



CLIMAS

CLIMAtE change citizens engagement
toolbox for dealing with Societal resilience

Deliverable No. 4.4 – Report on Climate Change Citizens Engagements Toolbox Calibration

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Work package leader: CMO

Authors: Johanna Zambrano Flores (CMO), Floridea Di Ciommo (CMO)

Contributors: Mohammad Azizur Rahman, Suchi Puja (TVS), Rebecca Hueting (DEEPBLUE), Havva Ebrahimi Pour (VUB).

Information table

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Consortium

Coordinator			
1		VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETAS	Contact: Aelita Skaržauskienė aelita.skarzauskiene@vilniustech.lt Kristina Kovaitė kristina.kovaitė@vilniustech.lt Monika Mačiulienė monika.maciulienė@vilniustech.lt
Partners			
2		CAMBIAMO SOCIEDAD COOPERATIVA MADRILENA	Contact: Floridea Di Ciommo floridea.diciommo@cambiamo.net , Johanna Zambrano johanna.zambrano@cambiamo.net
3		VRIJE UNIVERSITEIT BRUSSEL	Contact: Carina Veeckman carina.veeckman@vub.be Havva Ebrahimi Pour Havva.Ebrahimi.Pour@vub.be Franz Ferdinand Rothe Rothe.Franz-Ferdinand@vub.be
4		INSTITUT FÜR HÖHERE STUDIEN - INSTITUTE FOR ADVANCED STUDIES	Contact: Erich Griessler erich.griessler@ihs.ac.at Elisabeth Frankus frankus@ihs.ac.at
5		PANEPISTIMIO AIGAIΟΥ UNIVERSITY OF THE AEGEAN	Contact: Amalia Polydoropoulou polydor@aegean.gr Anna Maria Kotrikla akotr@aegean.gr Kyriaki Maria Fameli kmfameli@noa.gr
6		EUROPEAN INTEGRATED PROJECTS	Contact: Lucia Cristea lucia.cristea@eiproject.eu Marga Marin marga.marin@eiproject.eu Liliana Denisa Andrei Liliana.andrei@eiproject.eu Iolanda Moldoveanu iolanda.moldoveanu@eiproject.eu
7		UZDAROJI AKCINE BENDROVE ID VILNIUS	Contact: Rūta Balkė Ruta.Balke@idvilnius.lt
8		DEEP BLUE Srl	Contact: Rebecca Huetting rebecca.huetting@dblue.it Alessandro Tedeschi Gallo alessandro.tedeschigallo@dblue.it
9		ASOCIACION PARA EL DESARROLLO DE LA DEMOCRACIA	Contact: Yago Bermejo yago@deliberativa.org Arantxa Mendiharat

		DELIBERATIVA Y PARTICIPATIVA	arantxa@deliberativa.org Victoria Solé Delgado victoria@deliberativa.org
10	 Zajā brīvība	ZALA BRIVIBA BIEDRIBA	Contact: Ingrida Strazdina Ingrida@zalabriviba.lv
11		FUNDACIO EURECAT	Contact: Julià Vicens Bennasar julian.vicens@eurecat.org
12		DEPARTAMENT DE LA PRESIDÈNCIA - GENERALITAT DE CATALUNYA	Contact: Pablo García Arcos pablo.garcia@gencat.cat Núria Pérez Milán nuriaperez@gencat.cat
13		IFOK GMBH	Contact: Julia Hoffmann Julia.hoffmann@ifok.de Constantin Schäfer constantin.schaefer@ifok.de
Associated Partners			
14		Pilieciuumokslas.lt asociacija	Contact: Eglė Butkevičienė info@pilieciuumokslas.lt
15		Laimikis.LT, Vsl	Contact: Jekaterina Lavrinec jekaterina.lavrinec@gmail.com
16		RIGA MUNICIPAL AGENCY "RIGA ENERGY AGENCY"	Contact: Janis Ikaunieks ikaunieks.janis@riga.lv
17		TECHNOVATIVE SOLUTIONS LTD	Contact: Mohammad Azizur Rahman aziz@technovativesolutions.co.uk Tamanna Khan tamanna@technovativesolutions.co.uk
18		JRC -JOINT RESEARCH CENTRE- EUROPEAN COMMISSION	Contact: Ângela Guimarães Pereira angela.pereira@ec.europa.eu
19		Gemeinde Edermünde	Contact: Thomas Petrich bgm.petrich@gemeinde.edermuende.de

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Quality reviewers

Name	Organisation
Lucia Cristea	EIP
Rebecca Hueting	DEEP BLUE
Monika Mačiulienė	VILNIUS TECH



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List of Acronyms

Acronym	Definition
CAP	Climate Assembly Portal
CA	Climate Assembly
LL	Living Lab
NDCs	Nationally Determined Contributions
NAPs	National Adaptation Plans
MCA	Multi-Criteria Analysis
KEBS	Knowledge and Evidence-Based Support
CA1	Climate Assembly Catalonia
CA2	Climate Assembly Edermünde
CA3	Climate Assembly Riga
LL1	Ebro Delta Living Lab
LL2	Chios Living Lab
LL3	Vilnius Aukštamiestis Living LAB
DPSIR	Drivers, Pressures, State, Impact, Response
PESTLE	Political, Economic, Social, Technological, Legal, Environmental
ECCA	European Climate Change Adaptation

CLIMAS Project Overview

Climate change is one of the most critical issues to tackle today as it is foreseen to have detrimental social, environmental, and economic impacts in the near future. The last climate change events, such as flooding in Germany and Belgium in both Continental and Atlantic regions, heat waves and lack of water in both Mediterranean and Boreal regions, show that the policymakers, experts, and stakeholders' actions are not enough, and a 360° citizens' engagement is urgently needed. Therefore, we need to learn from the good experience in citizens' engagement in climate change action and build up citizens' supporting infrastructure for climate adaptation measures to help the 150 European regions and local communities to resist. Climate assemblies and Living labs are considered as sustainable and reasonable tools to stimulate deliberative democracy in climate policymaking.

The ambition of the CLIMAS project is to support a transformation to climate resilience by offering an innovative problem-oriented climate adoption Toolbox, co-designed together with stakeholders by applying a values-based approach, design thinking methods and citizen science mechanisms. All that will be carried out with a gender and diversity approach. It is expected that the use of the Toolbox will anticipate possible tensions, points of controversy and dilemmas vis-a-vis the adaptation to resilience. Therefore, the Toolbox aims at enabling empowerment and engagement strategies that produce a society "resilient by design". In addition, CLIMAS will include the empirical component for testing this Toolbox and formulating science-based guidelines for policymakers on how to shift Climate Assemblies from technically based deliberations that belong to climate change experts to multi-stakeholders' deliberations based on solving the dilemmas from a bottom-up, more societal, and value-based perspective. CLIMAS outcomes will positively influence policy development and awareness raising process and offer sustainable strategies to enhance the acceptance of citizens' led decisions by policymakers.



Executive summary

CLIMAS D4.4 “Report on Climate change citizens engagements Toolbox calibration” provides a comprehensive evaluation of the calibration of the CLIMAS Toolbox for citizen engagement in climate adaptation planning. Building on tools such as the Climate Assembly Portal (CAP), Multi-Criteria Analysis (MCA), and Knowledge and Evidence-Based Support (KEBS), the report assesses how participatory mechanisms can strengthen the legitimacy, inclusivity, and policy relevance of climate governance.

The findings are grounded in empirical evidence from pilot implementations in Vilnius Living Lab (Lithuania), Chios Living Lab (Greece), Riga Climate Assembly (Latvia), Catalonia Climate Assembly (Spain), and Edermünde Climate Assembly (Germany), where the tools were tested and iteratively improved. These case studies highlight the potential of the Toolbox to support inclusive, value-based deliberation aligned with National Adaptation Plans (NAPs), and to facilitate institutional anchoring of citizens’ recommendations. Key contributions of this report include:

- Validation of the CAP as a scalable and modular platform for organising Climate Assemblies.
- Demonstration of successful integration of participatory methods such as the MCA and KEBS.
- Identification of good practices in inclusive facilitation, anti-patriarchal approaches, and deliberative democracy.
- Strategic insights for enhancing digital citizen engagement and increasing the policy impact of participatory tools.

While challenges remain regarding sustained engagement and accessibility, the report offers a solid foundation for refining the Toolbox and informing its broader implementation. These insights directly contribute to forthcoming deliverables D3.12 (Final Tool to Enable Climate Assembly Outcomes on Dynamic Climate Change Adaptation Plans) and D3.14 (Final Evaluation Report on the Influence of Citizen Engagement on Policy), supporting the operationalisation of inclusive climate adaptation strategies.



1. Introduction

1.1 Background and Context

Climate change is increasingly recognised not only as an environmental threat, but also as a complex socio-political and ethical challenge that must be addressed through integrated national strategies, such as Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs), and supported by inclusive, participatory, and adaptive governance. Traditional top-down climate governance mechanisms often fall short in addressing the urgency, uncertainty, and distributional consequences of climate adaptation. In this context, the CLIMAS project proposes a participatory model that incorporates citizen voices and collective deliberation through Climate Assemblies (CAs), Living Labs (LLs), and a co-designed Toolbox to foster societal resilience.

Within the Paris Agreement framework, NDCs and NAPs serve as central instruments to steer climate action and development priorities. As highlighted in the Global Stocktake dialogue (UNFCCC, 2023), NDCs are not only emissions targets; they constitute a transformative policy vehicle that must be ambitious, implementable and investable, aligning with national and local development strategies, and enabling inclusive and just transitions. The CLIMAS project contributes to this evolving policy landscape by reinforcing the social legitimacy and resilience of NDCs and NAPs through bottom-up, participatory approaches that embed local knowledge and public engagement into climate planning and monitoring.

To ensure clarity, the following definitions describe how key terms are used throughout this deliverable:

- Testing refers to the deployment and practical use of CLIMAS tools in pilot (e.g. CAs and LLs) settings to assess their usability, inclusivity, and policy relevance.
- Calibration involves the iterative refinement of the tools based on testing outcomes. It includes technical improvements (e.g., interface design), contextual adaptations (e.g., language, local values), and usability adjustments (e.g., feedback mechanisms). Calibration was conducted under real-world conditions through roundtable-based sessions during the Catalonia, Riga, and Edermünde Climate Assemblies, and Chios and Vilnius living labs. These sessions enabled participants to interact directly with the tools, provide feedback, and validate improvements in a participatory environment.
- Training includes activities to build the capacities of facilitators, organisers, and citizens to engage effectively with the tools (e.g. CAP training introduction).
- Evaluation refers to the assessment of tools' performance using predefined criteria such as inclusivity, usability, and institutional uptake.
- Monitoring is the continuous observation and documentation of tool usage, engagement levels, and effects, informing the iterative development cycle of CLIMAS methodology (D3.2 and D5.1).



Building on insights from CLIMAS Deliverable 3.5 (Tool to enable Climate Assemblies outcomes on dynamic climate change adaptation plan) and Deliverable 3.7 (Climate Assembly Portal), **D4.4 “Report on Climate change citizens engagements Toolbox calibration” reflects the next phase in the validation and calibration of CLIMAS tools. It focuses on how citizens’ engagement mechanisms, particularly the Climate Assembly Portal (CAP) and other participatory tools, can be optimised to support follow-up actions, scenario building, and alignment with NAPs and climate resilience strategies. Furthermore, the report explores how participatory mechanisms support platforms such as the CAP could contribute to institutional anchoring, understood as the process by which participatory practices and citizens’ recommendations are embedded into formal governance structures and policy frameworks.** By anchoring these approaches institutionally, the CLIMAS project aims to ensure their long-term legitimacy, continuity, and integration into national climate adaptation strategies.

As highlighted in D3.5, effective climate action must go beyond technical expertise and include multi-stakeholder deliberation grounded in values-based approaches (Ling et al., 2022; Dryzek, 2002). The CLIMAS approach incorporates digital tools, such as the KEBS tool and Scenario Prioritisation tools, to structure engagement and facilitate citizens’ contributions across all phases of the assembly process, ranging from agenda setting to evaluation and policy uptake (Cherry et al., 2021).

These tools were tested and refined in Climate Assembly settings such as Catalonia, Riga, and Edermünde, generating evidence about ease of use, inclusivity, and institutional impact. Additionally, complementary work was conducted in the CLIMAS Living Labs in Chios and Vilnius, where further testing and contextualisation of the tools provided valuable insights into localised adaptation planning and stakeholder engagement in real-world environments. Each case highlighted both the potential and limitations of participatory tools in embedding climate justice, enhancing transparency, and promoting the uptake of citizens’ recommendations into formal policy frameworks. Moreover, these findings contribute to the broader ambition of CLIMAS to foster a “resilient by design” society through bottom-up governance models.

This is particularly relevant considering recent findings from the first Global Stocktake (UNFCCC, 2023), which underscored that many countries struggle to translate high-level NDC ambitions into actionable policies due to a lack of institutional capacity, participatory mechanisms, or financial frameworks. By integrating stakeholder engagement into the operationalisation of adaptation plans, CLIMAS tools (including the CAP and KEBS) help bridge the gap between citizen deliberation and national policy frameworks, thereby reinforcing the implement ability and public ownership of NDCs and NAPs.

This deliverable, D4.4, therefore, aims to consolidate lessons learned, assess the calibration of CLIMAS tools in real-world conditions, and generate actionable recommendations for future use. By



integrating the empirical insights from previous testing rounds, it contributes to the refinement and policy alignment of the CLIMAS Toolbox and its operationalisation in diverse socio-political contexts.

1.2 Objectives of the Report

The primary objective of this report is to evaluate the calibration process of the CLIMAS Toolbox and assess its impact on climate citizen engagement. The specific objectives include:

1. **Assessing the Effectiveness of the Toolbox:** Understanding how the tools function in real-world settings and their impact on citizen participation in climate governance.
2. **Examining the Role of the Climate Assembly Portal:** Evaluating how digital platforms support knowledge exchange and facilitate participatory decision-making.
3. **Analysing Case Studies:** Drawing insights from Climate Assemblies in Edermünde, Riga, and the Autonomous Region of Catalonia to identify best practices and challenges.
4. **Ensuring Ethical and Inclusive Engagement:** Reviewing the methodologies used to incorporate diverse voices while complying with GDPR and ethical guidelines.
5. **Providing Strategic Recommendations:** Outlining key improvements for scaling and refining the Toolbox for broader implementation across European regions, building on small-group deliberations held in round tables with 7–10 participants.

Through these objectives, the report aims to contribute valuable recommendations to strengthen citizen engagement in climate policymaking and adaptation strategies.

In the context of the CLIMAS project, calibration refers to a participatory and iterative process of refining digital and deliberative tools based on testing results. This process goes beyond technical optimisation, incorporating feedback from real-world pilot implementations to ensure that the tools are adaptable, inclusive, and responsive to local needs and governance frameworks.

1.3 Scope and Structure

The scope of this report extends beyond tool testing; it explores the broader implications of participatory climate governance and the role of digital tools supporting engagement and shaping adaptation policies. By integrating findings from Climate Assemblies, this document highlights how tools like Climate Assembly Portal and Methodology for Citizen-Collaborative Future Scenario Building for a Climate-Resilient Society support collaborative and informed climate decision-making.

In line with Task 4.4 of the Grant Agreement, this report documents the CLIMAS Toolbox calibration process. It presents how calibration activities were planned and implemented within Climate



Assemblies and Living Labs to ensure alignment with participatory principles and responsiveness to citizens’ feedback.

The calibration methodology adopted in T4.4 is based on an iterative, participatory approach that combines structured testing phases, facilitated deliberation in round tables, and systematic feedback collection through surveys and interviews. This methodology was applied uniformly across tools to ensure coherence and comparability. Calibration was guided by design thinking principles and intersectional facilitation techniques, fostering inclusivity, equity, and contextual adaptability.

By providing a systematic evaluation of the CLIMAS Toolbox calibration, this report serves as a foundation for future refinements and scaling efforts, ensuring that participatory climate governance becomes more inclusive, evidence-based, and impactful.

In line with the Grant Agreement, the calibration of the CLIMAS Toolbox was conducted through small round tables involving 7–10 participants across all Climate Assemblies and Living Labs. These round tables constituted the basic unit of deliberation within the participatory framework, enabling focused and inclusive discussions. Facilitators were specifically trained to ensure an intersectional and gender-sensitive approach, thereby embedding equity and diversity at the core of the calibration activities. Beyond the standard settings foreseen in the Grant Agreement, additional round tables were also organised during the CLIMAS public event in Bologna, where participants engaged in targeted calibration of scenario building, prioritisation, agenda setting, and facilitation guidelines. These efforts contributed to refining the Toolbox in both formal (pilot cities) and informal (public engagement) contexts, reinforcing its adaptability and robustness.

Figure 1 synthesises the interconnections between this deliverable (D4.4), the tools that were tested and calibrated, and their application across CLIMAS Living Labs and Climate Assemblies. It visually captures how the calibration process contributes to the operationalisation and alignment of participatory tools within the broader CLIMAS governance framework, including their relevance for informing National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs). In doing so, D4.4 also provides key operational and methodological inputs that inform the evaluation and consolidation work carried out in Deliverables D3.12 and D3.14.

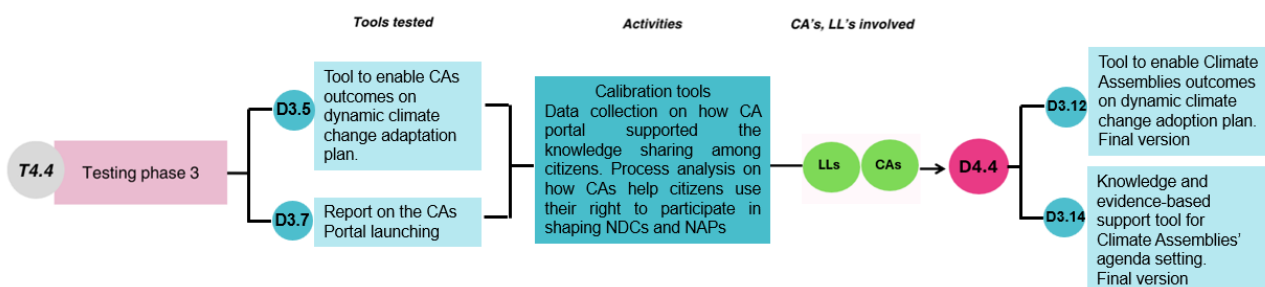


Figure 1 . Interconnections between WP4 Deliverable (D4.4), Tools tested and calibrated, Living Labs, and Climate Assemblies

In addition to the operational mapping shown in Figure 1, the broader participatory approach underpinning the CLIMAS project is illustrated in Figure 2. The methodology employed in the CLIMAS project follows a structured, multi-phase framework based on the principles of design thinking. This evaluation approach ensures methodological rigour, cross-contextual applicability, and iterative refinement. Importantly, the process integrates intersectional and inclusive engagement strategies, ensuring that the tools are adaptable and responsive to the needs of diverse social groups, in line with the principles outlined in Deliverables 3.5 and 3.7. This methodological foundation further supports the implementation and validation processes captured in D3.12 and D3.14.

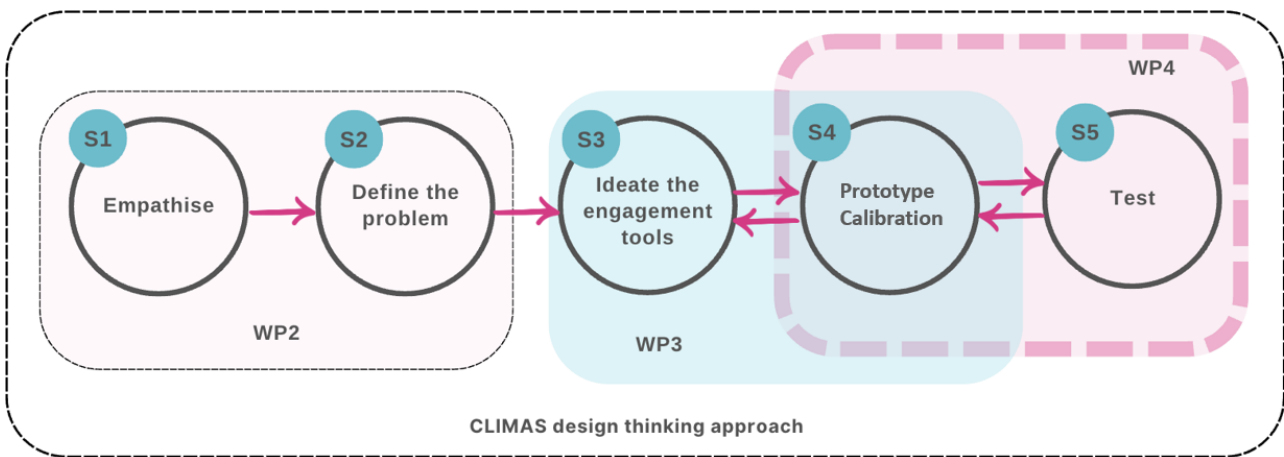


Figure 2. CLIMAS methodology

Based on the CLIMAS tools’ testing phases documented in D4.1, D4.2, and D4.3, as well as valuable feedback from CLIMAS Assemblies organisers, participants, observers, and political stakeholders, the CLIMAS Assembly Portal (CAP) has now been clearly defined. Between January and March 2025, comprehensive feedback was gathered from project partners—cambiaMO (testing lead), as well as tool developers from EUT, DEL, VUB, UAegean, and the developer of the CAP-TVS, focusing particularly on the calibration process. Notably, cambiaMO emphasised the need for a more iterative feedback loop within the testing phase, recommending closer alignment between participant insights and tool adjustments. In May, further partner feedback was collected from those responsible for organising the assemblies, informed in part by responses from a Typeform questionnaire designed to evaluate participant experience and engagement process within the CAP. The CAP was formally presented in May 2025 with visual materials, including selected images from the portal and a video during the Bologna CLIMAS public event on “Adapting together - Are we ready for climate assemblies?” and the ECCA conference during the session “Empowering Citizens through Climate Assemblies: Promoting engagement in climate change adaptation”. During both events, external validation further strengthened the process. The calibration process was then finalised using insights captured via a specific questionnaire run through Typeform, with results visualised in a supporting table #3. This work significantly contributes to the development of the informed national adaptation and just transition policy instruments such as the NAP and NDC included in

D3.12 (Final Tool to Enable Climate Assembly Outcomes on Dynamic Climate Change Adaptation Plans) and the refinement of the MULTILINGUAL CAP included in D3.14 (Final Evaluation Report on the Influence of Citizen Engagement on Policy). In conclusion, the iterative testing, multilingual outreach, and collaborative calibration have ensured a robust and inclusive CAP framework that reflects both grassroots input and policy coherence.

This deliverable is structured to provide a logical progression from context-setting to detailed analysis, tool validation, and strategic recommendations:

- **Section 1** sets the scene by outlining the background, objectives, and scope of the report. It situates the calibration work within the broader aims of the CLIMAS project, focusing on enhancing participatory climate governance through innovative tools and methodologies.
- **Section 2** examines the CAP, detailing its design, functionalities, and role in supporting citizen engagement and knowledge sharing. It describes key modules and their integration in participatory processes.
- **Section 3** analyses the implementation of Climate Assemblies as participatory mechanisms for influencing climate policy, using Climate Assemblies case studies from Catalonia, Edermünde, and Riga. It highlights methodologies applied and alignment with national and regional climate strategies.
- **Section 4** synthesises lessons learned from the testing of the toolbox and assemblies, identifying key successes, challenges, and opportunities for improvement, particularly regarding inclusivity, usability, and sustained engagement.
- **Section 5** presents the main results and contributions of the calibration process, demonstrating how the toolbox and its components support policy uptake, knowledge transfer, and operational validation across diverse contexts.
- **Section 6** offers conclusions and strategic recommendations aimed at enhancing future digital citizen engagement and ensuring the scalability and impact of participatory climate governance tools.

The deliverable includes two annexes:

Annexe 1 presents feedback from facilitator training sessions.

Annexe 2 summarises dissemination activities and external validation events.



2. How the Climate Assembly Portal Supported Knowledge Sharing Among Citizens and Organisers

The CAP (Figure 3), developed within the Horizon Europe CLIMAS project, serves as a foundational digital infrastructure to support all stakeholders involved in the organisation and implementation of CAs. Far beyond a simple knowledge-sharing tool, the CAP functions as a practical entry point for citizens, local authorities, public institutions, and community-based organisations who wish to propose, initiate, or participate in inclusive and participatory climate deliberations. With inclusivity, accessibility, and transparency at its core, the CAP provides clear guidance, tested methodologies, and customisable tools that support the full lifecycle of a Climate Assembly—from initial planning and agenda setting to deliberation, monitoring, and follow-up.

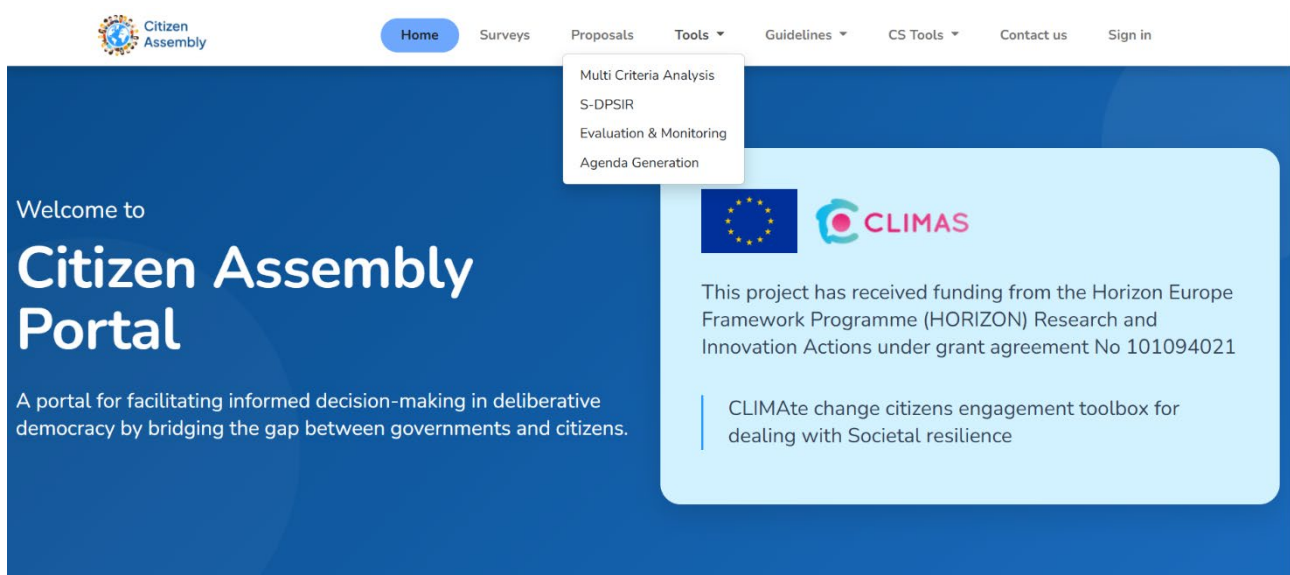


Figure 3. Climate Assembly Portal (<https://citizen-assembly.com/>)

As detailed in Deliverable D1.3 – Ethics and Gender-Sensitive and Equality Monitoring Reports and validated through pilot cases across Europe, the CAP embodies a values-based, ethically grounded approach. It empowers users in diverse contexts to co-design adaptation strategies aligned with National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs). By integrating Citizen Science tools and participatory decision-making modules, the CAP bridges digital participation with locally rooted knowledge, making it a key enabler of just, democratic climate governance.

2.1 Purpose and functional Design

The CAP was designed to enhance citizen engagement and support organisers throughout all stages of a Climate Assembly. It provides a user-friendly, transparent, and accessible digital space where participants can access relevant information, engage in deliberation, and contribute actively to



climate policymaking processes. In addition to acting as a repository of knowledge, the portal enables interaction with a suite of innovative tools developed in the CLIMAS project (see Section 2.2 and Deliverable D3.7 for details). While these tools are tailored for Climate Assemblies, they are adaptable for use in other forms of citizen deliberation after customisation (Figure 4).

CITIZEN-ASSEMBLY - CLIMAS TOOLS PLATFORM ARCHITECTURE

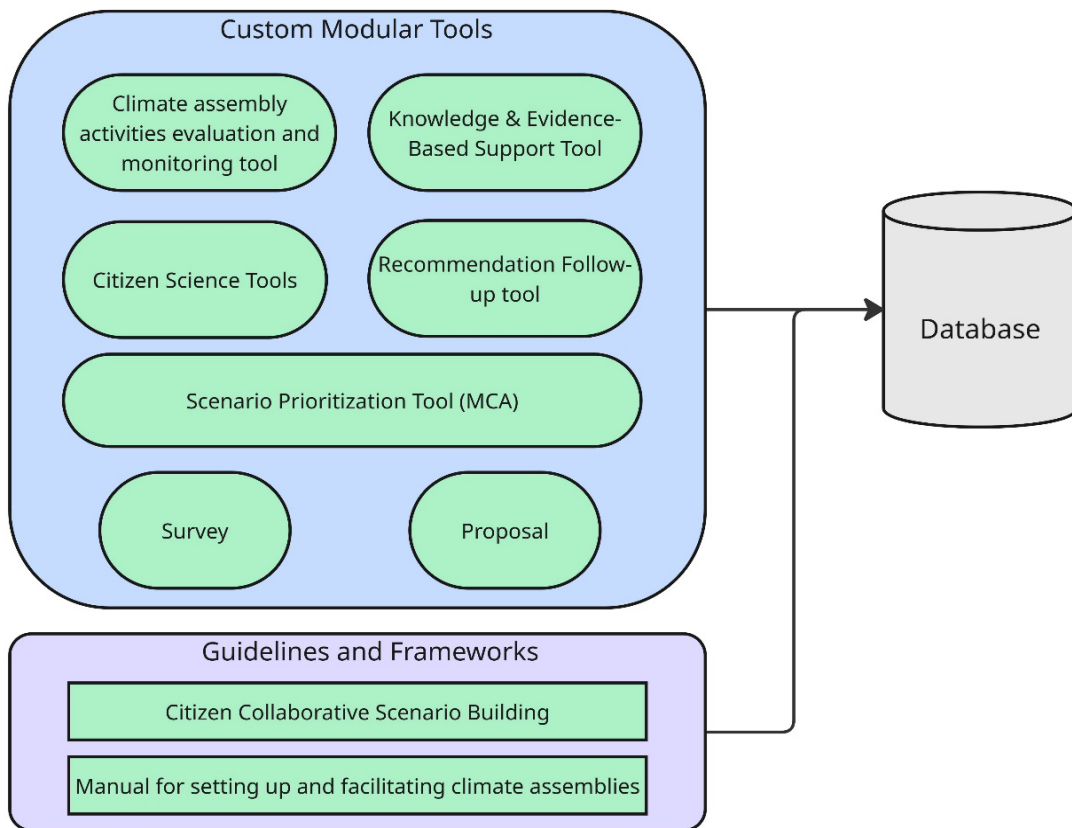


Figure 4. CAP sitemap

The CAP’s digital infrastructure supports the full lifecycle of Climate Assemblies: from agenda setting and participant engagement to deliberation, evaluation, and institutional follow-up. Its architecture prioritises ease of use, mobile responsiveness, simplified interfaces, and compatibility with assistive technologies such as screen readers. To support intercultural and multilingual access, translation features and glossary tools are regularly updated.

Thanks to its modular infrastructure, the CAP allows for rapid iteration and testing of new features—such as Citizen Science Project Cards and implementation guidelines—piloted in sites like the Chios Living Lab (LL2), Vilnius Living Lab (LL3), Catalonia Climate Assembly (CA1), Edermünde Climate Assembly (CA2), and Riga Climate Assembly (CA3).

Beyond its functional design, the CAP acts as a central information hub, offering access to assembly agendas, briefing materials, policy drafts, expert contributions, and multimedia content such as explainer videos and infographics. It supports two types of users:



- General users, including citizens, who can access open resources and tools such as agenda setting and scenario prioritisation modules.
- CA organisers, who can create and manage new assembly projects, open them for public consultation, and use dedicated tools for monitoring and evaluation.

The CAP also fosters democratic transparency by publishing regular updates, outcomes, and, when possible, livestreamed or recorded sessions of the assemblies. This broadens public access to the deliberative process and promotes greater accountability and trust in the results.

2.2 Modules and Functionalities of the Climate Assembly Portal (CAP)

The CAP integrates a diverse and interlinked set of functionalities to support the entire lifecycle of a Climate Assembly—from agenda setting, facilitation guidelines and deliberation to monitoring and follow-up ([CAP demo video](#)). These functionalities are structured into *modules*, which are not stand-alone tools but interconnected and process-oriented building blocks. Each module encompasses specific objectives, user interfaces, and data flows that align with different stages of the Assembly process.

Unlike traditional tools, which often operate in isolation, modules in the CAP are embedded within a broader deliberative architecture. They combine interactive features (such as voting or data visualisation), methodological guidance, and integration with other modules, ensuring that users—whether organisers or citizens—can navigate the process seamlessly. This modular approach enables reusability, adaptability, and interoperability across different contexts and Citizens' Assemblies.

Below is an overview of the main modules of the CAP, grouped by their function within the deliberative process:

2.2.1 Engagement and Participation Modules

- Survey and Evaluation Module: Allows collection of participant and public feedback in real-time, gathering opinions on climate topics, process preferences, and procedural fairness.
- Proposal and Facilitation Module: Enables participants to co-create, revise, and refine policy ideas or scenarios, using functions like voting, commenting, and grouping to facilitate collaborative deliberation.

2.2.2 Decision-Making and Scenario Prioritisation Modules

- Scenario Prioritisation Module: Implements a Multi-Criteria Analysis (MCA) methodology, guiding users to evaluate and rank scenarios based on agreed criteria. This supports transparent and evidence-based decision-making ([MCA demo video](#)).
- DPSIR and PESTLE Modules: Offer structured analytical frameworks to assess the complexity of climate challenges by mapping political, economic, social, technological, legal, and environmental dimensions.



2.2.3 Citizen Science and Knowledge Generation Modules

- Citizen Science (CS) Module: Facilitates grassroots data collection and integration into policy discussions. It includes Project Cards, co-designed with pilot sites, that guide participants through specific field-based data-gathering activities.
- Knowledge and Evidence-Based Support (KEBS) Module (Figures 5 and 6): Supports organisers in generating agendas, dilemmas, and key questions based on available evidence and local context, strengthening the alignment between Assembly design and climate policy frameworks.

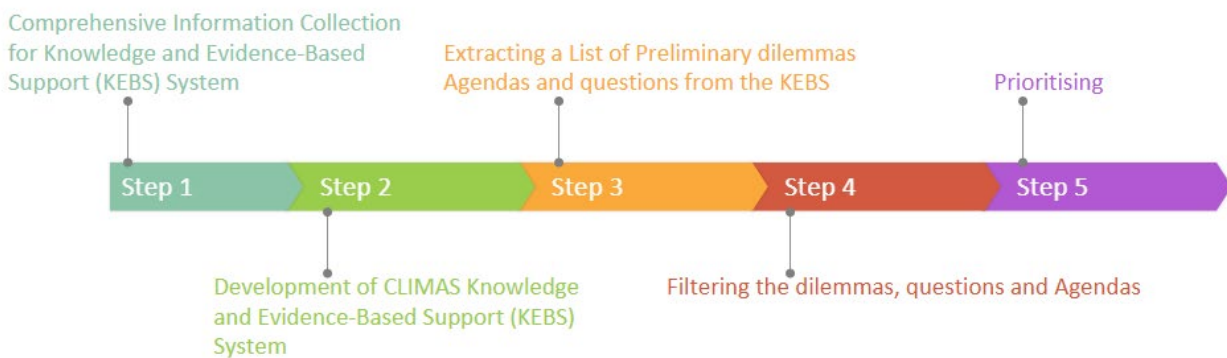


Figure 5. A knowledge and evidence-based support (KEBS) tool for Climate Assemblies’ agenda setting

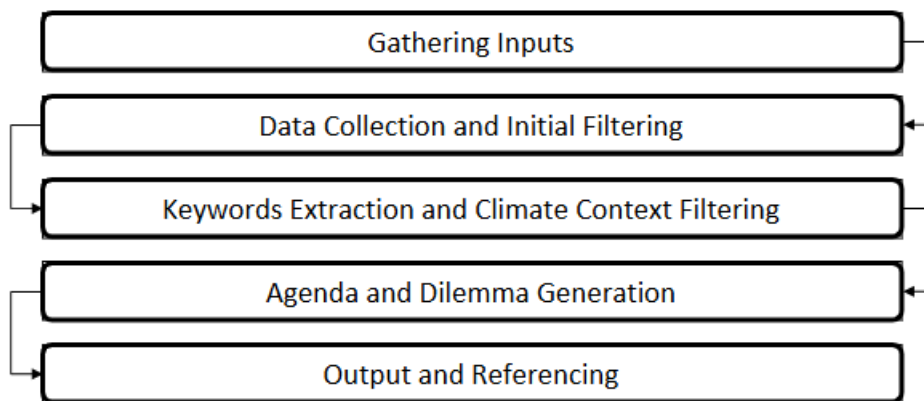


Figure 6. Knowledge and evidence-based support (KEBS) tool: Workflow

2.2.4 Monitoring and Follow-Up Modules (Figures 7 and 8)

- Monitoring and Evaluation Module: Enables participants and organisers to track the status of CA recommendations, visualise progress, and assess the responsiveness of policy institutions over time.
- Follow-Up Integration Tool: Provides structured guidelines for embedding CA recommendations into National Adaptation Plans (NAPs), ensuring continuity between citizen deliberation and institutional uptake.

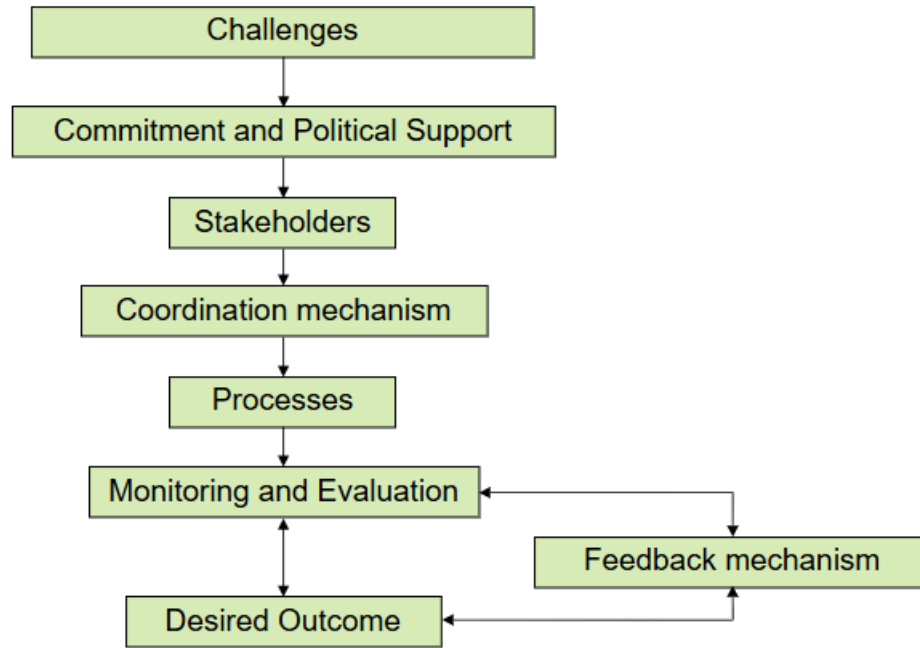


Figure 7. A tool to enable follow-up and Climate Assembly outcomes on a dynamic climate change adaptation framework, including a feedback mechanism

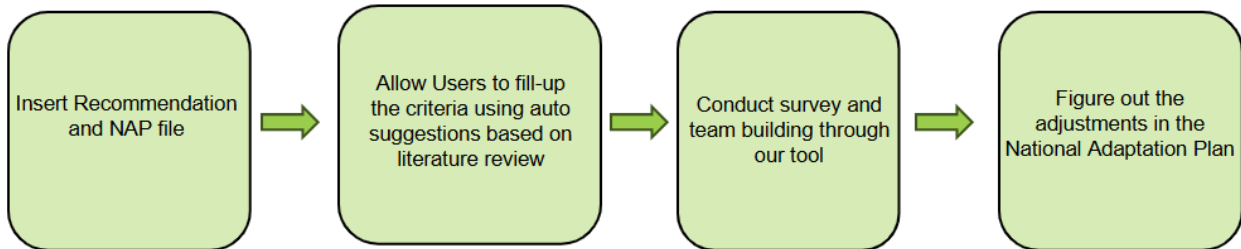


Figure 8. Tool to enable follow-up and Climate Assembly outcomes on a dynamic climate change adaptation plan Workflow

2.2.5 Supportive and Facilitation Guidelines

- Future Scenario Building Guideline: Offers a participatory methodology for developing inclusive, long-term visions of climate futures, drawing on techniques from foresight and deliberative design.
- Climate Assembly Set-Up and Facilitation Manual: Provides organisers and facilitators with a step-by-step approach to designing inclusive, value-based deliberative processes, including methods for addressing trade-offs and conflicts.

All modules within the CAP are designed to function together as part of a cohesive digital ecosystem. Their modularity allows them to be selectively activated, tailored to specific formats and local needs, and integrated into broader climate governance processes. This integrated, modular structure makes the CAP more than a set of tools: it is a dynamic infrastructure for democratic climate action.

2.3 Operational Integration and User Experience

These tools have been designed with modularity and user accessibility in mind, allowing facilitators and participants to engage both synchronously and asynchronously. The portal supports different engagement formats, ensuring that participants with varying time commitments and technical skills can contribute meaningfully.

In real-life contexts like Riga and Edermünde, the CAP enabled integration of locally relevant citizen science projects into the deliberative process, supported by co-designed guidelines and fieldwork documentation templates.

Facilitators were essential in guiding participants through the CAP interface, especially in small-group or hybrid sessions. Guidance templates and facilitator dashboards were developed to standardise the use of CAP features across assemblies.

Initial implementation across pilot assemblies confirmed that the CAP's interactive tools played a central role in structuring engagement and enabling informed participation (Di Ciommo et. al. 2024). The platform's architecture allows for further expansion and integration with other CLIMAS tools, making it a scalable solution for future participatory processes across Europe.

Additionally, feedback gathered from organisers and participants has been systematically incorporated into the CAP's development cycle, ensuring that user experience improvements are evidence-based and context-sensitive.

As the CAP continues to evolve, future versions will explore integration with AI-powered agenda setting (as conceptualised in the D3.6 – Knowledge and evidence-based support (KEBS) tool for climate assemblies' agenda setting, Initial version) and enhanced citizen feedback analytics to support climate deliberation at scale further.

3. Process Analysis – Climate Assemblies and Living Labs as Mechanisms for Participatory Climate Policy

This section outlines the procedural design and implementation of participatory processes within the CLIMAS project, focusing on both CAs and complementary LL activities. Together, these initiatives explore how citizens can shape NDCs and NAPs. It is important to distinguish between testing, which refers to the initial deployment and assessment of CLIMAS tools in real-life settings, and calibration, which refers to the subsequent process of tool refinement based on user feedback and contextual adaptation. Drawing from three pilots, CAs—Edermünde, Riga, and Catalonia—as well as calibration activities in the Vilnius and Chios Living Labs, this section demonstrates how participatory tools were tested and iteratively improved in diverse contexts.

In all pilots, the implementation of the Toolbox was structured around 7–10-person round tables, which served as the smallest unit of deliberation. These small-group formats were essential to foster open, inclusive, and participatory discussions. Each round table was facilitated by trained personnel applying intersectional and inclusive methodologies, following the guidelines co-developed in D3.9. In this way, the round table structure ensured a coherent and equitable calibration process across diverse local contexts.

3.1 Methodological Framework

The calibration process analysis applied a qualitative, multi-method approach to understand the functioning, effectiveness, and policy relevance of participatory activities:

- **Semi-structured Interviews** with facilitators, policymakers, and citizens CA participants to capture perspectives on participation, deliberation quality, and institutional uptake.
- **Participant Observation** during CA sessions and workshops to assess facilitation strategies, group dynamics, and decision-making.
- **Document Analysis** of briefing materials, recommendations, evaluation forms, and agendas to examine alignment with NDC/NAP priorities.
- **Platform Data Analysis** from the Climate Assembly Portal (CAP) to assess digital interaction patterns with scenario tools.

This combination of methods enabled a comprehensive evaluation of both CAs and LL processes in shaping climate governance.

3.2 Complementary Calibration Activities in Living Labs

In addition to the three pilot CAs, calibration activities were conducted in the Living Labs of Vilnius (Lithuania) and Chios (Greece). These activities provided crucial feedback for refining key CLIMAS tools, particularly those related to scenario building and prioritisation. While the implementation of



the Toolbox in these settings was described in D4.3, this section focuses specifically on how the calibration process took place through roundtable discussions. These roundtables—typically involving 7–10 participants—represented the smallest unit of deliberation in both CAs and LLs, and were facilitated using inclusive and intersectional approaches to ensure diverse and context-sensitive feedback. Additional roundtable calibration activities were also conducted during the CLIMAS public event in Bologna.

This section highlights how such roundtable-based calibration was implemented across different contexts, including Vilnius, Chios, and the three regional Climate Assemblies (Catalonia, Edermünde, and Riga). These discussions allowed for close interaction among citizens, facilitators, and experts, and enabled the iterative validation of participatory and digital tools in diverse socio-environmental settings.

3.2.1 Vilnius

In the Living Lab of Vilnius, a co-creation workshop on future scenario building was held in October 2023 with 12 participants, including citizens, academics and municipal representatives. The process followed the CLIMAS methodology for participatory foresight. It was conducted through small-group roundtable discussions, using tools such as STEEP analysis and morphological boxes to co-create four plausible climate-resilient futures. Following this initial phase, participants were invited to prioritise the scenarios via an online questionnaire based on the Analytic Hierarchy Process (AHP), designed and distributed through the CLIMAS platform by VUB. In spring 2025, the same participants were invited to re-evaluate the scenarios through an updated online survey incorporating their feedback. This iterative process, which combined in-person co-creation and digital engagement, formed part of the overall calibration of the Scenario Building and Scenario Prioritisation tools in Vilnius. It enabled the validation of both participatory and digital components of the methodology, ensuring consistency, usability and relevance across multiple testing stages.

3.2.2 Chios

In the Living Labs of Chios, the calibration process involved a sequence of three workshops: the first in November 2023 focused on co-creating the Scenario Building tool with local stakeholders through facilitated roundtable discussions; the second, held in April 2024, piloted the Scenario Prioritisation tool; and the third, in May 2025, involved the formal testing of the prioritisation tool using the AHP method integrated in the CLIMAS digital platform. Each session was based on small-group interactions, encouraging inclusive deliberation. In addition, a final survey was administered to all participants to collect reflections on their overall experience across the three sessions. The survey results, summarised in D4.3, provided qualitative insights into tool usability, clarity of instructions, and perceived value of the participatory process. This structured feedback, collected through roundtable-based interactions, played a crucial role in refining the calibration of the tools and ensuring their adaptability to small-island settings with distinct socio-environmental challenges.



3.3 Assembly Implementation and Tools Calibration Across Contexts

3.3.1 Catalonia

The regional CA in Catalonia (Figure 9) was supported by the Generalitat de Catalunya, providing a formal institutional link and a pathway for policy integration. The deliberative process included a series of facilitated roundtable sessions that aimed to integrate citizens and experts in the co-definition of policy dilemmas. However, a lack of early-stage expert validation during agenda setting created some misalignment between proposed topics and scientific priorities. The process included an agenda-setting model that aimed to integrate both citizens and experts, though expert input was not systematically embedded at the outset. The assembly piloted the CLIMAS tool (6), the Knowledge and Evidence-Based Support tool – KEBS, which was used to support thematic preparation and evidence-based discussions during the agenda-setting phase. Institutional commitment from the Generalitat enhanced the legitimacy of the process, though formal integration of outputs into regional planning remained limited due to procedural and validation gaps. Despite challenges in expert involvement and procedural clarity, the roundtable deliberations fostered mutual learning and contributed to the development of well-informed recommendations. All these elements were part of the calibration process of the CLIMAS toolbox.



Figure 9. Climate Assembly & small groups round table in Catalonia



3.3.2 Edermünde

The Edermünde Climate Assembly focused on climate-resilient land use, including urban heat mitigation, renaturalisation, and agricultural adaptation. The process featured a series of field trips and site visits, providing assembly members with firsthand insights into local climate challenges. These interpretative experiences—covering agricultural land, flood-affected villages, and restored ecosystems— were complemented by small-group roundtable discussions where participants worked collaboratively to develop principles and recommendations. The process incorporated adapted elements of the Scenario Building Tool and KEBS; in addition, the Citizen Science Tool was informally piloted through field-based observation activities, which served to connect participants with concrete environmental dynamics and fostered deeper engagement with local adaptation challenges. Close collaboration with local actors, including the University of Kassel and facilitators, supported the process. The process revealed limitations in inclusivity due to time constraints, cognitive complexity, and the abstract nature of some exercises, particularly for elderly participants, highlighting the need for enhanced onboarding and support systems. These elements nourished the calibration process of the CLIMAS toolbox.

3.3.3 Riga

The Riga Climate Assembly (Figure 10) prioritised inclusive engagement, especially of youth and underrepresented communities. The process was designed around small-group deliberation formats, essentially roundtable discussions, supported by interpreters, simplified materials, and small-group deliberations. A citizen science activity based on the national biodiversity platform [DabasDati.lv](https://dabasdati.lv) was implemented as part of the assembly. Participants took part in a field-based nature observation exercise, adapted from the Citizen Science Tool, which enriched deliberations by linking personal experiences with biodiversity to urban policy recommendations. The assembly utilised adapted tools from the CLIMAS framework, including the Citizen Science Tool, the methodological guidelines, and KEBS for agenda shaping. The process was strengthened by support from local government actors, whose involvement provided institutional anchoring and helped align outcomes with municipal strategies such as the city's Greenery Plan. This hands-on experience, combined with inclusive roundtable deliberation, raised awareness of urban biodiversity and fostered a tangible connection between personal observations and policy recommendations, all elements that contributed to the CLIMAS toolbox calibration.





Figure 10. Climate Assembly & small groups round table in Riga

3.4 Alignment with National Climate Adaptation Strategies

All participatory formats—Climate Assemblies and Living Lab-based calibrations—were designed to align with broader climate policy frameworks, particularly NDCs and NAPs. CLIMAS emphasises the need to strengthen the societal readiness of these instruments by embedding inclusive, deliberative mechanisms from the early phases of planning. Deliverable 4.3 demonstrates how CLIMAS tools such as KEBS, Scenario Prioritisation, and the Climate Assembly Portal (CAP) can facilitate evidence-informed citizen deliberation that directly contributes to national and subnational climate strategies.

To support this alignment, several procedural adaptations (e.g. calibration of the process) were introduced:

- **Use of CLIMAS’ Scenario Prioritisation Tool**, which incorporates Multi-Criteria Decision-Making methodologies—specifically Analytic Hierarchy Process (AHP)—to assess the relevance and feasibility of citizen-generated scenarios and proposals (D3.4 and D4.3).



- **Application of the Scenario Building Methodology**, which integrates participatory foresight techniques (e.g., SWOT, STEEP, morphological analysis) to co-develop alternative climate resilience pathways (D3.1 and D4.3).
- **Integration of citizen science** and local knowledge to reinforce the inclusion of lived experience in formal planning (D3.3).
- **Early and sustained involvement of policy stakeholders**, enhancing legitimacy and fostering institutional uptake.

The calibration process carried out within the CLIMAS project was crucial to ensure that participatory tools, particularly the KEBS and agenda-setting methods, were context-sensitive and adaptable to local institutional and cultural settings. Table 1 provides an overview of the calibration strategies and outcomes across the different CLIMAS Assembly sites, illustrating the diversity of approaches and contextual results. In the Catalonia Climate Assembly, calibration activities were instrumental in aligning deliberative dilemmas with regional policy relevance, resulting in the adoption of a unique two-dilemma format focused on energy and agri-food transitions. Although the recommendations were not formally integrated into the NAP, the process catalysed increased institutional awareness about deliberative methodologies and helped refine facilitation practices for large-scale citizen events.

In Edermünde, calibration enabled the integration of local concerns into the agenda through structured stakeholder dialogues and a preparatory survey phase. The 16 final recommendations reflected highly contextualised priorities—including the introduction of a “climate check” for municipal land use—demonstrating the success of the KEBS tool in capturing citizens’ values through iterative refinement (e.g. calibration process).

Similarly, in Riga, the calibration process facilitated close cooperation between the local government, organisers, and facilitators. This led to a framing of the Assembly around four tangible climate challenges and the use of local data and mapping tools. As a result, 41 recommendations were co-produced, many of which have already informed the Riga Urban Greening Plan 2027–2031 such as highlighted in the D4.3. This case shows how calibration ensured relevance and feasibility, while enhancing the resonance of citizen contributions with existing policy processes.

As summarised in D4.3, these examples demonstrate that well-calibrated deliberative processes serve as effective “soft inputs” into climate planning, improving not only the legitimacy but also the implementability of adaptation measures.

Table 1. Overview of Calibration Strategies and Outcomes Across CLIMAS Assembly Sites

Assembly Site	Calibration Strategy	Outcome	Policy Uptake
Catalonia	Dilemma definition workshops; alignment with Generalitat priorities	Two-dilemma structure on energy/agri-food; improved facilitation	No formal adoption; increased institutional awareness

Edermünde	Pre-survey and stakeholder dialogues; local framing	16 citizen-backed recommendations incl. “climate check”	Integration into municipal planning is underway
Riga	Agenda-setting via KEBS; mapping & co-design with municipality	41 recommendations aligned with Greening Plan goals	The 4 strategic directions are already aligned in policy

3.5 Key Findings

- CLIMAS participatory activities—whether conducted through CAs or LLs—can successfully bridge bottom-up knowledge and top-down policy when supported by robust tools.
- Citizen science and iterative testing increase legitimacy, enhance clarity, and ensure tool adaptability across contexts.
- Institutional anchoring and inclusive facilitation strategies are essential for long-term policy impact and engagement in climate governance.

These experiences illustrate that improving the uptake potential of national climate strategies requires participatory infrastructures capable of translating local knowledge into national commitments, and CLIMAS offers a replicable framework for achieving this, particularly through its toolbox of scenario and evidence-based tools.

4. Lessons Learned from Testing & Calibration

The implementation and testing of the Climate Assembly Portal (CAP) and associated Climate Assembly (CA) processes across various European contexts have yielded key insights into the design, usability (ease of use, accessibility, and clarity), and impact of digital tools for participatory climate governance. This section distils the most relevant lessons from pilot implementations in Catalonia, Riga, and Edermünde, as well as from targeted testing of Citizen Science components in the Chios and Vilnius Living Labs.

4.1 Key Successes

Inclusive and Accessible Design

The CAP was intentionally developed to prioritise inclusivity through a principle of “inclusion by design.” Features such as mobile responsiveness, screen reader compatibility, and evolving multilingual support have contributed to broader accessibility. Testing in Chios and Riga demonstrated that clear layouts, translated content, and participatory role-playing methodologies helped overcome digital barriers and encouraged engagement among participants from diverse social and educational backgrounds.

Institutional Anchoring and Legitimacy

Institutional commitment was a critical enabler of successful implementation. In Catalonia, the Generalitat’s backing provided political recognition and formal mechanisms for integrating CA outputs into climate adaptation planning. Similarly, the collaboration with local authorities in Riga and Edermünde ensured contextual relevance and logistical support for deliberative and citizen science activities. This institutional anchoring enhanced the legitimacy of citizen-generated proposals and supported continuity beyond the assemblies.

Tools for Informed Deliberation and Prioritisation

The integration of structured frameworks—such as the Multi-Criteria Analysis (MCA), Drivers Pressures State Impact Response (DPSIR), and Political Economic Social Technological Legal Environmental (PESTLE) analysis—proved essential for guiding participants through complex climate decisions. These tools enabled evidence-based prioritisation of policy options, helping participants articulate trade-offs and align values with technical feasibility. In combination with expert facilitation, these tools elevated the quality of deliberation and bolstered the policy relevance of assembly outcomes.

Innovative Use of Citizen Science

The introduction of the Citizen Science Toolkit, particularly the Project Cards and Implementation Guidelines, added a new layer of engagement. Activities piloted in Vilnius, Chios, Riga, and



Edermünde fostered environmental awareness, strengthened group cohesion, and produced actionable insights linked to local adaptation needs.

An additional strength observed during the testing phase was the positive reception of the training sessions for the Climate Assembly Portal and the Multi-Criteria Analysis (MCA) tool. Survey feedback indicated that participants valued the clarity of design, visual coherence, and practical examples used in training, particularly for the MCA tool. Respondents highlighted that initial examples helped to clarify the tool's purpose and functionality, enhancing engagement. Similarly, the structured presentation of the Climate Assembly Portal was appreciated for its usability and alignment with project objectives. These findings confirm the added value of combining theoretical instruction with applied, example-driven learning, as promoted by the CLIMAS methodology.

4.2 Challenges and Areas for Improvement

Despite overall positive feedback, the surveys identified areas for further development. Participants in the MCA tool training expressed a need for additional hands-on exercises and guidance on interpreting outputs, suggesting that interactive, practical learning components should be strengthened. For the Climate Assembly Portal, suggestions included providing a more straightforward homepage introduction for first-time users and enhancing accessibility features to better support diverse user groups. These insights underscore the importance of investing in comprehensive onboarding materials and continuous platform refinement.

Sustaining Engagement Beyond the Assembly

Despite high engagement levels during formal sessions, sustaining citizen participation after the conclusion of the Climate Assemblies proved challenging. For example, while the Riga Assembly initiated regular feedback communication with participants to foster long-term engagement, in other cases, such as Edermünde, post-assembly follow-up was more limited, with no structured mechanisms in place to track the uptake of recommendations. The Monitoring and Evaluation Module was therefore unevenly utilised across sites, often depending on the capacity and resources of local authorities. Future iterations of the CAP could integrate features such as gamification, progress dashboards, or localised notification systems to incentivise continued interaction, improve transparency, and enhance accountability over time.

Digital Literacy and User Experience

In smaller or rural settings such as Edermünde, participants encountered difficulties navigating certain CAP features due to limited digital familiarity. These challenges underscore the need for user onboarding materials, training sessions, and responsive technical support. Simplifying interfaces and embedding step-by-step guidance or interactive tutorials could significantly improve accessibility and reduce user frustration.

Complexity of Information Materials



Initial briefing materials in Riga were found to be overly technical, which hindered early engagement. The successful use of visual aids, simplified language, and interactive exercises in later sessions highlights the importance of tailoring content to different literacy levels. Clearer structure, progressive learning formats, and multimodal content delivery should become standard design practices.

Logistical Complexity of Citizen Science Activities

The inclusion of citizen science requires careful planning, appropriate facilitation, and, in some cases, specialised tools or field access. In Edermünde, for example, logistical demands limited the scope of science-based activities. Ensuring feasibility through realistic activity design, resource allocation, and local adaptation of toolkits is critical for effective deployment.

4.3 Recommendations to enhance the adoption of the CLIMAS Climate Change engagement toolbox

To ensure the effective uptake and long-term impact of the CLIMAS Climate Change Engagement Toolbox, the following recommendations are derived from the lessons learned during its testing and calibration across diverse contexts, including Living Labs and Climate Assemblies. These recommendations build on both user feedback and empirical observations to support broader adoption, enhance inclusivity, and strengthen the institutional integration of participatory climate tools. They aim to guide future implementers, be they policymakers, practitioners or civil society actors, in tailoring the Toolbox to their local realities while maintaining fidelity to CLIMAS's core principles of accessibility, deliberative governance and climate justice.

- Design with accessibility in mind: Prioritise mobile-first, user-centric design and embed onboarding support to ensure broad participation regardless of digital literacy levels.
- Combine online and offline formats: Hybrid approaches allow for more inclusive deliberation by accommodating varying preferences, capabilities, and local contexts.
- Promote long-term engagement: Use features like user profiles, badges, and role-based contributions in follow-up activities to maintain involvement and recognise participant efforts.
- Strengthen institutional integration: Secure early commitments from relevant authorities to ensure uptake of citizen inputs and embed CAs into climate policy cycles.
- Facilitate localised citizen science: Adapt CS activities to local capacities and contexts, using place-based projects to ground abstract climate concepts in participants' lived realities.
- Invest in training and facilitation: Equip organisers with guidelines, templates, and capacity-building tools to effectively integrate deliberation, digital tools, and citizen science.



5. Main Results and Contributions

Deliverable 4.4 plays a bridging role between earlier and upcoming outputs related to the CAP and its tools. The activities and findings presented in D4.4 provide input for the forthcoming Deliverables D3.12 (Final Tool to Enable Climate Assembly Outcomes on Dynamic Climate Change Adaptation Plans) and D3.14 (Final Evaluation Report on the Influence of Citizen Engagement on Policy).

These upcoming deliverables build upon earlier versions—D3.5 and D3.7, which introduced the initial prototypes of the CAP and related tools. D4.4 consolidates and expands these foundations by integrating insights from real-world testing in three Climate Assemblies (Catalonia, Riga, and Edermünde) and Living Labs, as well as from calibration activities and process analysis conducted in WP4.

5.1 Integration of Tools for Policy Uptake

D4.4 demonstrates how the Climate Assembly Portal (CAP) operationalises the participatory framework introduced in D3.5, providing a modular infrastructure that supports citizen engagement processes explicitly aimed at shaping and informing public policy. In this context, policy-oriented citizen engagement refers to the involvement of citizens in structured deliberative processes that contribute directly to the formulation, prioritisation, and follow-up of climate adaptation policies.

The CAP and its suite of tools form the backbone of the CLIMAS Toolbox and have been calibrated to enhance alignment with National Adaptation Plans (NAPs) (Cintrón & Di Ciommo 2024).

Key components include:

- **Monitoring and Evaluation Module:** This tool enables the systematic tracking of Climate Assembly recommendations over time, offering a structured way to assess alignment with NAPs. It enhances transparency and institutional accountability by displaying visual progress indicators and response timelines.
- **Scenario Prioritisation Tools:** The integration of the Multi-Criteria Analysis (MCA), DPSIR, and PESTLE modules allows users to evaluate and compare policy options against multiple weighted criteria. These tools facilitate value-driven deliberation and support informed, evidence-based decision-making.
- **Citizen Science Toolkit:** Developed in WP3 and tested in WP4, this toolkit enables citizens to contribute localised environmental data and experiential knowledge. D4.4 confirms its practical relevance, ensuring that citizen input becomes a core component of evidence-informed climate policy.
- **Knowledge and Evidence-Based Support (KEBS) Tool:** Supports agenda setting by linking scientific evidence with context-sensitive deliberative questions.
- **Survey Module:** Enables real-time collection of participant feedback and procedural input.



- **Proposal Module:** Facilitates the collaborative development and refinement of citizen recommendations.
- **Facilitation Guidelines and Future Scenario Building Manual:** Ensure inclusive, structured deliberative design grounded in foresight and intersectional values.

These tools, refined and validated through D4.4, will directly inform the final design and documentation foreseen in D3.12. They have not only been functionally embedded within the CAP but also tested across multiple pilot sites. Their integration strengthens the CAP's capacity to support iterative learning, participatory foresight, and institutional follow-up, ensuring that the deliberative process contributes meaningfully to climate adaptation policies.

5.2 Operational Validation Through Calibration

The tools and methodologies introduced in D3.5 and D3.7 were piloted in real-world Climate Assemblies in Catalonia, Riga, and Edermünde, providing critical validation of their applicability.

In all pilots, the implementation of the Toolbox was structured around 7–10 person round tables, which served as the smallest unit of deliberation. These small-group formats were essential to foster open, inclusive, and participatory discussions. Each round table was facilitated by trained personnel applying intersectional and inclusive methodologies, following the guidelines co-developed in D3.9. In this way, the round table structure ensured a coherent and equitable calibration process across diverse local contexts. In Riga, an adapted version of the Citizen Science Toolkit led to the implementation of a biodiversity field observation exercise, based on the DabasDati.lv platform. This hands-on experience allowed citizens to engage directly with environmental monitoring, grounding discussions in local ecological realities.

In Edermünde, logistical constraints limited full Citizen Science Toolkit deployment, but field visits and local interpretation supported grounded deliberation. Participants engaged directly with affected landscapes, reinforcing their proposals with lived knowledge.

The calibration and operational validation of the CAP also included the assessment of integrated tools such as the Citizen Science Toolkit and the Knowledge and Evidence-Based Support (KEBS) Tool. These instruments, while documented separately in D4.2 and D4.3, were functionally embedded within the CAP environment and contributed directly to the participatory quality and inclusiveness of the Climate Assembly processes.

The Citizen Science Toolkit enabled new forms of engagement by empowering participants to collect, interpret, and discuss data relevant to climate adaptation in their local contexts. Its deployment in Riga, Edermünde, Chios, and Vilnius demonstrated its capacity to enhance civic empowerment and broaden the knowledge base for deliberation.

Similarly, the KEBS tool facilitated evidence-informed agenda setting by integrating expert input and citizen priorities, ensuring that the deliberative process was grounded in both scientific legitimacy



and social relevance. The use of KEBS in the assemblies of Catalonia, Riga, and Edermünde improved agenda transparency and alignment with broader climate policy frameworks.

The inclusion of these tools within the CAP operational ecosystem reinforces the portal’s role as an integrative platform, enhancing the robustness of the overall participatory process and contributing to the Toolbox’s scalability and transferability.

In addition, collaborative training sessions were held between cambiaMO and TVS (Annex 1) to refine the Climate Assembly Portal. These sessions enabled feedback exchange, allowing for technical improvements and user interface enhancements that directly respond to the needs identified during pilot testing.

Public dissemination events, such as those held during ECCA 2025 conference and “Adapting Together” in Bologna (Figure 11), showcased the citizen engagement tools via QR codes, enabling participants to directly interact with the platforms (Annex 2). These demonstrations not only introduced the tools but also gathered practical feedback that informed further tool refinement and supported the promotion of inclusive climate governance.

These pilots confirmed the feasibility and added value of the CAP’s tools, generating data and practical insights that will be critical for the preparation of D3.12 and D3.14.

The operational validation was complemented by training surveys that provided evidence of the tools’ accessibility and relevance. Positive feedback on the MCA tool training confirmed its utility in supporting scenario prioritisation exercises, while suggestions for enhanced practical exercises pointed to opportunities for strengthening user competence. The Climate Assembly Portal training similarly received favourable evaluations regarding visual layout and usability, with recommendations that will guide further calibration, especially in relation to accessibility and onboarding for diverse audiences.

5.3 Policy Impact and Knowledge Transfer

The modular and interoperable design of the CAP—as initially defined in D3.7 and expanded in D4.4—aligns with the intended goals of D3.14 by enabling:

- **Policy Coherence and Cross-Border Learning:** The CAP provides reusable templates, data structures, and process guides that other regions can adopt and adapt for running their own Climate Assembly. This facilitates harmonisation of participatory approaches while allowing for local tailoring.
- **Scalable Knowledge Transfer:** Through open documentation, training materials, and shared evaluation frameworks, the CAP functions as a digital common that supports replication of good practices beyond the initial pilot sites.
- **Impact Assessment:** CAP collects engagement analytics, enabling data-driven reflection on how citizen contributions influence climate governance.



These findings contribute to the growing evidence base for participatory policymaking. D4.4 serves as a critical intermediate step in the development of the Climate Assembly Portal and its associated tools. It builds upon the foundations set in D3.5 and D3.7 and directly contributes to shaping the final deliverables D3.12 and D3.14. By validating the tools in real-life settings, D4.4 strengthens the CLIMAS framework's ability to embed citizen participation in climate adaptation strategies that are inclusive, evidence-based, and adaptable across contexts.

5.4 Empirical Evidence from Tool Calibration: Training Sessions and Survey Results

As part of the calibration and testing process described above, dedicated training sessions were held to familiarise participants with key tools of the CLIMAS Toolbox. The following subsections provide a synthesis of survey-based evidence collected during these trainings, offering insights into the perceived usability, relevance, and design of the Multi-Criteria Analysis (MCA) tool and the Climate Assembly Portal.

5.4.1 Results from MCA Tool Training

As part of the calibration and testing of the CLIMAS Toolbox, a dedicated training session was organised to familiarise participants with the Multi-Criteria Analysis (MCA) tool. This tool, as described in Deliverables D3.5 and D3.7, supports citizens and stakeholders in the prioritisation of climate adaptation scenarios through a transparent and systematic evaluation of alternatives. The training adopted a hands-on, participatory approach, combining a step-by-step live demonstration of the tool's five-step process (project setup, criteria definition and weighting, scenario input, evaluation method selection, and final analysis) with a period of live testing where participants could directly apply what they learned. Real-time technical guidance and Q&A support were provided, including screen sharing for problem resolution. The training was designed to build participants' capacity to apply the tool effectively, ensuring alignment with the principles of inclusive, knowledge-based decision-making promoted by the CLIMAS project.

Following the training, feedback was collected through a survey to assess participants' perceptions regarding the clarity, relevance, and overall usefulness of the session. The survey included both quantitative and qualitative questions and was administered in compliance with ethical guidelines and GDPR requirements. Responses were anonymised to ensure the privacy and confidentiality of participants. The survey and the live session together revealed both the strengths of the tool and challenges such as technical difficulties (e.g., double login requirements), confusion regarding the different evaluation methods (Direct, Pairwise Comparison, Express), and inconsistent understanding of key terms like "scenario", "option", "criteria", and "indicators". The feedback obtained provides valuable insights into the strengths of the training as well as areas for improvement that can inform the further development of the tool and its associated training resources.



The results indicate that the training was generally well-received. Most participants reported that the session helped them understand how and why the MCA tool can be applied to prioritise climate adaptation scenarios. The majority of respondents agreed or strongly agreed that the training content, including the examples presented, was relevant to their work and helped illustrate the practical application of the tool. Participants highlighted, in particular, that the initial example used during the session was helpful in clarifying the tool’s purpose and functionality. The visual step bar was particularly appreciated for helping participants follow the prioritisation process clearly. This suggests that grounding the technical content in concrete, relatable examples significantly supports participants’ comprehension and engagement.

Regarding the clarity of the training, the feedback suggests that participants found the session accessible and easy to follow. No major issues of confusion were reported, and participants generally felt that the training objectives were met. However, some participants expressed a desire for additional practical exercises or hands-on demonstrations. Specifically, they indicated that more opportunities to engage directly with the tool, including working through an example within the digital environment of the Climate Assembly Portal, would enhance their learning experience. Participants also recommended the inclusion of short video tutorials, concise guides, visual aids (such as icons and diagrams), and clearer in-platform guidance, including tooltips or a help function. This observation underscores the importance of interactive and experiential learning approaches, particularly when introducing technical decision-support tools such as the MCA.

Furthermore, one participant noted that further guidance on how to interpret the results generated by the MCA tool would be beneficial. This points to a potential gap in the training that could be addressed by providing complementary resources, such as step-by-step guides or video tutorials, that explain not only how to use the tool but also how to make sense of its outputs in the context of real-world climate adaptation planning.

The feedback collected through this survey has direct implications for the calibration of the CLIMAS Toolbox and the refinement of future training activities. The positive responses confirm the added value of combining theoretical instruction with applied examples, as foreseen in the methodological framework set out in Deliverable D3.5. At the same time, the suggestions for improvement highlight the need to further strengthen the interactive and practical dimensions of the training, in line with the functionalities offered by the Climate Assembly Portal described in Deliverable D3.7. Participants were also encouraged to apply the tool in real-world settings, such as climate assemblies in Chios and Vilnius, to validate further and adapt the tool for diverse participatory planning contexts. In particular, the integration of interactive tutorials, simulation exercises, and follow-up support mechanisms could significantly enhance the accessibility and usability of the tool for diverse user groups.

In conclusion, the MCA tool training provided a practical introduction to the tool’s potential and application within the broader CLIMAS framework. The feedback gathered will be instrumental in informing the next steps in the calibration of the Toolbox and the design of future capacity-building



activities. It is recommended that future training modules incorporate more interactive components and that the Climate Assembly Portal be used as a platform to deliver blended learning experiences, combining self-paced materials with facilitated sessions. These refinements will help ensure that the MCA tool continues to support fair, transparent, and participatory decision-making in climate assemblies, enabling communities to structure collective choices and facilitate informed deliberation.

5.4.2 Calibration of Climate Assembly Portal

As part of the CLIMAS project's efforts to calibrate and test its Climate Change Citizens Engagement Toolbox, a dedicated training session was organised to introduce participants to the functionalities of both the Methodology for Citizen-Collaborative Future Scenario Building for a Climate Resilient Society (D3.5) and the Climate Assembly Portal (D3.7). This session aimed to ensure that key stakeholders—including policymakers, NGOs, activists, and researchers—could familiarise themselves with the tools and provide structured feedback. The session formed an integral part of the toolbox testing process, contributing to the continuous improvement and calibration of the CLIMAS solutions.

Following the presentation of the CAP, a survey was conducted to gather participants' perceptions of the toolbox's usability, visual design, content adequacy, and overall functionality. The survey included open and closed questions, inviting qualitative reflections alongside more specific recommendations. Responses were collected anonymously and processed in compliance with GDPR requirements, safeguarding the privacy and data protection rights of all participants (Table 1-2).

The results of the survey indicate that the visual presentation and layout of the toolbox pages were generally well-received. Participants highlighted the clarity of the design and the alignment of visual elements with the objectives of the Climate Assembly Portal. Nonetheless, some respondents suggested that the homepage could benefit from a brief introductory description to provide immediate context for first-time users. Furthermore, there were suggestions to enhance accessibility through adjustments in the layout to cater to diverse user needs.

In terms of usability, the majority of participants expressed the view that the toolbox can be easily used by researchers but also by policymakers, NGOs, and activists. However, several respondents noted that proper onboarding through training materials—such as tutorial videos or user manuals—would be crucial to ensure that these groups can fully benefit from the tools. While some respondents were confident in the inclusiveness of the design, others expressed uncertainty and recommended further simplification of certain features to facilitate broader use.

The feedback regarding open question limits was mixed. Some participants advocated for introducing a character limit (e.g., between 250 and 500 characters) to promote concise, focused input and to facilitate analysis. Others preferred to retain flexibility, arguing that open-ended questions should allow for detailed responses where necessary. This divergence of views suggests



that future iterations of the toolbox might consider offering configurable settings for question limits depending on the context of use.

Participants also provided valuable input on the adequacy of keywords and background materials integrated into the toolbox. Several respondents recommended expanding the list of keywords to include terms such as “biodiversity” and “resilience” to capture the multifaceted nature of climate challenges better. Opinions on the provision of background documents—particularly those dating back to the first IPCC report in 1990—varied. While some participants supported this idea, others questioned its relevance or feasibility, underscoring the need to balance comprehensiveness with usability.

Suggestions for enhancing the sources integrated into the toolbox included the inclusion of Google Scholar, national media outlets, blogs, and AI tools such as ChatGPT. These additions were seen as ways to enrich the evidence base for scenario building and agenda setting. Furthermore, there was strong consensus on the importance of expanding social media outreach through platforms such as LinkedIn, ResearchGate, Instagram, and TikTok to engage more effectively with diverse target groups.

Finally, the majority of participants affirmed the added value of the CLIMAS toolbox compared to pre-existing resources. The structured approach to dilemma generation, agenda setting, and scenario prioritisation was particularly appreciated. However, a few respondents noted technical issues encountered during their interaction with the current version of the platform, pointing to the need for further refinement and testing across different operational environments.

In conclusion, the training session and survey have provided essential insights that will inform the continued calibration and enhancement of the CLIMAS toolbox. The feedback highlights the importance of improving user guidance, expanding content coverage, broadening outreach efforts, and addressing technical limitations. These elements will be central to the next steps of the project, as the tools are further developed, tested in Living Labs, and prepared for final validation and dissemination.

Table 2. Improvement Feedback

Question	Improvement Feedback from citizens and experts	Developers' response and consideration for potential calibration
Is the tool easy to use for policymakers, NGOs, activists, and researchers?	The user experience should be improved. Please also change the wording: it's not "agenda generation", but "idea/content generation". It can be the basis of a discussion with policymakers and practitioners, but is not the "final results". I would be more humble/honest with the title of the tool.	We understand the feedback, but since we mentioned it in our proposal and deliverables as an agenda generation tool, we are not changing the tool's name for now.
	Yes. Maybe there could be a wider search for social media engagement on certain topics, and the ability to map out a specific territorial area for the results.	We will further explore the possibilities mentioned in the feedback.

	No, the tools are complex and require extensive knowledge of the subject that is requested.	We've tried to design the tool as user-friendly as possible and are continuously improving the UI based on user feedback. Though it requires some understanding of the subject, the tool is straightforward and easy to use, with proper user instructions integrated wherever possible.
	I think a more step-by-step guided process could help better navigate it. I would add info tips on mouseover to clarify what specific features mean, for non-experts, such as weighting criteria. Explain features through guiding questions	We've considered this feedback and are working on it to help with better user navigation.
	I think this will always be complicated – it depends on what knowledge base the users have.	We've tried to make the tool user-friendly and continuously improve the UI based on users' feedback. Though it requires some understanding of the subject, the tool is straightforward and easy to use, with proper user instructions integrated wherever possible.
	Maybe we could work on simplify the language of presentation.	We will consider this.
Should we have a lower- or upper-characters limit for the open questions? Which should be (e.g. 250-300, 500)? (didn't understand the question)	Usually, users give short answers or avoid answering open questions. However, I think having an upper limit on characters will be helpful for the analysis of answers.	Needs more clarification.
	No minimum characters, no maximum number either. Does it matter for the analysis if you provide the keywords in the next step anyways?	Needs more clarification.
	It depends, probably on the type of users; some users may need more space, others may need less space.	Needs more clarification.
	I would only suggest keeping them short, not limit characters.	Needs more clarification.
	Lower.	Needs more clarification.
	Yes, between 100 and 300 words.	Needs more clarification.
Please share your thoughts on the format and layout of the toolbox pages. Any suggestions for visual presentation or the use of the Citizens' Assembly icon are welcome.	A brief description on the front page might be useful.	We will consider this and implement it in the next version.
	Although the cell phone was not optimised, the computer was working very well. The keywords should be in all languages. The AI was quite slow. It should be improved. At least send them the keywords in Spanish. The layout looks a bit old, from the 2000s.	As our transformers for agenda generation are trained in English, it is difficult for us to use any other language as input. Cell phones shouldn't be an issue, but we will investigate it further. We will consider this layout suggestion.
	It looks good. The purpose of each tool could be clearer for people who are just starting out with this platform.	We will add a know-how section for users with more precise instructions.

	I think there is too much textual information on the home page, and in general, too much text.	We will consider this and try to solve this issue in the next version.
	I think that while the tool is very good, it is not very user friendly for non-experts or non-technology inclined persons. Maybe little info icons on the buttons for the tools explaining what everything does or some clear explainer on each page could help.	We are going to add a know-how section for users for clearer instructions.
	More visualisation is needed.	The feedback is not clear.
	To include the logos and other aspects of CLIMAs identities.	We will take this into consideration.
Do you think that the list of keywords is adequate? (Should we add some additional ones such as biodiversity, resilience....)	It is not clear how many keywords I can use.	There is no limitation on the number of keywords that can be used.
	Yes, you could add others, but in any case, is nice to have an open field. Just remember translating the keyword to the language.	The user can type any keywords, but translation is impossible now since it adds more complexity.
	Additional ones are better.	We are considering adding more pre-defined keywords.
	Yes, more words could be useful. Accessibility wasn't available.	We are considering adding more pre-defined keywords and need clarification on the specific accessibility issues that were not available.
	Yes, definitely more keywords should be included. Maybe scan an IPCC report for more keywords.	We are considering adding more pre-defined keywords.
	I would add the possibility of adding keywords. I would add the possibility of adding media sources. I would add the possibility of adding social media platforms.	We are considering adding more pre-defined keywords and trying to add possible new media and social media sources, but there are limitations.
	The ones mentioned in brackets could be added.	We are considering adding more pre-defined keywords.
	Yes.	We are considering adding more pre-defined keywords.
	Air quality.	We are considering adding more pre-defined keywords.
It could be more.	We are considering adding more pre-defined keywords.	
Yes, I think there is room for improvement.	We are continuously working on improving the tools.	
Could you provide the relevant background documents since 1990, when the first IPCC report was published?	I do not understand the question.	
	No	
Which additional sources do you feel we should add (e.g., Google Scholar, ChatGPT...)?	National media. Is it possible to write keywords in the national language?	Since our agenda generation transformers are trained in English, we find it challenging to accept input in other languages.
	I think Google Scholar and maybe other local sources could be good. However, it also depends on performance. The current version does not load dilemmas or agendas.	Google Scholar does not have an API available.
	Other newspapers, blogs, etc.	Initially, we tried to implement as many social media platforms as possible.

		However, the API cost is too much for our preference; thus, we only use the popular ones.
	Both of them and social media metrics to map out hot topics.	We will consider this and add it in the next version.
	ChatGPT would be great.	ChatGPT API is too expensive for us to use.
	Scholar would be nice. However, other key portals, such as the EU Climate-related platforms, are also important.	We will try to add EU-focused platforms in the next version.
	Chat GPT is a parallel output source to compare.	ChatGPT API is too expensive for us to use.
	More diverse print outputs.	Initially, we tried to implement as many social media platforms as possible. However, the API cost was too high for our preference; thus, we only used the popular ones.
	I would add the possibility for all users to propose additional sources, which shall be evaluated by the portal's "owner".	This is a good suggestion, but the process would be too complex and time-consuming.
Should we add LinkedIn, ResearchGate, Instagram, and TikTok to the social media list for achieving the relevant target groups?	LinkedIn is my preferred one.	LinkedIn API is not available. LinkedIn also do not allow web scraping.
	Yes.	LinkedIn and Research Gate APIs are currently unavailable. LinkedIn also do not allow web scraping.
	Not tick tock, please! LinkedIn, yes, Research Gate is very important.	LinkedIn and Research Gate APIs are currently unavailable. LinkedIn also do not allow web scraping.
	Probably yes.	LinkedIn and Research Gate APIs are currently unavailable. LinkedIn also do not allow web scraping.
	Not tick tock, please! LinkedIn, yes, Research Gate is very important.	LinkedIn and Research Gate APIs are currently unavailable. LinkedIn also do not allow web scraping.
	As mentioned earlier, I would suggest adding the option to propose more through an "add" or "propose" button. I would add a non-big-tech social platform such as BlueSky, Peer, and similar.	The LinkedIn and ResearchGate APIs are currently unavailable. LinkedIn also do not allow web scraping. Bluesky is already added. We will also consider other services that provide an API to collect relevant information or allow web scraping, though our preferred way is an API.
	It could be, although verified info can be relevant.	LinkedIn and Research Gate APIs are currently unavailable. LinkedIn also do not allow web scraping.
	Yes, maybe try to add all relevant social media accounts.	We have already tried the top mainstream social media, but there are limitations. It is possible to add social media that provide an API to collect data to the tool.
	Ok.	LinkedIn and Research Gate APIs are currently unavailable. LinkedIn also do not allow web scraping.
	TikTok.	TikTok is not possible since it does not provide an API.

	Bluesky and other non-Musk services. Politically, the divide between them is growing in terms of discourse on the platforms.	Blusky has already been added to the next version. We will also consider other services that provide an API to collect relevant information or allow web scraping, though our preferred way is an API.
Generating dilemmas and agendas takes time. Do you think the CLIMAS toolbox adds value compared to what we had before?	It should be, but the current version, in my case, does not work.	Need more clarification on which did not work.
	Yes, but a short "read-me" log shall be provided together with results, explaining why a particular dilemma or agenda resulted from the process. Transparency is key	We will consider this and the possibility of implementing it.
Do you think that the platform is working properly? Do you have any additional suggestions for improving it?	Yes, but I would primarily suggest what I pointed out before. In any case, from presgencat we will evaluate the tool and provide more insights.	We welcome more evaluation and insights.
	For some fields, the agenda tool kept loading, as if it was not working correctly.	We will further investigate this issue.
	(1) The drop-down menu with years should be reversed. Start with the current year, then go into the past. (2) Add magazines with EU relevance, not US/UK journals only. Make it possible to add other online journals. (3) The word frequency chart is not helpful at all, at least not in the current version. I do not see the additional benefit of it. (4) The "list of agendas" (after prioritisation) should be renamed to "Prioritised list of ideas". (5) Overall, the tool helps to get an overview of relevant topics, which should then be discussed by experts/knowledge advisory board, the organising group.	We will consider this and further improve it.
	More intuitive info! For the citizens' assembly, it appears to have a different website! I couldn't access the citizens' assembly portal with the same username and password - perhaps it's due to my limited skills.	Please get in touch with our technical team if you have any login- or sign-up-related issues.
	A bit slow, but I guess there's nothing we can do about it.	Need more clarification on which part of the platform the user is experiencing slowness. The platform is well optimised for smooth browsing. It's already mentioned that agenda generation may take some time.
	On iPhone, the platform lags, and it eventually blocks. I'm having trouble accessing all features.	Device type is not supposed to cause any browsing issues. Need more clarification.
	It shall undergo a deep Usability testing and AAA+ Accessibility testing.	We will consider this matter.

Table 3. Other Feedback

Question	Feedback
<p>Please share your thoughts on the format and layout of the toolbox pages. Any suggestions for visual presentation or the use of the Citizens' Assembly icon are welcome.</p>	It is nice and relevant to the name.
	The visual presentation is nice and easy to use for me.
	The icon is excellent and represents inclusivity.
	The format is ok.
	I agree with the existing format.
<p>Is the tool easy to use for policymakers, NGOs, activists, and researchers?</p>	Yes, with the proper training video, it is quite easy to use.
	Not sure, I think yes.
	Yes.
	It's easy to use.
<p>Do you think that the list of keywords is adequate? (Should we add some additional ones, such as biodiversity, resilience, etc?)</p>	It seems complete. I selected coastal resilience, which was found. It would be great to make it bigger with the names of cities and geographical info.
	Good that people can add their keywords.
<p>Could you provide the relevant background documents since 1990, when the first IPCC report was published?</p>	Yes.
	Yes.
	OECD DELIBERATIVA WAVE.
	Not my expertise; I need to check with CambiaMO or other CLIMAS partners.
<p>Which additional sources do you feel we should add (e.g., Google Scholar, Chat GPT...)?</p>	Not a specialist, I'm afraid.
	I think no, as not to make too much.
<p>Should we add LinkedIn, ResearchGate, Instagram, and TikTok to the social media list for achieving the relevant target groups?</p>	Not an expert here. We will explore it with an expert in the social media field.
<p>Generating dilemmas and agendas takes time. Do you think the CLIMAS toolbox adds value compared to what we had before?</p>	Yes.
	I think there is a potential for added value.
	It could help as a starting point to explore possibilities.
	I do not know.
	Yes, it's a good start to a discussion around the possible remit and agenda. It's not the final answer.
	I'm not sure yet; I need to test it better.
	It adds value, and depending on the context, the toolbox will provide guidance and offer additional viewpoints.
	Yes, this will democratise the Climate assemblies.
<p>Do you think that the platform is working properly? Do you have any additional suggestions for improving it?</p>	Not in my case.
	It is rich with information and will determine the platform's usefulness, depending on the user's knowledge.
	Yes.

The feedback gathered through these training sessions is essential not only for improving user guidance and accessibility but also for finalising the Climate Assembly Portal (CAP) and the broader CLIMAS Climate Change Engagement Toolbox. These insights directly inform the design and refinement of the final versions of the tools, ensuring their usability, relevance, and alignment with the participatory and inclusive values that underpin the CLIMAS approach to climate adaptation.



6. Final Conclusions and Recommendations

6.1 Conclusions

The conclusions of this deliverable are grounded in the participatory calibration processes implemented across the CLIMAS Climate Assemblies and Living Labs. Unlike initial testing or evaluation exercises, calibration refers to the iterative refinement of digital and deliberative tools through real-world application, structured user feedback, and contextual adaptation. This report has demonstrated how calibration played a central role in aligning the CLIMAS Toolbox with local socio-environmental contexts and policy frameworks.

Calibration was carried out through roundtable-based interactions, participatory training sessions, and targeted feedback surveys across pilot sites including the CAs of Catalonia, Riga, Edermünde, and the LLs of Chios and Vilnius. These activities allowed for the systematic improvement of key tools such as the Climate Assembly Portal (CAP), the Multi-Criteria Analysis (MCA) tool, the Knowledge and Evidence-Based Support (KEBS) tool, and the Citizen Science Toolkit. As a result, the usability, accessibility, and policy relevance of the tools were significantly enhanced.

The findings confirm that calibration strengthened the inclusiveness and legitimacy of the citizen engagement processes. In Riga, for instance, calibration contributed to the alignment of participatory outputs with the Urban Greening Plan 2027–2031. In Edermünde, it enabled the integration of locally grounded concerns into the CA agenda. In Vilnius and Chios, calibration ensured that scenario building and prioritisation tools were responsive to user feedback and adaptable to distinct institutional and environmental settings.

Moreover, the calibration process supported the operational maturity of the CLIMAS Toolbox, making it more scalable, replicable, and policy relevant. By embedding iterative feedback mechanisms, multilingual interface adjustments, and inclusive facilitation guidelines, calibration served as a critical bridge between tool development and institutional uptake. These processes laid the foundation for the forthcoming finalisation and dissemination of the Toolbox (D3.12) and its impact evaluation (D3.14).

In conclusion, calibration has proven essential not only for improving technical functionalities but also for ensuring that the tools developed under CLIMAS can effectively support inclusive, context-sensitive, and evidence-informed climate adaptation strategies across Europe.

6.2 Strategic Recommendations

6.2.1 Calibration-Centred Recommendations

The following strategic recommendations are directly informed by the calibration activities implemented in the CLIMAS Climate Assemblies and Living Labs. These insights reflect iterative



refinements based on user feedback, participatory testing, and contextual adaptation. They aim to support the future operationalisation and scalability of the CLIMAS Toolbox.

1. Treat calibration as a continuous, participatory process

Calibration should not be understood as a one-time technical adjustment but as a structured and ongoing engagement with diverse user groups. The roundtable-based calibration sessions confirmed the value of involving citizens, facilitators, and institutional actors in iterative refinement cycles to improve contextual relevance and inclusiveness.

2. Adapt calibration activities to local capacities and constraints

Pilot experiences revealed that calibration must account for variations in digital literacy, institutional readiness, and socio-cultural conditions. For instance, in Edermünde, digital tools were complemented by field-based observation to increase local relevance. Future calibration efforts should adopt flexible formats and tools tailored to specific settings.

3. Embed feedback mechanisms within the tools themselves

To ensure that calibration continues beyond the initial piloting phase, tools such as the Climate Assembly Portal and the MCA tool should integrate embedded feedback features, including in-platform surveys, helpdesk support, and onboarding guides. These elements enable the collection of user experience data and support real-time refinement.

4. Strengthen onboarding and training during calibration

Feedback from the CA of Riga, and the LLs of Chios and Vilnius highlighted the importance of onboarding in the calibration phase. Interactive tutorials, guided walkthroughs, and simplified instructions are essential to reduce entry barriers and ensure effective engagement across varying levels of familiarity with participatory tools.

5. Ensure collaboration with policymakers in the design of calibration processes

The effectiveness of calibration increased when public authorities were actively involved, as observed in Catalonia and Riga. Co-design sessions with institutional stakeholders should be integrated into future calibration efforts to ensure both technical soundness and policy alignment.

6. Prioritise accessibility and inclusivity at every stage of calibration

Calibration processes must incorporate intersectional facilitation methods and accessibility principles from the outset. In Riga and Chios, inclusive design practices—such as multilingual content, screen reader compatibility, and simplified visuals—contributed to greater user engagement and improved tool uptake.

7. Translate calibration insights into standardised implementation guidance

Lessons from calibration activities should be consolidated into a practical guide or “calibration protocol” to support future implementers of the CLIMAS Toolbox. This would ensure knowledge transfer, promote comparability of results, and support methodological consistency across different contexts.



8. Institutionalise calibration within climate policy cycles

Calibration should be embedded within ongoing policy development and implementation processes. Integrating regular calibration cycles into the design and monitoring of National Adaptation Plans (NAPs) and Climate Assemblies will help maintain alignment between citizen inputs and evolving policy priorities.

These recommendations demonstrate that calibration is not merely a technical exercise. It is a core methodological pillar that ensures the CLIMAS Toolbox remains adaptive, inclusive, and relevant for participatory climate governance across European contexts.

6.2.2 General Recommendations for Toolbox Adoption

For Climate Assembly Organisers:

- Adopt hybrid engagement strategies that combine digital and face-to-face formats to enhance accessibility and flexibility for participants.
- Provide onboarding and technical support, including tutorials, translated materials, and live facilitation, to ensure digital tools are usable by all, regardless of experience.
- Design structured follow-up mechanisms, such as community checkpoints or gamified tracking dashboards, to maintain momentum and accountability after the formal assembly period.

For Policymakers and Institutions:

- Embed Climate Assemblies within formal policy frameworks by mandating their outputs as inputs to planning cycles and budgeting processes.
- Allocate dedicated resources for long-term monitoring and feedback loops, ensuring that citizen contributions are not symbolic but lead to traceable action.
- Recognise citizen science as a legitimate knowledge source, integrating local environmental observations and lived experiences into adaptation assessments and policy evaluations.

For Future Research and Innovation Projects:

- Advance digital equity by investing in accessibility features, low-bandwidth tools, and support for marginalised groups.
- Leverage AI and data analytics to interpret engagement patterns, identify emerging concerns, and support real-time agenda-setting aligned with public values.
- Foster transnational collaboration to create a shared evidence base, common standards, and open-source infrastructure that can be adapted across contexts.

The CLIMAS project offers a forward-looking, evidence-based model for embedding democratic participation into climate adaptation. By aligning digital innovation with deliberative values, the project lays the groundwork for a more just, inclusive, and resilient climate policy future.



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Annex 1 – Feedback and suggestions from collaborative sessions

Example of feedback and suggestions from CLIMAS partners to TVS:

1. We recommend including the CLIMAS logo at the start of the tab, next to the citizens' assembly icon.
2. We suggest replacing the wording 'new project' with a short list including 'Climate Assembly', 'Climate Dialogue' and 'Just Transition Dialogue', so that each user can choose one. The tool will be used mostly by policymakers, NGOs and activists, rather than researchers.
3. The lower character limit should be removed and only the upper limit kept.
4. The list of keywords should be increased to include wording such as 'air quality', 'sustainable mobility'...
5. We could ask CLIMAS partners to provide the relevant background documents, starting (e.g. YEARS) in 1990 when the first IPCC report was published.
6. We should also include the relevant journals of the different countries that have a specific session on climate change. For example, in Spain, we have El País and El Diario.es with a specific CC session.
7. We should add LinkedIn, Research Gate, Instagram and Tick-Tock to the social media list. Tick-Toc can reach the youngest generation, who are a target group for climate change.
8. We suggest including a link to Google Scholar for the academic papers. Create another tab for uploading articles that are not already included in the CLIMAS toolbox database.
9. Generating dilemmas and agendas takes time.
10. The title of the proposed CA in Madrid was related to mobility, but any dilemmas and agenda resulting seemed to deal with mobility issues. Maybe we could reinforce the background information to be sure to have a couple of dilemmas and agendas dealing with the selected theme.
11. It seems that the platform cannot support two queries at the same time from two different people.

Annex 2 – Dissemination of Citizen Engagement Tools at Public Events

As part of the ECCA 2025 conference and the CLIMAS public event *Adapting Together* in Bologna, held on May 28th, 2025, and both organised within the framework of the CLIMAS project, key tools to enhance citizen engagement in climate adaptation were presented.

At ECCA 2025, during the parallel session *“Empowering Citizens through Climate Assemblies: Promoting Engagement in Climate Change Adaptation”*, the importance of inclusive, bottom-up approaches to addressing the climate crisis was emphasised.

On both occasions, the Climate Assembly Portal (CAP) and the Agenda Setting Tool, digital platforms co-created with diverse stakeholders across Europe, were introduced to support transparent processes and participatory decision-making.

Participants were invited to access these tools via QR codes and to provide feedback through a short survey aimed at improving their functionality and relevance. These inputs will contribute to the further refinement of the tools in support of just, rights-based climate governance.

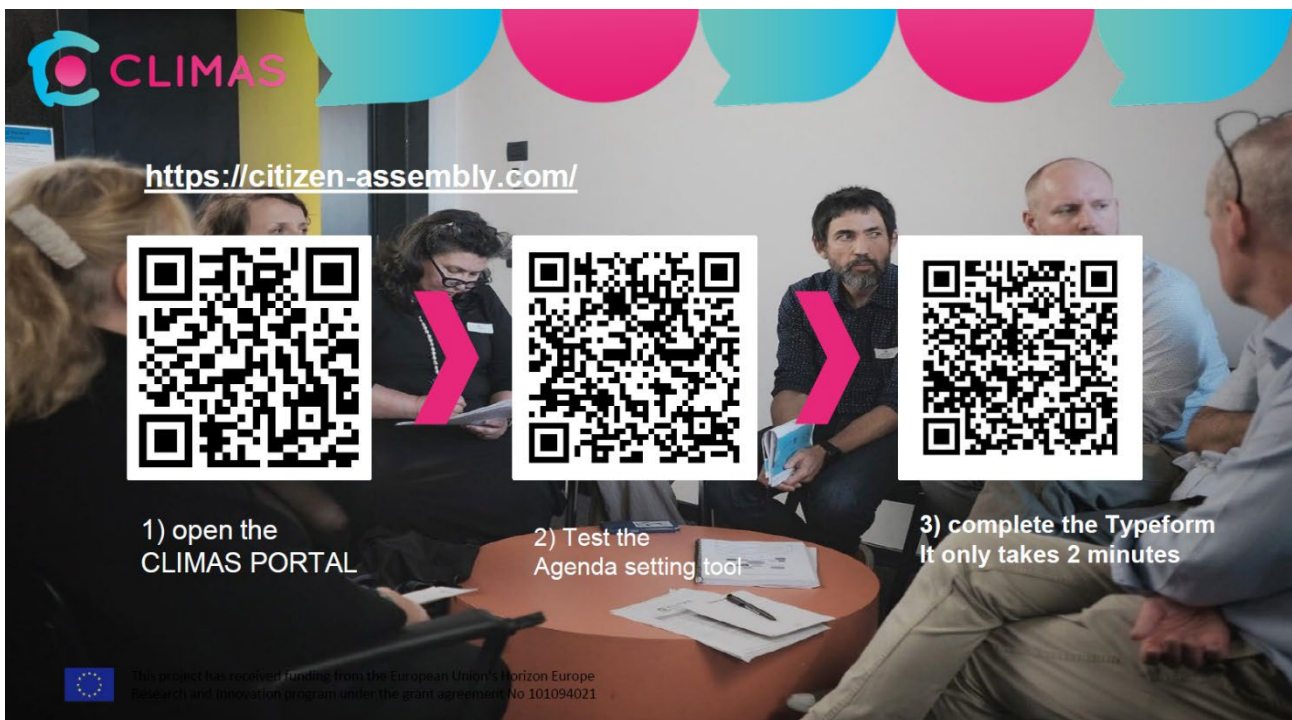


Figure 11. ECCA 2025 conference and “Adapting Together” in Bologna