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VALIDATED LOCAL RISK ACTIONABLE DATA FOR ADAPTATION



D2.5

Assessment of the usability of VALORADA's tools across demonstrators

Enni Lehtinen, Kimberly Tatum, Saara Korjonen, Natalia Korhonen
FMI, HCU

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Coordinator – Administrative information	
Project coordinator name	Dr. Jörg Cortekar
Project coordinator organization name	Helmholtz-Zentrum Hereon GmbH
Address	Max-Planck-Straße 1, 21502 Geesthacht
Phone Numbers	+49 (0)40-226 338-445
Email	joerg.cortekar@hereon.de
Project web-site	https://valorada-project.eu/

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ANNEX 22

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DEFINITIONS

Key concepts

As presented in D2.1, in the context of VALORADA,

- **Value** is defined as knowledge derived from available data and information which enables climate risk-reduction action. Data has a climate value when it provides clarity about the causes and dynamics of climate risk to public officials and society at large.
- **Value is created** from data when data enhances the capacity of local governments to address climate risks, and when it can be applied in practice within the existing legal, administrative and institutional structures.
- **VALORADA's value proposition** is to deliver tools for local governments to support generating actionable climate knowledge from existing data and information.
- **Valorisation** is defined as the process of creating knowledge needed to support climate risk reduction from municipal, climate, and Earth Observation data and information.

Usefulness refers to the *perceived* ease with which information, tools, or systems can be accessed, understood, and applied in practice by their intended users.

Usability refers to the ease with which information, tools, or systems can be accessed, understood, and applied in practice by their intended users.

VALORADA Tools

The Climate Resilience Catalogue helps to identify datasets that are needed to calculate indicators. It helps users to navigate and organise data. Climate Resilience Catalogue is freely available.

The Template Catalogue provides the option to view the content of the Climate Resilience Catalogue in an Excel file which you can edit and save locally. The template catalogue can be freely downloaded from GitHub.

The Data Valuation Metrics can be used to understand and assess the climate value of dataset. The Data Valuation Metrics is freely available.

VALORADA Dashboards consist of a climate tool and thematic tools offering information to support local climate adaptation. VALORADA Dashboards require use of credentials.

- **The Climate Tool** allows users to view information on past and future climate (trends, climatology, anomalies, etc.). It contains a set of climate variables relevant to adaptation planning.
- **Thematic Tools** visualise co-selected key indicators related to specific themes such as urban vegetation or agriculture.

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2 Executive summary

2.1 Description of the deliverable content and objectives

T2.4 assessed the usefulness, usability, and added value of the VALORADA tools: the Dashboards (climate tool and thematic tools) and the Climate Resilience Catalogue, including the Data Valuation Framework and the downloadable catalogue content, in relation to region-specific climate adaptation needs. The analysis builds on the climate data value framework developed in Deliverable D2.1. The evaluation applies a comparative approach across demonstrator regions, examining differences in activities, competences, and resources within local climate-data management landscapes. Based on these differences, the task identifies key experiences, barriers, and opportunities related to tool use.

2.2 Deviation from objectives, corrective action (if applicable)

No deviations.

2.3 Major outcomes

Dashboards were generally seen as clear, relevant, and informative, though some usability and data limitations (e.g. navigation, resolution, language, and export options) were identified; updates were made where possible, while data-related constraints remained. The Catalogue was consistently viewed as valuable, easy to use, and widely applicable across regions, particularly for improving data findability and supporting adaptation planning. Tool use during the evaluation was limited but demonstrated practical applications, with broader future use expected especially in planning, communication, and decision-making. Fully realising their potential will depend on improvements in guidance, localisation, and the wider uptake environment.

Identified obstacles to use include

- Lack of concrete work task or need to which the tools can be applied
- Resistance within existing work systems to adopting new tools due to limited familiarity, time constraints, staff capacity, funding
- The existing workflows and datasets meet most immediate needs (e.g., the catalogue's value is seen as supplementary, not essential)
- The broader prioritisation of adaptation work in terms of dedicated staffing, funding and mandates (engagement is voluntary and exploratory)
- Limited cross-departmental coordination (e.g., catalogue use is highest where actors are already involved in integrated planning or data management)
- Lack of locally available data limiting the spatial resolution of the Dashboards
- Lack of local language options
- Need for more options to integrate new datasets and export data in the Dashboards

Evidence of actual use and demonstrated usability remained limited during the evaluation period, although the usefulness of the tools was confirmed. This suggests that broader uptake depends less on tool design and more on external factors, such as institutional conditions and available resources. While these factors are outside the project's scope, the VALORADA shows their importance for future uptake and provides practically grounded guidance on the uptake of climate data by local entities (D3.2).

3 Introduction

3.1 About VALORADA

VALORADA aims to help the EU transform 150 European regions into sustainable and climate-resilient areas by 2030. It develops customizable tools for accessing and manipulating climate and non-climate data, fostering community validation and data sharing. Using a transdisciplinary approach, it analyses climate risks with local

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actors across five European demonstrators, integrating data from repositories like Copernicus Climate Change Data Store and local catalogues. VALORADA targets Technology Readiness Levels (TRL) 7+, creating interoperable tools for harmonizing data and assessing climate risks. It plans to scale up with 10 European regions and collaborate with other Horizon projects, enhancing data portals and capacity-building for climate services.

VALORADA's vision statement: VALORADA wants to empower European regions and cities to steer the upcoming societal transformation towards sustainable and climate-resilient development through their own actions.
VALORADA's mission statement: VALORADA will enable the integration of diverse datasets that enable merging local knowledge with climate and non-climate datasets by means of co-developed data manipulation tools and climate data.

3.2 Objectives of T2.4

Climate services need to move from being driven by science with user input toward being driven by user needs and informed by science (Street, 2016; Lourenço et al., 2016). Co-design and interdisciplinary collaboration have been identified as promising approaches for improving uptake and usability (Apicella et al., 2022; Neset et al., 2021; Jebeile & Roussos, 2023; Williams et al., 2020). Allocating sufficient time for user interaction, and for adapting the scope and definition of climate services accordingly, is essential for their success (Buontempo et al., 2018).

T2.4 aims to evaluate the usability and usefulness of VALORADA *tools*: the Dashboards and the contents of the Climate Resilience Catalogue, including the Data Valuation Frameworks and downloadable version of the Catalogue, and see whether the VALORADA project has succeeded in creating tools that meet the local needs and generate added value for climate adaptation. Comparative analysis across demonstrator regions is conducted, looking at differences in the activities, competences, and resources involved in data management landscape. Based on the observed differences, the task seeks to identify the most valuable experiences, as well as key barriers and opportunities related to the usability of the VALORADA data-management tools. Contrary to the original task description, the generalisability of the findings is not assessed within this deliverable, as this aspect is addressed in D5.4. That deliverable D5.4 consolidates insights from demonstrator cases and scalability workshops to examine how results can be replicated, operationalised, and sustained beyond the project.

The results of the assessment fed into D3.2 (Practical and usable advice on the uptake of climate data by local entities) which offers practically grounded guidance on the uptake and use of climate information in local and regional adaptation planning, thus, recommendations are not provided within this deliverable. Moreover, D2.3 (Final data catalogue implemented in each demonstrator) expands the Climate Resilience Catalogue evaluation by examining its features in-depth beyond technical aspects, and by situating the Catalogue within institutional and organisational contexts of its different types of users.

The analysis builds on the conceptualisation of climate data value developed in Deliverable D2.1 and the analysis is guided by following hypotheses; (1) The tools facilitate the use of climate and non-climate data; (2) The tools are useful and usable by the demonstrator regions, reflected in both *measurable patterns of use* and *perceptions* of the demonstrators; (3) The tools can potentially inspire changes in data management practices.

In summary, T2.4 aims to achieve the following objectives:

- Assess the usability of VALORADA tools and whether they support generating actionable climate knowledge from existing data and information.
- Explore region-specific data management practices, activities, competences, and resources related to climate risk management and climate adaptation, and the potential of change in data management practices resulting from the use of VALORADA data-management tools.
- Identify key experiences, differences, barriers, and opportunities related to the usability of the VALORADA data-management tools.

3.3 How T2.4 fits the overall WP2

Task T2.4 is one of the most fundamental components of the project and extends beyond the scope of WP2 alone. It generates evidence on the usability, usefulness, and actual use of the tools developed during the project.

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Although the focus in the analysis is on the *tools,* not *project*, it also provides an indication of the project's overall legacy and directly informs recommendations in D3.2 (Practical and usable advice on the uptake of climate data by local entities). D2.3 (Final Data Catalogue Implemented in Each Demonstrator) builds on the Climate Resilience Catalogue evaluation by analysing its features in greater detail and by embedding the Catalogue within the institutional and organisational contexts of its user groups. The evaluation serves as a closing stage of the co-development process by giving an opportunity to the demonstrators to reflect on and provide feedback on tools in whose development they were actively involved.

3.4 Report structure

The report is structured as follows: Section 4 outlines the methodology, including the valuation framework, process, data collection methods, and limitations. Sections 5–7 present the results, covering the usefulness, usability, and added value of the VALORADA tools, their potential and reported use cases, and the main obstacles to uptake. Section 8 provides demonstrator-specific analyses and their synthesis. Section 9 concludes.

4 Methodology

4.1 Valuation and Valorisation Framework (D2.1)

Valuation and Valorisation Framework was created in Deliverable 2.1 (Table 1). The framework is designed "to support decision makers in local administrations to tap on the climate value of the extensive datasets they already use, to generate knowledge for climate risk reduction from existing data, and to apply it in practice" (D2.1). By revealing the climate value of these already available datasets, the framework can contribute to improve data management practices related to climate risk management. In the context of T2.4, the framework worked as a conceptual framework and guided the formulation of the evaluation contents, so that all value dimensions of data in local adaptation proposed in D2.1 were considered.

Table 1 Valuation and Valorisation Framework (D2.1)

Value dimensions	Criterion
Relevance (Contribution to knowledge generation)	Relevance to climate risk understanding
	Irreplaceability of the Dataset
	Performance value
Strategic value	Contribution to Risk Management and Decision-Making Capacity
	Data support linking climate risk with municipal political or strategic agendas and goals
	Contribution to Connecting Regional and National Climate Policy
Usability	Resource efficient
	Fit within Existing Administrative Competencies, Political Mandates, Operations and Workflows
	Ongoing Maintenance Requirements for Data
Quality	Provenance of Data
	Precision and Accuracy of Data
	Completeness of Data

4.2 Process description

The evaluation process followed a sequential and iterative five-phase approach (Figure 1). It began with consensus building in late 2024 and early 2025 through online meetings and one-to-one discussions, which were revisited throughout the work to maintain shared understanding. Local partners purposefully selected key actors from demonstrator regions based on relevant professional context by the local partners to participate in the process, rather than through random or broad sampling. Consensus building was followed by an examination of current data-management practices during summer–autumn 2025, based on semi-structured interviews conducted in person, online, or in written form by the local partners.

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The tools were finalised in October-November 2025. After finalisation of the tools, the evaluation continued with introductory evaluation workshops outlining the feedback collection process. Evaluation workshops were held online in the local language, or as a part of the Scalability workshop (T5.2). Feedback was collected through four written assignments over approximately five months. Each feedback collection assignment focused on a different theme. Surveys were made available in local languages using the survey platform's built-in machine translation functionality. Themes of the feedback collection assignments were:

1. *Dashboards:* Assessment of practical applicability, adequacy of functionalities and formats, identification of technical obstacles, and overall relevance and usefulness of the dashboards.
2. *Climate Resilience Catalogue:* Evaluation of the Catalogue and its components, including the Template Catalogue and Data Valuation Metrics, focusing on practical use of both the online (GitHub based) and downloadable versions, as well as perceived added value.
3. *New user perspectives:* Collection of feedback from participants less closely involved with VALORADA to capture first impressions of the tools and reflections on the process of presenting and explaining them to others.
4. *Use cases and expectations:* Examination of how previously identified potential use cases align with actual experiences following tool implementation, and whether expectations were met. Potential uses were assessed using predefined use case clusters formulated using the input from interviews 2025 (Use case clusters in Annex). Questions on the use of the tools included both direct use (participant themselves can use the tools), and their assessment on whether the tools are useful for others in the organisation or other organisations (Table 3 and 4).

In addition, across all questionnaires, information on actual tool use and use purposes was collected to document uptake during the evaluation period. Any received suggestions for improvement were forwarded to the responsible partners.

After the feedback collection process, the participants and local partners were invited to review and confirm the evaluation findings. Interviewees from summer 2025 who agreed to review the results provided additional reflections. The process concluded with a reflective review that integrated evidence and insights from all previous phases, as well as discussions held during the final General Assembly.

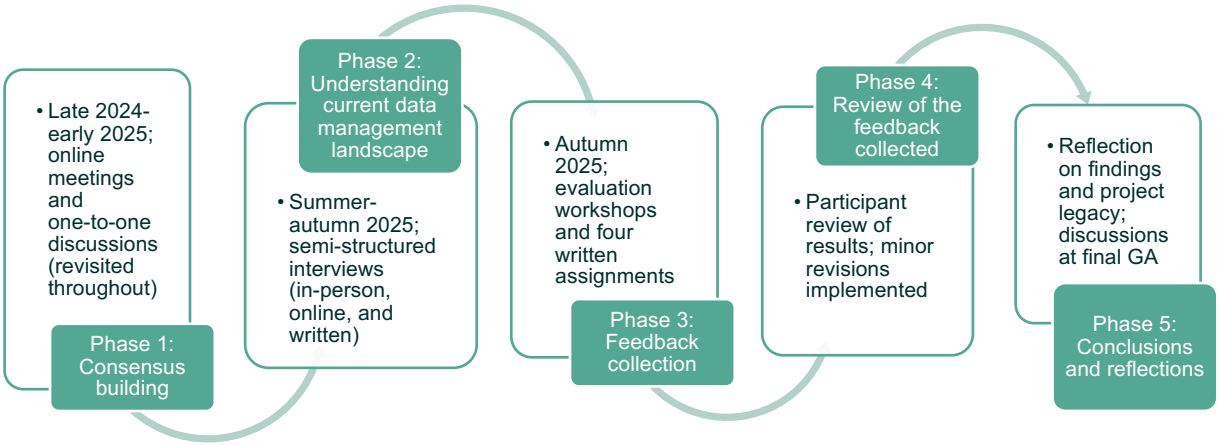


Figure 1 Evaluation process

4.3 Data collecting methods

Data collection was based on a mixed-methods approach combining qualitative interviews, structured feedback-collection activities, and inputs gathered during the review phase. In addition, reflections emerging from discussions at general assemblies were incorporated into the results, also to capture collective project-level conclusions.

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Pre-implementation interviews

Semi-structured interviews conducted in summer 2025 assessed regional data-management landscape by focusing on workflows and data management practices related to selected climate risk management task, including collaborations, tools, and data management practices in place. Through the interview, initial barriers and potentials in the VALORADA regions were identified. Interviews informed the design of subsequent feedback-collection activities and were used to support interpretation of evaluation results.

The interviews were semi-structured and conducted in person, online, or in written form by local partners in local languages to address language barriers. A detailed interview protocol was provided to interviewers. All interviews were recorded and transcribed. In total 11 interviews were conducted. In most regions, two interviews were held: one with a technically oriented participant and one with a participant involved in planning or decision-making. In Mlada Boleslav, Burgas and Gabrovo, only one interview took place. To support the discussion, interviewees were offered the option to use a visual facilitation tool (Miro board) to map the selected data-management task and their position within the regional data-management landscape. Interviewees were also invited to review the synthesised evaluation results in spring 2026, and four participants agreed to do so.

The results were analysed using framework analysis approach. Framework analysis followed the five established stages: data familiarisation; development of a thematic framework; indexing of data; charting of summarised data; and mapping and interpretation (Ritchie & Spencer, 1994). In the selected framework data practices were classified by activity type, role, and relevance. The framework also captured the perceived potentials of VALORADA tools, effectiveness of current approaches, and suggested improvements. All interviews were independently analysed by two analysts.

Review of the evaluation results

The review of the synthesised evaluation results was conducted through a written follow-up interview that posed targeted questions based on the initial findings. In addition to the interview participants identified in summer 2025, the review was shared with all local partners and evaluation participants to validate the findings. Beyond validation, the review aimed to examine why experiences differed across and within regions, assess the extent to which individual experiences aligned with the synthesised results, and to identify results that were unexpected to respondents. Lastly, participants were asked whether their expectations have been met. The results of the review interviews were directly incorporated into the evaluation. Feedback from respondents also led to minor refinements and additions to the earlier synthesis of regional data-management landscapes developed through the summer 2025 interviews. The content was translated using DeepL to address the language barrier.

4.4 Limitations

The following limitations should be acknowledged when interpreting the evaluation results. First, language barriers may have influenced both participants' responses and the evaluators' interpretation of the data, despite mitigation efforts through local partners and translated materials. The translation tools used (e.g. AI-based and built-in tools) may have introduced some inaccuracies when translating interview transcripts from local languages to English or surveys from English to local languages.

Second, not all participants took part in every evaluation assignment. Nevertheless, the core stakeholders central to data-management and decision-making processes were consistently represented and their feedback has been received also via discussions with the local partners during the final GA. The findings are considered representative of the demonstrator regions.

Third, while practice theory initially informed the evaluation design, it was not applied due to resource intensity, language constraints, and timeline limitations. In addition, documentation of actual tool use indicates that work-related demand for the tools remained limited during the evaluation period, resulting in only minor, if any, observable changes in practices in most regions. Consequently, the evaluation places greater emphasis on the potential for change enabled by the tools rather than on realised transformations in everyday practices. Lastly, later participation of Montpellier did not allow for their inclusion in the pre-implementation interviews on current data management landscape. Findings from the region is presented together with Sicoval under Occitanie region.

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5 Usefulness, usability and added value of the VALORADA tools

A brief overview of the overall responses is presented in this section, while regional differences are described in section 7. Results are based on the feedback collection assignments (1, 2 and 3), the review of the evaluation results and discussions and presentations held during the final General Assembly.

5.1 VALORADA Dashboards

A total of 11 participants completed Assignment 1, which focused on the dashboards. Responses were received from Central Greece (2), France, Occitania (Sicoval) (2), Czechia (Mladá Boleslav) (2), Bulgaria (Burgas and Gabrovo) (2), and Italy (Molise) (3).

Overall, the dashboards were perceived as clear, relevant, useful, and informative for understanding and learning about local climate risks, often providing new information (See Figure 2). At the same time, usability and interpretation challenges emerged (particularly for non-specialist users), including navigation difficulties, concerns about methodological transparency, perceived redundancy with national data sources, and requests for higher spatial resolution, local-language availability, enhanced data manipulation and export options, and clearer explanatory content. Regional differences are in more detail in section 9. Tool specific responses can be found from Annex.

Assignment 3 targeted individuals who had not been closely involved in VALORADA to capture first-time user impressions and experiences of explaining the tools to others. Seven responses were received: Occitanie (1), Czechia/Mladá Boleslav (2), Bulgaria (Burgas and Gabrovo; 2), and Molise (2). Perceived usefulness was generally high, with most respondents indicating that the tools were relevant to colleagues' work and had potential for future use. One respondent from France reported low usability, which negatively affected perceived usefulness, while one respondent from Bulgaria framed the relevance primarily in terms of awareness-raising rather than direct work application.

Explaining and demonstrating the tools to others was reported to have gone well by six of the seven respondents; one respondent (Sicoval) experienced difficulties. Elements described as easy to explain included thematic dashboards, maps, the agriculture section, flood-risk content, and the overall dashboard structure. While overall usability was rated positively, one participant considered the tools too complex and not intuitive. Among the respondents, three reported no challenges in explaining the tools, whereas four identified specific issues, including the need for additional language versions, difficulties in communicating certain indicators, navigation challenges, and a need for clearer guidance.

Where possible, changes in the Dashboards were made according to the feedback during project lifetime. Some participants expressed a need for additional or alternative data, as well as higher-resolution datasets; however, these requests could not be accommodated because the tools relied on data determined by availability.

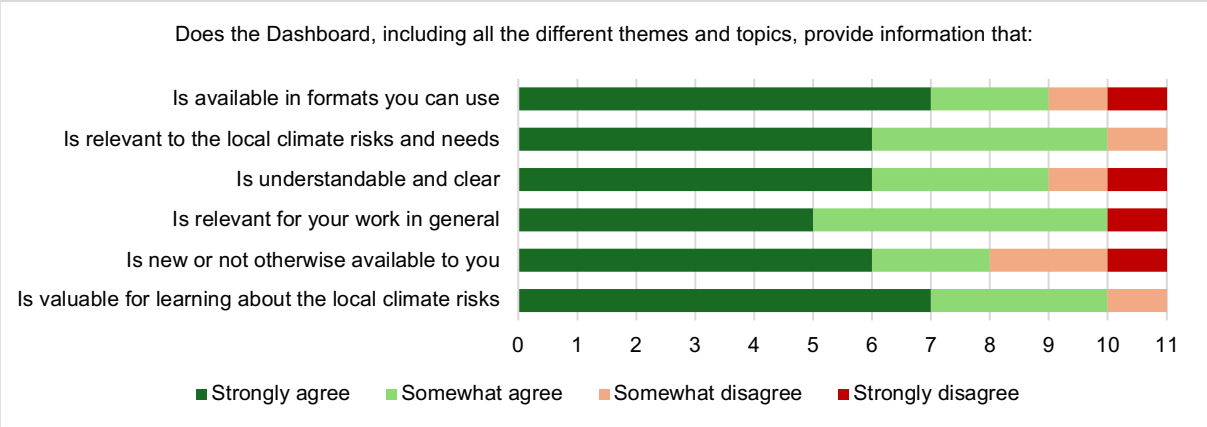


Figure 2 Concluding remarks on the information provided by all Dashboard contents

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5.2 Climate Resilience Catalogue

Assignment 2 focused on the Climate Resilience Catalogue and was completed by 12 participants across the five VALORADA regions: Central Greece (1), Occitanie (3: Sicoval 2, Montpellier 1), Czechia (3: Mladá Boleslav 2, Přerov 1), Bulgaria (3: Burgas 2, Gabrovo 1), and Molise (2).

Overall, the Catalogue and its components were perceived as valuable, new, and relevant. Respondents highlighted its role as a structured reference that significantly speeds up the identification of indicators and datasets and supports climate adaptation by making existing data more transparent and actionable, particularly in regions with less developed data infrastructures. Access and navigation challenges were limited, with only one to two respondents reporting difficulties. In addition, risk of links expiring was recognized. Suggested improvements were forwarded to the responsible partner.

Individuals not closely involved in VALORADA implementation (Assignment 3) generally perceived the Catalogue and its supporting tools as useful and relevant, with clear potential for application in colleagues' work. One respondent from France reported low usability, which reduced perceived usefulness, and one Bulgarian respondent framed the value mainly in terms of awareness-raising rather than direct operational use.

Most respondents (six out of seven) reported that explaining and demonstrating the Catalogue to others was straightforward. The overall structure of the Catalogue, the categorization of measures, and the clarity of main indicators were stated as easy to communicate. However, four respondents identified specific challenges, including the need for additional language versions, difficulties in explaining certain indicators, navigation issues, and a need for clearer guidance.

Across regions, none of the respondents indicated that the tools lacked added value or usefulness. Perceptions of the online Catalogue, the offline Template Catalogue, and the Data Valuation Metrics were largely consistent within individual responses, indicating coherent views of the toolset as an integrated whole. Overall impressions confirmed that the Catalogue helps reveal the value of existing datasets and supports local climate adaptation efforts across diverse contexts. D2.3 (Final Data Catalogue Implemented in Each Demonstrator) examines more in-depth how the Climate Resilience Catalogue is perceived and used by different user groups within their institutional and organisational contexts.

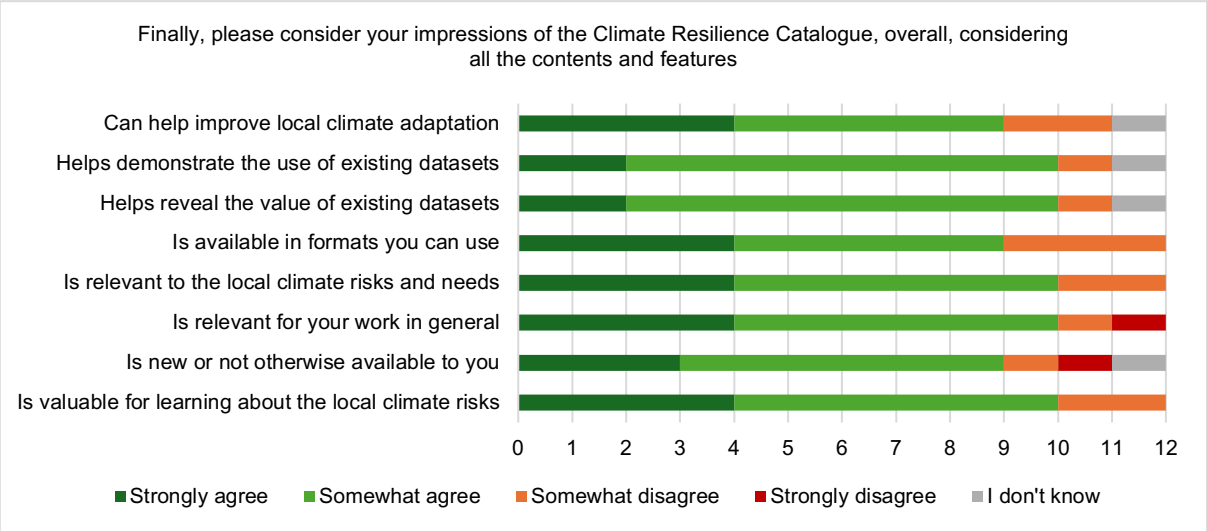


Figure 3 Concluding remarks on the information provided by all Catalogue contents

6 Potential use cases and reported use cases of the tools

A brief overview of the overall responses is presented in this section, while regional differences are described in section 7.

Potential use cases, practical applications during the feedback collection period, and future applications of the VALORADA tools were assessed and documented through pre-implementation interviews, assignment 4, review of the synthetised results, as well as discussions and presentations of the demonstrators during final General Assembly.

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- **When it comes to applying the tools to practice during the feedback collection period,** one to three respondents reported using the Climate Resilience Catalogue and / or the VALORADA Dashboards during the phases between each of the evaluation assignments. When the Dashboard was used, it was applied for visualising and analysing climate, forest and vegetation data, verifying environmental information, reviewing areas at risk to flooding during heavy rainfall events, assessing flood-prone areas, examining green areas, checking updates, and exploring the tools more generally. The Climate Resilience catalogue was used to support assessing flood-prone areas, and to support expert-level analysis.
- **Reported potential use cases collected via Assignment 4 are presented in Tables 3 and 4.** Responses confirmed the use-case clusters identified in pre-implementation interviews (Table 2), showing that the tools can be applied to these use cases by respondents or colleagues within the same organisation. Use cases and potentials of the VALORADA tools differed between user groups (technical or practical role vs. leading position or planning tasks). Respondents holding leadership positions or involved in planning tasks more frequently reported potential use cases, particularly in communication, data sharing and information provision, learning, and decision-making support. In contrast, while reporting fewer potential use overall, respondents in technical or practical roles tended to identify a broader range of potential use cases.

Regional patterns differed markedly: some regions saw clear potential for workflow integration while others emphasised the tools' demonstration and communication value rather than operational use.

Table 2 Potential use cases of the Climate Resilience Catalogue

Climate Resilience Catalogue	I can use the Catalogue for these purposes.	Others inside my organization can use the Catalogue for these purposes.	Other organizations can use the Catalogue for these purposes.	In my opinion, the Catalogue cannot be used for these purposes.
Data planning purposes = The Catalogue can be used to develop plans for further data collection, data gathering, data management, or data usage.	5	5	2	0
Demonstration purposes = The Catalogue can be used as an example to help demonstrate the value and uses of data.	6	4	2	0
Learning purposes = The Catalogue can be used to better understand data usage options and methods.	5	4	2	1
Data sharing purposes = The Catalogue can be used to share data with others.	6	4	2	1
Data searching purposes = The Catalogue can be used to identify needed datasets.	4	3	3	2
Data gathering purposes = The Catalogue can be used to identify where to find needed data.	5	3	2	2
Data management purposes = The Catalogue can be used to organize existing datasets.	5	4	3	1
Data usage purposes = The Catalogue can be used to identify appropriate risk indicators and how to implement them.	5	2	3	2
Assessment purposes = The Catalogue can be used to assess the quality and adequacy of local data management.	5	4	3	2
Scope of work = The Catalogue can be used to help define the scope of work for data analysis or data management services.	5	4	3	2

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Table 3 Potential use cases of VALORADA Dashboards

VALORADA Dashboards	I can use the Dashboard for these purposes.	Others inside my organization can use the Dashboard for these purposes.	Other organizations can use the Dashboard for these purposes.	In my opinion, the Dashboard cannot be used for these purposes.
Data planning purposes = The Dashboard can be used to develop plans for further data collection, data gathering, data management, or data usage.	5	5	3	1
Demonstration purposes = The Dashboard can be used as an example to help demonstrate the value and uses of data.	6	5	4	0
Efficiency = The Dashboard can be used to simplify access to information on local climate risks.	6	5	3	1
Communication purposes = The Dashboard can be used as an example to help explain and communicate climate risks to others.	7	6	3	0
Learning purposes = The Dashboard can be used to better understand climate risks.	6	6	3	0
Data sharing purposes = The Dashboard can be used to share data with others.	5	3	4	2
Data manipulation purposes = The Dashboard can be used to perform analytical tasks.	4	3	3	3
Informational purposes = The Dashboard and its results can be used a resource for the preparation of reports, presentations, etc. as a part of climate-related work.	6	6	3	0
Complementary value = The Dashboard can be used to expand on existing information.	5	4	3	2
Decision making purposes = The Dashboard and its results can be used to support more well-informed responses and decisions related to climate adaptation.	5	4	4	1
Scope of work = The Dashboard can be used to help define the scope of work for data analysis or data management services.	5	3	4	2

In the future, demonstrators reported that the tools will be applied in upcoming projects, in updating the regional adaptation plans, to support defining the scope of new projects, to compare the local situation with regional trends and the integration of the tools into existing systems is in preparation. It was noted that the tools' potential is expected to increase as adaptation gains political focus. After the evaluation period, most region have continued presenting the tools within the organisation in e.g., meetings of other adaptation related projects.

Feedback from participants outside the VALORADA project (Assignment 3) indicates that the tools have clear potential for future use. The tools were seen as providing well-structured climate data and impact assessments that strengthen analytical foundations for decision-making. The Climate tool was considered especially valuable for assessing future climate risks and informing water management policies, while the thematic tools were positively evaluated for addressing sector-specific challenges and translating climate data into actionable insights for public authorities. In addition, the Climate Resilience Catalogue was viewed as a practical and well-organised resource for public administration, with clear descriptions of adaptation measures and their potential benefits. **Overall, respondents stated that the tools support informed decision-making both in internal strategic planning and in communication with stakeholders and decision-makers.**

7 Obstacles to uptake of the VALORADA tools

By uptake, we refer to the application of the tools in real-world contexts, including their use in strategic planning and operational processes.

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Use of the tools was mainly exploratory rather than embedded in routine workflows during the evaluation period. Most respondents did not report using the tools during the evaluation period. As a result, no significant changes in data management practices were observed during the evaluation period. Non-use was stated to be due to a lack of immediate work-related needs: the tools were not required for their current tasks, and the content did not fully align with their current areas of focus. Obstacles that restrict the uptake are classified into three categories:

Institutional limitations:

- Resistance within existing work systems to adopting new tools due to limited familiarity, time constraints, staff capacity, and funding.
- Existing workflows and datasets meeting most immediate needs (e.g., the catalogue's value is seen as supplementary, not essential).
- Broader prioritisation of adaptation work in terms of dedicated staffing, funding and mandates (engagement is voluntary and exploratory).
- Limited cross-departmental coordination (e.g., catalogue use is highest where actors are already involved in integrated planning or data management).

Regulatory limitations:

- National legislation mandating the use of national data sources for climate adaptation (notably in France).

Tool-specific limitations:

- The lack of locally available data limiting the spatial resolution of the Dashboards.
- The lack of local language options.
- Need for more options to integrate new datasets and export data in the Dashboards.

Future evaluations should be embedded in concrete, ongoing real-world processes, such as active adaptation strategy updates. This way, assessment of usability would be based on practical application instead of potential use.

8 Demonstrator-specific analyses

This section presents region-specific (1) results from the initial interviews assessing the pre-implementation data management landscape, and (2) evaluation results for each tool (Dashboard and Climate Resilience Catalogue), including comments on their potential use, planned applications, and the post-VALORADA situation. Results are based on the feedback collection assignments, reviews of the synthesised results, and demonstrator presentations at the final General Assembly.

8.1 Mladá Boleslav

Pre-Implementation Data Management Landscape

In Mladá Boleslav, climate risks like drought, erosion, and water pollution are managed through a mix of local knowledge and external expertise. The city works closely with universities such as Charles University and Czech Technical University and specialised companies to get studies conducted that help guide decisions. These include analyses of water quality and drought, which are then used to plan things like dry polders or improvements to sewage systems. The city office does not do scientific analysis itself but sets the goals and uses the results to make decisions. GIS tools, especially a web-based version of ArcGIS, are used to track utilities, flood zones, and protected areas, helping officials understand the local context before taking action.

Data is handled across departments, with each one managing its own but also having access to shared systems for collaboration. Communication is mostly through MS Teams and email, and data is stored both locally and on shared servers. While computing power and digital skills vary, especially between generations, the overall system works well. Tools like VALORADA's dashboards are seen as useful, especially for planning in agriculture and water management. They help avoid poor investments by showing where water might evaporate too quickly or where erosion is likely. The city also supports external partners by providing data when needed. Although funding is a

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limiting factor, there is a clear interest in using data to make smarter, more informed decisions about how the city adapts to climate change.

Post-Implementation Reflections on VALORADA Tools and project

The VALORADA Dashboards were considered clear, relevant, and easy to use, supporting demonstration, data manipulation, communication, and decision-making, while the Climate Resilience Catalogue was positively received as a practical, well-organized resource enabling demonstration, data sharing, searching, management, and assessment. The catalogue's main benefits are its online availability and the consolidation of datasets and outputs in a single view. Its main challenges are dependence on regularly updated data and limited accessibility for users with limited digital skills. The Climate Resilience Catalogue was viewed as a practical, well-organised resource, and future use of the VALORADA tools was considered likely as supportive aids for planning, decision-making, and communication. Shortcomings and suggestions for improvement will be revealed over time as the use continues.

Over the course of the project, the municipality shifted from a passive recipient of climate policy to a proactive leader pursuing objectives that go beyond project-level obligations. VALORADA contributed to the engagement of political actors and helped catalyse several new initiatives, including blue-green infrastructure and urban heat mitigation revitalisation projects in Mladá Boleslav, an urban greenery assessment delivered by Greenhill, and the establishment of a new department focused on Mladá Boleslav's environmental governance, with political momentum to replicate this model in Přerov. In addition, cooperation in Mladá Boleslav led to numerous energy-related initiatives, such as the creation of a community energy company and dozens of studies, energy-saving measures, and renewable energy projects, many of which have already been implemented. At the same time, limited resources and the difficulty of integrating the tools into routine use may hinder the uptake.

8.2 Přerov

Pre-Implementation Data Management Landscape

In Přerov, climate adaptation and environmental management are supported by a combination of technical expertise and strategic coordination across municipal departments. The city's GIS and mapping specialists play a key role in maintaining spatial data infrastructure, which includes for example flood zones, sewer networks, and public assets. Their work supports both emergency response, such as during flood events, and routine operations like tree planting, pest monitoring, and road maintenance. GIS tools are used to create web applications and dashboards that allow different departments to access and update data in real time. While climate-specific tasks are not frequent, the team sees potential in using more advanced data, such as thermal imagery, to guide decisions on shading, irrigation, and urban cooling.

At the same time, municipal services and property management staff focus on broader planning and implementation. Their responsibilities include coordinating responses to citizen requests, managing green spaces, and integrating climate adaptation into infrastructure projects. Urban overheating is a major concern, and efforts are underway to expand greenery and improve water retention in public areas. However, planting is often limited by underground utilities, and adaptation measures are typically added to existing projects rather than pursued independently. Decision-makers rely on shared tools like spreadsheets and GIS to track interventions and communicate across departments. They also manage funding and ensure that tasks are delegated effectively. While some staff are slower to adopt digital tools, others use them daily. There is a clear interest in improving data quality and accessibility, and tools like those developed in the VALORADA project are seen as helpful for making planning more systematic and responsive to climate challenges.

Post-Implementation Reflections on VALORADA Tools and project

Přerov did not share any specific feedback on the Dashboards but expressed satisfaction with Climate Resilience Catalogue and its contents: It was perceived as clear, relevant, useful, and that it improves understanding of climate risks. The only exception was the template catalogue, for which the respondent was uncertain about its usefulness. It generates some value for the participant from the municipality. However, it was noted that the Catalogue is relatively technical, which makes it less relevant for people with less technical backgrounds.

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Concrete follow-up activities related to the VALORADA project in Přerov include the participation in a Pathway2Resilience sub-project, undertaking a more detailed tree and greenery assessments with a specific focus on heat-stress tolerance, and building blue-green infrastructure, a kids' water park, that sparked inspiration at a regional level. At the organisational level, the VALORADA project contributed to increased engagement across political and administrative actors in Přerov. While a new environmental governance department was formally established in Mladá Boleslav, there was political momentum and discussion in Přerov to pursue similar institutional arrangements. Overall, VALORADA formed part of a broader enabling context that supported planning, coordination, and the initiation of more targeted climate adaptation activities in the city.

8.3 Occitanie (Sicoval and Montpellier)

Reflections from both Sicoval and Montpellier are presented here although the pre-implementation interview was not conducted for Montpellier. City's feedback is therefore based on feedback collection activities and discussions during the evaluation phase.

Pre-Implementation Data Management Landscape (only Sicoval)

In Sicoval, climate risk management is built around a strong data infrastructure that supports planning and decision-making across multiple municipal departments. Rising temperatures and heat vulnerability are key concerns, especially for groups like the elderly, children, and those in precarious living conditions. These risks are tracked through a centralized observatory that consolidates data from around 50 thematic areas, including health, housing, and the environment. Historical climate data from Météo-France is processed into indicators that show long-term trends, which are then visualized in dashboards. These tools help departments respond more effectively during heatwaves and guide policies aimed at improving resilience.

The observatory's workflow is collaborative and methodical. When a department requests indicators, the team defines the scope, identifies data sources, negotiates access, processes the data, and builds visualisations using tools like Talend, PowerBI, and ESRI Insight. Internal systems help manage the data lifecycle and ensure transparency. Data ambassadors within each department promote good practices and help integrate data into everyday operations. While the system is well-established, there are still challenges in streamlining access and improving data quality. The VALORADA project is seen as a valuable complement, especially for enriching environmental indicators and supporting faster, more informed responses to climate-related issues.

Post-Implementation Reflections on VALORADA Tools and project

Montpellier stated that the dashboards provide added value through their clear graphical presentation, and the catalogue was considered easy to understand and navigate, with the list of indicators identified as a key strength. Yet, a stronger reliance on local data was suggested. The template catalogue was considered easy to use, with the offline version valued for documenting relevant local datasets, while the data valuation metrics were seen as a useful and valuable addition that improved understanding of the value of local data; overall, however, all components were judged to add limited value beyond existing data, being somewhat useful mainly for learning and demonstrating data use rather than directly supporting local adaptation due to format and legal constraints. Additionally, the catalogue was noted as having potential value for data-sharing purposes. The dashboards were identified as potentially useful primarily for demonstration, communication, and general informational purposes.

Sicoval provided detailed feedback on the VALORADA tools. For the Dashboards, feedback pointed to opportunities to enhance clarity, methodological transparency, and indicator interpretation, as well as to expand functionalities such as trend visualisation and integration of local data. Several updates were implemented where possible, while some requested features, such as option to integrate own layers, were beyond the project scope. The Climate Resilience Catalogue's uptake was limited by legal constraints, which likely influenced perceptions of its added value. As a result, it was mainly seen as supporting demonstration and data sharing rather than direct operational tool. The catalogue provided support into indicator construction. Feedback identified areas for improvement, including clearer indicators, a simpler design, minor visual refinements, and stronger links between identified impacts and practical solutions to support non-specialist users.

Potential applications of the tools were mainly identified for communication, demonstration, and awareness-raising, rather than direct operational or strategic use. Regulatory constraints were a significant limitation: In

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France, regulatory requirements mandating the use of national data sources limit the formal use of the VALORADA tools. Still, interest exists in the underlying approach, with plans to integrate selected indicators into existing local systems, indicating partial rather than full adoption. Experiences differed between the two cases. Sicoval, with more limited existing data infrastructure, engaged more actively. Montpellier, with more developed capacities, primarily used VALORADA to better leverage existing data. Overall, these cases show how institutional capacity and regulatory context shape both the perceived value and uptake of the tools.

8.4 Central Greece

Pre-Implementation Data Management Landscape

In the Region of Central Greece, climate risk management is integrated into environmental planning, permitting, and inspection processes across multiple departments. The region faces significant challenges from wildfires, floods, and heatwaves, particularly in areas like Euboea, Phthiotis, and Boeotia. These risks are further intensified by drought, strong winds, and inadequate drainage infrastructure, leaving both urban and rural areas highly vulnerable to sudden and severe weather events.

Regional staff use geospatial data to assess environmental risks and support decision-making related to project approvals, land use, and emergency preparedness. Their responsibilities include evaluating environmental impact assessments, monitoring water abstraction, responding to pollution complaints, and enforcing environmental regulations. Data is collected from satellite sources, meteorological stations, and national platforms, and processed using internal GIS systems. However, challenges persist due to fragmented data access, limited interoperability, and outdated or unreliable digital platforms. There is a strong need for a unified digital system that integrates environmental, climate, and land-use data, alongside improved metadata standards and real-time access to monitoring tools. Strengthening integration among different data sources and services remains critical. Improving access to up-to-date data and enhancing collaboration among stakeholders could significantly contribute to the management of climate risks. Projects like VALORADA are considered as particularly valuable for supporting risk assessment, improving data visualization, and facilitating collaboration across agencies and institutions.

Post-Implementation Reflections on VALORADA Tools and project

In Central Greece, the VALORADA Dashboards were assessed as having relevant, valuable and sufficient content, though usability challenges were noted, particularly related to navigation and the difficulty of interpretation for non-specialists. These issues were addressed during evaluation period. Stakeholders also expressed interest in more advanced data manipulation functions; however, such capabilities were recognised as being outside the scope of the project, which did not aim to deliver standalone software solutions. Feedback from the Greek partners on the Climate Resilience Catalogue was strongly positive, with the tool regarded as highly useful for supporting climate adaptation planning and decision-making. In the future, Dashboards are expected to be applied in related projects, and used by regional officers, technical services and civil protection authorities. Similarly, the Catalogue could support the development of regional adaptation strategies and the assessment of potential implementation measures.

Following the completion of VALORADA, stakeholders in Central Greece have showed continued interest in the tools and their potential for broader use. The co-development process and the tool adaptation are considered replicable, and the tools have been shared across organisations. However, wider and more sustained adoption remains constrained by limited awareness, resource limitations, and the need for continued support. Stakeholders also highlighted the importance of clearer guidance, enhanced user support mechanisms (e.g. AI-based tools), local language availability, and better organisation of existing datasets, to enable more effective and widespread application in the future.

8.5 Gabrovo

Pre-Implementation Data Management Landscape

In Gabrovo, climate risk management is more focused on spatial analysis and technical support for urban planning. The municipality uses GIS tools like ArcGIS and QGIS, along with remote sensing and spatial modelling, to assess risks such as floods, landslides, and forest fires. While climate risk assessment is not yet a routine part

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of daily operations, the technical team supports specific projects and case-based analyses. Data management practices include collecting, processing, and visualizing spatial data, often using plugins and online platforms for tasks like hydrological modelling and vulnerability mapping.

The GIS team in Gabrovo faces limitations due to staffing and resource constraints, which affect the ability to develop long-term strategies and maintain consistent collaboration with external stakeholders. Most partnerships are one-time engagements focused on solving specific problems. The municipality sees potential in tools developed through the VALORADA project, particularly for improving data interoperability, enhancing visualisations, and supporting informed decision-making. Participation in EU projects such as VALORADA and MountResilience is gradually strengthening institutional capacity and laying the groundwork for a more systematic integration of climate data into municipal planning. Expanding technical capacity and securing a stable budget for GIS development are considered key steps toward strengthening climate resilience and integrating spatial data more effectively into municipal planning.

Post-Implementation Reflections on VALORADA Tools and project

In Gabrovo, both the Dashboards and the Climate Resilience Catalogue were viewed positively and are seen as useful for future application. The Dashboards were considered valuable for supporting municipal planning and adaptation, with potential use in project scoping and comparing local data with regional trends. Reported issues include the need for higher-resolution datasets, and lack of export and integration options, although these fall outside the scope of VALORADA. The Catalogue was also evaluated favourably, highlighted as a structured and accessible reference that supports data planning, indicator identification, and communication with stakeholders including municipal councillors, national institutions, and EU partners. Its main limitation is the lack of local language.

In Gabrovo, where adaptation work is largely project-based and initial capacities were more limited, the outputs are primarily viewed as reusable in future projects. In addition to project-based working conditions, uptake at the municipal level remains constrained by limited resources and data gaps. Despite these challenges, overall reflections from Gabrovo emphasise the project's contribution to strengthening local capacity for climate data use and supporting more informed adaptation planning and, the tools were seen as providing a strong framework for regional climate assessment, improving understanding of climate data, its applications, and the importance of standardisation and integration.

8.6 Burgas

Pre-Implementation Data Management Landscape

In Burgas, climate risk management is centred around operational monitoring and rapid response systems, particularly for flash floods and extreme weather events. New flood prone areas have been identified due to climate change. The municipality operates a 24/7 monitoring centre that collects real-time data from sensors measuring rainfall, wind speed and direction, and water levels in rivers, lakes, and the Black Sea. This data is visualized on screens and stored on local servers, allowing for continuous observation and timely alerts. The system supports coordination with emergency services, local authorities, and public institutions, enabling quick action during high-risk situations. Historical data is also preserved to support long-term risk analysis and planning.

The municipality uses a combination of local platforms, GIS tools, and national meteorological data to assess and respond to climate threats. Processes are in place for reporting, informing stakeholders, and activating crisis protocols when needed. Collaboration spans across schools, kindergartens, municipal enterprises, and specialised service providers, especially during declared emergency situations. Despite the system's strengths, there are challenges related to fragmented national data infrastructure and limited access to real-time environmental data at the national level. Improvements such as a unified national platform and better integration of satellite imagery and climate indicators are seen as essential for improving preparedness and decision-making.

Post-Implementation Reflections on VALORADA Tools and project

In the Burgas region, the VALORADA tools were generally evaluated positively, particularly in terms of clarity, navigation, and relevance. The Dashboards were seen as intuitive and useful for visualising and analysing climate-related data, with applications in areas such as flood assessment, data planning, decision-making

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support, and scoping. Reported limitations included gaps in population and flood data and a need for more detailed information. Feedback on the Climate Resilience Catalogue was also mainly positive, though perceived added value varied across users. It was primarily used for expert-level analysis, including identifying flood-prone areas, and was considered useful for planning, decision-making, and communication. Suggestions for improvement mainly related to additional datasets, although this fell outside the scope of changes possible at the time of evaluation period.

Participation in VALORADA contributed to improved understanding of climate data, services, and their applications, as well as to stronger data harmonisation and tool testing. The outputs were considered relevant beyond the project and potentially reusable in other initiatives. Respondents mentioned the need for more practical guidance and clearer communication and noted funding constraints. Overall, the experience in Burgas suggests that VALORADA has supported capacity building and strengthened climate adaptation planning.

8.7 Molise

Pre-Implementation Data Management Landscape

The interviews describe work in Molise that depends on environmental and agricultural data to support biodiversity protection, coastal habitat management, and rural development programming. Both areas face similar challenges: data are fragmented across departments, difficult to access, and often static or not regularly updated, limiting the ability to assess climate risks such as erosion, drought, extreme rainfall, and habitat degradation. Existing systems like TOTEM, SIAN, and AGEA provide essential information but lack integration, harmonisation, and timely reporting. The interviews highlight the need for better connections between climate indicators and natural or agricultural systems, improved interoperability, and more accessible, synthetic information for planning and decision-making. In this context, VALORADA is viewed as a potentially useful tool for integrating different data sources, simplifying access to climate-risk information, supporting technical assessments, and improving communication across institutions.

Post-Implementation Reflections on VALORADA Tools and project

In the Molise region, the VALORADA tools were received very positively, with a high level of satisfaction reflecting both their relevance and practical value. The dashboards were considered clear and informative, with suggested improvements framed mainly as extensions rather than criticisms. They have been used to explore available data for practical environmental questions, and potential future uses were identified in communication, scoping of work, demonstration purposes, efficiency gains, and data sharing. The Climate Resilience Catalogue was seen as a useful operational resource to support decision-making and prioritisation. The catalogue's main potential lies in its applicability to professional contexts such as environmental impact assessments and in complementing existing knowledge on future climate-related challenges. Identified use purposes included data searching, planning, sharing, gathering, and scoping. Suggestion for improvements related graphic clarity, language options, and integration options. Overall, the tools met expectations. Further refinements are needed to improve everyday usability.

VALORADA was further seen as a catalyst for breaking down departmental silos within the Molise regional administration by supporting dialogue, information sharing, and the consolidation of adaptation relevant data in a single location. While challenges remain, particularly regarding the integration of social and economic data with climate data and changes in the political agenda due to local govenrment turnover, the overall assessment of VALORADA's outcomes was very positive. The region has begun to use the tools in practice, and the results are expected to feed directly into follow-up work, notably the CLIMAAX project and to support updating the Molise Region's Sustainable Development Strategy linked to the Climate Change Adaptation Plan. Given limited regional resources, the Catalogue was highlighted as especially valuable, as it supports informed local decision making without requiring substantial additional capacity or investment.

8.8 Synthesis of the region-specific results

Region	Pre-implementation data management landscape	Satisfaction with the tools	Main outcomes of VALORADA project

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Molise	Fragmented data across systems; limited integration and updates; need for interoperability and accessible climate risk information.	Very positive; dashboards clear and informative; catalogue useful for decision-making and data management.	Improved collaboration and integration of data; tools used in practice and feeding into follow-up projects.
Přerov	GIS-based system supporting operations; coordination across departments; interest in improving data quality and accessibility.	Positive for Catalogue (clear and useful); dashboards not specifically assessed; catalogue seen as relatively technical.	Supported planning and coordination; contributed to follow-up projects and institutional development.
Mladá Boleslav	Use of external expertise and GIS tools; distributed data management; reliance on studies; collaboration across departments.	Positive; dashboards clear and useful; catalogue well-organised and practical.	Shift toward proactive climate action; increased political engagement; new projects and institutional developments.
Gabrovo	GIS-based spatial analysis; limited resources and staffing; project-based work; growing capacity through EU projects.	Positive; dashboards useful with some data gaps; catalogue valuable but limited by lack of local language.	Strengthened capacity and understanding; outputs reusable but constrained by resources and project-based conditions.
Burgas	Advanced monitoring system with real-time data; strong operational focus; challenges in national data integration.	Positive; dashboards intuitive and relevant; catalogue useful though perceived value varies.	Strengthened capacity and planning; improved understanding of climate data and services.
Occitanie (Sicoval and Montpellier)	Strong data infrastructure (Sicoval) with structured workflows; Montpellier relies on established local data systems.	Mixed; dashboards valued for visuals; catalogue useful but limited by legal and format constraints.	Supported learning and data use; limited operational uptake due to regulatory constraints; partial integration into existing systems.
Central Greece	Integrated into environmental planning; fragmented data access; need for unified and interoperable systems.	Positive; dashboards relevant but some usability challenges; catalogue highly useful.	Increased awareness and sharing; tools seen as replicable; uptake limited by resources and support needs.

9 Conclusions

The evaluation confirms that the VALORADA tools are useful, relevant, and promising for future application. They were generally perceived as clear, informative, and supportive of climate risk assessment, planning, and communication. Most suggestions for improvement were addressed during the project, while others, such as integration of user-defined layers, fell outside the project scope. Availability of local languages also remains a key area for improvement. Despite their positive assessment, evidence of sustained use during the project period was limited. This reflects external constraints, such as limited resources and the absence of formal mandates, rather than shortcomings in the tools themselves. The findings suggest that broader adoption depends on improvements in the surrounding uptake environment, and that future evaluations should be embedded in real-world application contexts to better assess usability in practice. Building on the results, recommendations on how climate information can be effectively taken up and used in local and regional climate adaptation planning are provided within the deliverable 3.2 (Practical and usable advice on the uptake of climate data by local entities). In addition, D2.3 (Final data catalogue implemented in each demonstrator) analyses how the Climate Resilience Catalogue is understood and applied by various users within their institutional and organisational settings.

Beyond direct tool use, the results show that the tools and VALORADA in general contributed to wider organisational and institutional effects. The tools supported shared understanding of climate data, strengthened

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dialogue between technical and policy actors, and encouraged more systematic and evidence-based approaches to adaptation. The project supported the breakdown of organisational silos, strengthened dialogue between technical experts and political decision-makers in Molise, and enabled a shift from reactive compliance toward more proactive climate action in Czechia. The project also stimulated follow-up initiatives and will inform future policy processes. The findings show that effective use of such tools depends on the availability, integration, and local contextualisation of data, as well as alignment with governance structures and priorities.

The legacy of VALORADA lies primarily in its co-development approach and methodological contributions rather than in the tools alone. The project demonstrates that meaningful progress in climate adaptation can be achieved using existing open European and local data, when sufficient collaboration and political commitment are in place. It points to the importance of developing locally relevant indicators and linking them to available data to capture vulnerabilities in context. By advancing a structured approach to climate risk assessment and supporting its practical application, VALORADA offers a transferable foundation for future work. At the same time, it points to the need for closer alignment between technical solutions and the broader policy, institutional, and administrative environment to support long-term uptake and scaling.

Disclaimer on the Use of Generative AI

Microsoft Copilot (Generative AI) was used to support the editing and refinement of language in this deliverable. The use of this tool was limited to improving clarity and readability; content, analysis, and conclusions are solely the responsibility of the author.

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Annex

Table 4 Use-case clusters

Dashboards	Climate Resilience Catalogue
Data planning purposes = The Dashboard can be used to develop plans for further data collection, data gathering, data management, or data usage. Demonstration purposes = The Dashboard can be used as an example to help demonstrate the value and uses of data.	Data planning purposes = The Catalogue can be used to develop plans for further data collection, data gathering, data management, or data usage. Demonstration purposes = The Catalogue can be used as an example to help demonstrate the value and uses of data.

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Efficiency = The Dashboard can be used to simplify access to information on local climate risks. Communication purposes = The Dashboard can be used as an example to help explain and communicate climate risks to others. Learning purposes = The Dashboard can be used to better understand climate risks. Data sharing purposes = The Dashboard can be used to share data with others. Data manipulation purposes = The Dashboard can be used to perform analytical tasks. Informational purposes = The Dashboard and its results can be used a resource for the preparation of reports, presentations, etc. as a part of climate-related work. Complementary value = The Dashboard can be used to expand on existing information. Decision making purposes = The Dashboard and its results can be used to support more well-informed responses and decisions related to climate adaptation. Scope of work = The Dashboard can be used to help define the scope of work for data analysis or data management services.	Learning purposes = The Catalogue can be used to better understand data usage options and methods. Data sharing purposes = The Catalogue can be used to share data with others. Data searching purposes = The Catalogue can be used to identify needed datasets. Data gathering purposes = The Catalogue can be used to identify where to find needed data. Data management purposes = The Catalogue can be used to organize existing datasets. Data usage purposes = The Catalogue can be used to identify appropriate risk indicators and how to implement them. Assessment purposes = The Catalogue can be used to assess the quality and adequacy of local data management. Scope of work = The Catalogue can be used to help define the scope of work for data analysis or data management services.

Table 5 VALORADA Dashboards: Tool-specific results

Tool	Clarity and Understandability	Ease of Navigation	Relevance of the Content for Climate Adaptation Work	Sufficiency of the Information in Providing the Level of Detail and Depth Required for Climate Adaptation Work	Comments by respondents Please note that all suggestions have been shared with the responsible partners, and the Dashboards have since been updated. The comments presented here therefore refer to the version assessed during the evaluation.
Climate tool	Mainly clear and understandable (out of 11 responses one “Yes, partially”, eight “Yes, completely”, two “No, not at all”)	Mainly easy to navigate (out of 11 responses 10 stated “Yes, completely”, one “Yes, partially”)	Mainly relevant (out of 11 responses one “Yes, partially”, 9 “Yes, completely”, one “No, not at all”)	-	Some content was reported as difficult for non-specialists to interpret. For some respondents, the information appeared redundant compared with national sources. Usefulness was limited where other climate projection providers were preferred. The geographical reference of the data was not always clear. **only for Greece:** Navigation issues were reported.
Flooding tool	Mainly clear and understandable (out of 6 responses one was “Yes, partially”, five	Easy to navigate	Relevant	Sufficient	

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	"Yes, completely")				
Forest tool	Clear and understandable	Easy to navigate	Relevant	Sufficient	
Urban climatology tool	Partially clear and understandable	Easy to navigate	Partially or not at all relevant	Partially sufficient	The tool was stated to be possibly being useful for getting a general idea and guiding decisions by one respondent, but for more specific projects the resolutions and functionalities are not sufficient.
Agriculture tool	Mainly clear and understandable (out of 4 responses one was "Yes, partially", 3 "Yes, completely")	Easy to navigate	Mainly relevant (out of seven responses, one was "No, not at all" and one "Yes, partially")	Mainly sufficient (out six responses, one was "No, not at all")	The information was generally clear, although one respondent noted that the land-use data was not locally relevant and is already available from national sources. One respondent noted that the basis for manipulating water-consumption data was unclear. Showing crop-rotation evolution and providing additional crop or water-consumption information could add value. Some respondents found the tool useful for providing an overview but insufficient for decision-making. It did not support assessing crop-substitution options, and the water-stress information was viewed as overemphasized.
Urban vegetation	Mainly clear and understandable (out of 4 responses one was "No, not at all", 3 "Yes, completely")	Easy to navigate	Partially relevant (out of six responses, three were "Yes, partially", two "Yes, completely", and one "No, not at all")	Mainly sufficient (out of five responses, three were "Yes, completely" and two "Yes, partially")	Responses were mixed. Many found the information clear and understandable, while others noted that the morphological units were difficult to interpret, the data sources were not fully explained, and the absence of comparisons or trend visualisation limited usefulness. Some users reported that it was not clear what aspects of the data were being manipulated, which made the tool challenging to use for scenario development.
Protected area tool	Clear and understandable	Easy to navigate	Relevant	Sufficient	
Resilience and adaptation tool	Clear and understandable	Easy to navigate	Relevant	Sufficient	
Wildfire tool	Clear and understandable	Mainly easy to navigate (one response "Yes, partially", one "Yes, completely")	Relevant	Sufficient	
Erosion tool	Partially or not at all clear and understandable	Partially or not at all easy to navigate	Mainly relevant (one response stating "Yes, completely", one response stating "Yes, partially")	Mainly sufficient (one response stating "Yes, completely", one response stating "Yes, partially")	**only for Greece:** Navigation issues were reported.
Future scenario tool	Partially clear and understandable	Completely or partially easy to navigate	Relevant	Sufficient	Users noted that in the cropland section, the distinctions between categories and the accompanying memorandum were difficult to interpret. They also observed that future scenarios were only compared with each other, without a reference to present-day conditions.

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