteracy and digital gap** (barrier) and **Direct end-user participation through participation programs** (solution). They underlined the importance of designing useful products. In this sense, elderly people have to identify the bottom line of their needs and transfer them to business developers.

Discussion in Sabadell

Discussion Delphi Study in Sabadell

The Delphi Study was thoroughly integrated into the World Café discussion in Sabadell and hence the two are treated more in-depth in the section below in terms of their perceived impact. In summary, Policy Objective 1 brought some unexpected results due to only 1 barrier, 2 solutions and 1 RRI-AIRR

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integration form reaching consensus in the Delphi study. Policy Objective 2 was less contentious, and several statements reached consensus (leading the discussion in the World Café to attempt to narrow down which were the most important).

Table 76. *Rating of statements that reached consensus in the Delphi study to advance in the PO2*

Statements		Rating*
Typology	**Title**	
Barrier	Lack of a plural and constant participation of elderly people	36,36
Solution	Carry out a proper communication and dissemination campaign	63,64
Solution	Look for participation in well-known meeting spaces (community centres/municipal centres, elderly people centres, etc	54,55
Solution	Generate an open creation process and participation of all the agents	18,18
Solution	**Personalized participation according to situation and needs: face-to-face or online (depending on mobility and availability) and/or at home if it is necessary (participation of volunteers who assist the person during the process)**	**72,73****
Solution	Ensure a plural representative sample	18,18
Solution	Guarantee an intergenerational participation/involvement	9,09
RRI-AIRR integration	Enhance the inclusion of users	9,09
RRI-AIRR integration	Definition of good ethics and ethics quality	9,09
RRI-AIRR integration	Commitment of the quadruple helix	9,09

*Percentage of participants that voted for this statement
** While a consensus is defined as 75% agreement in this process, this solution was deemed to be within the margin of error to classify as "consensus."

Similarly, a larger number of statements reached consensus in Policy Objective 3:

Table 77. *Rating of statements that reached consensus in the Delphi study to advance in the PO3*

Statements		Rating*
Typology	**Title**	
Barrier	Healthcare professionals' low salary	18,18
Barrier	Healthcare professionals are not valued enough	54,55
Barrier	Lack of resources to train good healthcare professionals	18,18
Solution	Wage improvement/economy incentives	45,45
Solution	Improvement of working conditions	54,55
Solution	Incorporation of social incentives that facilitate their commitment (public acknowledge/recognition, internal promotion, work-life balance, etc)	36,36

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Solution	Insert new ways and initiatives such as co-payment, public-private, self-managed cooperative, experiential workshops, “council of elders” or transfer programs	18,18
RRI-AIRR integration	Tackle issues in a transversal way	18,18
RRI-AIRR integration	Ability to incorporate new knowledge to new needs	9,09
RRI-AIRR integration	Reflect about the work done and their implications	0,00

*Percentage of participants that voted this statement

For Policy Objective 4, a further 12 statements reached consensus:

Table 78. *Rating of statements that reached consensus in the Delphi study to advance in the PO4*

Statements		Rating*
Typology	**Title**	
Barrier	Not achieving the participation of the different socioeconomic profiles of elderly people	18,18
Barrier	Lack of interest in participating	45,45
Barrier	Existence of digital gap	18,18
Barrier	Lack of a methodological concretion of the tool (design, application, data collection and analysis, etc)	36,36
Solution	**Guarantee the participation of all the agents from the quadruple helix**	**54,55**
Solution	Guarantee plural participation	27,27
Solution	Free workshops to bring elderly people closer to technology (digital training)	27,27
Solution	Develop a barometer that allows to evaluate the tool	0,00
Solution	Perform several actions in the city that give visibility to the tool	18,18
RRI-AIRR integration	Continuous evaluation of the tool effectiveness for its improvement	27,27
RRI-AIRR integration	Guarantee the commitment of all the agents	27,27
RRI-AIRR integration	Representation of all social realities, guaranteeing the plurality of participants	0,00

*Percentage of participants that voted this statement

Policy Objective 5 also showed a wide consensus across barriers, solutions, and integration:

Table 79. *Rating of statements that reached consensus in the Delphi study to advance in the PO5*

Statements		Rating*
Typology	**Title**	
Barrier	Digital illiteracy and digital gap	36,36
Barrier	Not all the available technology reaches everybody	9,09

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Barrier	Lack of participation or low participation	27,27
Barrier	Not fitting the real needs of the population	27,27
Solution	**Direct end-user participation through participation programs**	**45,45**
Solution	Systemic evaluation by elderly people	9,09
Solution	Prepare professionals with didactic capacity	18,18
Solution	Ensure the most representative sampling	18,18
Solution	Carry out a proper dissemination campaign	18,18
Solution	Provide technological training to elderly people	27,27
Solution	Promote intergenerational projects	9,09
RRI-AIRR integration	Implement technological tools that could be used by a vast majority of the population	18,18
RRI-AIRR integration	Guarantee the open access through suitable participation processes	27,27
RRI-AIRR integration	Co-creation of good practices	0,00
RRI-AIRR integration	Commitment of all the agents	9,09

*Percentage of participants that voted this statement

Discussion World Café in Sabadell

Policy Objective 1: Solar Panels in Nursing Homes: Increase by 15% the Number of Photovoltaic Panels Installed in Public and Private Nursing Homes by 2030

Importance of the statements that reached consensus in the Delphi study to advance the policy focus

As noted, according to the Delphi study, only 1 barrier, 2 solutions and 1 integration proposal had reached consensus. Participants ratified all of them and stressed how crucial they are to advance the policy focus. At this point, the debate moved forward identifying new proposals to overcome the best rated barrier: **Lack of economic investment (public and private)**. Thus, this statement was considered especially important.

In line with the 2 solutions that had reached consensus in the Delphi study (**Grant/subsidy for the installation of photovoltaic panels** and **Elaboration of specific regulations/law that make their financing clear and regulate the obligation of having photovoltaics panels in nursing homes)** participants deepened into solutions. They explored different ways to finance the solar panels: crowdlending, crowdfunding, match funding, direct grants from the government and bank loans. During the World Café, participants reached consensus in considering crowdlending as the best solution. This new solution is clearly linked with the two solutions that reached consensus in the Delphi study.

In relation to the integration of RRI-AIRR principles, the Delphi study showed only 1 statement of consensus: **Understand the new needs of the society/populations.** This solution was ratified during the World Café. Participants explored how to implement it and they suggested the creation of a local group with representation of the quadruple helix. Moreover, a very interesting debate emerged over respiratory diseases in elderly people and how green energy is crucial to reduce CO2 from fossil fuel combustion.

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Statements that reached consensus in the Delphi study difficult to practice within the territory

All participants agreed on the following statement: **Grant/Subsidy for the installation of photovoltaic panels.** They considered that this solution might not be feasible since private financing of solar panels cannot be possible in all nursing homes. The nursing home industry is highly competitive and increasing costs through the installation of solar panels would necessarily filter through to increased prices for nursing home services and accommodation.

Statements that did not reach consensus in the Delphi study that might be still important

Since a large number of statements did not reach consensus in the Delphi study, voting was considered necessary in the World Café to detect important statements. Although many of the statements got a clear consensus, 2 of them had the highest rates: **Unawareness of solar panels yields and real benefits** (barrier) and **Consider citizens in decision making** (solution).

Table 80. *Rating of statements that did not reach consensus in the Delphi study might be still important in PO1*

Statements		Rating*
Typology	**Title**	
Barrier	Heavy, slow, and unclear administrative bureaucracy	0,00
Barrier	Need to have a specific infrastructure and appropriate space for their installation	18,18
Barrier	Unawareness of solar panels yields and real benefits	36,36
Solution	Carry out a proper communication and dissemination campaign	27,27
Solution	Change of energetic model. No public roof without photovoltaic panels	9,09
Solution	Consider citizen in decision making	36,36
Solution	Establishment of public-private alliances (from planning and installation to communication of benefits)	18,18
Solution	Apply discounts in the users' electric invoice according to the savings made with green energy consumption	0,00
Solution	Perform crowdfunding campaigns	9,09
RRI-AIRR integration	Ability to readjust key elements to achieve the goals	0,00
RRI-AIRR integration	Facilitate/Improve the participation of the quadruple helix (academia/research, policy makers, industry/business and civil society)	27,27
RRI-AIRR integration	Previous analysis to anticipate needs	9,09

*Percentage of participants that voted this statement

Policy Objective 2: Create a Senior Lab: Elderly People Directly Participate in the Creation Process of New Products and Services (Showing the Trends) by 2023

Importance of the statements that reached consensus in the Delphi study to advance the policy focus

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Voting was done during the World Café in order to narrow the statements of consensus from the Delphi Study and ascertain which areas participants thought were most important.

Among the different statements, the solution **"Personalised participation according to situation and needs: face-to-face or online (depending on mobility and availability) and/or at home if it is necessary (participation of volunteers who assist the person during the process)"** received agreement but was far below the level of a consensus; indeed, although this solution reached consensus in the Delphi study it was not the best rated one in the World Café. The solution "**Carry out a proper communication and dissemination campaign**" got the second place in the ranking. Thus, a consensus of this statement is clearly appreciated since it reached the maximum rate in the Delphi study.

Statements that reached consensus in the Delphi study difficult to practice within the territory

As it is shown in the table below, none of the statements reached a clear consensus. However, 2 of the solutions were considered less feasible within the territory. Thus, the multiple realities of elderly people might fail in "**Carry out a proper communication and dissemination campaign**" since a defined target doesn't exist. Similarly, the solution **"Personalised participation according to situation and needs: face-to-face or online (depending on mobility and availability) and/or at home if it is necessary (participation of volunteers who assist the person during the process)"** was not considered feasible, also due to its complexity and multiple needs of the elderly people.

Table 81. *Rating of statements that reached consensus in the Delphi study difficult to practice within the territory concerning PO2*

Statements		Rating*
Typology	**Title**	
Solution	Carry out a proper communication and dissemination campaign	45,45
Solution	Look for participation in well-known meeting spaces (community centres/municipal centres, elderly people centres, etc	18,18
Solution	Generate an open creation process and participation of all the agents	27,27
Solution	Personalized participation according to situation and needs: face-to-face or online (depending on mobility and availability) and/or at home if it is necessary (participation of volunteers who assist the person during the process)	45,45
Solution	Ensure a plural representative sample	36,36
Solution	Guarantee an intergenerational participation/involvement	45,45
RRI-AIRR integration	Enhance the inclusion of users	9,09
RRI-AIRR integration	Definition of good ethics and ethics quality	18,18
RRI-AIRR integration	Commitment of the quadruple helix	0,00

*Percentage of participants that voted for this statement

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Statements that did not reach consensus in the Delphi study that might be still important

Among the statements that might be still important, the participants underlined the solution "**Perform a benchmarking of other initiatives and establish possible alliances**". Arising from this statement, they debated about other possible solutions for the creation of the senior lab. These new proposals can be summarised as it follows:

- Creation of thematic senior labs. Senior labs according to the concrete expertise of their participants.
- Planning of the objectives to achieve. It is necessary to list all the objectives and schedule them in a calendar.
- Defining the communication channel that suits better each sort of stakeholder.

Table 82. *Rating of statements that did not reach consensus in the Delphi study might be still important in PO2*

Statements		Rating*
Typology	**Title**	
Barrier	Lack of interest from the involved institutions	18,18
Barrier	Lack of engagement of all the involved people/stakeholders (illiteracy, educational limitations, special needs, etc)	27,27
Barrier	Lack of incentives to participate	36,36
Solution	Ensure the commitment of public institutions	18,18
Solution	**Perform a benchmarking of other initiatives and establish possible alliances**	**45,45**
RRI-AIRR integration	Ensure the transparency and open access	27,27

*Percentage of participants that voted for this statement

Policy Objective 3: Prepare Good Professionals in The Socio-Sanitary Field to Attend Elderly People by 2023, Considering the Expertise of Senior Professionals

Importance of the statements that reached consensus in the Delphi study to advance the policy focus

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The following barrier "**Healthcare professionals are not valued enough**" and the solution "**Improvement of working conditions**" where the best rated statements in the World Café. Although in the Delphi study they were ranked in second place as a barrier and solution, during the World Café these gained the most importance. Participants underlined the importance of improving working conditions previously to the improvement of economic incentives. They affirmed that wage improvement has to be seen as a consequence of the improvement of working conditions.

Statements that reached consensus in the Delphi study difficult to practice within the territory

Participants considered that 3 of the solutions were difficult to implement within the territory. 2 of them are, at the same time, considered necessary to advance in this policy focus (**Wage improvement/economy incentives** and **Improvement of working conditions**). This dichotomy clearly describes the current situation of the healthcare sector, a really necessary sector that is barely taken into consideration.

Table 83. *Rating of statements that reached consensus in the Delphi study difficult to practice within the territory concerning PO3*

Statements		Rating*
Typology	**Title**	
Solution	Wage improvement/economy incentives	36,36
Solution	Improvement of working conditions	36,36
Solution	Incorporation of social incentives that facilitate their commitment (public acknowledge/recognition, internal promotion, work-life balance, etc)	27,27
Solution	Insert new ways and initiatives such as co-payment, public-private, self-managed cooperative, experiential workshops, "council of elders" or transfer programs	0,00
RRI-AIRR integration	Tackle issues in a transversal way	9,09
RRI-AIRR integration	**Ability to incorporate new knowledge to new needs**	**36,36**
RRI-AIRR integration	Reflect about the work done and their implications	9,09

*Percentage of participants that voted this statement

Statements that did not reach consensus in the Delphi study that might be still important

Table 84. *Rating of statements that did not reach consensus in the Delphi study might be still important in PO3*

Statements		Rating*
Typology	**Title**	
Barrier	Difficulty in transferring experiences	27,27
Solution	Senior healthcare professionals have less workload in exchange for training junior professionals	27,27

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Solution	Senior healthcare professionals are the ones who define training	9,09
Solution	Co-creation projects between senior and junior healthcare professionals	54,55
Solution	Dissemination campaigns about the work of social and healthcare personnel	45,45
RRI-AIRR integration	Integrate gender perspective in training	36,36

*Percentage of participants that voted this statement

Participants in the World Café underlined the statement of "**Co-creation projects between senior and junior healthcare professionals"** as a solution that should be taken into consideration. The preparation of good professionals has to take into consideration experience from seniors and fresh ideas from juniors.

Policy Objective 4: Create a Participatory Tool for Identifying the Challenges of Elderly People by 2023

Importance of the statements that reached consensus in the Delphi study to advance the policy focus

According to the Delphi study, 12 statements reached consensus. Thus, during the World Café, another voting was conducted in order to narrow down the most important statements to advance the policy focus. Arising from the voting, none of the statements reached a clear consensus. However, the statement with the highest rate in the Delphi study coincides with that of the World Café voting: **Guarantee the participation of all the agents from the quadruple helix.**

Statements that reached consensus in the Delphi study difficult to practice within the territory

The debate focused on exploring how to guarantee the participation of the quadruple helix in the participatory tool. It is important to remark that this statement not only was the best rated statement in both the Delphi study and the World Café, but also was considered the most difficult statement to practice in the territory. This dichotomy was justified by the lack of tools to guarantee an effective participation of the quadruple helix. During the debate, some participants suggested digital training as a key tool to guarantee the participation of the quadruple helix. In line with this, the use of well-known technologies like *WhatsApp* could facilitate a wider participation.

Table 85. *Rating of statements that reached consensus in the Delphi study difficult to practice within the territory concerning PO4*

Statements		Rating*
Typology	**Title**	

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Solution	Guarantee the participation of all the agents from the quadruple helix	54,55
Solution	Guarantee plural participation	36,36
Solution	Free workshops to bring elderly people closer to technology (digital training)	9,09
Solution	Develop a barometer that allows to evaluate the tool	18,18
Solution	Perform several actions in the city that give visibility to the tool	0,00
RRI-AIRR integration	Continuous evaluation of the tool effectiveness for its improvement	18,18
RRI-AIRR integration	Guarantee the commitment of all the agents	45,45
RRI-AIRR integration	Representation of all social realities, guaranteeing the plurality of participants	27,27

*Percentage of participants that voted this statement

Statements that did not reach consensus in the Delphi study that might be still important

Among the statements that did not reach consensus, the solution **"Design an excellent communication and dissemination campaign to make this tool widely known"** was considered still important by 50% of the participants.

Table 86. *Rating of statements that didn't reach consensus in Delphi study might be still important in PO4*

Statements		Rating*
Typology	**Title**	
Solution	Work with already existing groups	18,18
Solution	Guarantee age diversity	36,36
Solution	Design an excellent communication and dissemination campaign to make this tool widely known	54,55
RRI-AIRR integration	Systematic reflection on the possible pros and cons of the tool	36,36

*Percentage of participants that voted this statement

Policy Objective 5: Development of Pilot Projects to Design Technology-Based Products, that Include Protocols for Citizen Participation and End-User with Elderly People by 2023

Importance of the statements that reached consensus in the Delphi study to advance the policy focus

In line with the Delphi study, where the statement "**Direct end-user participation through participation programs"** was ranked as the top solution, the participants of the World Café also considered this statement crucial to implement policy objective 5 in the territory. The statement **"Digital illiteracy and digital gap"** achieved second place in the rating, being considered a very important barrier to implement the policy objective.

Statements that reached consensus in the Delphi study difficult to practice within the territory

Among the solutions defined in the Delphi study, the participants of the World Café agreed on the difficulty to practice within the territory the following solution: Systemic evaluation by elderly people.

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Table 87. *Rating of statements that reached consensus in the Delphi study difficult to practice within the territory concerning PO5*

Statements		Rating*
Typology	**Title**	
Solution	Direct end-user participation through participation programs	18,18
Solution	Systemic evaluation by elderly people	45,45
Solution	Prepare professionals with didactic capacity	18,18
Solution	Ensure the most representative sampling	27,27
Solution	Carry out a proper dissemination campaign	0,00
Solution	Provide technological training to elderly people	18,18
Solution	Promote intergenerational projects	9,09
RRI-AIRR integration	Implement technological tools that could be used by a vast majority of the population	18,18
RRI-AIRR integration	Guarantee the open access through suitable participation processes	9,09
RRI-AIRR integration	Co-creation of good practices	18,18
RRI-AIRR integration	Commitment of all the agents	0,00

*Percentage of participants that voted this statement

Statements that didn't reach consensus in the Delphi study that might be still important

50% of the participants considered that the solution "**Creation of a quality stamp that validates the suitability of the product for elderly people"** might be still important. They reinforced this statement by debating about the methodological focus that should follow; some participants suggested the Design Thinking method.

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Conclusion in Sabadell

The Delphi method was a very interesting co-creative process that allowed the territories to focus on specific actions and measures for each policy objective. The 3 survey rounds allowed to reach consensus on 13 barriers, 24 solutions and 14 RRI-AIRR integration solutions. A total of 51 statements, distributed among the 5 policy objectives, which were later debated during the World Café. Thus, the World Café allowed participants to examine in-depth the statements that reached consensus and ratify or reject them.

It is interesting to underline that in the World Café only 3 out of 11 participants had previously participated in the Delphi study. This is especially relevant since the results obtained from the World Café are very similar to those in the Delphi study. Therefore, the results obtained in the World Café ratify the results of the Delphi study.

All these actions and measures will be especially important for the definition of Sabadell's Transformative Outlook. According to the Policy Area of Sabadell **"Inclusiveness and alignment of the territorial innovation ecosystem with societal challenges considering sustainability, focused on the topic of Active Ageing"**, the following aspects should be considered in the transformative outlook.

Policy Objective 1: Increase by 15% the number of photovoltaic panels installed in public and private nursing homes by 2030.

- Considering new ways to finance solar panels.
- More knowledge about solar panels and their benefits.

Policy Objective 2: Elderly people directly participating in the creation process of new products and services (showing the trends) by 2023.

- Identification of needs of elderly people.
- Identification of a methodology/strategy to guarantee their participation.

Policy Objective 3: Prepare good professionals for attending elderly people by 2023.

- Transfer of knowledge between senior and junior professionals.
- Identifying main challenges.

Policy Objective 4: Create a participatory tool for identifying the challenges of elderly people by 2023.

- Effective communication to disseminate the policy objective.
- Elderly people need to find this participative tool attractive but at the same time it has to add value to their lives.

Policy Objective 5: Development of pilot projects for the design of technology-based products focused on active ageing by 2023.

- Identification of the most common elderly people needs.
- Effective methodology to involve elderly people in all the process (design of a product).

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Chapter V: Territorial Report Switzerland, Thalwil

Introduction

The Delphi study in the municipality of Thalwil focused on the energy transition, i.e., a transformation of the territorial energy sector to net-zero greenhouse gas emissions. The Delphi study was conducted in spring 2022 over three rounds. The Delphi panellists rated the importance of measures structured along five topics containing eight policy objectives. With the aim of reaching consensus, statements (barriers and solutions) were each assessed twice. A consensus was reached, when 75% of all panellists rated a statement 6 or higher on a 7-point Likert-scale. Across all policy objectives, 65% of the identified good practices, 15% of the proposed barriers and over 60% of all solutions (incl. unconventional solutions) reached a consensus. In favour of the RRI-framework, an even greater consensus was reached on the integration of the RRI (>75%).

These results were additionally presented and critically discussed in a World Café with the stakeholders. The most promising solutions are to give additional drive to local energy policy.

Methodology in Thalwil

The next sections introduce the methodology of the Delphi study and the subsequent World Café workshop to prioritise the findings of the Delphi study.

Methodology for the Delphi study in Thalwil

Questionnaire Content

In the municipality of Thalwil (Switzerland) a Delphi study was conducted to investigate the policy focus of the energy transition. The policy focus was divided into the five topics Mobility, Buildings, Financing, Municipality, and Society. Across these topics, eight policy objectives (POs) that are relevant to the advancement of the policy focus and steerable on the level of the municipality were identified and are listed in the following table.

Lastly, a scientific literature review yielded 18 best practices across all the topics that were additionally included in the questionnaire.

Data Collection

The data collection took place between January and April 2022. The first round (N=37) lasted from January 28th until February 14th, the second round (N=33) took place between March 14th and March 28th, and the third and final round (N=25) started on April 11th and ended on April 27th. The drop-out rate was within the expected range.

Apart from the first rating of the best practices, the aim of Round 1 was the generation of ideas on how to achieve the policy objectives. Based on these ideas by the panellists, 93 statements regarding

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barriers, solutions and ways to integrate the RRI-AIRR concept were derived and included in the subsequent rounds. In total, 111 items were rated according to their importance in Round 2, including the panellists' statements from Round 1 as well as the 18 best practices. The latter were not included in Round 3, as they had already been rated twice in the previous rounds.

Methodology for the World Café in Thalwil

The World Café discussion in Thalwil took place on July 14th, 2022. Around 15 participants from all stakeholder groups attended the event. Some participants were among the experts who answered the Delphi study. Others attended only the World Café.

For the World Café, the policy objectives were grouped into Café "Stations" according to the table below. These stations of topics and policy objectives corresponded to the number of tables for the World Café discussion. They were chosen due to logistical boundary conditions (the number of participants, the number of facilitators, and the event duration).

Table 88. *Policy objectives & the corresponding topics of the Delphi survey on the energy transition in Thalwil and the grouping of the policy objectives to stations for the World Café discussion in Thalwil*

PO Number	Policy Objective	Topic	World Café Station
PO1	All vehicles registered in the municipality of Thalwil are to be operated CO_2 neutrally by 2050 (with biogas, electricity, hydrogen or similar)	Mobility	Station 1
PO2	The Thalwil building stock is to be powered exclusively by renewable energy technologies by 2050.	Buildings	
PO3	The Municipality of Thalwil develops suitable instruments for financing the energy transition in Thalwil	Financing	Station 2
PO4	The municipality develops a complete and comprehensive inventory of territorial energy and greenhouse gas quantities at two-year intervals up to 2050	Municipality	
PO5	The role model effect of the municipal administration with regard to energy topics towards the population and businesses is to be strengthened		
PO6	Circular economy approaches are to be systematically promoted for consumer goods and services.	Society	Station 3
PO7	The involvement of the population in energy issues is to be promoted.		
PO8	The visibility of all energy policy measures in the municipality should be improved.		

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The event's objective was to prioritise the statements (Barriers, Solutions, and Ways to integrate RRI-AIRR) that reached consensus in the Delphi study and discuss their concrete implementation in Thalwil. This prioritisation was done partly by the participants and partly by the municipal administration. The municipality pre-selected one solution statement each for PO1 – PO7. Those seven statements were pre-selected due to their ambiguity. For each World Café station, the participants were asked to select three additional statements of importance to be further discussed. This interactive voting was implemented in an online tool, and participants voted using their smartphones during a poster exhibition of the survey results.

After this first prioritisation, the facilitator from the municipality formed three groups of four to five participants, ensuring diverse stakeholder representation in each group. Each group further discussed selected consensus statements in a World Café format (three Stations, three Groups, and three 20-minute rounds of discussion). The discussions revolved around the concrete implementation of prioritised statements in the municipality of Thalwil. Station facilitators structured the discussions and visualised the results on whiteboards.

Results in Thalwil

Participants' Characteristics in Thalwil

The Delphi study and World Café participants represented different stakeholder groups in the territory. The next paragraphs describe the participants' characteristics.

Delphi Study Participants' Characteristics

The following table shows the characteristics of the participants in the three rounds of the Delphi study in Thalwil according to gender and stakeholder group. The survey participants were asked to state their age, gender and stakeholder group at the beginning of the questionnaire.

Table 89. *Characteristics of the Delphi survey participants according to gender and stakeholder group. In the second round, two participants did not select a gender.*

	Total number of participants	Female	Male	Academia and research	Policymakers	Industry and business	Civil society
First round	37	7	30	6	16	10	5
Second round	33	7	24	5	13	9	6
Third round	25	4	21	5	8	6	6

The experts were predominantly men (>80%) of middle aged (mean age = 53 years) and university education (>90%), representing all stakeholder groups (politics, business, academia, and civil society). Each round required about 2-4 hours of work and was, therefore, very time consuming. Between the

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first and last rounds, younger policymakers, regardless of gender, were the most likely to leave the survey.

World Café Participants' Characteristics

The World Café was attended by 15 participants. The participants were asked to self-declare which stakeholder group they represented. Their gender identity was not asked. Two policymakers, two representatives from industry and business, and four representatives from civil society attended. One participant declared belonging to academia and business, one participant declared belonging to business and civil society, and five participants did not declare any affiliation.

Delphi Study Results in Thalwil

Some general observations across the three rounds could be identified. Generally, the second assessment for both the good practices and all other statements, yielded higher scores. Further analysis showed that no systematic error occurred, when panellists exited the survey early, i.e., consensus was not artificially increased due to critical participants who left after the first or second round.

Good practices were rated higher if the proposed measures were already more widely applicable (buildings). Barriers almost never reached consensus, while RRI integration opportunities received very broad support. In terms of solutions, many ideas achieved a score of over 75% in the second round. Only rarely items were rated worse after the second round than before or scored less than 30%.

The following section covers all the results obtained from the Delphi questionnaire. Statements that achieved consensus were rated 6 or higher on a 7-point Likert scale (not important at all - very important) by more than 75% of respondents.

Table 90. *Statements per policy objective that reached consensus in the Delphi survey. The values indicate the number of consensus statements and the total number of statements in the survey per policy objective*

Topic	Policy Objectives	Good Practices	Barriers	Solutions	RRI integration
Mobility	PO1 – All vehicles registered in the municipality of Thalwil are to be operated carbon-neutral by 2050 (with biogas, electricity, hydrogen or similar).	1/5	0/3	3/6	3/3
Buildings	PO2 – The Thalwil building stock is to be powered exclusively by renewable energy technologies by 2050.	5/5	2/3	2/5	2/3
Financing	PO3 – The municipality of Thalwil develops suitable instruments for financing the energy transition in Thalwil.	2/2	0/3	2/6	3/3

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Municipality	PO4 – The municipality develops a complete and comprehensive inventory of territorial energy and greenhouse gas quantities at two-year intervals up to 2050.	0/1	0/3	3/6	2/3
Municipality	PO5 – The role model effect of the municipal administration with regard to energy topics towards the population and businesses is to be strengthened.	2/2	0/3	4/6	2/3
Society	PO6 – Circular economy approaches are to be systematically promoted for consumer goods and services.	1/1	1/3	5/6	1/2
Society	PO7 – The involvement of the population in energy issues is to be promoted.	1/1	1/3	4/6	2/2
Society	PO8 – The visibility of all energy policy measures in the municipality should be improved.	0/1	0/3	3/6	2/3

Topic Mobility

The following table shows the rating of best practices on the topic of mobility. It is generally difficult to reach consensus on mobility issues. The use of traffic infrastructure is high, and the scarce space inevitably leads to conflicts of use between the different modalities. Only the proposal to develop a charging infrastructure concept achieved 85% agreement, see the following table. An idea that includes a technical solution. All other best practices, such as the proposal for sharing concepts or a 30 km/h speed limit, received only marginally higher scores in the second assessment.

Table 91. *Rating of the best practices in the area of mobility in the first and second round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Best Practices - Mobility	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Sharing concept - The administration analyses the existing sharing services and tries to strengthen them further in the direction of e-mobility with the help of a concept.	43%	48%	5%	No

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Tempo-30 - Tempo-30 not only improves the traffic flow, but also increases the attractiveness of the streets for non-motorised traffic. To this end, a survey of the population is to investigate the acceptance of Tempo-30 and other measures to promote non-motorised traffic.	35%	52%	17%	No
eCargo-Bikes - Local companies will be given the opportunity to test eCargo bikes for transport. This is to be initiated in cooperation with private providers through a pilot project.	32%	36%	4%	No
Charging infrastructure concept - The administration is developing an overall concept for charging infrastructure that identifies suitable locations and is seeking contact with private companies to provide a coordinated supply.	73%	85%	12%	Yes
Alternative fuels - The municipality could produce its own fuels and supply the municipal vehicle fleet and private customers with them. This would be possible, for example, as part of the construction of the new sewage treatment plant (ARA-Zimmerberg) in Thalwil (larger photovoltaic system, biogas, power-to-gas/liquid).	49%	64%	15%	No

The following table shows the rating of statements (solutions, barriers, and ways to integrate RRI-AIRR) for policy objective 1. None of the barriers reached consensus but were rated consistently lower in the second round. See the following table. Two solution statements achieved scores >75%, the expansion of renewable energies and the promotion of non-motorised traffic. Both measures are already being pursued actively by the administration. The proposal to do nothing at all (time solves the problem) was rated particularly low. With regard to the integration of RRI-AIRR, the demand for more anticipation through long-term mobility planning coincides with the high approval of the charging infrastructure concept. In addition, the panellists call for the administration to set an example in terms of mobility.

Table 92. *Rating of the statements to Policy Objective 1 in the second and third round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Policy Objective 1 – All vehicles registered in the municipality of Thalwil are to be operated CO_2 neutrally by 2050 (with biogas, electricity, hydrogen or similar)	**1st rating**	**2nd rating**	**Difference between the ratings**	**Consensus reached?**
Barriers				
Lack of charging and refuelling infrastructure	67%	64%	-3%	No
Low availability of renewable energy sources	27%	20%	-7%	No

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High acquisition costs of new vehicles	36%	16%	-20%	No
Solutions				
Advancing the local expansion of renewable energy	70%	96%	26%	Yes
Promote slow traffic (physical activity)	48%	76%	18%	Yes
Adjustment of the political framework conditions (steering levy, tax incentives, emission regulations)	61%	72%	11%	No
Support projects for car-free communities	48%	68%	20%	No
Reduce physical mobility through digitalisation (Home Office)	33%	40%	7%	No
Time solves the problem (renewal of the commercial vehicle fleet)	15%	12%	-3%	No
Ways to integrate RRI-AIRR				
Anticipation: Long-term planning & budgeting of charging infrastructure development	73%	84%	11%	Yes
Public engagement: Administration takes on exemplary role in sustainable mobility	64%	80%	16%	Yes
Inclusion: involve all stakeholders in concept development	61%	72%	11%	No

Topic Buildings

The following table shows the rating of best practices on the topic of buildings. All best practices reached a clear consensus in the second round at the latest. This is not surprising, since in the building sector, the expansion of district heating has been pushed for years. The administration would do well to pursue specifically the idea of a strategy for photovoltaic expansion or free consultations on heating replacement.

Table 93. *Rating of the best practices in the area of buildings in the first and second round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Best Practices - Buildings	1st rating	2nd rating	Difference between the ratings	Consensus reached?

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Photovoltaic strategy - The municipality attempts to fully exploit the realistically usable energy potential (economic potential excluding protected objects and solar thermal energy) of the entire Thalwil building stock and presents an expansion strategy for this purpose.	81%	94%	13%	Yes
Biomass utilisation - Organic waste from households and businesses is collected and processed locally into biogas to be converted into electricity and heat in combined heat and power plants.	49%	79%	30%	Yes
District heating networks - The expansion of renewable energy networks, taking into account the energy sources prioritised in the Energy Plan (lake water, geothermal energy, biomass), is being driven forward in a targeted manner.	81%	100%	19%	Yes
Heating replacement consultation - non-institutional property owners can apply for independent energy consultation at the municipality's expense if they are planning to replace their heating system.	86%	97%	11%	Yes
Energy advice - Energy advice is offered by local energy experts on behalf of the municipality and aims to optimise the energy consumption of private properties.	68%	91%	23%	Yes

The following table shows the rating of statements (solutions, barriers, and ways to integrate RRI-AIRR) for policy objective 2. The already known barriers in the building sector: high investment costs and the lack of willingness to invest were confirmed by the Delphi study, see the following table. Interestingly, the hurdle of regulatory requirements did not achieve consensus (which was often mentioned as critical in earlier studies). Two out of six proposed solutions achieved consensus: Reduce financial barriers and create incentives for investments, as well as examine the feasibility of cross-border projects. The latter was able to gain a whole 32% in the second round, thus achieving clear consensus. Another creative solution proposed was to offer the municipality's own roof areas for contracting, leapfrogging 27% to a final score of 68%.

Table 94. *Rating of the statements to Policy Objective 2 in the second and third round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Policy Objective 2 – The Thalwil building stock is to be powered exclusively by renewable energy technologies by 2050.	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barriers				
Costly investments for renovations and renewable energies	67%	88%	21%	Yes

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Lack of willingness on the part of owners to invest	64%	80%	16%	Yes
High official requirements for building projects	33%	24%	-9%	No
Solutions				
Reduce financial hurdles and create incentives for investment	79%	84%	5%	Yes
Check feasibility of cross-border projects (municipality border or parcel border)	52%	84%	32%	Yes
Municipality helps companies to rent out their roof space through contracting	41%	68%	27%	No
Simplify and accelerate approval procedures	55%	64%	9%	No
Develop financial products for rehabilitation in cooperation with private companies	55%	60%	5%	No
Ways to integrate RRI-AIRR				
Anticipation: Long-term planning in district heating supply	85%	96%	11%	Yes
Inclusion: Participatory involvement of homeowners	64%	80%	16%	Yes
Public engagement: organise information events	61%	68%	7%	No

Topic Financing

The following table shows the rating of best practices on the topic of financing. Consensus was reached on both best practices after the first rating. After the realisation of "Kraftwerk Thalwil"[15], nothing should stand in the way of the implementation of another solar community. The demand for a greener portfolio of the pension fund should be easily checked with a municipal council resolution.

[15] A municipal program to enhance the realisation of photovoltaics on private buildings with special grants and counselling. The program realised the amount of 500 kWp solar power in a few months.

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Table 95. *Rating of the best practices in the area of financing in the first and second round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Best Practices - Financing	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Solar cooperatives - The municipality builds photovoltaic systems on its own suitable properties and finances the investment by selling shares to the local population (solar fund).	78%	94%	16%	Yes
Green portfolio - The municipality's pension fund is committed to the sustainable investment of its assets. To this end, sustainable criteria are to be defined that are based on current green portfolios.	78%	85%	7%	Yes

The following table shows the rating of statements (solutions, barriers, and ways to integrate RRI-AIRR) for policy objective 3. None of the barriers assessed were considered critical. Two out of seven solutions achieved over 90% agreement: cooperation with the private sector and the continuation of the existing support programme for renewable energy projects. See following table. Proposals to increase the tax rate or temporary funding gained ground in the second round but were far from consensus at 56% each. All the proposed ways of integrating the RRI-AIRR approach reached consensus in the second rating.

Table 96. *Rating of the statements to Policy Objective 3 in the second and third round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Policy Objective 3 – The Municipality of Thalwil develops suitable instruments for financing the energy transition in Thalwil.	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barriers				
Balancing scarce public resources	58%	60%	2%	No
Lack of competences of the administration	52%	56%	4%	No
Lack of willingness of the different stakeholders	45%	40%	-5%	No
Solutions				
Develop solutions with the private sector	70%	96%	26%	Yes
Continue and expand existing funding programmes	67%	92%	25%	Yes

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Establish an Energy Fund Thalwil	58%	72%	14%	No
Introduction of a Thalwil climate franc (analogous to the culture percentage)	55%	60%	5%	No
Cooperation with Bank Thalwil to develop financing models for renewable energies	45%	60%	15%	No
Slightly increase tax rate	44%	56%	12%	No
Temporary special tax to finance the energy transition	39%	56%	17%	No
Ways to integrate RRI-AIRR				
Public engagement: Conduct information campaign	70%	84%	14%	Yes
Open Access: Showing financial flows clearly and transparently	55%	76%	21%	Yes
Science education: engaging the support of the scientific community	52%	76%	24%	Yes

Topic Municipality (Politics and Administration)

The following table shows the rating of best practices on the topic of the municipality. Two out of three best practices scored 75% with six or higher: sustainable procurement and reduction pathways. Although sustainable procurement is anchored fundamentally in the municipal code, the administration should revise its current practices. The requirement for an energy and greenhouse gas balance anticipates the Thalwil climate master plan that is currently being developed.

Table 97. *Rating of the best practices on the topic of the municipality in the first and second round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Best Practices - Municipality	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Smart Metering - With the help of smart metres, the energy consumption of municipal buildings is to be optimised. In addition, a corresponding visualisation will draw attention to the conscious use of energy.	59%	73%	14%	No

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Sustainable procurement - The administration reviews the existing provisions on sustainable procurement and strengthens procurement criteria that are oriented towards low energy and resource consumption.	78%	91%	13%	Yes
Reduction paths - The energy and greenhouse gas balances are published on the municipality's website and progress is highlighted and attention is drawn to the necessary reduction paths.	68%	85%	17%	Yes

On the topic of the municipality, two policy objectives were defined. The results of Policy Objective 4 "The municipality develops a complete and comprehensive inventory of territorial energy and greenhouse gas quantities at two-year intervals up to 2050" are presented in the following table. The results of Policy Objective 5, "The role model effect of the municipal administration with regard to energy topics towards the population and businesses is to be strengthened" are presented in table 99.

No significant barriers could be identified with regard to the development of a greenhouse gas balance. See the following table. The idea of making the greenhouse gas balance a component of the legislative goals was evaluated with 96%. In addition, the inventory is to be aligned with cantonal standards and cooperation with other municipalities is to be strengthened. The integration of RRI-AIRR succeeds through active communication of accomplishments and with more cooperation from the scientific community.

Table 98. *Rating of the statements to Policy Objective 4 in the second and third round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Policy Objective 4 – The municipality develops a complete and comprehensive inventory of territorial energy and greenhouse gas quantities at two-year intervals up to 2050.	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barriers				
Lack of data availability and the problem of the system boundary make balancing more difficult	52%	64%	12%	No
Considerable financial and personnel effort on the part of the administration	52%	64%	12%	No
Input and output are in a poor relationship	24%	16%	-8%	No
Solutions				
Set as a legislative goal	70%	96%	26%	Yes
Coordination with national and cantonal standards	64%	84%	20%	Yes

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Increase cooperation with other municipalities	85%	76%	-9%	Yes
Universities develop a survey-based monitoring tool	33%	28%	5%	No
Digital dashboards with live energy demand data	28%	20%	-8%	No
Launch competition between municipalities (Energy Challenge)	18%	12%	-6%	No
Ways to integrate RRI-AIRR				
Public engagement: actively communicate progress	79%	92%	13%	Yes
Science education: engaging the support of the scientific community	48%	80%	32%	Yes
Open Access: greatly increase data availability	64%	68%	4%	No

Also, in the case of the municipality's role model effect, no barrier achieved a clear consensus. See the following table. However, the panellists agree that internal training will create more awareness for energy issues (96%). The proposal to include local renewable energy production in the municipal bylaws reached 88% after the second evaluation. In addition, more human resources should be created (which has already been done with a new environmental department) and more should be communicated with regard to energy and climate. A full four out of six solutions achieved consensus.

Table 99. *Rating of the statements to Policy Objective 5 in the second and third round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Policy Objective 5 – The role model effect of the municipal administration with regard to energy topics towards the population and businesses is to be strengthened.	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barriers				
Lack of communication from the administration	47%	56%	9%	No
Lack of support from policy and staff	31%	38%	7%	No
Considerable financial and personnel expenditure	28%	28%	-	No

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Solutions				
Internal training and awareness raising for municipal staff	70%	96%	26%	Yes
Establish sustainable energy production as an article in the municipal code	52%	88%	25%	Yes
More communication in the field of energy and climate	61%	84%	23%	Yes
Provide more human resources	52%	79%	27%	Yes
Award for exemplary behaviour (Energy Saving Award)	42%	64%	22%	No
Energy transition as a challenge between municipalities (gamification)	18%	16%	-2%	No
Ways to integrate RRI-AIRR				
Public engagement: exchange and cooperation with other municipalities, universities and the public	70%	88%	18%	Yes
Scientific education: train administrative staff on energy issues	61%	84%	23%	Yes
Inclusion: Promoting cooperation among municipal employees	45%	50%	5%	No

Topic Society

The following table shows the rating of best practices on the topic of society. Two out of three best practices were considered important by the panellists. For example, recyclables should increasingly be collected separately at central locations. With a rating of 94%, the respondents made it clear how important the aspect of environmental education is to them. Thus, schools in Thalwil should teach what is necessary for a successful energy transition.

Table 100. *Rating of best practices on the topic of society in first and second round of the Delphi survey*

Best Practices - Society	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Waste collection bins - Separate waste bins are to be installed at highly frequented locations in Thalwil to enable the collection of recyclable materials (PET, aluminium, glass).	68%	88%	20%	Yes

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Energy education - As part of a project, the pupils are to learn how they can actively shape the energy transition in the community. To this end, renewable energy systems and energy-saving measures are to be addressed. The results are presented publicly at the end of the project.	81%	94%	13%	Yes
Energy educational trail - An energy educational trail is intended to make energy a playful experience and is aimed at schools and families. Using a QR code, it is possible to find out what exactly energy is, how renewable energy is used locally and how it can be saved.	49%	58%	9%	No

On the topic of society, three policy objectives were defined. The results of Policy Objective 6, "Circular economy approaches are to be systematically promoted for consumer goods and services" are presented in the following table. The results of Policy Objective 7, "The involvement of the population in energy issues should be promoted" are presented in table 104. Finally, the results of Policy Objective 8, "The visibility of all energy policy measures in the municipality should be improved" are presented in table 105.

A hurdle for the implementation of circular economy models seems to be the convenience and lack of awareness of the population (94%). All but one of the proposed solutions reached consensus. See table 103. Based on the Delphi study, the municipality would do well to rethink its recycling system from the ground up. To this end, the administration should strengthen cooperation and see local businesses as part of the solution.

Table 101. *Rating of the statements to Policy Objective 6 in the second and third round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Policy Objective 6 – Circular economy approaches are to be systematically promoted for consumer goods and services.	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barriers				
Convenience and lack of awareness among the population	67%	94%	27%	Yes
Problems of the profitability of circular economy approaches	52%	40%	-12%	No
Outside the area of responsibility of the administration	42%	28%	-14%	No
Solutions				
Cooperation with the retail trade and local businesses	79%	100%	21%	Yes

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Design attractive recycling services (shorter distances, collection system)	55%	92%	37%	Yes
Regular pick-up and drop-off days for consumables	58%	80%	22%	Yes
Promote repair services (Repair Café)	64%	76%	12%	Yes
Creating acceptance through information and communication	55%	76%	21%	Yes
Campaign with ambassador or influencer	33%	36%	3%	No
Ways to integrate RRI-AIRR				
Inclusion: Exploiting synergies with existing associations and NGOs	78%	96%	18%	Yes
Open Access: Making information material widely available	55%	68%	13%	No

When it comes to getting the population more actively involved in energy issues, the complexity of the topic itself seems to be a notable hurdle (80%). See following table. This is to be countered by more active communication, opportunities for participation and the strengthening of existing partnerships.

Table 102. *Rating of the statements to Policy Objective 7 in the second and third round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Policy Objective 7 – The involvement of the population in energy issues should be promoted.	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barriers				
Lack of interest among the population	42%	44%	2%	No
Complexity of the topic (energy transition)	58%	80%	22%	Yes
Lack of communication from the administration	32%	44%	12%	No
Solutions				

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More communication in the field of energy and climate	56%	76%	20%	Yes
Create opportunities for participation (participation procedures)	72%	92%	20%	Yes
Strengthen existing partnerships and use synergies.	69%	92%	23%	Yes
Introduce an energy or environment day	53%	72%	19%	No
Community app as information and discussion portal	19%	12%	-7%	No
Future workshop, where energy topics are specifically addressed	63%	84%	21%	Yes
Ways to integrate RRI-AIRR				
Public engagement: dialogue with all relevant stakeholders	75%	96%	21%	Yes
Science education: Making science more practical (e.g., through environmental education).	55%	76%	21%	Yes

Many of the hurdles mentioned were repeated multiple times for different policy objectives, but without reaching consensus. Three out of five solutions pertaining to the visibility of measures achieved scores of over 75%: making success visible, visualising progress and open days for energy related topics. See the following table. Previously stated approaches were also mentioned again with regard to RRI-AIRR integration, i.e., engaging in dialog with all relevant stakeholders. In addition, the evaluation of ongoing measures to ensure sufficient reflectiveness.

Table 103. *Rating of the statements to Policy Objective 8 in the second and third round of the Delphi survey. The rating values indicate the share of answers that rated the statement as "very important"*

Policy Objective 8 – The visibility of all energy policy measures in the municipality should be improved.	1st rating	2nd rating	Difference between the ratings	Consensus reached?
Barriers				
Lack of interest among the population	36%	32%	-4%	No
Balancing scarce public resources	36%	28%	-8%	No

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Lack of communication from the administration	39%	52%	13%	No
Solutions				
Visibility of energy topics (graphs and interactive dashboards)	61%	68%	7%	No
Putting more energy topics up on the website	39%	64%	25%	No
Making successes visible (beacon projects)	82%	96%	14%	Yes
Visualise progress (tree planting, barometer, etc.)	76%	88%	12%	Yes
Open day of new energy plants/beacon projects	70%	84%	14%	Yes
Ways to integrate RRI-AIRR				
Open Access: Making information material widely available	48%	72%	24%	No
Public engagement: dialogue with all relevant stakeholders	79%	91%	12%	Yes
Reflexiveness: Evaluation of measures taken should become an integral part of the process.	61%	96%	35%	Yes

The statements of consensus were further prioritised in a World Café workshop with stakeholders. The results of this process are presented in the next section.

World Café Results in Thalwil

For the World Café, the policy objectives and topics were grouped into stations. In the interactive voting for the prioritisation of the statements of consensus, between 9 and 11 participants casted their vote at each station. The resulting prioritised statements for Thalwil are listed in tables 106, 107 and 108. The best practices from the first and second Delphi rounds were not part of the discussion.

After the prioritisation, the statements were discussed in a World Café setting. The main discussion points at each station are summarised in the following three tables. In general, the participants highlighted the importance of RRI-AIRR dimensions and keys as part of the consensus solutions' implementation strategy. Repeatedly, they mentioned the importance of improved, proactive communication, participatory planning approaches, and the strengthening of stakeholder networks and partnerships. These are all possible fields of action for the municipal administration. Furthermore, the participants confirmed some best practices in their implementation ideas, e.g., the

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review and “greening” of the municipal pension fund’s investment portfolio. The summaries of the discussions at each station follow in the next paragraphs.

Station 1: Topics Mobility and Buildings

At station 1, the participants discussed five prioritised statements of PO1 and PO2. See table below. The statements “Advancing the local expansion of renewable energy (PO1)” and “Anticipation: Long-term planning & budgeting of charging infrastructure development (PO1)” were considered to be identical by the participants.

Table 104. *Summary of the discussion at the World Café station 1 concerned with PO 1 (mobility) and 2 (buildings)*

Statements of consensus with high priority	Selected by	Implementation ideas of participants	Implementation challenges perceived by participants
Promote slow traffic (physical activity) (PO1)	Participants	• Set clear, ambitious and quantifiable goals (e.g., increasing bike traffic by 40%). • Demonstrate that the slow traffic increases the value of real estate. • Support initiatives of local communities/neighbourhoods for slow traffic promotion. • Initiate roadmaps with broad stakeholder involvement.	• Not in my backyard problems. • Limited skill set within local administration related to slow traffic.
Advancing the local expansion of renewable energy (PO1)	Thalwil	• Information campaigns to better communication the local potentials for renewable energies. • "Action days" to increase sustainability awareness of all citizens. • Foster local circular economy. • Support investments in energy storage.	• Lack of knowledge about availability of sustainable technologies among citizens and other key actors (e.g., real estate managers). • Activities with school children depends on cooperation with higher authorities. • Ownership for sustainability often located within single administrative units, not cross-cutting.
Reduce financial hurdles and create incentives for investment (PO2)	Thalwil	• Establish targeted incentives rather than "scattergun approach".	• Limited fiscal space for the municipality. • Dynamic external factors (e.g., fast rising energy prices)

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		• Create alternative financing models such as contracting, crowdfunding. • Improve public communication about subsidies and incentives, take on user perspective.	complicate the creation of effective investments. • Long administrative processes (e.g., for subsidies). • Bandwagon effects.
Inclusion: Participatory involvement of homeowners (PO2)	Participants	• Create dedicated financial instruments for homeowners that have limited liquid financial resources. • Create local crowdfunding platforms to attract capital for investments. • Strengthen the role model character of the public administration (e.g., greening of buildings, use wood as sustainable construction material). • Strengthen partnerships between homeowners and tenants. • Enable exchange between homeowners, architects and artisans • Continue and expand consultancy services for homeowners. • Build own initiative of individuals and local groups, e.g., DIY renovations.	• First-mover problems.
Anticipation: Long-term planning & budgeting of charging infrastructure development (PO1)	Participants	Was discussed together with "**Advancing the local expansion of renewable energy (PO1)"**	

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Station 2: Topics Financing and Municipality (Politics and Administration)

At station 2, the participants discussed seven prioritised statements of PO3, PO4, and PO3 related to the topics of financing and the municipality. See table below. Some statements were not discussed due to time constraints.

Table 105. *Summary of the discussion at World Café station 2 concerned with PO 3 to 5*

Statements of consensus with high priority	Selected by	Implementation ideas of participants	Implementation challenges perceived by participants
Continue and expand existing funding programmes (PO3)	Participants	• Define clear objectives and target groups of funding programmes, set objectives and target group based on data of a territorial energy and climate inventory (--> link to PO4). • Abolish temporal and budgetary limits of funding programmes, e.g., as minimum share of the annual budget. • Municipality becomes more proactive in the targeting and follow-up of potential recipients.	• Funding programmes must avoid creating disincentives or support investments that would have happened anyways. The objective must be behaviour change. • Lack of societal and political backing for expanding funding programmes (i.e., increase municipal spending).
Develop solutions with the private sector (PO3)	Thalwil	• Cooperate with local banks to structure and issue an environmental loan (similar to the environmental loan for homeowners by ZKB). • Municipality itself issues environmental loans (because the municipality can borrow money to preferential conditions). • The municipal pension fund invests local and sustainable (i.e., in projects inside the municipality). • The municipality helps create a local GHG offsetting project to access national or international climate finance.	• Lacking interconnections between relevant actors and stakeholders (municipality, finance institutions, carbon offset market).

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Science education: engaging the support of the scientific community (PO3)	Participants	Not discussed	Not discussed
Increase cooperation with other municipalities (PO4)	Thalwil	• Energy and GHG accounting harmonization with the Canton and other municipalities is essential. Also, for targeting funding schemes (--> link to PO3)	Not discussed
Public engagement: actively communicate progress (PO4)	Participants	Not discussed	Not discussed
More communication in the field of energy and climate (PO5)	Participants	• Establish target-group-specific communication concepts for various communication channels. • E.g., target children of homeowners who discuss energy and climate issues with their parents. • E.g., target property managers and real-estate companies.	• HR and financial capacities needed in the municipality.
Establish sustainable energy production as an article in the municipal code (PO5)	Thalwil	Not discussed	Not discussed

Station 3: Topic Society

At station 3, the participants discussed five prioritised statements to PO6, PO7, and PO8, all on the topic of society. See the following table. The statements "Inclusion: Exploiting synergies with existing associations and NGOs (PO6)" and "Strengthen existing partnerships and use synergies (PO7)" were discussed jointly as the participants understood them as being identical.

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Table 106. *Summary of discussion at World Café station 3 concerned with PO 6 to 8*

Statements of consensus with high priority	Selected by	Implementation ideas of participants	Implementation challenges perceived by participants
Cooperation with the retail trade and local businesses (PO6)	Thalwil	• The Municipality should address recycling and circular economy programs in a targeted manner with commerce, industry and retail trade	• Lack of legislative power on the municipal level regarding waste disposal
Strengthen existing partnerships and use synergies (PO7)	Thalwil	• Strengthen/ build a platform or interest groups, especially between municipalities and local commerce. • Decision makers need to be involved and issues relevant to them need to be put on the agenda. • Ideas & initiatives must come from local clubs; however, the municipalities should provide a platform. • Knowhow must be retained in existing partnerships and projects, not everything has to be reinvented in new initiatives.	• Lack of cooperation & coordination between the municipalities & departments. • Slow and rigid administrative processes. • Limited public funds.
Inclusion: Exploiting synergies with existing associations and NGOs (PO6)	Participants		
Design attractive recycling services (shorter distances, collection system) (PO6)	Participants	• The Repair Café in Thalwil is a good measure. • Plastic collection belongs in the hands of the major distributors/ retailers. • Recycling offers and sensible disposal should be strengthened. Currently there is a discrepancy between disposal behaviour and public services	• Bulky waste collection no longer exists; people without cars have problems here. • The successful "Bring und Hol Tag" (a municipal event where citizens could exchange unwanted functioning items) was paused during the Covid-19 pandemic. • Holistic recycling concepts should

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			also include construction waste.
Making successes visible (beacon projects) (PO8)	Participants	• Develop a comprehensive sustainability communication strategy for all target groups and communication channels (municipal website, newsletters, social media, posters, info booth at the "Augustmarkt"). • Deliver brochures/ information on the energy transition to the households together with the voting documents. • At relevant places - e.g., recycling containers - QR codes could be attached for further information. • There should be more networking with other interest groups. E.g., cross-linking with cultural institutions. • Field trips of successful projects; analogous to Serata. • Involve schools and raise awareness among parents via children; municipality must take a more active role and support schools better e.g., by organising field trips. Especially circular economy has potential to sensitise young people, who then carry the topics home. • Link environmental loans to communication • Awards for lighthouse projects. • Consider communication campaigns using influencers or opinion leaders.	• There is not enough collaboration with the private sector. • There was a sustainability officer in the school, but the position was eliminated. • Difficulties reaching the wider population, communication and events usually reach an already engaged group. • There is a multichannel concept at the municipality, but only approx. 20% of the inhabitants are reached.

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Discussion in Thalwil

Discussion Delphi Study in Thalwil

The Delphi study method generally worked in that the statements of high importance increased from round to round, and the statements of low importance decreased. However, the process was very time and labour-intensive for the authors as well as for the participants. In general, it was challenging to motivate the experts to participate. Some participants reported up to four hours per questionnaire. This time intensity might result in experts' self-selection and an increase in the dropout rate of consecutive rounds. The results might therefore be biased, somewhat defeating the purpose of a Delphi study. Furthermore, the cost-benefit ratio of applying the method is questionable. In Thalwil, the dropout rate stayed in the expected range, leaving a sufficient number of experts in the last round for the results to remain valid.

The experts' demographics were homogeneous. They were mostly male, highly educated, and over 50 years old. However, these characteristics were expected given the Swiss society's socioeconomic structure.

Many statements in the questionnaire were formulated generic and ambiguous. A subsequent clarification was not straightforward as the experts of the Delphi study remained anonymous, and the discussion of all statements at the World Café was out of the scope of the event due to time constraints.

Discussion World Café in Thalwil

Similar to the Delphi study, motivating stakeholders to participate in the World Café workshop proved challenging. Some stakeholders cancelled their participation on short notice, possibly resulting in biased results due to self-selection.

Nevertheless, the process helped strengthen existing efforts and gather additional arguments to advance the energy transition in the territory. A generally high consensus was reached around solution statements involving the private sector, mirroring the political orientation of the municipality's population.

The following results were unexpected as they somewhat contradict the current municipal policies:

- Experts and stakeholders confirmed the importance of the municipal administration, including the municipal staff, leading by example (administration as a role model) in all aspects of the energy transition. Be it mobility, buildings, circular economy, but also participation and communication.
- Experts and stakeholders highlighted the importance of the municipality's anticipatory long-term planning. In this aspect, especially the planning of the charging infrastructure for electric vehicles, the future heating supply (including district heating), and the renewable electricity generation particularly relevant for Thalwil.
- All RRI-AIRR keys and dimensions must be considered for transformative societal processes such as the energy transition. Inclusion and participation in planning were considered highly important, as this could also help reduce barriers of costly private investments. The successful case of the jointly planned and privately operated district heating network in Thalwil confirms this assumption. Such large multi-stakeholder projects can also serve as

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beacons for communication and allow the inclusion of the scientific community, which would not be possible on an individual level.

- Experts and stakeholders expect more communication from the municipality. Sophisticated communication concepts for diverse target groups (including children) are needed to gain societal support.
- Experts and stakeholder support funding schemes and subsidies despite the limited fiscal space of the municipality.
- Recycling and circular economy are topics relevant to the stakeholders that have not been prioritised by the municipality due to the seemingly limited potential for achieving the energy transition.

Conclusions in Thalwil

A three-round expert Delph study on the energy transition in Thalwil was held from January to April 2022. The experts assessed the importance of 93 statements and 18 best practices. Between 37 and 25 experts participated in the different rounds. Each statement described a solution, a barrier, or a way to integrate an RRI-AIRR dimension on the pathway to one of eight policy objectives in the territory. The Delphi study method successfully established a consensus on the importance of 45 out of the 93 statements in the third round. After the second round, only ten statements were at the level of consensus.

The statement with the highest level of consensus proposed that the municipality should cooperate with the retail trade and local businesses to promote circular economy approaches for consumer goods and services systematically. Statements on ways to integrate RRI-AIRR dimensions were, with some exceptions, rated with high importance.

The Delphi study was concluded with a workshop where the results were presented and discussed by experts that participated in the survey and other stakeholders from politics, academia, the private sector, and civil society. The workshop participants prioritised the consensus statements and developed implementation ideas specific to the territory of Thalwil in a World Café. They also discussed the anticipated challenges when advancing the energy transition in the territory. These prioritised and substantiated statements will inform the upcoming transformative outlooks for Thalwil.

The following recommendations for the territory of Thalwil can be derived from the findings of the Delphi study and subsequent World Café discussion.

The municipal administration should strengthen its role model character. By implementing and communicating energy-efficient and sustainable measures for mobility, buildings and procurement, the municipal administration can demonstrate leadership and inspire the territory's inhabitants.

The municipality should plan proactively and anticipatory for the energy transition. The municipality can support and accelerate the territorial energy transition by developing master plans for electric vehicle charging stations, sustainable heating supply infrastructure, and renewable electricity generation.

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The municipality should use its capacity and connections to create new networks. Engaging and connecting stakeholders, including the local and international private sector, the local banks, and citizens, will facilitate the co-creation of solutions that would otherwise be inconceivable.

The municipal administration should develop a comprehensive sustainability communication concept. The concept should include target-group-specific messaging and communication channels, including social media and video content, but also use traditional media such as posters and market stalls. Children, senior citizens and property managers are among the important target groups.

The municipality should establish new funding programmes for building renovations and investments in renewable energy generation. These new programmes should reach target groups that have not been reached yet with existing schemes. The targets should be selected based on a territorial energy and greenhouse gas inventory.

The municipality should consider developing concepts to improve recycling opportunities and promote circular economic approaches in the territory. These topics emerged as significant for the participants in the Delphi study and World Café discussion. Since waste management is a municipal-level legislative matter, the municipality could improve its recycling and waste management services.

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Chapter VI: Overall Conclusions

The results of the Delphi study and World Café processes across four very different regions showed that, perhaps not surprisingly, that context matters: that is, leaders and participants had diverse ideas on the challenges and opportunities for their regions, with various policy foci dominant in some areas and non-existent in others. This presents an overall challenge for RRI initiatives across regions, mainly because – although the RRI approach is made to encompass a framework for action rather than a thematic approach – the dispersion of concerns may also require tailoring the distribution of RRI keys to the situation.

That being said, one of the RRI keys which came across from all territories concerned the amount of work that will be needed across all stakeholders in society – but especially for policymakers – to lay the groundwork for research and innovation at the territorial level. In line with the RRI key "Public Engagement," it was heard in each territory that more participatory mechanisms were needed for the challenges facing territories in general. In line with the AIRR tenet of "anticipatory governance" and also "inclusiveness," respondents across the four cases studied here also made it clear that a reorientation of territorial processes from "business as usual" to a much more focused approach would be necessary if the local policy foci were to be tackled successfully. In this sense, not only was there a need to have more involvement from stakeholders and citizens, but policymakers were also expected to act as role models (as said explicitly in Thalwil) in preparing the infrastructure and processes for whichever policy focus was dominant in that territory.

Apart from these common themes, however, the diversity of the four territories was reflected in both the Delphi study and World Café rounds in each case, with shifts in policy foci and the recommendations of participants. In each case, concerns were driven by local needs and perceptions, such as the emphasis on active ageing in Sabadell, the focus on the energy transition in Thalwil and Western Macedonia, or digitalisation of management processes and services in Sofia. This did not mean that the concerns were not valid for the entire country that a territory is located in, nor were the concerns exclusively local (excepting perhaps the desire for more recycling points in Thalwil); indeed, many of the policy foci which emerged through the Delphi study were applicable to many territories within a country or even globally (e.g., energy transitions). But the actions and recommendations which were distilled by these processes were unquestionable local and reflected the perceptions of the region or territory.

The last point to be made here is not only that context matters, but that change – no matter for which policy focus - is also a local phenomenon. The engagement of participants in both the Delphi study and World Café processes meant that specific and actionable recommendations were offered for improving territorial activities in line with the policy foci identified in early rounds. It is hoped that these recommendations can provide a basis for the RRI-LEADERS program going forward but, more importantly, for improving the research and innovation policies at the territorial level.

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Annexes

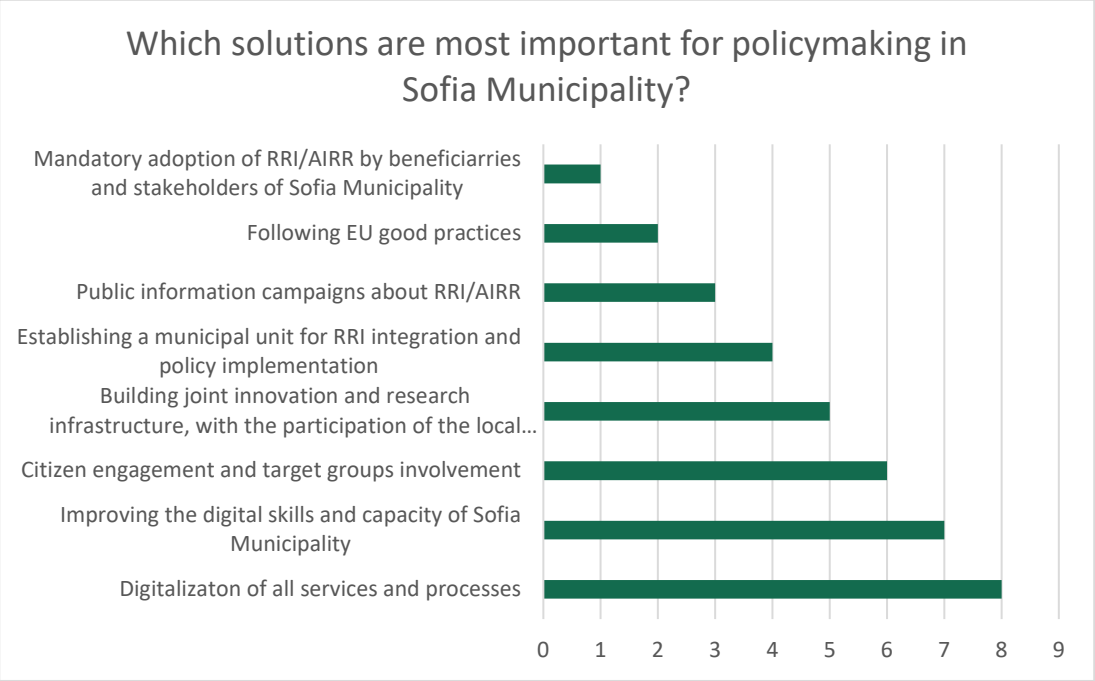
Annex I Bulgaria, Sofia

Mentimeter Survey during the World Café

After the rotations of the groups at the four tables in the World Café, in the plenary all participants were asked to answer four questions related to Café topics. The purpose was to find out any differences / similarities between the individual responses and the group discussions. The results of the Mentimeter survey largely confirm the findings in Delphi study and the World Café; participants also had an opportunity to formulate their own ideas for elements that could contribute to better formulating long-term policy objectives and measures for their implementation with regard to the TO.

Question 1 asked participants to rate the most important solutions for improving the policymaking in Sofia Municipality; they were given a list of options which they had to rank from highest (most important = 10) to lowest (least important = 1). Total number of respondents: 22.

Illustration 4. Most important solutions for improving policymaking in Sofia Municipality (multiple choice options)



The second question asked Café participants to rate the RRI/AIRR keys according to importance, using the same scale as above (10 being the highest, 1 being the lowest). As seen

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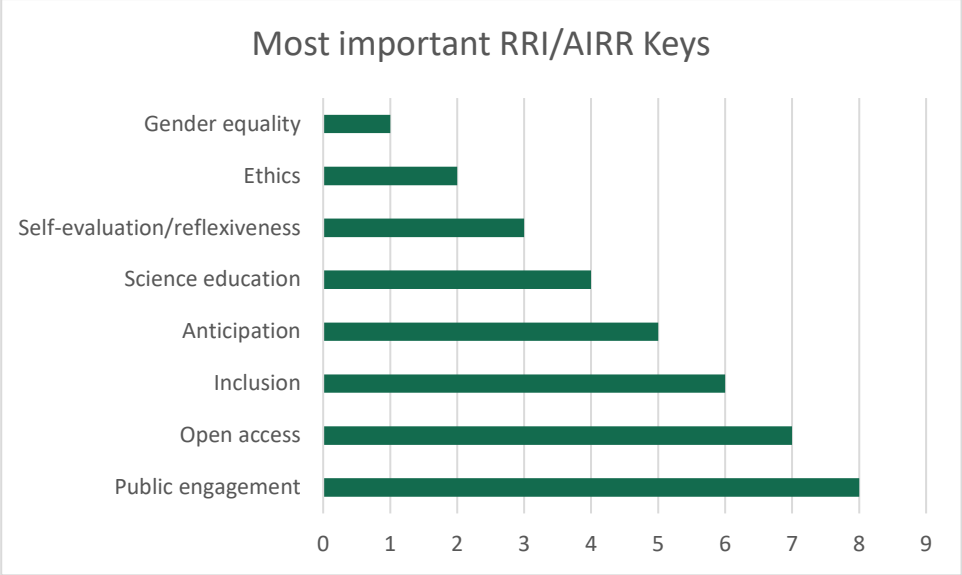
below, public engagement is considered the most important by the majority of respondents, whereas gender equality and ethics are rated least important.

Illustration 5. Most important RRI/AIRR keys for policymaking in Sofia Municipality (multiple choice)



Question 3 asked participants to respond which important solutions, in their view, are missing from the Delphi study and should have been included. This was an open-ended question; participants were asked to provide up to 3 possible answers.

Responses (not ranked by importance):

- Optimising the workflow in the municipal administration
- Collaboration with the national authorities for policy implementation
- Close cooperation with universities
- Active participation of young people and children in the policy- and decision-making process
- Self-evaluation and analysis
- Futuristic studies and public sector innovations
- Political commitment by the parties represented in the city council
- Citizen monitoring and control of policy implementation
- Recruitment and hiring of young people in key positions
- Support for social innovations and social entrepreneurship
- Inclusion and engagement with the target groups themselves
- Digitisation and e-governance
- Citizen-centric approach in policymaking, foresight and technology assessment approaches.

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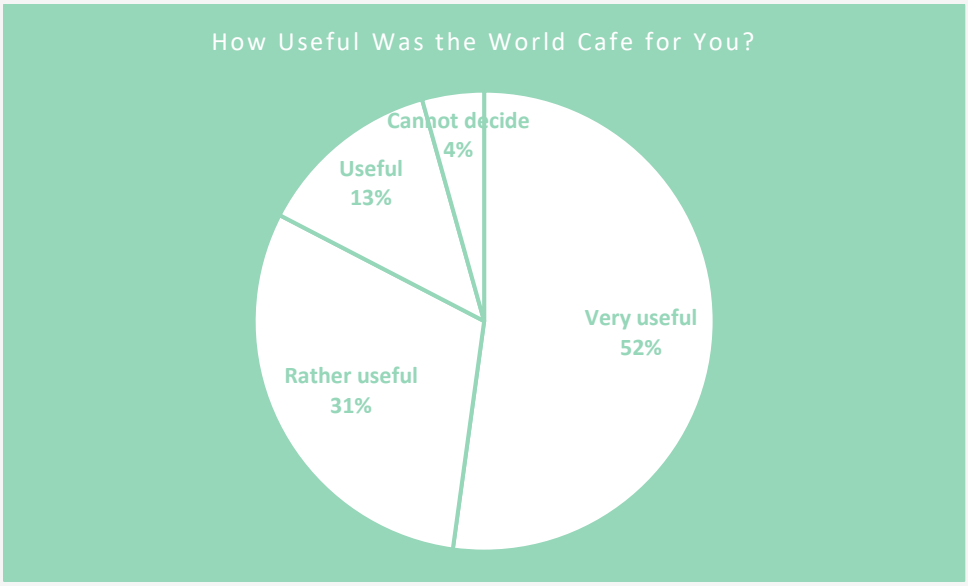
The final question asked participants to rate the World Café itself and to what extent it was useful for them. The pie chart below presents the distribution of responses.



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