

D4.2. Climate resilience maturity assessment



**Regions
4Climate**



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Deliverable Information Sheet

Version	V1
Grant Agreement Number	101093873
Project Acronym	R4C
Project Title	Regions4Climate
Project Call	HORIZON-MISS-2021-CLIMA-02
Project Duration	60 months
Deliverable Number	D4.2
Deliverable Title	Climate resilience maturity assessment
Deliverable Type	R — Document, report
Deliverable Dissemination Level	PU - Public
Work Package	WP4
Lead Partner	Zabala Innovation
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Official Due Date	30 June 2024 (M18)
Delivery Date	30 June 2024 (M18)

History of changes

Version	Date	Description	Author(s)
V0	May 2024	First version	Yaiza Tejido, Izaskun De Allende, Erica Manuelli, Erika Palmieri
V1	June 2024	Reviewed version	Yaiza Tejido, Izaskun De Allende, Erica Manuelli, Erika Palmieri Reviewers: SPI and ICLEI
V2	June 2024	Reviewed version	Yaiza Tejido, Izaskun De Allende, Erica Manuelli, Erika Palmieri Reviewers: VTT (R4C Coordinator)
V3	June 2024	Final version	Yaiza Tejido, Izaskun De Allende, Erica Manuelli, Erika Palmieri Reviewers: VTT (R4C Coordinator)

List of Acronyms

R4C	Regions4Climate
CC	Climate Change
CR	Climate Resilience
CRML	Climate Resilience Maturity Level
RRMM	Regional Resilience Maturity Model
RRJ	Regional Resilience Journey
SD	System Dynamic
CS	Challenge Suite

M&E	Monitoring and evaluation
S3	Smart Specialisation Strategies
S4+	Smart Specialisation Strategy for Sustainable and Inclusive growth
GA	Grant Agreement
RRI	Responsible Research and Innovation
P2R	Pathways2Resilience
SDG	Sustainable Development Goals
EU	European Union
EC	European Commission

Keywords list

- Regional Climate Resilience Maturity
- Regional Climate Resilience Maturity Assessment
- Maturity Model
- Regional governance
- Just Transition to Climate Resilience
- Self-assessment
- Digital tool

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Executive summary

The *Climate Resilience Maturity Assessment* is developed as part of *T4.3 Climate resilience maturity assessment* within the *Regions4Climate (R4C) project*¹, under the Grant Agreement number 101093873. The document provides an overview of the preliminary resilience maturity of the 12 regions participating in the Regions4Climate project (R4C) based on the *Regional Resilience Maturity Model (RRMM)* developed by T4.1 and described in *D4.1 Regional Resilience Maturity Model and Framework*². The RRMM aims to be a tool for reflection and guidance, supporting regions to self-assess progress in their climate resilience-building process. This includes supporting them to identify their level of climate resilience maturity and potential gaps, to inform the prioritization of suitable policies to advance climate resilience and to justify for funding of specific measures.

The deliverable includes the description of **the validation process of the RRMM carried out together with the regions, and the first preliminary climate resilience maturity level (CRML) assessment** conducted using the RRMM, evaluating the maturity of regions in terms of climate resilience across various dimensions. The methodology approach included engaging regions in a series of information sessions and workshops, as well as preparing a validation and assessment questionnaire for the 50+ indicators included in the R4C's RRMM.

This process served the project to analyse the complexity of regional structures and work together with regions and project partners to adapt the model to regional diversity in terms of competences and legal structures. The deliverable shows the results from the first attempt from R4C regions to use the RRMM before it is updated and fixed to be transposed into a digital tool to be developed by T4.1 (RRMM digital tool). The validation process aimed at ensuring that the RRMM is useful and meaningful for R4C regions, and future versions of the tool could include global applicability, tailoring indicators to diverse regional contexts. The RRMM digital tool will be included in the Climate resilience portal developed by WP3 and integrated in the *European Climate Adaptation Platform Climate-ADAPT*³.

R4C regions will re-assess themselves using the RRMM digital tool yearly, to follow up on their progress and needs in terms of regional resilience maturity and capacity. The yearly assessments will provide input to other project partners such as the on-going Monitoring and Evaluation of innovations carried out in demonstration regions (WP3), or contribute to the following deliverables:

- *D4.5 Policy briefs. A set of 3 policy briefs synthesising evidence from R4C innovation actions in support of existing macro-regional S3 initiatives & S4+ development.*
- *D5.8 Preliminary impact assessment. Impact assessment of implemented regional innovation actions in Front-Runner regions Basque Country, Køge Bay and Sitia to build resilience.*
- *D5.23 Resilience Innovation Synthesis. Summary of results, impacts and lessons learned via implementation of resilience innovations to address identified challenges in each of the 12 R4C demonstration regions.*
- *D6.5. Replication & Scaling Plan. Replication and upscaling strategy and plans for the replication of the sustainable business models developed in D6.2.*

Finally, T4.3 also delivers on *D4.7 Evaluation of regional climate resilience maturity in R4C partner regions and progress within relevant sectors during the R4C project*. This final deliverable will collect R4C regions' assessment results carried out during the project lifetime using the RRMM digital tool, including the potential measures implemented by regions to improve their Climate Resilience Maturity Level (CRML).

1. Introduction

1.1. Regions' resilience maturity in the R4C project

The *EU Mission Adaptation*⁴ aims to support at least 150 regions and communities in accelerating their transformation towards climate resilience by 2030. It will help these regions and local authorities to better understand, prepare for and manage climate risks, as well as to develop innovative solutions to build resilience. The ambition of Regions4Climate (R4C), is to collaboratively develop and demonstrate a socially just transition to climate resilience in 12 European regions.

R4C's approach is based on the idea that, by involving all stakeholders, from governments to citizens, and combining sociocultural, technological, digital, business, governance, and environmental innovative solutions, regions vulnerable to CC will be able to tackle climate-related issues and create a more equitable and thriving society for all. The 12 regions involved in the project will implement specific Regional Innovation Actions (WP5) aimed at reducing their vulnerability to the impacts of climate change. These demonstration actions are supported by a set of user-centered tools and frameworks, developed by R4C technical Work Packages (WP2, WP3, WP4, WP6), which will be tested and implemented in the partner regions. The development and demonstration of such tools will contribute to the development of a holistic framework of modular, interoperable social, environmental, economic, policy and governance innovations, including tools and methodologies underpinned by robust guidelines and models, to be applied beyond the project and support EU-wide development of climate resilience plans and adaptation pathways.

This deliverable belongs under WP4, Smart Specialisation for Sustainability, which aims at operationalising the organisational development of cross-border and macro-regional governance and cooperation. In particular, it falls within T4.3 *Climate resilience maturity assessment*, that will support each partner region to periodically re-evaluate their Climate Resilience Maturity Level (CRML) using the Regional Resilience Maturity Model (RRMM) developed in T4.1 and presented in D4.1. *Regional Resilience Maturity Model and Framework*. These assessments will contribute towards developing a framework for regions to better understand the resilience building process including governance and policy needs analysis and ultimately contributing to engage in the conceptual development of S4+.

The document collects the steps followed by ICLEI and Zabala Innovation as leaders of T4.1 and T4.3 to both **validate the RRMM** developed by T4.1 with the participation of each partner region, and **conduct a first assessment** at regional level, using the framework proposed, to obtain the first interim assessment of the CRML of each region.

The validation process is key to ensure the correct uptake, validity, and relevance of the model at regional level, and it will also serve to improve the RRMM and ensure that the digital tool to be developed as a self-assessment tool for regions is adapted to regions' needs.

The assessment results will support regions in the identification of suitable policies and initiatives to develop climate resilience. In combination with other tools and assessments conducted within R4C (including T2.1 Socio-economic vulnerabilities analysis, T3.1 Vulnerability and Risk Assessments, T3.2 Monitoring and Evaluation plans, T4.2 Governance assessments, T4.4 Policy needs analysis) it aims at supporting regions in the prioritisation of climate resilience policy implementation, including the justification of expenditures on specific measures.

1.2. Structure of the deliverable

This deliverable includes a detailed explanation of the **methodology** used and processes set in place for the **validation of the Regional Resilience Maturity Model (RRMM) and its first interim assessment approach** based on an engagement process carried out with the 12 regions involved in the project:

Faster Adaptation Challenge Suite:

- *Basque Country*
- *South Aquitaine*
- *Tuscany*
- *Azores*

Smarter Adaptation Challenge Suite:

- *Køge Bay*
- *Burgas*
- *Helsinki-Uusimaa*
- *Pärnumaa*

More Systemic Adaptation Challenge Suite:

- *Sitia*
- *Castilla y León*
- *Nordic Archipelago*
- *Troodos*

First, the report presents the **results of the validation process**, both from engaging with R4C regions, and from internal assessments made by Zabala and ICLEI as leaders of T4.1 and T4.3 respectively. It discusses adjustments made to the RRMM and the associated digital tool based on the feedback received from R4C regions. Additionally, it outlines the way forward based on these findings.

Secondly, the deliverable focuses on the preliminary first assessment results using the RRMM. It includes the data gathering process carried out, and a preliminary assessment of the results presented per dimension. Additionally, an only-for-internal use annex has been also produced in which the results of the 12 regions participating in the project are presented individually. Barriers and opportunities related to the climate resilience maturity of the regions are also identified.

To finalise, the conclusions and key findings are presented, together with the next steps for the continuous Climate Resilience Maturity Assessment.

1.3. Context: origin of the RRMM model

The R4C Regional Resilience Maturity Model (RRMM) was first proposed as an updated model from the Climate Resilience Maturity Level (CRML) used during the project proposal stage, to assess and arrange participating regions' Front Runner capacities as well as potential areas of improvement in climate regional resilience. Front runner regions were considered those with higher CRML during the project proposal preparation phase, to enable extensive knowledge sharing between regions. The preliminary framework included 15 "Resilience building solution sectors" which each region was assessed against:

Resilience building solution sector	Regional Climate Resilience Maturity Level pre-assessment											
	Basque Country	Tuscany	Azores	South Aquitaine	Køge Bay	Pärnumaa	Uusimaa	Burgas	Sitia	Nordic Archipelag	Troodos	Castilla y León
Participatory governance	7	4	3	6	3	5	5	4	2	3	3	6
Transboundary policy instruments	7	6	2	4	4	4	3	3	7	3	3	3
Innovative business models	6	4	3	3	2	3	6	5	7	2	1	8
Innovative asset management models	3	4	2	3	7	4	5	3	3	2	1	6
Innovative finance models	7	5	2	2	3	4	3	3	8	2	1	4
Robust citizen & stakeholder engagement	5	7	3	3	2	4	6	5	6	5	3	7
Social equity and social justice	5	5	2	5	7	4	1	4	5	2	3	5
User-centred digital platforms	7	4	4	5	1	7	5	6	3	3	1	3
User-centred digital decision-making tools	7	4	3	6	1	6	3	5	3	2	4	3
Climate resilient built infrastructure	2	7	3	2	4	5	6	6	7	5	2	7
Sustainable and low-carbon energy	4	5	2	4	7	6	8	5	8	7	2	8
Sustainable public transport system	6	7	1	6	7	6	8	6	3	6	2	2
Nature-based solutions	6	7	2	3	8	6	6	4	5	5	1	7
Innovations for healthy living	4	5	2	3	4	6	6	4	7	6	2	6
Biodiversity restoration/ protection	7	8	4	7	6	5	6	5	5	6	6	5

Table 1. Preliminary self-assessment of Climate Resilience Maturity Level (CRML) in demonstration regions¹.

¹ CRML 1-3 = early stages of climate resilience issue identification and strategy development during which stakeholder co-creation and identification of local challenges occurs, and possible solutions and trade-offs are identified. The concept of the future integrated solutions is developed throughout these stages. CRML 4-6 = more advanced stages of climate resilience innovation development and testing, when applicable resilience innovations have been selected and pilot tested but not yet integrated within full-scale operations. CRML 7-9 = final stages of climate

This framework allowed for the arrangement of the Challenge Suites (CS) and to set the principles for the project developments, in particular for the definition of the specific challenges and solution approaches defined for each CS as shown in the following graph:

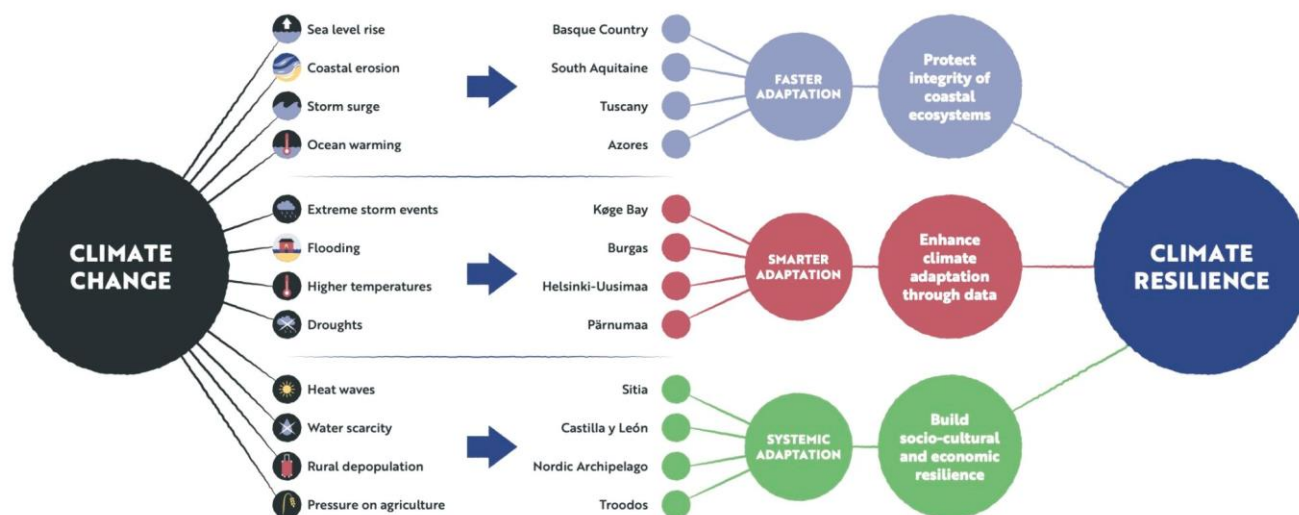


Figure 1. R4C regions arrangement by Challenge Suite (CS). The figure shows, the specific challenges addressed by each region. "Front runner" regions are shown at the top of each CS.

The initial model used during the project proposal preparation phase has been further refined during the implementation phase to integrate a specific policy approach to climate resilience, as well as context specificity to be suitable at a regional scale, and with sufficient detail to support regions in building climate resilience. Networks of non-state actors and subnational governments have proliferated since the Paris Agreement formally recognized their contributions to global climate change governance. Understanding the ways these actors are taking action and how they align with each other, and national governments is critical given the need for coordinated actions to achieve ambitious global climate goals⁵.

This is why, instead of just building on the preliminary assessment model used at the project proposal, T4.1 conducted a thorough review on climate adaptative and resilience capacities, other existing maturity models and assessment frameworks for climate adaptation and resilience (often at community/local level) to ensure a robust Regional Resilience Maturity Model (RRMM) was built. The RRMM was developed in collaboration with project partners and regional representatives, through a series of co-creation steps (Details on the process can be found in the Deliverable D4.1). At this stage, the RRMM and related assessment framework have long surpassed the preliminary Climate Resilience Maturity Level approach used during the proposal stage.

The first version of the RRMM, developed by R4C and described in D4.1, is composed of 50+ policy-linked indicators aimed at assessing regional functions and characteristics contributing to its climate resilience maturity, organised in 8 dimensions. The model includes a scoring system designed for each indicator and refers to the R4C regions "governance context" developed by T4.2 to enable the better understanding of each regional context:

Dimensions	Indicators
1 Regional Governance and Institutional capacity	1 1.1 Political support for a just transition to climate resilience
	2 1.2 Regional governance structures for cross-sectoral coordination
	3 1.3 Governance structures for multi-level (vertical) coordination
	4 1.4 Governance structures for cross-border cooperation (across administrative boundaries)
	5 1.5 Engagement in networks
	6 1.6 Anticipatory governance
	7 1.7 Region's monitoring and evaluation system

Table 2. Example of a dimension of the RRMM and its related indicators.

Indicator	Description	Scoring system
3.1 Staff assigned to the planning and implementation of climate change resilience actions	This indicator aims to assess whether sufficient staff is specifically assigned to the planning and implementation of climate change resilience measures and interventions within the regional administration.	4 - Sufficient staff is assigned, and functions, roles and responsibilities among staff are clear. 3 - Sufficient staff is assigned, but functions, roles and responsibilities among staff are unclear, impeding effectiveness of planning and implementation. 2 - Some staff is assigned to both planning and implementation of climate resilience actions, but it is deemed insufficient 1 - Some staff is assigned, but only to planning of climate resilience actions, and it is deemed insufficient 0 - No staff is assigned

Table 3. Example of the RRMM scoring system for each indicator.

More information about the RRMM development process and framework can be found in the *D4.1 Regional Resilience Maturity Model and Framework*.

2. RRMM Validation and Assessment Methodology

This chapter delves into the methodological approach adopted to conduct the RRMM validation and first assessment processes by the 12 regions involved in the project. The process started during the conception of the RRMM model in an interactive workshop carried out at *EURESFO 2023 conference*⁶ to understand “What does resilience-building entail for a regional government? An interactive workshop towards a comprehensive assessment framework” that aimed at presenting and discussing the RRMM framework with representatives, experts and stakeholders from local and regional EU institutions (D4.1). The process continued with the finalisation of the model and several feedback loops until the final validation and assessments from all 12 regions were collected and integrated into the model.

The method proposed has, two approaches. First, an overview of the validation process is provided, including the feedback received and how it has been integrated into the final RRMM. Second, we provide a first general baseline analysis of how regions compare to one another for each RRMM dimension and indicator, to further understand comparable and visualisation needs for the digital tool and future assessments.

2.1. Engagement process with the regions

R4C is a complex project which requires the participation of partner regions in a number of stages during the project lifetime. The 12 regions involved in the R4C project are actively participating in a variety of validation and region-specific tool development processes at the same time. This requires project research partners to work closely together to try to combine efforts and ease the information requests and engagement activities from regions.

During the 5 years of the project, and in particular, during the time this task and deliverable were carried out, regions were also engaged in the conceptualisation and validation of other project tools and activities (in addition to the implementation of their demonstrators):

- *Just Transition Indicators and SD models (T2.3 - WP2)*
- *Regional Just Transition Roadmaps⁷ (T2.4 - WP2)*
- *Vulnerability and Risk Assessment Framework (T3.1 - WP3)*
- *Regional Monitoring and Evaluation Plans (T3.2 - WP3)*
- *Common Innovation Framework and the Regional Innovation Roadmaps (T6.1 - WP6)*
- *Innovation screening tool (T6.3 - WP6)*

Considering the high demand for regions’ contributions to different project activities, an engagement and work plan was developed to facilitate regions’ contributions and ensure continuous support and guidance.

The plan was presented to R4C regions through Challenge Suite meetings, and it was concluded that the validation of the RRMM and the first interim assessment of each region would happen at the same time. Therefore, a joint process to achieve both, the validation, and the completion of the first interim assessment was coordinated by ICLEI and Zabala Innovation.

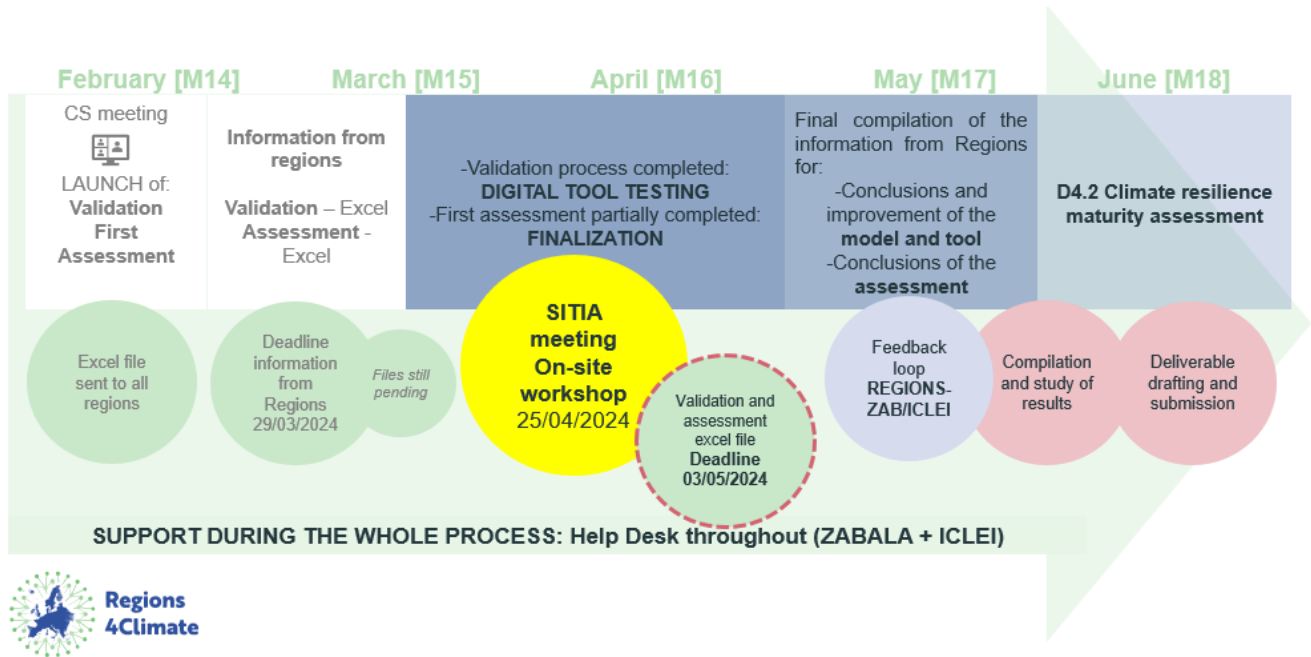


Figure 2. Timeline and steps presented to regions during one of the workshops, collecting the main steps of the plan.

2.1.1. RRMM validation and preliminary assessment plan outline

Objective of the joint validation and assessment process:

Regions to understand, provide feedback and validate the RRMM developed by T4.1 and to provide the first assessment values to those indicators that could be measured or applied to the region.

Steps:

- *Introducing the model December 2023*
- *Preparing validation and assessment resources – January 2024*
- *Workshop at Challenge Suite meetings – February 2024*
- *Resources sent to regions with a request for completion – February 2024*
- *Mid-term check in with the regions to follow up on progress – March 2024*
- *Workshop to further discuss and validate the RRMM during the annual Consortium Meeting – April 2024*
- *Final collection of results – May 2024*

Means of communication:

- *Emails*
- *Individual calls*
- *Workshops*

Timeline: December 2023 to May 2024

2.2. RRMM Validation and Assessment process

Aligning with the described plan, after the RRMM was finalised and before it is transposed into a web-based self-assessment digital tool, a validation process with partner regions started in order to validate the model and integrate any updates into the digital tool.

The RRMM was first presented to all 12 regions in December 2023 along with an action plan to collect their feedback and complete the first interim assessment process.

2.2.1. Resources

A **validation and assessment template** were developed and distributed to all regions for its completion. This template was created to facilitate the understanding of the model by the regions during the validation process and the preliminary assessment, as each region had to complete it individually. It consisted of an explanation of the validation process, and a description of the information that each region had to provide. The template included the objectives of the process, instructions to validate and assess each indicator, the characteristics of what the RRMM considers a “region” and an explanation of the subjectivity that a “self-assessment” may entail and how to minimise it. The validation questions were carefully selected and displayed together with a drop-down menu of the answers and the assessment questions and its scoring:

Regional Resilience Maturity Model (RRMM) and Assessment Framework

Goals of the validation process

We have developed the RRMM in a collaborative way over the course of the first year of R4C, trying to put together different pieces of the "puzzle" of what resilience-building entails for a regional government. Now we would like to gather your input to adjust the model, its indicators, and the scoring system for each indicator.

What should you do?

Go through the 8 dimensions (each dimension is a different tab in this Excel) and answer the validation questions for each indicator, using the drop-down menu and the space provided for further explanation and comments. If you are able to do so, you should also select the score that best fits your region for each indicator, performing in this way a first test-run of the assessment.

What "region" are we talking about?

We are aware that regions in R4C are very different from each other in terms of administrative structures, competences etc. We are also aware that some R4C regions do not correspond to a regional governmental body per se, but, for example, are constituted by an agglomeration of municipalities. This is why we are collecting information on each region's governance context (through desktop research and through the questions included in this validation process). Ideally, we would like to collect enough information

about the regions' governance context to develop an RRMM that explicitly takes these differences into account, and to inform tailored policy recommendations. Within the RRMM and this assessment, we refer to "region" in general terms, as administrative level between "national" and "local". This can look very different, depending on your context. As you fill in this assessment, we ask you to consider as "region" the (territorial, administrative) entity through which you are participating in the R4C project: please consider the entire regional system, and the multiple administrative units that it might contain. When you feel like the indicators or scoring levels are formulated in a way that does not capture your specific context, please let us know by writing an explanation in the space provided. This information is crucial for us to improve our understanding of your regional contexts and develop a better tool.

Self-assessment and subjectivity

The Regional Resilience Maturity Model has been built as a self-assessment tool, still with limitations due to potential biases in its completion by each individual. Efforts have been made to formulate indicators in an objective manner, yet if you perceive subjectivity in the provided options, please highlight such instances for adjustment. To enhance the reliability of responses, it is advisable to seek input from colleagues in relevant departments, especially when lacking sufficient information for certain questions.

Table 4. Instructions included in the RRMM validation and assessment template for regions.

	Validation Questions				Assessment questions
Questions	Does your region have competences in the policy area of this indicator?	Is this indicator clear in its content and formulation?	Is this indicator relevant for your climate resilience planning priorities and correctly applies to the regional context?	Would you be able to score the indicator based on this range of options?	Please assign a score to this indicator
Explanation of questions	By "competences" we mean if this is a policy area or sector in which the region has authority / legislative competences / ownership or competences for implementation. The question is kept general enough to be applied to different indicators. With this question, we aim to collect relevant information regarding the actual scope of action related to resilience-building of the R4C regions, in order to improve the indicators and tailor the assessment in a way that makes sense for	We would like to know if the indicator's description is clear in its content and form. Please indicate if any terms or concepts are unclear, or if you find the description imprecise etc.	While the first question addresses whether the region has planning or implementation competences in the policy area at hand, this question looks into the relevance of the indicator's subject in reference to the region's climate resilience and development priorities. Considering the diverse nature of R4C regions and the potential variance in actions taken at regional and local level, we ask you whether the indicator considers these issues.	This question is related to the scoring system. Please look at the descriptions provided for each score (0 to 4) for the question at hand and let us know if you would be able to select a score for your region. If not, please provide an explanation and make suggestions for what should be improved.	If you are able to select a score for your region for the specific indicator, we would ask you to do it already, using the drop-down menu. This will allow us to perform validation and assessment in parallel, to the extent possible.

the various regional contexts.

Possible answers (drop-down menu)	a. Yes - the region has competences in this area b. Partially - the region has only partial competences in this area (please explain including who has competences over what) c. Not sure - but I could ask internally d. No - the region has no competences in this area (please explain including who has competences over what)	a. Yes - the indicator is clear and easy to understand b. Partially - the indicator is unclear or imprecise in some parts (please explain and suggest alternative) c. No - the indicator is not clear (please explain and suggest alternative)	a. Yes - the indicator is relevant and correctly applies to this region b. Partially - the indicator only partially applies to this region (please explain) c. No - this indicator is not relevant to this region (please explain and suggest alternative)	a. Yes - I can score this indicator b. Yes - but I would need an additional option to be more precise (please suggest the missing score) c. No - because I do not have enough information and need more time (please explain and indicate who could have that information) d. No - because the options are not clear (please explain) e. No - for another reason (please explain)	0 1 2 3 4
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Table 5. RRMM validation and assessment questions included in the template.

The list of indicators organised by dimensions was included in the template for ease of consultation:

Dimensions		Indicators
Regional Governance and Institutional capacity	1	1.1 Political support for a just transition to climate resilience
	2	1.2 Regional governance structures for cross-sectoral coordination
	3	1.3 Governance structures for multi-level (vertical) coordination
	4	1.4 Governance structures for cross-border cooperation (across administrative boundaries)
	5	1.5 Engagement in networks
	6	1.6 Anticipatory governance
	7	1.7 Region's monitoring and evaluation system
Plans and policy instruments	8	2.1 Regional plan or strategy for climate resilience
	9	2.2 Integration of planning and regulatory framework for climate resilience
	10	2.3 Policy instruments supporting regional resilience-building
	11	2.4 Mainstreaming of climate resilience into other regional sectoral plans and strategies
	12	2.5 Regional plan or strategy for emergency response
	13	2.6 Alignment of existing policy instruments with regional ambitions for a socially just transition to climate resilience
	14	2.7 Assessment of region's progress towards relevant SDGs
Human resources and technical skills	15	3.1 Staff assigned to the planning and implementation of climate change resilience actions
	16	3.2 Flexibility in staff contracting and allocation
	17	3.3 Staff's competencies, knowledge and skills to understand and use climate change data and information
	18	3.4 Staff's competencies, knowledge and skills to design and conduct effective participatory and stakeholder engagement processes
	19	3.5 Staff's competencies, knowledge and skills to successfully implement the planned climate resilience and adaptation strategies and measures
	20	3.6 Staff's competencies, knowledge and skills to successfully engage in climate change mainstreaming
	21	3.7 Staff's capacity building
Participatory governance and stakeholder engagement	22	3.8 Staff's competencies, knowledge and skills to make use of multiple financing opportunities
	23	4.1 Participatory governance to enhance coordination and agenda-setting
	24	4.2 Development of a stakeholder engagement plan
	25	4.3 Identification of clear objectives, opportunities and challenges for stakeholder engagement
	26	4.4 Mapping of stakeholders
	27	4.5 Engagement with the private sector
	28	4.6 Engagement with citizens
Public support, awareness	29	4.7 Engagement with organised civil society
	30	4.8 Engagement with academia and research community
	31	5.1 Climate risk communication strategies
	32	5.2 Dissemination of scientific information and good adaptation practices
	33	5.3 Alignment of regional communication and marketing strategies with resilience priorities
	34	5.4 Analysis of public perception of climate change
	35	5.5 Analysis of public perception and acceptance of policies
Financial capabilities	36	6.1 Financial resources availability
	37	6.2 Budget allocation and distribution at local level
	38	6.3 Budget allocation for planning
	39	6.4 Budget allocation for implementation
	40	6.5 Incentives for private sector
Vulnerability and Risk Assessment	41	7.1 Ability to conduct risk and vulnerability assessments
	42	7.2 Hazard assessments
	43	7.3 Integrated vulnerability and risk assessments
	44	7.4 Alignment of vulnerability and risk assessments with justice and equity principles
	45	7.5 Use of vulnerability and risk assessments' results
Innovation Potential Assessment	46	8.1 Framework conditions - Education & Lifelong learning
	47	8.2 Framework conditions - Research System
	48	8.3 Framework conditions - Digitalisation
	49	8.4 Public investments in innovation
	50	8.5 Innovation activities in SME
	51	8.6 Collaboration
	52	8.7 Economic impact of innovation
	53	8.8 Environmental sustainability

Figure 3. List of dimensions and Indicator sheet included in the RRMM validation and assessment template.

Finally, each dimension, including its corresponding indicators was built in one sheet, with validation and assessment questions above, attached to each indicator. Regions were asked to complete these questions and the assessment process for each indicator as shown in the next figure:

1. Regional Governance and Institutional capacity

This dimension aims to assess the level of maturity of the region in terms of governance and institutional capacity. The indicators are informed by the Governance Framework developed by T4.2, looking at four main elements of governance, as introduced in Sub-Chapter 3.4.3: 1) actors in regional adaptation governance; 2) levels of governance; 3) steering instruments; 4) principles of effective governance. Steering instruments are further addressed under Dimension 2 "Plans and policy instruments".

1.1 Political support for a just transition to climate resilience		Validation questions				Assessment
Description of indicator	Description of scoring values	Does your region have competences in the policy area of this indicator?	Is this indicator clear in its content and formulation?	Is this indicator relevant for your region and correctly applies to the regional context?	Would you be able to score the indicator based on this range of options?	Please assign a score to this indicator (0-1-2-3-4).
What level of political support for a just transition to climate resilience exists in your region? Political support for climate resilience is a prerequisite for successful implementation of climate resilience actions. In particular, the new EU Adaptation Strategy aims at achieving climate resilience in a just and fair way. Within the context of R4C, just transition is defined as "the active transformation of the ways how we live, work and govern our society to make it more capable to cope with and adapt to a changing climate and extreme climate events. [...] All societal groups should have the possibility to participate actively and shape this transformative process. Also, the benefits, costs, rights, and responsibilities in this process should be distributed in a fair way, and nobody should be more vulnerable or marginalized because of the transition to climate resilience." (R4C WP2)	4 – Political commitment to a just transition to climate resilience is agreed by regional authorities and fully translated into both planning and implementation 3 – Political commitment to a just transition to climate resilience is shared among regional practitioners and authorities and addressed in at least one key policy instrument 2 – The commitment to a just transition to climate resilience is explicitly endorsed by some regional practitioners and internal discussions across departments are in place to understand how this can be translated into planning and implementation 1 – Some regional practitioners are familiar with the concept of just transition to climate resilience and recognize its values, but this has not been translated in any political commitment nor policy documents 0 – Regional practitioners are not familiar with the concept of just transition to climate resilience	Please explain here and specify who has competences over the area of this indicator (including other levels of government if applicable):	If you have selected an option other than "YES" please explain here and make any suggestions for improvements:	If you have selected an option other than "YES" please explain here and make any suggestions for improvements:	If you have selected an option other than "YES, I can score this indicator" please explain here and make any suggestions for improvements:	Any additional comments here:

Figure 4. Example of one dimension and indicator validation and assessment form included in the template.

2.2.2. Workshop

Based on the first input received from regions, a **workshop** was designed and carried out in April 2024, as part of the R4C annual Consortium Meeting. This "**Validation Workshop: Regional Resilience Maturity Model and Assessment Framework**", consisted of a plenary session where a summary of the validation and assessment process and the feedback gathered was presented, and two practical exercises were carried out.



Figure 5. Picture of the Validation Workshop: Regional Resilience Maturity Model and Assessment Framework held in Sitia during the Consortium Meeting in April 2024.

- **Exercise 1:** Gathering input to adjust the model and indicators: iterative process guided by moderators in which the regions (paired by similarities in the CRML), selected a RRMM indicator of particular interest for the region and engaged in a semi-structured interview with the region they were paired with. Discussions about their roles, envisioned improvements, and identified constraints and synergies were promoted.

Exercise 1 (40 min)

1° round
Peer-interview



2° round
Peer-interview



15 min

For the topic selected, region A asks region B:

- What do you think is the most important role of your region in this topic? Compared to and in relation to other levels of government (municipalities, national level...)
- How could your region improve in this topic? How would an improved situation look like for your region?
- What are constraints to get to an improved situation?

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Figure 6. RRMM validation workshop. Peer to peer interview questions.

- **Exercise 2:** Digital Tool Validation: with the aim of gathering feedback on the digital tool, a first tester was made available for the regions, together with a questionnaire about the digital tool and improvement areas of it in order to facilitate the user experience.

Exercise 2 (35 min) Gathering feedback on the digital tool

09:40 – 09:55 → 20 minutes

PART 1 – general feedback

Task for each region:

- Login with the TEMPORARY USER ACCOUNTS that you find in the printed sheets
- Explore the digital tool
- Try to start a new resilience assessment
- Answer to questions related to **part 1** → take notes on the paper

Roles of RTOs: support regional partner, provide a laptop with access to digital tool.

09:55 – 10:10 → 15 minutes

PART 2 – feedback on results visualisation

Task for each region:

- Answer to the questions related to **part 2** → take notes on the paper

Roles of RTOs: support regional partner, facilitate discussion on the various questions.



→ www.resiliencematurity.eu

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Figure 7. RRMM validation workshop. Digital tool.

Results of both sessions are compiled and described in the next section, **3. Results of validation process of the R4C's Regional Resilience Maturity Model.**

3. Results of the validation process of the R4C's Regional Resilience Maturity Model

This chapter aims to give an overview of the main feedback received throughout the validation process and provide explanation as to how it was integrated into the updated version of the Regional Resilience Maturity Model and digital tool.

3.1. Results of validation with R4C regions

As outlined in the previous chapter, feedback over the RRMM was collected through:

- *Presentation of the RRMM to all 12 regions in December 2023.*
- *A validation form completed by each region (Excel).*
- *A workshop held during the 2024 Consortium Meeting in Sitia.*

The validation process has been carried out by the regional authorities with the support of the representatives from the Research and Technology Organizations (RTOs) that assist them during the R4C activities.

An overview of the feedback points collected from regions about the digital tool during the workshop held in Sitia can be found in Annex 7.1.

A detailed table containing the feedback collected for each indicator from each region through the completion of the validation Excel form is used internally within the project consortium. The table below offers a summary, including examples of the main feedback points collected throughout the validation process with regions, including the workshop held at the Consortium Meeting. The table is structured following the structure of the Excel validation form completed by regions. For simplicity, feedback provided answering the question “Is this indicator relevant for your region and correctly applies to the regional context?” and the question “Does your region have competences in the policy area of this indicator?” were merged, as regions often repeated the same information in both cells.

As can be seen from the table, regions encountered a few obstacles when conducting the validation of the RRMM model and its preliminary assessment. The main issue faced by regional partners was the fact that they did not see their regional governance characteristics reflected in the indicators' formulation. This was due to the many differences between the regions and the difficulty in capturing all their contexts. Often, regions indicated the difficulty of discerning what “region” they should refer to when completing the assessment, especially when the region participating in R4C does not correspond to an administrative body in the respective country. Another important obstacle was the fact that the people conducting the validation did not feel in the position to respond in a way that correctly represents their region or did not have enough information.

After the feedback is collected, the results of the validation process and the adjustment proposed for the RRMM are presented in sections 3.2 and 3.3.

Topics / Dimensions	General Feedback / Completeness of dimension's indicators	Indicators' relevance for regional context and regional competences in the indicators' policy areas	Indicators' clarity (content and formulation)	Region's capacity to assign a score to the indicators, based on the range of options provided
Overall model and digital tool	In general, positive feedback regarding the relevance and appropriateness of the indicators constituting the model. Request to better explain the objective of the tool and how it should be used. How to avoid bias / inconsistency from one assessment round to the other, if the people conducting the assessment change? Define an assessment process including multi-stakeholder workshops to reduce subjectivity? The list of indicators is very complete, and each indicator is described in enough detail so that the assessment process can even be used to educate regional actors. However, can be a too lengthy process: need to simplify or reduce the number of indicators.	Some regions were unable to assess certain indicators because, even if the indicators were clear and relevant, they did not reflect their specific regional context and governance characteristics. Indicators should be rephrased /adjusted in order to reflect a variety of regional contexts, including the case in which the region does not have any legislative or formal political authority regarding climate resilience.	Avoid redundancy between indicators. Define terms clearly. Simplify and shorten indicators' descriptions.	In general, appropriate, and sufficient scoring options. Suggestions to edit specific indicators were made.
Dimension 1: Regional Governance and	More emphasis should be put on multi-level governance and coordination, to better capture the role of regions in reference to other levels of government.	Resilience governance responsibilities are often shared by the region with other governance levels (e.g.,	Unclear what actors should be considered when assessing cross-border cooperation: cooperation	Generally, most of the regions are able to give a score, one region highlighted the assessment descriptions do not

Institutional capacity

conglomeration of municipalities, other sub-regional government administrations etc.). How to assess level of maturity when competences are shared / policy areas are managed at different levels?

between “same-level” actors (e.g. region-region) can look very different from cooperation between actors at different levels (e.g. region-EU). Variation also depending on topics.

reflect the regional context, since the region does not have legislative or formal political authority regarding climate resilience.

Dimension 2: Plans and policy instruments

Some indicators imply that the region has a resilience or adaptation strategy / plan, but some regions do not have authority to make such plans: either allow them to skip these indicators or adjust indicators in a way that can better reflect their specific situation e.g., capture how regions support municipalities in their action plans.

Example: Troodos region has limited power to shape the design of the emergency response plan, as responsibility for this lies within the Department of Forest and the Department of Civil Defense. However, the region collaborates closely with these departments.

Some regions do not have a resilience/climate adaptation strategy. How to include this case in the assessment? E.g., region has general regional development strategy, not specific for resilience or adaptation; region has no relevant strategy, but municipalities do.

The number of policies doesn't need to be representative of mainstreaming, instead of number it could be separated by sectors (primary sector, industry etc.)

Some indicators are unclear.

Unclearness of term Nodality, need to change the term.

The scores don't include the complementarity between national adaptation strategy and regional one. Most of the regions can score the indicators of Dim. 2

Dimension 3: Human resources and technical skills

Many regions struggle with lack of staff and/ or have difficulties in hiring new staff.

Indicators are relevant. How should they be assessed in the case that the region does not have staff allocated to climate

In some indicators, unclear if “staff” refers to public administration staff or climate change staff/expertise in general in the region (i.e.,

Need additional score for the situation in which staff roles and responsibilities are clear, but there is not sufficient staff.

adaptation because they do not have authority in that realm?

including research centers etc.).

Dimension 4: Participatory governance and stakeholder engagement

Indicators only partially capture the regional networks of actors and the regional role in facilitating stakeholder engagement taking place at municipal level.

Many regions do stakeholder engagement (including stakeholder mapping, stakeholder engagement plan etc.) when working on specific climate adaptation / resilience projects, but do not implement stakeholder engagement in a structured way beyond those projects, since the authority for that lies at other government levels.

Some wordings of indicators are unclear, will need to be adjusted, together with the specification of regional role on stakeholder engagement. Maybe specifying which kind of stakeholders need to be engaged at regional level and which ones at local level.

In the score it should be specified the support to municipalities in stakeholders' engagement, since mostly municipalities engage with local stakeholders in climate change adaptation planning.

How to better specify the role of regions?

Differentiate between:

- Stakeholder engagement in specific projects if the region does not have authority on climate adaptation in general
- More comprehensive stakeholder engagement framework/processes if the region has authority on climate adaptation

**Dimension 5:
Public support,
awareness and
climate change
communication**

Many regions state they do not have competence in climate change communication, while the local level and university do.

Dimension could be expanded to assess whether analysis of public perception and awareness is conducted at other levels or by other institutions, and whether the region is aware of it, integrates the knowledge in policymaking, and supports research in this realm at lower levels of government. Broaden the scope of the indicators beyond communication.

Some regions do not have competences when it comes to communication of climate risks (responsibility of other levels): the indicators are only relevant if focusing on specific projects the region is engaged in.

Most regions evaluate indicators as clear.

Some indicators are unclear, mostly because of not responsibility of some regions in climate change communication.

When it comes to analysis of public perception of climate change / acceptance of policies, would need a further option to reflect the case in which the analysis is available but not conducted by the region (e.g., when research is conducted by universities).

**Dimension 6:
Financial
capabilities**

Many regions engage with funding programmes etc. when participating in specific projects: indicators should be differentiated enough to capture this.

Difficult to assess when region does not have legal responsibility on climate resilience/adaptation. How to capture the case in which the region mainly acts through specific projects? How to capture role of regions if they do not have legal authority on climate adaptation, but rather support municipalities?

Some indicators are imprecise.

Some regions cannot score these indicators because they do not have direct responsibility in this realm.

**Dimension 7:
Vulnerability and
Risk Assessment**

Incomplete: there is a lot of variability depending on the specific hazard, but indicators are not broken down to such detail.

Many regions do not have the mandate / responsibility to conduct vulnerability and risk assessments / monitoring. Or the

It is unclear in certain indicators whether the question is whether the monitoring and assessments

Difficult to assess when scope is unclear.

region has partial competence, shared with other levels e.g., national.	are done in general and can be accessed by the regional government, or whether the region itself conducts them.	e.g., indicator 7.4 on “alignment of vulnerability and risk assessments with justice and equity principles”: region might be performing the VR assessments, but the criteria to decide whether these consider or not justice and equity dimension are not clear.
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**Dimension 8:
Innovation
Potential
Assessment**

Not aligned with the rest of the model, as this is more quantitative, whereas the rest of the indicators include more qualitative self-assessment questions

For some regions, certain components of this dimension are managed by the national level: the indicators are relevant but hard to assess especially when they do not concern the regional level.

Some indicators are unclear or imprecise in some parts.

Most regions struggling to access the data needed to assess these indicators (the RIS does not specify or distinguish between impact topics, i.e., on climate adaptation): suggestions to turn into qualitative self-assessment like the other dimensions, or to eliminate to simplify the model.

3.2. Results of internal validation

In addition to the feedback collected from regions, an internal process of validation and reflection was conducted at ICLEI Europe. This process aimed at a general alignment of the model with the *Climate Change Adaptation Mission Implementation Plan* and the Regional Resilience Journey (RRJ), the conceptual framework developed by the project Pathways2Resilience to support regions and communities in their transition to climate resilience through a transformational adaptation approach. Particular attention was dedicated to including considerations in the RRMM more explicitly regarding the Key Enabling Conditions as fundamental framework (see figure 9 and figure 10 below). Moreover, the internal validation enabled the refinement of dimensions and indicators, based on the organisation's expertise. The overall objective of this process was to develop a digital tool that more coherently reflects the conceptual framework provided under the EU Mission on Adaptation, to contribute to a shared understanding of climate resilience maturity. This is intended to facilitate the future integration of the digital tool within other tools and platforms part of the Mission on Adaptation landscape.

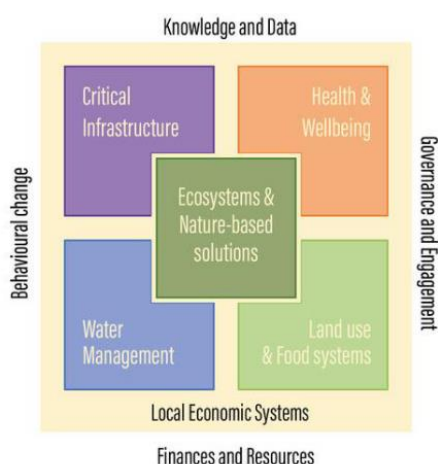


Figure 8. Overview of Key Enabling Conditions and Key Community Systems addressed by the Mission, from Draft Implementation Plan – Climate Change Adaptation Mission, European Commission

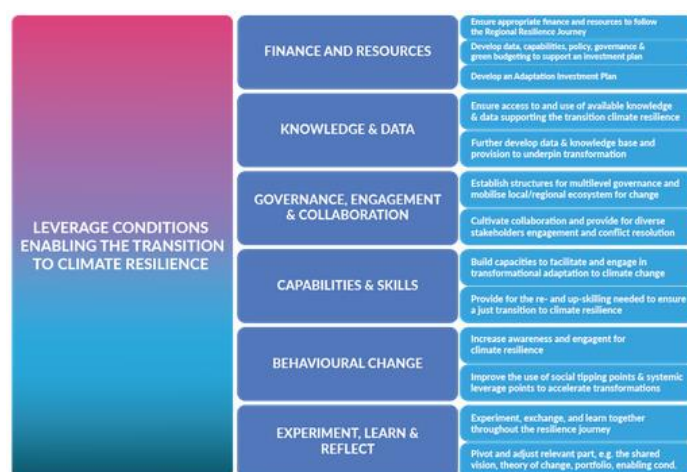


Figure 9. Key Enabling Conditions as part of Pathways2Resilience's Regional Resilience Journey (RRJ)⁸

Topics / Dimensions	Results of internal validation and alignment with Pathways2Resilience (P2R) project and CC Adaptation Mission Implementation Plan
Overall model and digital tool	Include more explicitly transformational dimension. Adjust the digital tool in a way that is less R4C-specific and more generally applicable. Include clearer instructions regarding who shall conduct the assessment.
Dimension 1: Regional Governance and Institutional capacity	Ideally, a region is climate resilience mature also when its municipalities are climate resilience mature. Include more indicators capturing the region's role of cooperation / support. Higher level of autonomy does not necessarily result in higher level of maturity.
Dimension 2: Plans and policy instruments	Ideal scenario would be for regions to develop a plan to better coordinate their work on climate adaptation even if they do not have authority on this area / are not mandated to develop a resilience or adaptation plan / strategy.
Dimension 3: Human resources and technical skills	Include more explicit assessment of behavioural change as a key enabling condition (incl. reskilling of regional staff according to a co-created future vision). Need to better articulate the scoring options and include reflections about budget allocation for staff training.
Dimension 4: Participatory governance and stakeholder engagement	When assessing engagement of private sector stakeholders, there are missing indicators assessing the existence of policy instruments to trigger behavioural change in key industries. Moreover, indicator should be more explicit when assessing whether engagement with the private sector maintains public interest as core (not only a balance between public and private interests).
Dimension 5: Public support, awareness, and climate change communication	Include more explicit assessment of behavioural change as a key enabling condition. Title could be changed to "Behavioural change and awareness". Include indicator assessing public awareness about social reskilling related to the co-defined future resilience scenario. Better articulate assessment of how the region disseminates scientific information and good adaptation practices (including behavioural change practices) to the general public.
Dimension 6: Financial capabilities	Include indicators assessing regulatory framework that might hinder access to funding. Missing consideration of financing along the whole resilience cycle, from planning to implementation. Indicators need to be reviewed to clearly distinguish between the assessments of: 1) maturity of capacity to identify investment needs, 2) maturity to access funding,

3) maturity to develop strategic approach for allocation and use of financial resources.

Need to better define some terms e.g., transparency. This dimension should assess the region's resources and capacity to finance transformative adaptation, including sustaining financing in the long-term and in uncertain conditions. This includes the development of a Resilience Investment Plan and the collaborative development of regional investment strategies.

**Dimension 7:
Vulnerability and Risk
Assessment**

The focus should be larger, to encompass Data and Knowledge and not only Vulnerability and Risk Assessment. Focus should not be only on risks and vulnerability, but also on impacts, including historical impacts of climate change in the region. The availability of human resources and skills to conduct vulnerability and risk assessment is assessed within dimension 3: this dimension should focus on the availability and quality of data.

**Dimension 8:
Innovation Potential
Assessment**

Some elements contributing to innovation potential are already included in other indicators or can be better included. Assessment approach needs to be harmonized with the rest of the model (qualitative self-assessment).

3.3. Adjustment of RRMM and digital tool

Based on the feedback points outlined above, the RRMM model and its set of indicators were adjusted, as well as the assessment approach featured in the digital tool.

This section sheds light on some of the main adjustments made to the digital tool as a whole, to reflect the feedback collected. The more specific adjustments made to the various indicators and dimensions (e.g., rephrasing, adding a scoring option etc.) are visible in the digital tool, to be delivered by the end of June 2024 (Milestone 33).

Clarification of the tool's objective

In order to clarify the objective of the Climate Resilience Maturity Assessment for Regions, more information was included in the digital tool, explaining its goal as a tool for reflection and guidance, for regions to better understand their resilience-building process and identify areas for improvements.

Assessment of regional governance characteristics

Based on the feedback collected, an additional introductory dimension was added to the digital tool, including questions related to the region's governance context and characteristics.

For the first assessment taking place in 2025, this dimension can be pre-filled for R4C regions based on the data collected within T4.2 and T4.4, especially through the joint survey.

Tailoring of indicators based on regional governance characteristics and competences

The main piece of feedback collected from regions centered around the fact that many indicators did not sufficiently reflect the specific governance characteristics and competences of the region. In order to address this gap, the indicators were adjusted in a way that would allow for answers to be tailored based on the responsibilities and limitations of regional authorities, according to the following rationale: “if the region does not have the competence to act in this policy area, does the local level instead? And what is the role of the region in this (e.g., supporting the local level, acting as coordinator between local and national level...)?”.

For each indicator, the option to select “does not apply” already existed. The adjustment of the assessment approach entailed the following:

- *If region selects “does not apply” (for example if the region does not have a climate adaptation plan / strategy), they should provide an explanation of why the indicator does not apply.*
- *They are required to answer, “Why does the indicator not apply”, by choosing between the options:*
 - *“This indicator applies to another level of government: municipal / local / sub-regional level” → the region is requested to provide further information, answering the question “What does the region do in this realm?”*
 - *“This indicator applies to another level of government: national level” → the region is requested to provide further information, answering the question “What does the region do in this realm?”*
 - *“Do not know” → the region is requested to provide further information.*
 - *“Other: please explain briefly” → the region is requested to provide further information.*
- *When selecting “does not apply”, this does not imply scoring “zero” for that indicator: rather, the indicator is not considered in the calculation of the final percentage score for that dimension. The rationale behind this is to evaluate the region’s maturity based on its actual scope of action and its governance context.*

Dimension 7: Vulnerability and Risk Assessment

The title of the dimension was changed from “Vulnerability and Risk Assessment” to “Data and Knowledge”, in order to improve the dimension’s comprehensiveness. Indicators were adjusted accordingly.

Dimension 8: Innovation Potential Assessment

This dimension was deleted in order to maintain coherence within the model in terms of the selected assessment approach (qualitative self-assessment) and to simplify the tool, responding to the feedback collected. This decision was based on the reflection that innovation-related indicators were already partially captured in other dimensions and that data about regional innovation potential is currently being collected and processed through other R4C tasks (WP6). The approach agreed with SPI (WP6 lead) entails a reflection, during the next steps of the digital tool adjustment, on how to further integrate innovation-related indicators, based on the results of the work conducted in WP6.

Assessment process and instructions

Responding to the feedback collected, more information was included in the digital tool regarding the assessment process, including details on who shall conduct the assessment and how, and the estimated time needed to complete the assessment.

This included specifying how the assessment shall not be conducted by one single person per region: it is important that the assessment takes place as a collaborative process between regional practitioners responsible for various sectors.

A question was added in the introductory dimension, asking information about who conducted the assessment and asking the user to acknowledge the need to perform the assessment in a collaborative way.

Digital tool: results visualisation

Based on the feedback collected from regions, these features are being evaluated in order to be included in the Climate Resilience Dashboards (Task 7.4 – Revolve):

- Results should be visualised to show progress from one assessment to the next one:
- Results should include narrative explanations of why and what factors influenced the changes / improvements, in order to explain what is behind the score and facilitate peer-learning (especially explanation of highest scores).
- Regional governance characteristics and results of the RRMM should be visualized together in the Dashboards, so users can contextualise the results. Ideally, this will be done through a “governance profile factsheet”, building on the regional governance profiles developed within T4.2.

3.4. Way forward

We expect the development of the digital tool to be an iterative process until the end of the project. In fact, the next years will constitute a first phase of use of the tool and validation with the 12 R4C regions and we expect that adjustments will be made, based on continuous feedback collection. A second phase of dissemination beyond R4C will be explored, with the aim of testing the refined tool with a wider set of regions.

We will explore the option to allow each region to select a set of 20 priority indicators out of the entire set, in order to make the assessment process less resource intensive.

It is expected that the use of the digital tool will shed more light on the ways in which the regional governance contexts influence the respective climate resilience maturity scores. At project end, an envisaged development of the tool entails the tailoring of questions based on a clustering of regional governance characteristics.

4. RRMM: Preliminary First assessment

4.1. Data gathering and results visualisation approach

As described in section 2.2, the data gathering for each region's CRML Assessment was carried out in parallel with the validation process explained in the previous section. Therefore, regions were asked to provide scores for each of the indicators presented, based on the parameters, and scoring definitions described in the model (see Tables 2-3 in Section 1.3, and section 2.1).

The information collected from the different regions following the methodology explained in Section 2. RRMM Validation and Assessment Methodology, includes responses to a number of questions per indicator. Three of these questions were used for the validation process and one question referred to the assessment and scoring system. This first analysis has been conducted using the information collected through this one assessment question included in the validation and assessment template. See Table 5. RRMM validation and assessment questions included in the template for more information about the question and the scoring system.

The validation and assessment templates took a long time for R4C partner regions to complete mainly because of the length of the process (4 question and a scoring per each indicator) and because of the complexity of the regional contexts in each case.

One of the most challenging factors for regions to provide the data required, lied on the Governance structure of each region and its particularities, as indicated in the validation feedback collection process (section 3). As described by T4.2 *Regional adaptation governance framework*, the definition of governance is considered as a societal decision-making, which takes place across the local, to the international levels. More specifically, governance is considered to mean a set of institutions and actors that are drawn from, but also beyond government with a blurring of responsibilities for tackling climate change issues, emerging in networks with varying degrees of power and steering instruments (Stoker, 1998). Therefore, T4.2 proposes a regional adaptation governance framework that builds on four core categories each including a series of attributes:

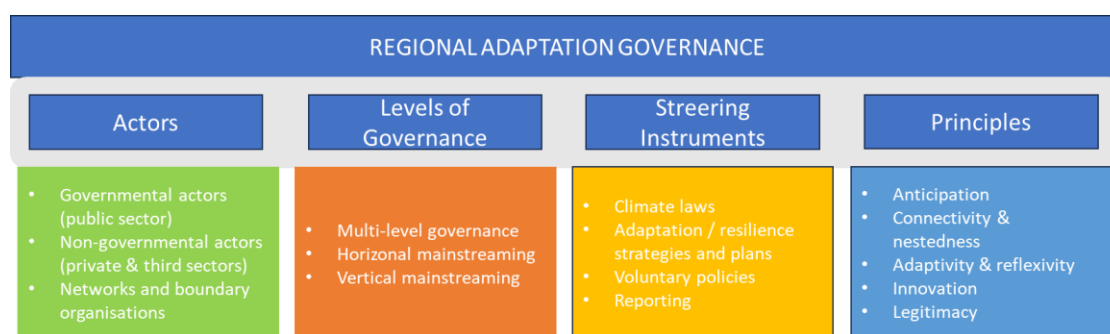


Figure 10. Elements and attributes of regional adaptation governance (Figure adapted from T4.2, UH).

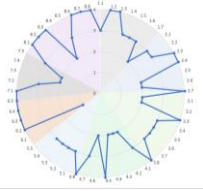
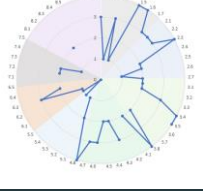
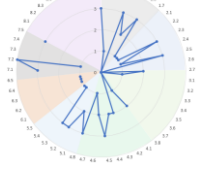
This preliminary CRML assessment considers these nuances and tries to analyse the results from a diverse perspective, considering the specificities of each region. The visualisation of the assessment has been developed according to the visualisation proposed for the digital tool to be developed (see D4.1), via spider graphs per region and per indicator and region.

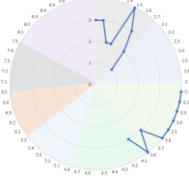
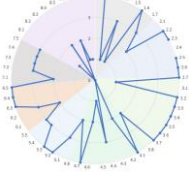
As part of this preliminary CRML assessment process, a graphic representation of the results per region for all dimensions, as well as a global figure representing regions preliminary CRML has been developed and it is available to R4C regions and partners.

This visualisation allows for a quicker and clearer understanding of the current situation and the different areas for improvement. The global visualisation facilitates the detection of the indicators to be addressed and improved within the project lifetime.

This first assessment is considered a **pre-assessment**, since thanks to the participation and inputs from the regions, the RRMM has been improved and next assessment (2025) will be carried out using the final RRMM transposed into a digital tool.

At the time this deliverable was submitted, all the 12 partner regions had completed the validation and assessment process. Some of these regions were able to complete the assessment process with no major issues and other region found some challenges to complete the assessment of all the indicators for a variety of reasons already described in the validation chapter 3. Here is a summary of the completion rates and main challenges found by regions in relation to scoring the indicators:

Region	CRML visual	Completion rates	Main challenges to assess
Basque Country		All dimensions addressed Missing indicator(s): 5.5	Some indicators scoring definitions were confusing, or there weren't enough options to reflect the region's reality (see validation section 3).
Tuscany		All dimensions addressed Missing indicator(s): 1.7 / 2.6	Some indicators scoring definitions were confusing (see validation section 3). The person completing the assessment did not have enough information in some cases.
Azores		All dimensions addressed Missing indicator(s): 3.6 / 4.2 / 6.5 / 7.1 / 7.5 / 8.1 / 8.2 / 8.4 / 8.5 / 8.6 / 8.7 / 8.8	Some indicators scoring definitions were confusing (see validation section 3) or needed additional options (6.5, 7.1, 7.5). The person completing the assessment did not have enough information in some cases.
South Aquitaine		Missing dimensions: Dimension 8 Missing indicator(s): 3.3 / 3.4 / 3.5 / 3.6 / 3.7 / 6.1 / 6.5 / 7.4	Dimension 8 is based on the <i>EU Regional Innovation Scoreboard</i> ⁹ that not all EU regions complete. The person completing the assessment did not have enough information in some cases (dimensions 3, 6). Some indicators scoring definitions were confusing (see validation section 3).

Køge Bay		Missing dimensions: Dimension 7 Missing indicator(s): 1.1 / 1.2 / 1.6 / 1.7 / 2.2 / 2.5 / 3.2 / 3.5 / 3.6 / 3.7 / 5.1 / 5.2 / 5.3 / 5.5 / 6.1 / 6.5	The difficulties for the region to complete the assessment were related to their regional governance and policy context as most competencies rely on the state or municipality levels, being the region a coordination organism. The model does not include enough options for regions with no specific competences (see validation section 3). Some of these indicators do not apply to the region's governance context (i.e. no need to hire staff as it's not their competence).
Pärnumaa		All dimensions addressed Missing indicator(s): 8.4 / 8.5 / 8.6	The county of Pärnumaa consist of local government units that co-operate as a union of local governments, but union decisions are not binding. The county consists of 6 parishes and the City of Pärnu so the scoring has been provided as an overview for all of them. Dimension 8 does not include data specifically on climate aspects and this is why some regions decided not to respond instead of providing the scoring from the <i>EU regional innovation scorecard</i>.
Uusimaa		Missing dimensions: Dimension 5, 6, 7, 8 Missing indicator(s): 2.2 / 2.3 / 2.4 / 2.5 / 2.6 / 2.7 / 4.2 / 4.3 / 4.4 / 4.5 / 4.6 / 4.7 / 4.8	Uusimaa has no self-governing or legislative power, but they act as a coordinator to implement the national steered climate resilience strategy. This is probably why Governance (D1), and Human Resources (D3) related indicators were most covered. The difficulties to complete the assessment were related to the governance context of the region. Dimension 8 is based on the <i>EU Regional Innovation Scoreboard</i> that not all EU regions complete.
Burgas		All dimensions addressed Missing indicator(s): 2.3 / 7.5	Burgas has considered the municipality context to complete the assessment as these could be tricky otherwise without self-governing and legislative competences. It is to be considered in future assessments how to address the region as a whole when regions have municipal or nationally steered adaptation.

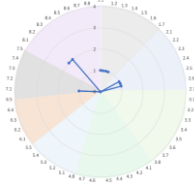
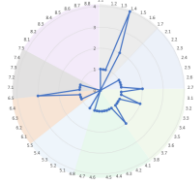
Sitia		Missing dimensions: Dimension 8 Missing indicator(s): 1.6 / 2.4 / 3.3 / 4.8 / 5.3 / 6.3 / 6.5 / 7.4	The person completing the assessment did not have enough information in most cases where scoring was left blank. Dimension 8 is based on the <i>EU Regional Innovation Scoreboard</i> that not all EU regions complete.
Nordic Archipelago		All dimensions addressed Missing indicator(s): 2.4 / 2.6 / 6.2 / 8.2 / 8.4 / 8.5 / 8.6 / 8.7 / 8.8	The person completing the assessment did not have enough information in most cases where scoring was left blank. Dimension 8 is based on the <i>EU Regional Innovation Scoreboard</i> that not all EU regions complete.
Troodos		All dimensions addressed Missing indicator(s): 8.1 / 8.6 / 8.7 / 8.8	Governance in Cyprus is very centralised. The region of Troodos does not have enough governance and legislative powers. Local government will be undergoing reform on 1st of July 2024, and it is hoped that with the merging of local authorities to form larger structures coordination will improve. This is why lots of indicators were scored "0". Dimension 8 is based on the <i>EU Regional Innovation Scoreboard</i> that not all EU regions complete.
Castilla y León		All dimensions addressed	Castilla y León is facing shortage in staff, and they are in the process to hire personnel for the R4C project, and the region had some issues to complete the assessment. Some of the indicators were confusing. The person completing the assessment did not have enough information in some cases such as for dimension 8.

Table 6. Summary of CRML assessment completion rates and main challenges found by R4C partner regions.

4.2. Assessment of results per RRMM dimension

4.2.1. Dimension 1: Regional Governance and Institutional capacity

This dimension aims to assess the level of maturity of the region in terms of governance and institutional capacity. The indicators are informed by the Governance Framework developed by T4.2, looking at four main elements of governance: 1) actors in regional adaptation governance; 2) levels of governance; 3) steering instruments; 4) principles of effective governance. The indicators measured to understand Regional Governance and Institutional capacity are as follows:

Dimensions	Indicators
Regional Governance and Institutional capacity	1 1.1 Political support for a just transition to climate resilience
	2 1.2 Regional governance structures for cross-sectoral coordination
	3 1.3 Governance structures for multi-level (vertical) coordination
	4 1.4 Governance structures for cross-border cooperation (across administrative boundaries)
	5 1.5 Engagement in networks
	6 1.6 Anticipatory governance
	7 1.7 Region's monitoring and evaluation system

Table 7. RRMM indicators related to Dimension 1. Regional Governance and Institutional Capacity.

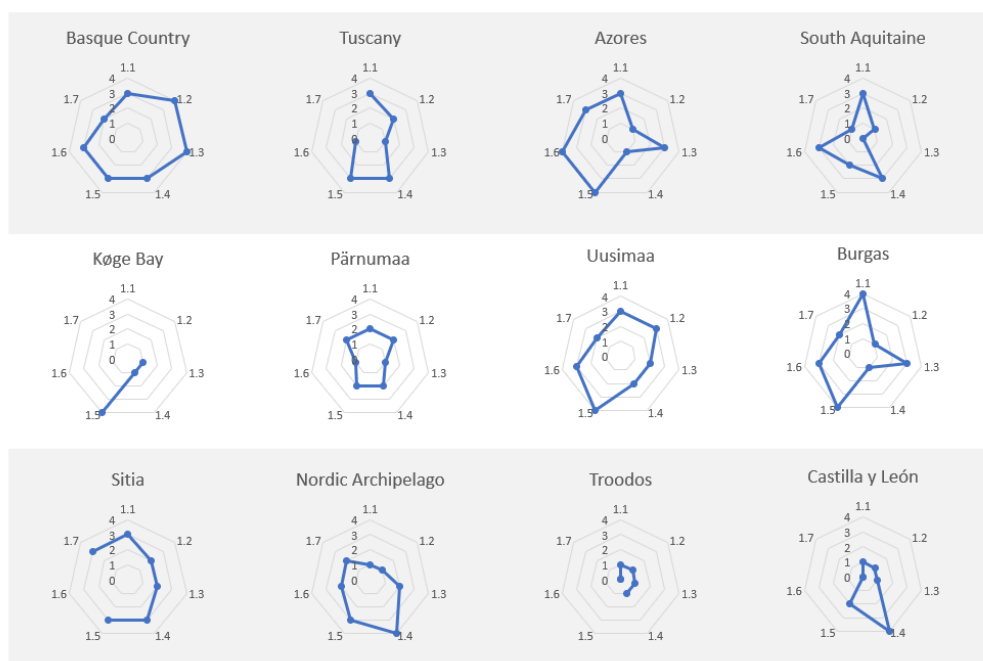


Figure 11. Graphical representation of Dimension 1 indicators by region.

4.2.1.1. R4C regions CRML in Dimension 1

Degree of completion	Dimension 1 has been fully completed by 8 regions, and partially completed by 4 regions.
Main findings	Basque Country, Tuscany, South Aquitaine, Sitia, Nordic Archipelago and Castilla y León, indicate to have, or to be in the process to develop “1.4 Governance structures for cross-border cooperation (across administrative boundaries)” (>3) in place. In relation to “1.6 Anticipatory governance” capacity, Azores is the only region considering several climate scenarios for its monitoring and evaluation, assessment of risks, opportunities, and alternatives allowing for timely adjustments (=4). Basque Country, South Aquitaine Uusimaa and Burgas consider one most plausible scenario with monitoring and evaluation mechanisms in place and adjustments to adaptation being institutionalized (=3). The indicator does not seem to apply to Køge Bay and Sitia. Basque Country, Azores, Burgas, Køge Bay, Uusimaa, Burgas, Sitia and Nordic Archipelago, present strength in “1.5 engagement in networks” (>3), with regions participating proactively in regional, national and international networks or with established internal structures and processes to coordinate and manage these networks. Basque Country, Tuscany, Azores, South Aquitaine, Uusimaa, Burgas and Sitia indicate a good “1.1 Political support for a just transition to climate resilience” (>3), with political commitment to a just transition to climate resilience is shared among regional practitioners and authorities and addressed in at least one key policy instrument. Basque Country and Uusimaa seem to have established “1.2 Regional governance structures for cross-sectoral coordination” (>3) and the Basque Country and Azores show that “1.3 Governance structures for multi-level (vertical) coordination” are in place (=4) on key (climate-related) sectors. Azores and Sitia consider they have “Intermediate Monitoring and Evaluation (MRE) systems” for indicator “1.7 Region's monitoring and evaluation system” but the rest of regions range from basic (2) to absence (0) of monitoring and evaluation systems (MRE). Some differences are observed among the above conclusions, for regions such as Køge Bay or Troodos. Most regions seemed to consider that they perform well or at least address some of these indicators. This is independent to their governance structures as some of these regions have self-governing and legislative power and others don't. Whereas Køge Bay and Troodos have considered that either couldn't respond to most indicators as they did not reflect the specific governance characteristics of their region or considered they had low overall governance capacity as a region respectively. These differences might be related to the need to better clarify the scope and definitions of what the RRMM considers a “region” as well as

the definitions of some of these indicators as concluded during the validation process (see section 3).

**Overall
regional
governance
and
institutional
capacity**

Basque Region, Azores, Uusimaa, Burgas and Sitia seem to have the highest coverage in relation to the Regional Governance and Institutional capacity indicators, although some indicators such as “1.7 Region's monitoring and evaluation system”, “1.3 Governance structures for multi-level (vertical) coordination”, or “1.4 Governance structures for cross-border cooperation (across administrative boundaries)” seem to be areas for improvement.

Basque Country, Azores, Sitia and Castilla y León, are regions with self-governing and/or legislative capacities and regionally steered adaptation approaches. This might be a reason for these regions to score higher in relation to regional governance and institutional capacity. In Uusimaa, despite not being self-governed or having legislative capacity, the region is well coordinated with municipalities that are the ones with competences in adaptation relevant sectors.

Tuscany and Pärnumaa seem to follow an overall similar pattern in terms of addressing this dimension, with Tuscany slightly ahead in relation to indicators “1.1 Political support for a just transition to climate resilience”, “1.4 Governance structures for cross-border cooperation (across administrative boundaries)”, and “1.5. Engagement in networks”.

Overall, the greatest challenge faced by regions in the assessment of this dimension was represented by the diversity between regions' competences in climate adaptation-related matters, as indicated in the validation process (section 3). While some regions' context was adequately captured in the indicators' framing (including the indicator's description and the available scoring options), other regions did not feel correctly reflected, because their administrative set-up and/or formal competences differed from that of a regional body with self-governing capacity and legislative authority over climate adaptation, which was used as a model in the initial development of the RRMM. This challenge is expected to improve during the R4C project lifetime when the tool is adjusted to better reflect R4C partner regions' feedback collected during the validation of the model and in future assessment processes.

4.2.2. Dimension 2: Plans and policy instruments

This dimension is based on the idea that the region's climate resilience-building process can be supported by having an appropriate set of planning, regulatory and policy instruments. The identification of clear policy targets and systems to regularly assess the region's progress against them is also considered as a key contributor to climate resilience maturity. Regional policy instruments and targets should be aligned with climate resilience objectives, including principles and objectives to achieve a socially just transition to climate resilience, as well as to SDGs and macro-regional strategies. The indicators measured to understand the existing and planned plans and policy instruments are as follows:

Dimensions	Indicators		
Plans and policy instruments	8	2.1	Political support for a just transition to climate resilience
	9	2.2	Regional governance structures for cross-sectoral coordination
	10	2.3	Governance structures for multi-level (vertical) coordination
	11	2.4	Governance structures for cross-border cooperation (across administrative boundaries)
	12	2.5	Engagement in networks
	13	2.6	Anticipatory governance
	14	2.7	Region's monitoring and evaluation system

Table 8. RRMM indicators related to Dimension 2 Plans and policy instruments.



Figure 12. Graphical representation of Dimension 2 indicators by region.

4.2.2.1. R4C regions CRML in Dimension 2

Degree of completion	Dimension 2 has been fully completed by 6 regions, and partially completed by 6 regions.
Main findings	Basque Country and Azores are strong (=4) in “2.3 Policy instruments supporting regional resilience-building” meaning that these two regions count with the three types of policy instruments considered by the RRMM to support climate resilience-building: policy frameworks/strategies/plans, systems in place for Monitoring, reporting and evaluation (MRE), and economic measures to incentivize adaptation efforts. South Aquitaine, Sitia, and Nordic Archipelago indicate having at least two types of policy instruments in place (=3). The rest of the regions have at least one policy instruments in place. Basque Country, Tuscany and Nordic Archipelago seem to have measures in place to tackle identified gaps between regional policy instruments and relevant SDGs in relation to indicator “2.7 Assessment of region's progress towards relevant SDGs” (>3), whereas for the rest of the regions, although SDGs have been identified, these seem to be somewhat disconnected from regional climate resilience planning and monitoring systems. Basque Country, Tuscany and Burgas have performed well towards “2.4 Mainstreaming of climate resilience into other regional sectoral plans and strategies” (>3) aligning climate resilience in all or at least three sectoral policies respectively. A few of regions have 1 or 2 or no sectoral policies that mainstream climate resilience (Azores, Køge Bay and Pärnumaa) but others were not able to respond to this question (Uusimaa, Sitia and Nordic Archipelago). South Aquitaine, Burgas and Sitia are ahead in “2.5 Regional plan or strategy for emergency response” regularly updating its regional emergency response plan and cooperating with critical infrastructure providers. This indicator seems to have room for improvement for most regions, all having some sort of emergency plan but with work to do in relation to effective Disaster Risk Reduction (DRR) and Disaster Risk Management (DRM). Indicator “2.6 Alignment of existing policy instruments with regional ambitions for a socially just transition to climate resilience” scores low for most regions except for Sitia and Burgas (>3), with values from 1-2 for Basque Country, Azores, Køge Bay and Castilla y León, and 0 for South Aquitaine, Pärnumaa and Troodos. Tuscany, Uusimaa, and Nordic Archipelago were not able to assess this indicator probably because the person completing the assessment did not have enough information. Basque Country, Azores, Burgas and Sitia also score well in “2.1 Regional plan or strategy for climate resilience” (>3) with up-to-date plan/strategies in place for climate adaptation and resilience at regional level. On the contrary, this indicator, also seems to be a point for improvement for most regions, most of them having a plan or strategy in place but with limited or no policy instruments or climate risk, uncertainties and risks associated with unintended consequences and trade-offs considered. This indicator seems to be linked to “2.2 Integration

of planning and regulatory framework for climate resilience” in most cases as if there is a plan in place, efforts to integrate the plan and regulatory instruments are promoted.

**Overall
regional
plans and
policy
instruments**

Basque Region, Azores, Burgas and Sitia seem to have the highest coverage in relation to Plans and policy instruments, although some indicators seem challenging for some of them such as “2.4 Mainstreaming of climate resilience into other regional sectoral plans and strategies” for Azores (>2) and Sitia (absent) or “2.3 Policy instruments supporting climate regional resilience-building” for Burgas (absent).

Basque Country, Azores and Sitia, are regions with self-governing and/or legislative capacities and regionally steered adaptation approaches. Similarly, to “dimension 1: Regional Governance and Institutional capacity”, this might be related with having established appropriate set of planning, regulatory and policy instruments supporting the region's climate resilience-building process. However, Burgas does not have legislative power at the subnational level and yet, many of the indicators were addressed and presented high scores.

Tuscany, South Aquitaine and Pärnumaa seem to have similarities in their overall patterns, with Tuscany slightly ahead in relation to indicators “2.4 Mainstreaming of climate resilience into other regional sectoral plans and strategies” and “2.7 Assessment of region's progress towards relevant SDGs”. On the other hand, South Aquitaine scores higher in “2.3 Policy instruments supporting regional resilience-building” and “2.5 Regional plan or strategy for emergency response”. These regions could learn from each other and share experiences to improve the maturity where most needed.

Planning and policy instrument setting seems to be one of the most diverse dimensions in terms of regions maturity. Probably this is related to the diversity and complexity in policymaking and climate related decision-making competences between different regions. Troodos and Uusimaa had most issues to respond to this dimension indicators, perhaps due to their limited legislative power and competences to develop plans and policy instruments supporting climate resilience-building process. Køge Bay appears to have a fragmented response probably due their role in coordinating climate adaptation initiatives within the region which provides good mainstreaming of climate resilience and alignment with regional ambitions, but it is restrictive when it comes to developing policies and strategies.

4.2.3. Dimension 3: Human resources and technical skills

This dimension aims at assessing skills and competencies available within the regional administration, based on the specific regional context. The goal is to support the region in mapping the available competencies and skills and identify gaps and needs to develop appropriate policies to increase maturity regarding this dimension. These indicators also aim to assess whether the region under examination has the competences and resources to fill identified gaps. The indicators measured to understand Human resources and technical skills available are as follows:

Dimensions	Indicators		
Human resources and technical skills	15	3.1	Staff assigned to the planning and implementation of climate change resilience actions
	16	3.2	Flexibility in staff contracting and allocation
	17	3.3	Staff's competencies. knowledge and skills to understand and use climate change data and information
	18	3.4	Staff's competencies. knowledge and skills to design and conduct effective participatory and stakeholder engagement processes
	19	3.5	Staff's competencies. knowledge and skills to successfully implement the planned climate resilience and adaptation strategies and measures
	20	3.6	Staff's competencies. knowledge and skills to successfully engage in climate change mainstreaming
	21	3.7	Staff's capacity building
	22	3.8	Staff's competencies. knowledge and skills to make use of multiple financing opportunities

Table 9. RRMM indicators related to Dimension 3 Human resources and technical skills.



Figure 13. Graphical representation of Dimension 3 indicators by region.

4.2.3.1. R4C regions CRML in Dimension 3

Degree of completion	Dimension 3 has been fully completed by 7 regions, partially completed by 6 regions.
Main findings	Køge Bay, Uusimaa and Burgas perform well in relation to “3.1 Staff assigned to the planning and implementation of climate change resilience actions” (=4), “3.3 staff’s competencies, knowledge and skills to understand and use climate change data and information”(>3), “3.4 Staff’s competencies, knowledge, and skills to successfully implement the planned climate resilience and adaptation strategy”(=4) and “3.8 staff’s competencies , knowledge, and skills to make use of multiple financing opportunities” (=4). This means that these regions have sufficient staff assigned, and functions, roles and responsibilities among staff are clear, staff possess significant expertise, actively managing climate change data and information, demonstrate advanced competence, having designed, and successfully conducted participatory and stakeholder engagement processes, and managed climate change related financing as an integral part of the regional programming. While the remaining regions (Basque country, Tuscany, Azores, South Aquitaine, Pärnumaa, Sitia, Nordic Archipelago, Troodos, and Castilla y León) perform slightly below (<2) on 3.1, Basque Country, Azores and Nordic Archipelago perform well (>3) in relation to indicators 3.3, 3.4, 3.5, 3.6 (except for Azores) and 3.8. The most challenging indicators for most regions seem to be “3.2 Flexibility in staff contracting and allocation”, either due to inefficient hiring processes and structures, or lack of resources, and “3.6 Staff’s competencies. Knowledge and skills to successfully engage in climate change mainstreaming” where staff might possess education on climate resilience and adaptation strategies but have not implemented it at the regional level.
Overall regional Human resources and technical skills	Dimension 3, which provides insights into how regions perform regarding human resources and technical skills, presents a diversity of coverage patterns when it comes to R4C regions. Basque Country, Uusimaa and Burgas present a wide coverage of indicators, except for 3.1 and 3.2 as described above. These regions emphasize the staff knowledge and skills regarding climate change, participatory and stakeholder engagement processes, and financing opportunities. Being self-governed and having legislative power such as the Basque Country doesn’t necessarily ensure an effective staffing for climate adaptation. Bureaucracy and rigid processes can have an impact on the effectiveness of staff skills and assignment. For Uusimaa for example, a region with information and coordination functions, the legislative competencies are at the national level, while municipalities are self-governing. For carrying out these responsibilities. Therefore, trained staff can be of added value in implementing national wide policies regionally in an effective way. The Basque Country, Sitia, Nordic Archipelago and Castilla y León, present a similar pattern at different scales. These regions could exchange opportunities and challenges for those

indicators where they present similarities (3.3; 3.4; 3.5; 3.6; 3.7; 3.8) and learn from other regions that might have slightly more mature positions for indicators where these, score lower (Uusimaa, Burgas, 3.1; 3.2).

Tuscany and Pärnumaa also show some similarities in their patterns. While Tuscany shows slightly higher average score for dimension 3, in some indicators Pärnumaa performs better. Therefore, considering that their scoring is similar and that they can complement each other with their expertise, these two regions could benefit from knowledge exchange and collaboration actions.

Azores and Sitia show a few similarities in their pattern. While Azores seems to be somewhat ahead in human resources and technical skills, both regions could complement each other to increase their maturity for 3.3, 3.4, 3.5 and 3.6 indicators. The geography of both regions, being islands, could facilitate the replicability of best practices and contextualized solutions to islands' challenges.

Once again Køge Bay presents a fragmented shape, with a high maturity in terms of staff assigned to the planning and implementation of climate change resilience actions (3.1), staff competencies and knowledge to understand and use climate change related data or conduct effective stakeholder engagement processes or make use of financial opportunities. However, other areas such as flexibility in staff contracting, implementation of plans, climate mainstreaming and capacity building lack a response, probably because the region doesn't have staffing competences itself.

South Aquitaine and Troodos also struggled to self-assess their regions based on the RRMM, as a score has not been provided for most of the indicators within dimension 3. These are regions without self-governing and /or legislative capacity, which might impact the self-assessment in this regard these regions having no official competences in implementing climate resilience policies and strategies.

4.2.4. Dimension 4: Participatory governance and stakeholder engagement

The indicators included in this Dimension are based on the idea that the region should develop a stakeholder engagement plan for its climate resilience governance. The definition of climate resilience governance used for the purpose of this model and its relative assessment is the one adopted by R4C's T4.2 Regional adaptation governance framework (see section 4.1). In general, governance is multi-actor, and a variety of stakeholders should be involved in both climate resilience planning and implementation. The indicators measured to understand participatory governance and stakeholder engagement are as follows:

Dimensions	Indicators		
Participatory governance and stakeholder engagement	24	4.1	Participatory governance to enhance coordination and agenda-setting
	25	4.2	Development of a stakeholder engagement plan
	26	4.3	Identification of clear objectives, opportunities and challenges for stakeholder engagement
	27	4.4	Mapping of stakeholders
	28	4.5	Engagement with the private sector
	29	4.6	Engagement with citizens
	30	4.7	Engagement with organised civil society
	31	4.8	Engagement with academia and research community

Table 10. RRMM indicators related to Dimension 4. Participatory governance and stakeholder engagement.



Figure 14. Graphical representation of Dimension 4 indicators by region.

4.2.4.1. R4C regions CRML in Dimension 4

Degree of completion	Dimension 4 has been fully completed by 9 regions, and not completed by 3 regions.
Main findings	The indicators for which most regions score highest is “4.8 Engagement with academia and research community”, with Basque Country, Tuscany, Azores, South Aquitaine, Køge Bay, Burgas and Nordic Archipelago scoring 3 or above. These values indicate that these regions actively engage and establish formal partnerships and formalised collaboration processes between the region and academic/scientific entities. However, Pärnumaa, Troodos and Castilla y León score lower in this indicator meaning that these regions do not have direct engagement with this sector. Other indicators that seem to be active areas for a number of regions are “4.1 Participatory governance to enhance coordination and agenda-setting” and “4.5 Engagement with the private sector”. Basque Country, Tuscany, Uusimaa, Sitia and Nordic Archipelago seem to have advanced participatory governance structures with extensive stakeholder engagement involving a diverse range of actors, well-established collaborative platforms and networks, effective coordination mechanisms facilitating regular interaction, regular meetings with periodic assessments and policy discussions. (>3). Azores, South Aquitaine, Køge Bay, Pärnumaa and Troodos indicate that their regions’ participatory structures are intermediate with moderate stakeholder engagement with relevant actors, established platforms or networks for periodic interaction, some coordination mechanisms in place, and regular but possibly less frequent meeting’s purpose for engagement definition is still under development (<2). Basque Country, Tuscany, South Aquitaine and Sitia also indicate that the region has regulations, programmes, policies, initiatives in place to establish, formalise and monitor forms of engagement with the private sector for the implementation of its climate resilience ambitions and policies. The most challenging indicators for the regions seem to be “4.2 Development of a stakeholder engagement plan”, except for Køge Bay, Sitia and Nordic Archipelago, meaning that the rest of the regions are still in course for developing a plan or the plan is developed but not implemented. Oftentimes, stakeholder engagement is planned and implemented at lower levels of government (e.g., Municipal). In these cases, regions do not necessarily have a comprehensive strategy / plan for stakeholder engagement, but rather develop ad-hoc stakeholder engagement strategies for those projects they implement. At the same time, regions can provide guidelines to harmonise stakeholder engagement approaches at sub-regional level. Indicator “4.4 Mapping of stakeholders” seems to be an area of improvement (except for Sitia) meaning that there are still some gaps in identifying stakeholders’ motivations and identifying most vulnerable groups to effectively engage them in regions’ resilience building processes.

**Overall
regional
participatory
governance
and
stakeholder
engagement**

Basque Region, Tuscany, Azores, Sitia and Nordic Archipelago seem to have the highest coverage in relation to participatory governance and stakeholder engagement, presenting the widest shapes among all graphs, although in the cases of Azores and Sitia some indicators have not received any value (4.2 and 4.8 respectively). However, despite reaching considerable maturity in participatory governance, engagement with the private sector, organised civil society and academia and research community, there are challenging areas in the other half of indicators for the Basque Country. Lower values (>2) can be found in “4.2 Development of a stakeholder engagement plan”, “4.3 Identification of clear objectives, opportunities and challenges for stakeholder engagement”, “4.4 Mapping of stakeholders” and “4.6 Engagement with citizens”. The same happens with Azores with respect to 4.4 and 4.5 and with Sitia for 4.3 and 4.6 so perhaps, these regions could share knowledge and learn from each other.

As previously indicated, Basque Country and Azores are regions with autonomous self-governing and legislative power and regionally steered adaptation approaches that might influence the capacity to design and implement participatory governance and stakeholder engagement plans. Sitia also counts with some self-governing capacities that might be related with a relatively high maturity level in this dimension. However, this is not a unique enabling characteristic as regions such as South Aquitaine, Køge Bay or Burgas seem to have strong engagement with different actors in the territory.

On the other side, this dimension seems to be a challenge mainly for Pärnumaa, Uusimaa Troodos and Castilla y León, regions. This is probably related to the complexity and diversity of governance levels structured in these regions and not reflected in the RRMM. Castilla y León, being a self-governing region, is on its way to develop these governance structures.

4.2.5. Dimension 5: Public support, awareness, and climate change communication

This Dimension includes indicators assessing the region's maturity in terms of public support and awareness. This includes assessing the region's strategies for communicating climate information to stakeholders involved in climate resilience-building and to the general public, fostering public awareness and preparedness. Indicators assessing the region's capacity to analyse public perception of climate change and acceptance of policies are also included, as these are considered important factors affecting climate resilience maturity in the regional system. The indicators measured to understand the public support awareness are as follows:

Dimensions	Indicators		
Public support awareness	31	5.1	Climate risk communication strategies
	32	5.2	Dissemination of scientific information and good adaptation practices
	33	5.3	Alignment of regional communication and marketing strategies with resilience priorities
	34	5.4	Analysis of public perception of climate change
	35	5.5	Analysis of public perception and acceptance of policies

Table 11. RRMM indicators related to Dimension 5. Public support awareness.

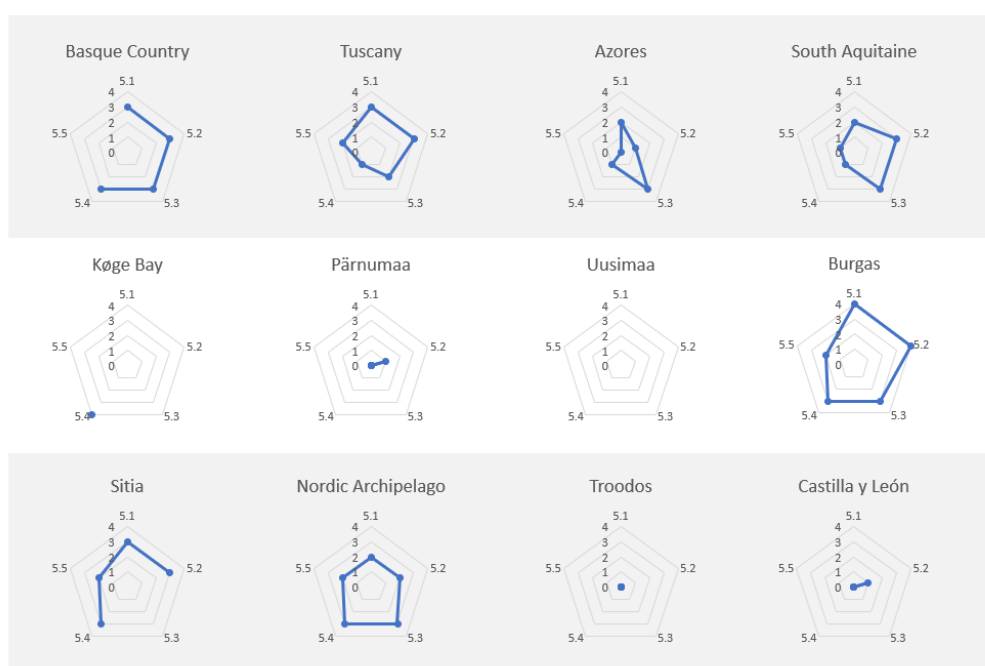


Figure 15. Graphical representation of Dimension 5 indicators by region.

4.2.5.1. R4C regions CRML in Dimension 5

Degree of completion	Dimension 5 has been fully completed by 5 regions, partially completed by 6 regions and not completed by 1 region.
Main findings	From the regions that have fully completed dimension 5, Tuscany, South Aquitaine and Nordic Archipelago, seem to be more mature in relation to public support, awareness, and climate change communication. Basque Country and Burgas are the two regions that score high in all the indicators except for indicator “5.5 Analysis of public perception and acceptance of policies” for which a score has not been provided in the case of the Basque Country and Burgas has scored 2 meaning that an analysis is performed to evaluate citizens' awareness of existing policy instruments and solutions for climate adaptation or resilience, lacking depth on policy fairness and adequacy, a limited number of citizens being considered. This indicator seems to be the most challenging for all regions with 5 not providing a score for it, and 8 regions scoring between zero and two. While performance for indicators within dimension 5 are low in general, the best performance is observed for indicators “5.2 Dissemination of scientific information and good adaptation practices” and “5.4 Analysis of public perception of climate change” indicating that some minor gaps persist in the dissemination, but they are identified and addressed in a strategy developed in collaboration with local universities, research centres, practitioners, and citizens. and that at least an analysis is performed to evaluate citizens' awareness of climate change impacts, urgency to act, causes knowledge and response behaviours. More specifically, the regions doing good in both 5.2 and 5.4 are Basque Country, Sitia and Burgas. In addition, Tuscany and South Aquitaine also perform well in 5.2 and Køge Bay and Nordic Archipelago in 5.4. The indicator “5.3 Alignment of regional communication and marketing strategies with climate resilience priorities” is well covered by Basque Country, Azores, South Aquitaine, Burgas, and Nordic Archipelago too (>3) meaning that these regions integrate the consideration of climate-related risks and vulnerability in its communication strategies, including for the promotion of local tourism and territorial marketing, just in the most touristic places.
Overall regional public support, awareness, and climate change communication	The scoring of the regions for dimension 5 “Public support, awareness, and climate change communication” seems to be in general lower or less complete than the scoring for other dimensions. This might be due to a lack of information of the people completing the assessments for some regions (Uusimaa, Castilla y Leon), the fact that the activities, policies, and processes assessed through the indicators are not under regional responsibility in certain cases, or limited information and low scoring for others (Troodos, Pärnumaa). In the case of Køge Bay, high score is achieved for indicator 5.4 “Analysis of public perception of climate change”, but this is the only indicator for which a score is provided in this region. This could be because emphasis has been made in understanding

perceptions. This region could share expertise on this indicator with the rest of the regions, and at the same time, learn on how to better frame the rest of indicators for the region.

Basque Country, Burgas, Sitia and Nordic Archipelago seem to follow a similar pattern but at different scales, and with some indicators missing in the case of the Basque Country (5.5 and Sitia (5.3). While these two regions miss information for one indicator, their performance on the rest of indicators is quite successful. Therefore, sharing knowledge between these five regions, would allow each region strength their areas of improvement in relation to public support, awareness, and climate change communication, and to serve as examples for other regions that might be in the process to establish these initiatives.

4.2.6. Dimension 6: Financial capabilities

This dimension aims to assess the region's maturity in terms of its capacity to identify regional investment needs for climate resilience innovations, access necessary funding, and develop a robust and strategic approach for the allocation and use of its financial resources.

The indicators measured to understand the financial capabilities are as follows:

Dimensions	Indicators		
Financial capabilities	36	6.1	Financial resources availability
	37	6.2	Budget allocation and distribution at local level
	38	6.3	Budget allocation for planning
	39	6.4	Budget allocation for implementation
	40	6.5	Incentives for private sector

Table 12. RRMM indicators related to Dimension 6. Financial capabilities.

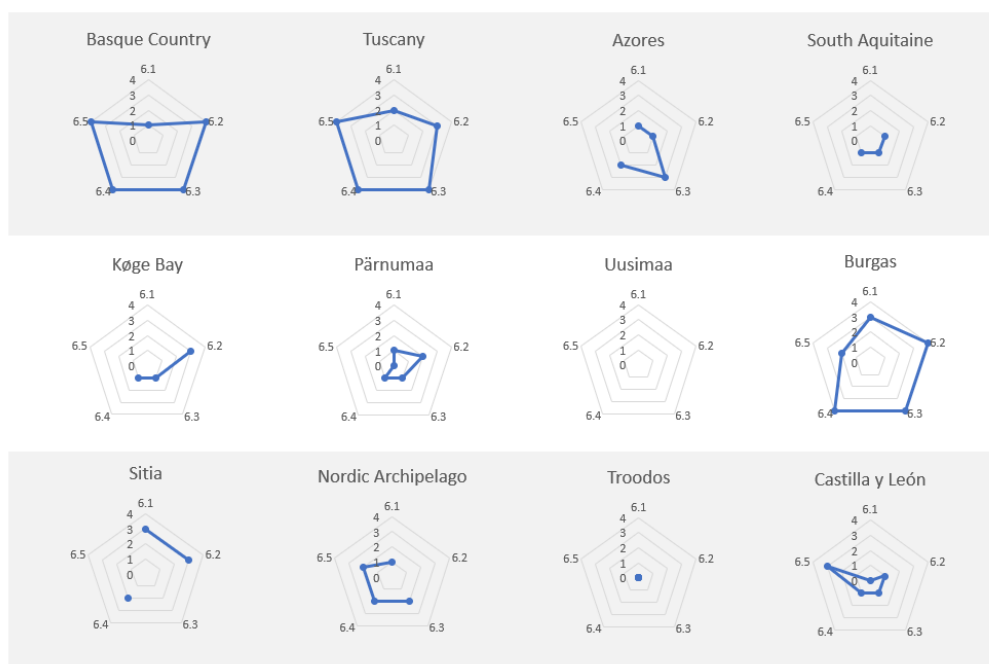


Figure 16. Graphical representation of Dimension 6 indicators by region.

4.2.6.1. R4C regions CRML in Dimension 6

Degree of completion	Dimension 6 has been fully completed by 3 regions, partially by 6, and no completed by 3.
Main findings	Basque Country, Tuscany, Køge Bay, Burgas and Sitia perform well in “6.2 Budget allocation and distribution at local level” (>3) with a continuous and even funding distribution in their territories and taking into consideration most vulnerable local municipalities to climate risks. Basque Country, Tuscany, Azores, and Burgas consider the region allocates appropriate budget explicitly considering funding to support the mainstreaming/integration of climate change adaptation plans into regional policies for “6.3 Budget allocation for planning” (>3). Basque Country, Tuscany and Burgas have a quite complete approach to all indicators (>3) except for “6.1 Financial resources availability” (>1) for Basque Country and Azores and 6.5 for Burgas. These regions, therefore, allocate resources transparently and equitably in climate resilience implementation and regulated by programs and policies to encourage diverse private sectors to channel resources toward climate resilience plans. Basque Country and Azores need to better quantify regional investment needs and map financial challenges across sectors and stakeholders, and Burgas needs to better regulate funding to boost private sector engagement. Indicator “6.1 Financial resources availability” scores low for most regions except for Sitia and Burgas that present intermediate scores (>3) indicating that a financial plan for the region is developed using scenario-based approaches and it is protected from political change and coherently covers all identified needs, compatibly with climate resilience and adaptation objectives. Tuscany, with a score of 2, counts with funding sources, methods and instruments mapped while Basque Country, Azores, Pärnumaa and Nordic Archipelago (>1) have quantified their regional investment needs and mapped their financial challenges across sectors and stakeholders. On the other hand, Troodos and Castilla y León have not mapped their financial needs for climate resilience investments and South Aquitaine, Køge Bay and Uusimaa, have not provided a value. Big disparities are found in the measurement of the effectiveness of frameworks and mechanisms designed to stimulate the private sector involvement in climate adaptation efforts at a regional level with values that range from >3 for regions such as Basque Country, Tuscany, and Castilla y León to 0 for Pärnumaa and Troodos (indicator “6.5 Incentives for private sector”).
Overall plans and policy instruments	Basque Region, Tuscany and Burgas seem to have the highest coverage in relation to financial capabilities to identify regional investment needs for climate resilience innovations, access necessary funding, and develop a robust and strategic approach for the allocation and use of its financial resources. However, “6.1 Financial resources availability” seem to be challenging for the Basque Country and Tuscany as described above (>2). Furthermore, both

regions present an overall similar pattern in terms of addressing this dimension, with Basque Country slightly ahead in relation to indicator “6.2 Budget allocation and distribution at local level” (>4).

As previously commented, although some regions such as the Basque Country or Tuscany count with autonomous self-governing and legislative power and regionally steered adaptation approaches that might relate with having a good position regarding its financial capacity, this is not a unique characteristic for regions to have influence in this domain. Some regions stated having some scope of action when it comes to accessing and deploying funding for specific adaptation projects (rather than for adaptation planning and implementation in general, for example in the case in which they do not have formal authority in this realm). This contributes to explain why certain regions were not able to assign a score to all indicators of this dimension. This reflection was taken in consideration in the process of updating the model and digital tool (see section 3). Hindering the completion of the assessment was also the fact that certain indicators were deemed only partially clear.

4.2.7. Dimension 7: Vulnerability and Risk Assessment

This dimension aims at assessing the region's maturity in terms of its ability to monitor hazards, risks and vulnerability, the quality and comprehensiveness of the assessments conducted and their use and dissemination. This alignment was based on a shared approach based on which the availability of robust data on hazards, risks and vulnerability informing decision-making contributes to regional climate resilience maturity. The indicators measured to understand the vulnerability risk are as follows:

Dimensions	Indicators		
Vulnerability and Risk Assessment	41	7.1	Ability to conduct risk and vulnerability assessments
	42	7.2	Hazard assessments
	43	7.3	Integrated vulnerability and risk assessments
	44	7.4	Alignment of vulnerability and risk assessments with justice and equity principles
	45	7.5	Use of vulnerability and risk assessments' results

Table 13. RRMM indicators related to Dimension 7. Vulnerability and Risk Assessment.

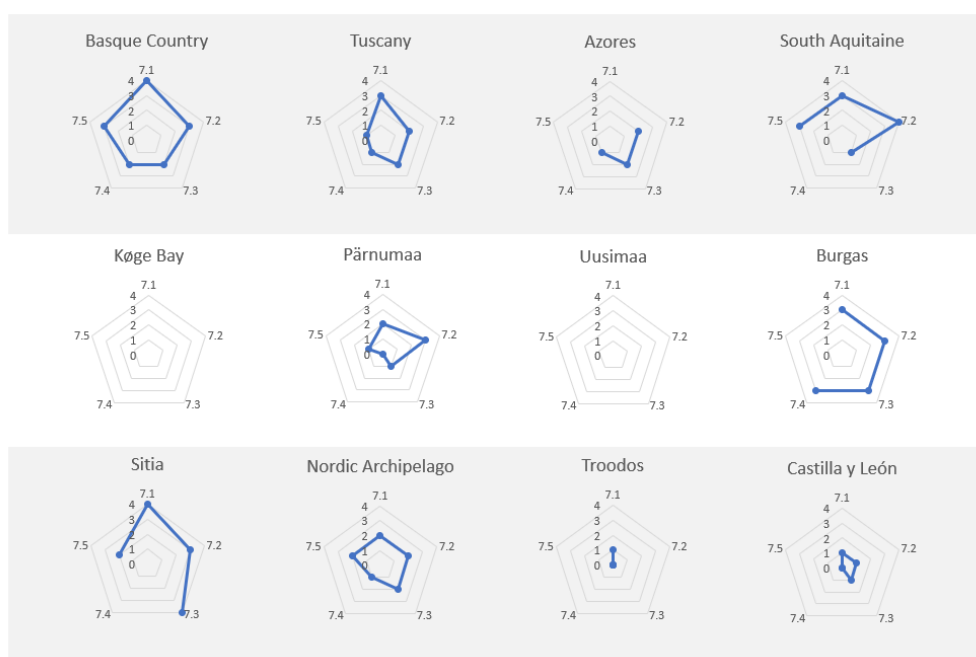


Figure 17. Graphical representation of Dimension 7 indicators by region.

4.2.7.1. R4C regions CRML in Dimension 7

Degree of completion	Dimension 7 has been fully completed by 5 regions, partially by 5, and not completed by 2 regions.
Similarities between regions	The indicators for which regions perform better are “7.1 Ability to conduct risk and vulnerability assessments” and “7.2 Hazard Assessment”. More specifically, Basque Country, South Aquitaine, Burgas and Sitia score >3 for both indicators 7.1 and 7.2 which means that adequate tools for monitoring and forecasting extreme events and for modelling long-term changes are in place and partnerships with universities, research centres or other relevant private organisations are actively used to ensure high standards in the assessments performed. Tuscany performs good in 7.1, and Pärnumaa in 7.2 respectively. Troodos and Castilla y León have data on regional climate hazards, risks, vulnerability are partially available from other sources (e.g., at scale different than regional scale), but no monitoring tools/systems exist in the region, and they only have a generalised notion of hazards, with no attempt to systematically identify probability. Most regions completing the assessment have addressed “7.3 Integrated vulnerability and risk assessments”, somehow, developing scenarios for the “most probable” and “most severe” incidence of each hazard which are updated every 18 months approximately, although most of them present gaps in terms of completion, coverage, or thoroughness. The most challenging indicator for all regions seems to be “7.4 Alignment of vulnerability and risk assessments with justice and equity principles”. All regions score between zero and 2 or have not provided a score for this indicator. This is not surprising as including and structuring just transition systemically within climate adaptation and resilience frameworks is a novel approach and regions are still figuring out how to integrate and implement Just Transition effectively. The indicator assesses the alignment of the vulnerability and risk assessments with justice dimensions, as defined in R4C D2.2 Just Transition Framework: 1. <i>Recognitional justice: acknowledgement of existing social structures or norms that may create unequal conditions for different groups of people and hence differing vulnerabilities to climate risks.</i> 2. <i>Distributive justice: concerns the distribution of climate impacts and adaptation impacts across society.</i> 3. <i>Procedural justice: refers to equitable participation of stakeholders or actors in the process.</i> 4. <i>Restorative justice: refers to how harm and injustice need to be acknowledged and attributed, and possible measures for compensation need to be developed.</i>

Within this framework recognitional justice and distributive justice might be more common in climate adaptation and resilience policies and initiatives, whereas procedural justice and restorative justice are concepts still to be developed and integrated for most regions.

**Overall regional
Vulnerability and Risk
Assessment maturity**

Overall, Basque Country, Burgas and Sitia present some similarities in terms of vulnerability and risk assessment maturity, with good “7.1 ability to conduct risk and vulnerability assessments”, “7.2 hazard assessments”, “7.3 integrated vulnerability and risk assessments” and “7.5 using vulnerability and risk assessments' results of vulnerability and risk assessments in regional planning” (except for Burgas). As indicated previously, 7.4 integrating justice and equity principles” might be the biggest area of improvement. South Aquitaine also presents similarities with these two regions except for 7.3 where they consider that only a generalised notion of exposure and vulnerability, with no attempt systematically to identify impacts is developed in the region.

Tuscany, Pärnumaa and Nordic Archipelago present slight similarities in their maturity levels regarding this dimension, with Tuscany scoring slightly higher in 7.1 and 7.3, and Pärnumaa being slightly ahead regarding 7.2. These regions could share their experiences and challenges regarding vulnerability and risk assessment and perhaps also exchange knowledge with regions that have indicated to have higher levels of maturity. Castilla y León follows a similar pathway but at a less advanced stage, therefore, sharing knowledge with these regions and about their different approaches, might be beneficial to progress on the dimension maturity level.

Azores and Troodos have missed to respond to a few indicators. In the case of Azores, indicators 7.1 and 7.5 were found unclear or not reflecting enough options to correctly assess the regional competences in these areas. Troodos on the other hand has a few departments conducting risk assessments and sharing information to develop Action Plans, however the extent to which the data is actioned is not clear. Exposure and risks seem to be integrated in risk maps (i.e., flood maps) but vulnerability is not yet integrated. The indicators, therefore, do not accurately reflect the region's capacity or competences. This has been addressed in section 3 and the updated version of the RRMM digital tool will integrate clearer definitions and indicators options.

Køge Bay and Uusimaa were not able to provide any data. Køge Bay doesn't conduct actual assessments or the monitoring of hazards, risks, and vulnerability, as this responsibility does not lie with the region, but at the state and the municipal level, depending on the scope. The region however has access to the data, but it is unclear if this dimension is restricted to regions conducting the monitoring or if having access and using this data could also be considered. Uusimaa did not provide specific reasons to explain why they weren't able to respond to this

dimension. However, their governance situation is similar to Køge Bay's which might mean that their coordination capacity and structure is not well reflected in the RRMM options. As discussed in section 3, new considerations for regions to better self-reflect their governance models will be added to the updated RRMM aiming at easing the completion of the assessment to regions with diverse governance structures.

4.2.8. Dimension 8: Innovation Potential Assessment

This dimension aims at assessing the region's level of maturity in enabling innovation for climate resilience, following the approach developed by T6.1 in the Common Innovation Framework (see Sub-Chapter 3.4.2). The dimension 8 will provide the impact of R4C Innovation Packages in each regional context, concerning the research and innovation performance, particularly, in the following domains: (i) framework conditions, (ii) investments in innovation, (iii) innovation activities, and (iv) impacts. The indicators measured to understand the Innovation Potential Assessment are as follows:

Dimensions	Indicators		
Innovation Potential Assessment	46	8.1	Framework conditions – Education & Lifelong learning
	47	8.2	Framework conditions – Research System
	48	8.3	Framework conditions – Digitalisation
	49	8.4	Public investments in innovation
	50	8.5	Innovation activities in SME
	51	8.6	Collaboration
	52	8.7	Economic impact of innovation
	53	8.8	Environmental sustainability

Table 14. RRMM indicators related to Dimension 8. Innovation Potential Assessment.



Figure 18. Graphical representation of Dimension 8 indicators by region.

4.2.8.1. R4C regions CRML in Dimension 8

Degree of completion	Dimension 8 has been fully completed by 5 regions, partially by 4, and not completed by 3.
Main findings	Dimension 8 has presented most disparities for regions to complete. This is due to the indicators referring to the <i>Regional Innovation Scoreboard (RIS)</i>, a regional extension of the <i>European innovation scoreboard (EIS)</i>¹⁰, assessing the innovation performance of European regions on a limited number of indicators. The RIS 2023 provides a comparative assessment of the performance of innovation systems across 239 regions of 22 EU countries, Norway, Serbia, Switzerland, and the United Kingdom. Cyprus, Estonia, Latvia, Luxembourg and Malta are included at the country level. The RIS was considered to be a good tool for regions to reflect their innovation capacities but, as indicated in the validation section (section 3), this dimension presented two main challenges for R4C partner regions: - <i>Not all regions across the EU complete the RIS assessment and therefore there is no data available for these regions through the RIS interactive tool.</i> - <i>The RIS does not incorporate specific climate adaptation or resilience principles within its indicators (i.e., indicator “population with tertiary education” does not distinguish between climate related studies and others)</i> For the regions that completed this dimension assessment (Basque Country, Tuscany, Køge Bay, Burgas, and Castilla y León), Basque Country and Køge Bay presented an overall high scoring (>3), based on their current RIS assessment values. For Tuscany, Burgas and Castilla y León, these values were lower based on their RIS values. For those regions not scoring dimension 8, or doing it partially, the main reason behind is that there is not available information, or just information at national level difficult to disregard from the general context.
Overall innovation potential assessment	As this dimension has resulted in one of the most difficult ones to complete, it is difficult to make an overall assessment of regional innovation potential. As explained in chapter 3, the difficulties emerged in the assessment of this dimension's indicators led to the decision of eliminating it from the digital tool version of the model.

4.3. Way forward

T4.3 Climate resilience maturity assessment future planning

Task 4.3 is a long-lasting task (M12-M60) as its main objective is to support each R4C partner region to periodically self-assess their climate resilience maturity using the RRMM. This D4.2 constitutes a first pre-assessment to validate the RRMM the model and ensure its understanding, and, to have a baseline defined for all R4C partner regions. This preliminary CRML assessment and future ones will be used to understand which regions could share knowledge about specific areas included in the RRMM.

Annually, each region will reevaluate their CRML using the RRMM digital tool. These self-assessments will allow for regions to familiarise with the RRMM and to establish their areas of knowledge interest exchange and improvement so that progress towards these areas could be monitored. These assessments will be linked to the governance and policy recommendations produced by T4.2 and T4.4 to ensure that the RRMM and CRML conducted provide a meaningful overview for regions in terms of their resilience maturity and opportunities for improvement. These assessments and conclusions will be collected in a final deliverable (D4.7 Climate resilience maturity impact assessment) Individual meetings with regions are envisaged to support them during upcoming CRML self-assessment processes, including workshops in the context of annual Consortium Meetings.

Next steps - 2025

The second assessment process will start in January 2025: by this date the digital tool will be already finalised and available for its use by the regions. The process will consist of the following phases:

- *January – Official notification of the start of the new assessment process to the regions.*
- *February - Individual meetings with R4C regions to introduce the new digital tool, barriers, and opportunities for them).*
- *February and March – regions will have the digital tool to complete the assessment and will also be assisted by ICLEI and Zabala.*
- *End of March –deadline for each region to complete the assessment using the digital tool.*
- *April - May – Analysis of results and design of the workshop to be held as part of the annual Consortium Meeting (June 2025).*
- *June – Workshop (as part of the annual Consortium Meeting), with the participation of the regions and supporting partners.*
- *July-August- September-October: internal update of D4.2 for the inclusion and analysis of the assessment results.*
- *December: **Milestone MS21 First interim climate resilience diagnosis (M36) reached: First interim climate resilience self-diagnosis completed by all 12 R4C partner regions.***

Long-term vision – 2026 and 2027

A similar calendar to 2025 is foreseen for 2026, as the Milestone MS29 “*Second interim climate resilience diagnosis*” is planned for month 48 (December 2026). Based on the results and activities of 2026, activities for 2027 will be planned with the final objective to deliver D4.7 Climate resilience maturity impact assessment by the end of the project.

5. Conclusions

This preliminary assessment of the R4C regions' CRML using the preliminary version of the RRMM consists of a qualitative analysis of the 50+ indicators included in the model and the preliminary scoring of these indicators. This serves as a validation process of the usability and relevance of the RRMM based on questions attached to each of the regional climate adaptation policy linked indicators.

This analysis presented some limitations, e.g., due to the complexity of regional competences and legislative power, or the limited capacity in some regions to complete the assessment, which will be addressed in future iterations thanks to a substantial adjustment of the model and its transposition into a digital tool. Nevertheless, the evaluation carried out on the data collected so far, contributed importantly to developing an initial understanding of how regions can use the RRMM digital tool in their benefit and exchange practices with those regions facing similar challenges or opportunities.

The performed analysis shows that regional climate resilience maturity is strongly related to the regional context and can only be assessed by taking in explicit consideration its specificity. An attempt was made in T4.2 to cluster the 12 regions of the project based on their governance characteristics and legislative authority. Regions with self-governing and/or legislative capacities as well as regionally steered capacity were in most cases more able to assess the indicators included in the model: based on the current RRMM, regions that showed higher maturity in relation to the indicators presented by the model were the Basque Country, Azores, Tuscany and Sitia. This shed light on the need to adjust the tool in a way that can better capture the situation of regions without self-governing capacity, in order to be able to assess their level of climate resilience maturity based on their context and their actual scope of action (see Chapter 3).

The digital tool, updated following the validation feedback collected (see section 3), will be launched by M18 (June 2024) by ICLEI. The tool will be further adjusted during 2024 to finalise the aspects that were not technically feasible by M18. By the time the tool starts to be used by R4C regions for the first assessment in 2025, there will be no substantial changes to its structure and content, to avoid issues in comparing the results between future assessments.

With only 12 participating regions (out of several hundred in Europe) a general analysis has only limited validity. However, the comparative view on the 12 regions contributes to a better understanding how Regional Climate Resilience Maturity Levels (CRML) across Europe could look like and how this concept could be better addressed for other regions to self-assess themselves overtime.

This first assessment and validation were crucial to establish the basis through which regions can obtain the data for the next assessments to be carried out. One of the main opportunities presented by this preliminary assessment was to detect synergies between regions that will be used in upcoming assessment processes to generate connections so that regions can support and learn from each other in the coming years and beyond the project.

The RRMM digital tool will bring regions the opportunity to collect and register their continuous improvement against the RRMM indicators and to identify those synergies and knowledge exchange opportunities on Climate Resilience Policy matters that are most interesting to them to progress towards higher maturity levels. These assessments will

be combined with learnings and results from other project activities and tasks with will, together, support the regions in advancing in their transitions towards climate resilience within an innovative and socially engaged paradigm.

By the end of R4C, regions will get an overview of their maturity score in the different rounds of assessments, being able to follow up on improvements from one year to the next, if applicable. This will be visualised in the Climate Resilience Dashboards (as planned in the GA: *"Connect RRMM and assessment framework to online RCRDs (T3.5) to share results of on-going assessment of regional climate resilience maturity (T4.3) as a "synthesis view"*). Additionally, D4.7 Climate resilience maturity impact assessment (Zabala, M60) will provide a reflection on the entire T4.3 process and the results for each region, including how to make use of other tasks like T4.4 performing policy analysis to support T4.3 in making sense of the results of the assessments, potentially generating information that regions could use to inform future policies or programs.

6. Annex

6.1. RRMM validation feedback received from R4C regions

		Part 1 - General comments					Part 2 – Results visualisation and analysis				
		General comments	Home page	"About the project" page	"About the tool" page	Assessment page	Results visualisation – Overall Score	Results visualisation – Score for each dimension	Digital Tool: missing features		
		Is it clear? What is missing?	Is it clear? What is missing?	Is it clear? What is missing?	Is it clear? What is missing?	Are the additional questions in the assessment usefu? Would you add other questions?	How would you like results to be visualised on the tool and on the Dashboards?	How would you like results to be visualised on the tool and on the Dashboards?	What features would you like to see in the visualisation of the results	What features do you think are missing in the digital tool?	
CS1	South Aquitaine		A bit too long. Try to synthetise 1st page. More details mostly in the "About the project page"		Starting page: change the sentence that is not clear	1. It could be interesting to personalise the number of indicators to have a partial analysis --> criteria that are not answered should not result in a score of 0 but should just be ignored with final assessment. 2. There is too much text --> Hide text by default, show it only if needed.					
	Basque Country	We suggest to add an additional indicatio on Dimension 7 --> about regular updating on Dimension 4 --> engage with municipalities		Maybe a tutorial video to navigate throught the tool	Possibility to answer in a non-linear way (first D5 for example) Leave dimensions in a different colour (orange) if not completed (to be revisited later)	Make it mandatory to answer this box before closing and leding to the next.	We did not reach this part, but it would be nice to have the point not answered in orange (at 0 level). We could visually undertand what is not yet evaluated.			1. Possibility of multiuser review the same survey (it is saved, but not accessible for other user to complete). 2. If we are able to have one result for "expectations" (for x years) , it would be nice to be able to compare realt and expected scores to understand what is missing and which dimension to work more on (if possible).	
	Tuscany			Put some words in bold/links (ex green deal). Ameliorate readability of the text and highlight most important concepts	Pay attention to write answees where there is only 1 concept (es.:1.1 both planning and implenentation --> it can be planned but not already implemented).	Maybe insert option where you can say if something is done fully/partially (or suggest to put it in the additional comments section)	It could be useful to make available more visualisation (istogram, cake) as they promote different interpretations	Cluster of each dimension			
	Azores	The tool is clear and intuitive! Great job! :)	Yes, but could be shorter	Yes	Yes. 1. Background (4th point) you should make it breaffer (just this topic)- 2. When a topic is expanded , the other ones should contract	The numbers on top should be used as shortcuts to the respected pages instead of having to use the previous and next button. The saving option should be automatic.	First additional question should be mandatory.	Could be interesting if we could select separately the different dimensions.			Should be interesting to be able to juxtapose the graphics of two regions -
CS2	Burgas			It is well structured and clearly describes the tool functions and what it is designed for.	It is good if the system does not allow it to continue if some sections are not filled in.	Maybe there should be some additional questions for the role of some additional climate issues.	It is valuable to have a visual orientation about the progress overtime and possible indications of the bottlenecks.				
	Koge Bay	They did it with Troodos									
	Uusimaa	Way too much information on the opening page! Font also too small...	Firs t 2 paragraphs are EU-xxx not a priority- (formal info) .Move up the blue boxes.	Good work! Some background is fairly XXX > Move towards bottom.	Good structure. Please indicate obligatory answers clearly. Move below buttons "does not apply" "do not know".		Export links really good! Xls? 12 region average diagram to compare? Bold line for the recipient. Remove 2 decimals in the result green boxes. Make clickable links the dimension titles in the			Tested the pdf export -include more data?	

	Pamumaa	The tool could mark questions (make them red) if they are not answered. It would be nice to jump from one dimension to another (not use next button), go from 1 to 6, if you choose "does not apply" the calculation of the score should take that into account (does not apply does not mean 0!)	Text too long (maybe use subpages?). Paragraphs 1,2,5 ok.	Old information about the partners (nr of partners).				How to read this? Might confuse, maybe also a columns diagram? Could also have results for each dimension separately.			
CS3	Nordic archipelago							Tool not working, sign in click "we are sorry invalid parameter: redic_url. Tried: MSedge, Mozilla, Firefox, Google Chrome			
	Troodos	When starting the new assessment: "you chose to start a new assessment" is unclear that you are adding to name the assessment. Please re-phrase.			Please revisit the questions as some need too much explanation and too much text. Id the questions were clearer, only 1-2 sentences max would be needed as explanatory text.	You can select do not know and do not apply simultaneously. There are 3 different fonts. Small font does not promote reading the text --> too small	1. Would recommend to de-clutter assessment page by hiding these boxes and making those appear after you have scored. 2. "Save draft" -> perhaps would be better that the system automatically saves the draft, if not a save draft button after each question. 3. You can move into the next dimension without completing all the questions --> good to have a pop up prompt that reminds users that they have not completed/answered all the questions.	More explanation on what the score means for each dimension -> click on each dimension and an explanation shows up on what the score means. You can go back to the submitted answers and make changes Would be useful, since we will repeat this, if we can copy the first submission to make a 2nd and only updated it.	In the visualisation, we would like to see how we have progressed each time we do the assessment so comparisons. We would like to know who has access to the data?		
	Castilla y leon	The tool information needed is very wide, so not only 2 person can complete the questionnaire. It would be useful to create profiles or inform at the beginning of what type of information is needed.						One idea could be to process free text questions. And create a word tree, a word cloud, with relevant words. Maybe buttons where you can select which dimensions to show. Would it be possible to see progress? For example if the region improve on a dimension -> parallel charts			
	Sitia	Really wonderful work, detailed analysis of the indicators, nice features, easy to use/user friendly.			It is totally clear. We would add some indicators for potential psychological aspects of vulnerability -> eg.: (5) public support preparedness	it is clear how do you categorise	You could add some questions according to the first comment.	Thematic analysis on the comments -> (Nivvo) -> (to choose the most important categories, maybe to see common problems in the participating regions)			

Table 15. RRMM validation feedback received by R4C regions.

7. References

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⁸ *A Guide to the Regional Resilience Journey (RRJ)*. Pathways2Resilience project. Available at: [Regional Resilience Journey Map - Pathway2Resilience \(pathways2resilience.eu\)](#)

⁹ *Regional innovation scoreboard*. European Commission. Available at: https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/regional-innovation-scoreboard_en.

¹⁰ *European Innovations Scorecard*. European Commission. Available at: [European innovation scoreboard - European Commission \(europa.eu\)](#)