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VALIDATED LOCAL RISK ACTIONABLE DATA FOR ADAPTATION



D5.4

Best practises and recommendations for the scale up and replication of VALORADA results

EARSC

Contributors: ClimateKIC, Hereon

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DELIVERABLE REPORT

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Executive summary

Outcome

This deliverable brings together the main lessons generated in VALORADA, especially through the scalability workshops, and turns them into practical guidance for taking the project results beyond the five demonstrators. It links these findings to the project's Key Exploitable Results (KERs) and to the possible ways they can continue to be used after the project ends.

The report develops this in a step-by-step way. It starts from the experience of the demonstrators, which was presented and discussed with external stakeholders during the workshops. It then brings together the feedback collected, highlighting where interest was strongest, what barriers appeared most often and what conditions would make adoption easier. These findings are then looked at more broadly through technical, governance, economic and organisational perspectives.

One of the clearest messages is that replication does not mean copying a tool from one territory to another. What matters most is whether the indicators can respond to a real need and whether they can fit into the way institutions already work. Across the demonstrators, uptake was strongest when the outputs could support concrete processes such as planning, reporting or risk management and when there was clarity about who would manage the data, operate the tools and keep them updated over time. For this reason, replication is framed around the transferable core of the VALORADA approach. This includes the Climate Impact Chain methodology, the documented indicator recipes, the technical components that can be configured to different contexts and the governance arrangements needed to support long-term use. On this basis, the deliverable identifies three main pathways: direct adoption, adaptation to local context and integration into existing platforms. Each of these requires different conditions in terms of data, institutional capacity, governance and sustainability.

The report also makes clear that replication and exploitation are closely linked. Exploitation is not presented as a separate step that comes afterwards. Some VALORADA assets, such as the methodology and indicator recipes, can be reused more easily. Others require more support, for example through technical configuration, data integration, training, hosting or institutional embedding. In this sense, different replication pathways naturally lead to different exploitation models. The deliverable therefore connects the evidence from the workshops with the replication options and the exploitation routes linked to the KERs. This helps ensure that future uptake is based on real stakeholder feedback and realistic implementation conditions. To support practical use, the report identifies a shortlist of KERs with potential for replication and further uptake. It also provides guidance on governance, capacity building and service support and sets out recommendations to help stakeholders move from initial interest to operational use.

Deviation from objectives, corrective action

Because the demonstrators evolved through an iterative co-design and validation cycle, the scalability workshops were postponed compared to the initial planning. In practice, it became clear that these workshops would only be effective once the VALORADA tools and services had reached a mature and stable version, after being tested in the five demonstrators and improved based on the feedback collected during the implementation and usability processes. Holding scalability workshops too early would have meant presenting partially validated tools and collecting feedback that was not anchored in final demonstrator outcomes, reducing credibility and limiting replication value.

The revised schedule therefore reflects a quality-driven adjustment: it ensures that **Tier2 stakeholders (local and regional authorities and service providers)** engage with user-validated solutions, supported by documented lessons learned. This sequencing strengthens the **workshops as uptake and replication mechanisms**, increases the likelihood of converting interested regions into adopters and better supports the project objective of scaling VALORADA services into local contexts and systems.

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Finally, the revised workshop rollout was implemented as a demonstrator-led series, timed to the maturity of each region's validated tools and local risk narratives:

- Greece – "Scalability Workshop in Central Greece" was held online on 19 June 2025, showcasing how the region applies VALORADA indicators to climate risks affecting agriculture and coastal/soil systems, including floods, wildfires and erosion.
- Czechia – "Scalability Workshop in Přerov & Mladá Boleslav" took place on 30 September 2025, building on city use cases focused on overheated urban centres, drought/water stress and flash floods and on the use of climate/EO data plus urban green inventories to identify vulnerable green areas and support nature-based solutions.
- Bulgaria– "Scalability Workshop in Gabrovo & Burgas" took place on 4 November 2025, the meeting was structured around the demonstrator's focus on flash-flood monitoring, drought and forest-fire monitoring, air quality and urban heat islands, supported by in-country implementation/capacity-building activities.
- Italy – "Scalability Workshop in Molise" was held on 12 December 2025, presenting tools tailored to a predominantly rural region where rising temperatures and drought threaten agriculture and livestock, with linked concerns around erosion, wildfire risk, biodiversity loss and Adriatic coastal extreme events, including a strong emphasis on social vulnerability.
- France – "Scalability Workshop in Sicoval & Montpellier/Occitania" took place on 15 December 2025, grounded in Occitania's demonstrator priorities on urban heat islands, agricultural water stress.

Structure

This deliverable is structured to guide the reader from the overall VALORADA context and activities towards practical guidance for replication, exploitation, and policy uptake of the project results.

Following this introductory section, **Chapter 2** presents the VALORADA project and clarifies the role of this deliverable within WP5. It explains how D5.4 brings together dissemination, scalability, and exploitation activities, positioning the document as the main reference for understanding how VALORADA results can be taken forward beyond the project.

Chapter 3 focuses on dissemination and engagement activities. It highlights how participation in events and interaction with external stakeholders contributed not only to visibility, but also to validating the relevance of the VALORADA approach and identifying early signals of interest and potential uptake.

Chapter 4 introduces the scalability methodology and presents the evidence collected through the scalability workshops. It describes the approach used, the analytical frameworks applied, and provides a structured analysis of each demonstrator. This chapter forms the core evidence base of the deliverable.

Building on this, **Chapter 5** provides a cross-workshop synthesis, identifying common patterns, barriers, and enabling conditions for replication across the different territorial contexts. It then translates this evidence into practical replication pathways and operational guidance for future adopters.

Chapter 6 focuses on exploitation. It presents the methodology used to identify and assess the Key Exploitable Results (KERs), and analyses their potential pathways for uptake, sustainability, and long-term impact. It also highlights the need for differentiated exploitation approaches depending on the nature of each result.

Chapter 7 places the findings within the broader policy context. It connects the VALORADA results to European policy frameworks and presents key policy insights and recommendations to support scale-up and long-term adoption.

Finally, **Chapter 8** consolidates the main lessons learned and provides a set of overarching recommendations to support the transition from demonstrator results to operational use. The annex complements the report with additional methodological details and supporting materials.

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From a user perspective, the deliverable can be approached in different ways depending on needs. Public authorities may focus on scalability and replication chapters, technical actors on methodology and exploitation, and policy stakeholders on the policy and recommendation sections.

Introduction

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 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 harmonising 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.

About D5.4 and how it fits WP5

D5.4 is the main consolidation output of WP5. It brings together the knowledge generated through dissemination, scalability and exploitation activities and translates it into practical guidance for the future use of VALORADA results beyond the project. In this sense, the deliverable summarise what was learned in the demonstrators and workshops and explains how these results can be replicated, sustained and taken forward through concrete exploitation pathways.

Within WP5, this deliverable plays a connecting role. Dissemination activities helped make VALORADA visible to wider communities and created early signals of interest. The scalability workshops then provided more structured evidence on adoption conditions, barriers and support needs. In parallel, the exploitation work identified the Key Exploitable Results (KERs), assessed their maturity and explored the conditions under which they could continue to generate value after the end of the project. D5.4 brings these different strands together, linking validated demonstrator experience with the practical conditions required for replication, operational uptake and long-term sustainability.

In this deliverable, **scale-up** refers to the transition from demonstrator use to more regular and sustained use by institutions in their everyday activities, for example in planning, reporting, risk management or investment prioritisation. **Replication** refers to the transfer of the core VALORADA approach to other contexts. This includes not only the reuse of indicators, methods and documented indicator recipes, but also the governance arrangements, technical conditions and institutional capacities needed to make their use possible in practice. Replication may therefore involve local adaptation of datasets, thresholds and workflows, as well as integration into existing GIS, planning or decision-support systems.

The deliverable also recognises that replication and exploitation are closely related. Replication shows how VALORADA results can be transferred to new contexts, while **exploitation** addresses how these results can remain operational, useful and sustainable over time. For this reason, D5.4 links the evidence generated through the

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scalability process with the KER portfolio and the exploitation routes identified in WP5, showing how different forms of uptake may require different models of support, service provision or institutional integration.

The following chapter explains how scalability evidence was collected and analysed, and how this evidence is then used to define replication pathways, identify enabling conditions and connect them to longer-term exploitation and sustainability considerations.

Participation in relevant events and dissemination activities

Role of events in supporting scale-up and replication

Alongside the internal project activities, participation in external events (EURESFO, ECCA, EGU, EuroGEO, EXPANDEO...)[4] has played an important role in positioning VALORADA results within broader climate adaptation, EO and policy communities. These activities created opportunities to present the project's methodology, tools, and indicators to a wider audience, including potential adopters, policy stakeholders, research actors, and technical communities. In this sense, external events did not only serve a communication purpose, they also helped to test the wider relevance of the VALORADA approach beyond the demonstrator settings. Taking part in events at different levels, VALORADA was able to engage with actors who may not have been directly involved in the project, but who face similar challenges related to climate adaptation, data integration and the practical use of indicators in decision-making. This broader exposure helped to confirm that the issues addressed by the project are shared across different territorial and institutional contexts. It also made it possible to identify interest in the project's methodologies and results, as well as possible future pathways for uptake. In this way, event participation can be understood as an important enabling activity for scale-up, helping to build visibility, relevance, and engagement around the project's outcomes.

Summary of dissemination activities

A fuller account of dissemination and outreach activities is provided in Deliverable D5.3, which documents the project's communication strategy, outreach approach, and ecosystem relations. As reported there, VALORADA partners participated in about 30 events across local, national, European, and international levels. These included policy-oriented events, scientific and technical conferences, stakeholder workshops, project clustering activities, and international forums such as the World Urban Forum and European regional events.

These activities contributed to making the VALORADA approach more visible to audiences working on climate adaptation, EO, and territorial resilience. They also helped communicate the project's work on climate-risk indicators, data integration, and decision-support tools in ways that were relevant to different stakeholder communities. Through these events, the project engaged with potential users, particularly regional and municipal authorities, while also strengthening links with related initiatives and projects working on complementary themes. As such, the dissemination activities reported in D5.3 provide an important background for understanding how VALORADA results were positioned within a broader ecosystem of stakeholders and initiatives.

Insights emerging from event participation

Participation in these events also provided useful feedback from stakeholders beyond the project's direct implementation contexts. Across different discussions and exchanges, several recurring themes emerged. There was clear interest in integrated climate-risk indicators, particularly where these could support planning, prioritisation, or decision-making processes. At the same time, many exchanges pointed to the need for practical

[4] European Urban Resilience Forum, European Climate Change Adaptation Conference, European Geosciences Union, European Group on Earth Observations

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guidance, especially regarding how indicators should be interpreted and how they could be used within existing institutional settings.

Another recurring point concerned interoperability and the challenge of combining EO data with local datasets in ways that are operationally useful. Stakeholders also frequently raised the importance of transparency, trust, and methodological clarity, particularly where outputs are expected to support public-sector decisions. These discussions suggest that interest in the VALORADA approach is not limited by the relevance of the topic itself, but rather shaped by the degree to which the results can be made understandable, usable, and aligned with real institutional needs. In this sense, event participation helped confirm that visibility alone is not sufficient, and that scale-up also depends on communication, explanation, and the ability to connect project outputs to user contexts.

Contribution of dissemination to scale-up

Taken together, dissemination activities have supported the scale-up objective of VALORADA by creating a progressive pathway from visibility to engagement. First, they helped raise awareness of the project and its results among relevant audiences. Second, they created opportunities for exchange and feedback, making it possible to better understand stakeholder expectations, needs, and possible barriers to uptake. Third, they helped reveal potential opportunities for future use, collaboration, and transfer of the project's results beyond the original demonstrators.

In this respect, participation in events should be seen as more than a supporting dissemination activity. It forms part of the broader process through which VALORADA results are made visible, discussed, and positioned for future uptake. Connecting the project to wider policy, technical and user communities, dissemination has helped create favorable conditions for the longer-term use and transfer of its results beyond the immediate project framework.

Scalability

Scalability methodology

The scalability methodology used in this deliverable combines three complementary layers. First, **scalability workshops** provide the primary mechanism for collecting feedback from external stakeholders on the applicability of VALORADA solutions in new territorial contexts. Second, the **workshop outcome framework** structures this feedback into comparable dimensions of adoption readiness, including uptake signals, barriers and enabling conditions. Third, the **scalability assessment framework** provides analytical perspective through which this structured feedback is interpreted, examining the technical, governance, economic and organisational conditions influencing replication. Together, these elements create a methodological bridge between demonstrator experience and practical replication guidance.

Approach and methodology

This section integrates evidence from across the VALORADA knowledge base to ensure that the scalability recommendations are grounded in validated project outputs rather than conceptual assumptions. It builds on the **WP1 data-gap analysis** (D1.2), which identifies barriers and user needs related to access to and use of European and local datasets, and on the **WP1 indicator work** (D1.3), which defines the indicator selection and validation logic applied in the demonstrators. It also draws on the **Data Valorisation Framework** (D2.1), which provides the basis for identifying and operationalising the "climate value" of locally managed socio-economic, demographic and land-use datasets. Technical feasibility and transferability are further informed by WP4 deliverables describing the **toolchain architecture** and **indicator workflows** for data ingestion, harmonisation, computation and visualisation, as well as by the **Data Management Plan** (D4.7), which frames the governance conditions for replication under FAIR principles.

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The analysis underpinning this deliverable combines **demonstrator case narratives** (T3.3) from Molise, Bulgaria, Czechia, Central Greece and Occitanie with **structured feedback** collected during the scalability workshops. These inputs are complemented by the **KER readiness analysis** (T5.4) and the **Results Inventory** (D6.3), ensuring that the proposed replication pathways are aligned with the maturity and exploitation conditions of the project's main outputs.

Taken together, these evidence sources provide the basis for assessing replication readiness and for identifying the conditions under which VALORADA solutions can be adopted and maintained beyond the project consortium.

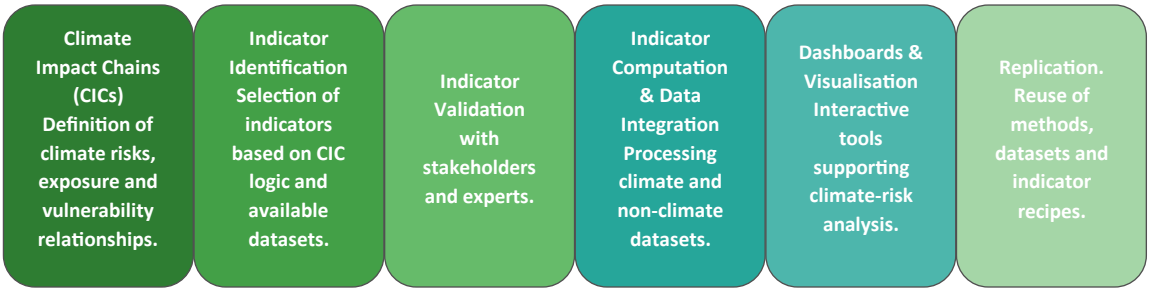


Fig1. VALORADA methodological workflow guiding the dashboards presented at the scalability workshops

Figure 1 summarises the methodological workflow developed in VALORADA to produce the climate-risk indicators and dashboards that were later presented during the scalability workshops. The workflow illustrates the sequence followed in the demonstrators, starting from the definition of **climate risks** through **Climate Impact Chains (CICs)**, followed by **indicator identification** and **validation** with stakeholders, the **integration and processing of climate and non-climate datasets** and the development of **dashboards** used to visualise and analyse climate-risk information.

This workflow is important for the present deliverable because the dashboards and indicators demonstrated during the scalability workshops were produced through this validated methodological process. As a result, workshop participants were not only exposed to the final **visualisation tools**, but also to the **methodological logic** behind them, including how indicators are derived from datasets and how the analysis can be reproduced in other territorial contexts. In this way, the workflow provides the **technical and methodological foundation that underpins the scalability discussions**. Building on this validated workflow, the scalability workshops collected stakeholder feedback on the potential adoption and transfer of these solutions in other regions. The following sections therefore explain how this evidence was gathered through the workshop programme and how it was analysed using the scalability assessment framework and the workshop outcome framework to derive practical replication guidance.

Scalability workshops: purpose and common format

The scalability workshops were designed as "replication tests". Their objective was to **expose external stakeholders to validated demonstrator outputs and to collect structured feedback** on whether VALORADA indicators, workflows and tools could realistically be adopted in other territorial contexts.

For each scalability workshop, the dissemination and mobilisation process was carried out in close coordination with the local demonstrator partners and GAC (T5.1) supporting with the development of outreach materials (visuals), communication support, creation of dedicated webpages on the website for each of the demonstrators and its translation to ensure relevance and effective outreach[5]. Potential participants were jointly identified, with particular attention to neighbouring regions, public authorities and organisations involved in environmental monitoring and climate adaptation that could benefit from the workshop outcomes. This process was complemented by targeted desk research carried out by EARSC to identify additional relevant stakeholders, which were then validated together with the local partners. Depending on the country and language, the ease of identifying suitable contacts varied, influencing the breadth of outreach. Dedicated mailing lists were

[5] https://valorada-project.eu/scalability-workshops/

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subsequently developed for each demonstrator, and invitations were distributed accordingly. In practice, direct invitations issued by the demonstrator partners proved to be more effective than those sent by the association, highlighting the importance of local networks and established relationships in engaging participants. As a result, the demonstrators played a central role not only in presenting the solutions, but also in identifying and mobilising the majority of attendees.

Across all regions, the workshops were held in the local language to facilitate participation and followed a broadly consistent structure:

1. Presentation of the **VALORADA project** and **dashboards** developed (including the metadata for the indicators and datasets used in the demonstrator platforms)
2. **Experience** sharing by representatives on their involvement in VALORADA and their use of the tools
3. **Live demonstration** of the dashboards and **visualisation functionalities**
4. **Hands-on** session with participants to explore and test the dashboard visualisations
5. **Structured feedback** with the audience through Mentimeter and moderated discussion (**Q&A**)
6. Discussion on the practical relevance and possible **use of the tools** in other contexts

The workshop discussions broadly followed the methodological logic applied in the VALORADA demonstrator progressing from the project context to the presentation of the dashboards. This approach allowed participants to engage not only with the final tools but also with the methodological steps behind them, helping them understand how the approach could be reproduced or adapted in other territorial contexts.

Across the workshop series, stakeholders generally expressed interest in the tools, although the degree of readiness varied between cases. In many instances, participants indicated that adoption would require additional support, particularly in the form of training, interpretation guidance and assistance with integration into existing GIS or planning systems.

The scalability workshops constitute the **primary evidence-collection mechanism** for this deliverable. They expose validated VALORADA demonstrator outputs to external stakeholders and gather structured feedback on the feasibility of adoption in other regions. However, workshop discussions alone do not directly provide replication guidance. To translate qualitative feedback into comparable evidence across demonstrators, two complementary analytical layers are applied: the **scalability assessment framework**, which defines the analytical perspective used to evaluate replication readiness and the **workshop outcome framework**, which structures the workshop feedback into comparable adoption signals, barriers and enabling conditions.

Scalability assessment framework (evidence)

The scalability assessment framework provides the analytical perspectives used to interpret the **evidence collected during the scalability workshops** and developed further in the demonstrator analysis. It does not define the structure of the workshops themselves. Instead, it offers a common set of perspectives for examining the main factors that influence whether VALORADA solutions could be adopted and sustained beyond the demonstrator contexts. Within this deliverable, replication readiness is considered through four complementary perspectives:

- **Technical feasibility**: whether the required datasets are available, interoperable and suitable for updating over time.
- **Legal and data-governance conditions**: whether access rights, licensing conditions or data-sharing arrangements may affect reuse.
- **Economic viability:** whether replication is financially realistic, including implementation effort, maintenance requirements and possible service costs.
- **Organisational and social readiness**: whether the relevant institutions, roles, skills and operational processes are in place to support practical use.

These perspectives are used as a common analytical reference for interpreting stakeholder feedback across the workshop series. Not all workshops addressed each perspective in the same depth, as this depended on the

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specific demonstrator context, the stakeholders involved and the issues raised during discussion. However, taken together, they provide a consistent basis for comparing replication readiness across demonstrators.

This framework is applied later in the deliverable to interpret the findings presented in Chapter 4 and the recurring patterns identified in Chapter 5. In this way, it helps link the detailed workshop evidence to the broader conditions influencing replication and scale-up.

Workshop evidence also shows that the main challenges for scalability are not primarily technical. While datasets and indicator methodologies were generally considered reproducible, stakeholders more often highlighted governance arrangements, institutional capacity and long-term operational sustainability as the main factors influencing successful adoption.

Limitations

Across the workshops, several common barriers to adoption emerged. These included **fragmented institutional responsibilities**, **limited technical capacity**, integration with local datasets and uncertainty around **long-term hosting and funding**. Participants most often asked for guidance on how to use the dashboard, followed by training and support for system integration. This suggests that **capacity-building** should be considered a key part of replication, rather than an optional activity.

Taking these challenges into account, the workshop results were synthesised through a structured outcome framework designed to capture adoption signals, barriers and enabling conditions across the different demonstrators.

Workshop outcome framework (analysis)

While the scalability assessment framework described in Section 3.3 provides the analytical perspectives used to interpret replication readiness, the workshop outcome framework **defines how the feedback collected during the scalability workshops is organised and synthesised**. Its purpose is to translate qualitative workshop discussions into comparable evidence across the five demonstrators while preserving the specific regional context of each case.

To achieve this, the findings from each workshop are presented in Chapter 4 using a common demonstrator structure that reflects the main elements emerging from the workshop discussions. This structure ensures methodological consistency across cases and allows the evidence to be compared and synthesised across regions. The demonstrator sections are therefore organised around four complementary components:

- **Case narrative:** This section describes the territorial context of the demonstrator, the climate risks addressed and how the VALORADA approach was applied in that region. It provides the background necessary to understand the relevance of the workshop discussions and the practical context in which the indicators and dashboards were presented.
- **Discussion points:** This section summarises the main insights emerging from the workshop discussions. It captures stakeholder feedback on the practical use of the tools, including **uptake signals**, **barriers to replication** and **enabling conditions** requested by participants. Enabling conditions may include, for example, training needs, interpretation guidance or support for integration with existing systems.
- **Stakeholders:** This section describes the composition of workshop participants and the institutional actors involved. Understanding which organisations were represented helps explain the governance environment surrounding potential adoption and clarifies which types of actors may play a role in future replication.
- **Replication:** This section identifies the practical implications of the workshop discussions for future adoption. It summarises **adoption prerequisites**, possible **replication pathways**, and the main elements required for a replication package. Replication pathways may include direct adoption of the approach, adaptation to local datasets and governance conditions, or integration into existing regional platforms and planning systems.

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Using this structure ensures that the evidence generated during the workshops can be presented consistently across all demonstrators while still reflecting the specific conditions of each territorial context.

In several workshops, Mentimeter responses and moderated discussions also provided quantitative indications of adoption interest. For example, in the Occitanie workshop approximately 80% of participants indicated openness to using the tools either directly or with additional support, while the main conditions identified for adoption were integration with existing planning systems and training on indicator interpretation.

Taken together, the two methodological frameworks described in this chapter create the bridge between workshop discussions and replication guidance. The **workshop outcome framework** structures the qualitative evidence collected during the workshops, while the **scalability assessment framework** provides the analytical perspectives used to interpret this evidence in terms of replication readiness.

Chapter 4 applies this structured approach to each demonstrator case, while Chapter 5 synthesises the results across the workshop series to identify the recurring patterns and systemic conditions influencing the scale-up potential of VALORADA solutions. The framework presented provides the structure for analysing each demonstrator case and for synthesising the main findings across workshops

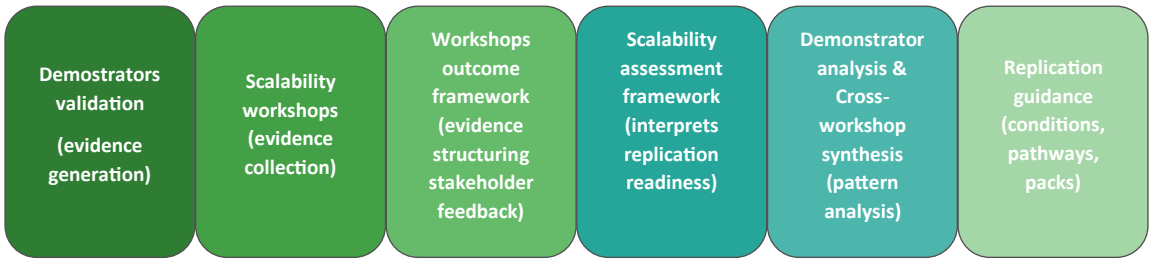


Fig2. VALORADA scalability methodology

Scalability workshops: Demonstrators

Building on the methodological approach described in Chapter 3, the five VALORADA demonstrators provide the basis for **assessing scalability** and **replication conditions**. Each demonstrator is presented using a common analytical structure derived from the workshop outcome framework, so that findings can be compared consistently across cases. This structure includes: (i) a case narrative describing the territorial context and use case, (ii) discussion points capturing the main enablers, barriers, support needs and uptake signals emerging from the workshop, (iii) stakeholder composition and engagement profile and (iv) replication implications, including pathways, prerequisites, replication pack elements and possible exploitation routes. In this way, Chapter 4 translates the structured workshop evidence into **demonstrator-level analysis** (ref. section 3.5). The following chapter then builds on these case findings, interpreting them through the scalability assessment framework (ref. section 3.3.) to identify the recurring patterns and broader conditions influencing replication and scale-up across the VALORADA demonstrators.

Molise

Case narrative

Molise applied the VALORADA approach in a predominantly rural regional context where climate risks increasingly affect agriculture, livestock production and rural livelihoods. Key climate pressures include rising temperatures and prolonged drought periods, with related concerns such as soil erosion, wildfire risk, biodiversity loss and extreme coastal events along the Adriatic coast. These environmental pressures are compounded by social vulnerability factors, including an ageing population and economic dependence on agriculture.

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The earlier WP1 gap analysis (D1.2) highlighted several structural challenges affecting the use of climate-risk information in the region. These included limited institutional resources, fragmented data management practices across regional departments and the need for clearer guidance on how to combine climate data with socio-economic and sectoral datasets. Concerns were also raised regarding the usability of indicators and the ability to maintain data updates over time.

During the scalability workshop, the VALORADA approach was presented through the Molise demonstrator, including the indicator catalogue and the dashboard visualisation tools. The workshop discussion showed that some of the earlier barriers identified in WP1 could be partially addressed through greater methodological transparency. In particular, the use of indicator "recipes" linking indicators to specific datasets, together with the metadata catalogue and the data evaluation framework, helped participants understand how indicators are constructed and how similar indicators could be reproduced using local datasets. As a result, the main challenges identified by participants shifted from purely technical feasibility towards issues of institutional embedding and long-term sustainability. Stakeholders emphasised the importance of integrating the VALORADA outputs into existing regional information systems and ensuring that responsibilities for data maintenance, updates and operational management are clearly defined beyond the lifetime of the project.

Stakeholders

The workshop brought together 10 experts from different Italian regions. The majority represented regional authorities from Molise and other Italian regions, alongside representatives from research organisations such as CMCC and ISPRA. This composition indicates interest beyond the Molise region itself and suggests a potential pathway for horizontal replication across other Italian regional administrations dealing with similar climate risks. The participation of public authorities dominated the discussion, while the presence of technical service providers and private sector actors was more limited. This suggests that future replication efforts may require additional engagement with technical integrators and service providers who could support the operational deployment and maintenance of the tools. Overall, the stakeholder profile indicates that replication is most likely to occur through adaptation by regional administrations, supported by external technical partners where needed.

Discussion points

- **Enablers:** Participants considered the VALORADA dashboard a practical tool for combining climate and non-climate datasets into a single operational interface supporting climate risk assessment. The availability of the indicator catalogue and metadata descriptions helped clarify how indicators are calculated and which datasets are used, increasing transparency and trust in the methodology. The use of widely available European datasets, particularly Copernicus and ECMWF products, was also seen as an important enabling factor, since it reduces data acquisition barriers and makes it easier for other regions to reproduce the indicators. The dashboard demonstration also showed how thematic modules addressing flooding, agriculture, forests and protected areas could support sector-specific climate adaptation discussions within regional administrations.
- **Barriers:** The main barriers identified during the discussion were structural rather than technical. Participants highlighted the difficulty of integrating a new analytical platform into existing public administration workflows, especially where regional information systems are already established. Stakeholders also emphasised challenges related to long-term data maintenance. While many datasets required for the indicators are available at national or European level, maintaining updated regional datasets requires dedicated institutional capacity and resources. In addition, workshop participants noted that data management within the regional administration remains fragmented, with limited data sharing between departments and no centralised data storage infrastructure, which can complicate operational use of the tools.
- **Support needs:** Participants identified several types of support that would facilitate adoption. These include onboarding and training activities to help technical staff interpret indicators and use the dashboard effectively, as well as hands-on support to integrate the tools into existing regional GIS environments. Stakeholders also requested a clearer operational model specifying responsibilities for hosting the platform, maintaining datasets, updating indicators and providing user support over time. Integration with other regional digital initiatives, such as civil protection geospatial catalogues and

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emerging climate data infrastructures, was also highlighted as an important requirement for future operational use.

- **Uptake:** Overall interest in the approach was strong. Participants recognised the potential value of the indicators and visualisation tools for supporting climate adaptation planning in sectors such as agriculture, environmental management and territorial planning. However, adoption was generally seen as conditional on two key factors: the ability to integrate the tools into existing administrative workflows and the availability of resources to maintain the system over time. Feedback collected during the workshop and through the Mentimeter discussion confirmed that regional authorities are the most likely primary users of the tools, although participants emphasised that additional support and long-term funding mechanisms would be required to ensure sustained use.

Replication

- **Pathway:** Adaptation: The workshop showed that replication will not consist of copying the solution exactly, but of adapting it to each region. This means using the same VALORADA methodology (Climate Impact Chains (CIC), indicator logic and indicator notes), but changing the data and settings to fit the local context. In practice, this involves using local datasets instead of the original ones and adjusting thresholds and parameters so that the indicators reflect local conditions. In this way, regions follow a common approach while ensuring the indicators are relevant for their own context.
- **Prerequisites:** The workshop discussion suggested that successful replication would require a number of basic conditions to be in place from the outset. These include a clearly identified institutional owner responsible for the decision use of the indicators, together with a technical operator able to manage system operation and data handling. Replication would also depend on having an agreed update cycle for datasets and indicators, a clear arrangement for hosting and maintenance and a minimum operational budget to support the system over time. In addition, participants emphasised that integration with existing regional GIS environments and planning workflows would be essential for practical uptake.
- **Replication & exploitation pathway: pack:** Replication in Molise is most likely to take place through adaptation of the VALORADA approach rather than through direct transfer of the dashboard as a standalone product. The workshop discussion showed that what needs to be transferred is the methodological core of the approach, especially the Climate Impact Chain (CIC) methodology, the indicator shortlist, the indicator notes and the metadata structures that explain datasets and calculation logic. To support replication in other regions, this would need to be complemented by a minimum dataset checklist, onboarding and training materials, and practical guidance for integration into regional GIS and administrative systems. In exploitation terms, the Molise case points to a hybrid model: open reuse of the methodological assets can lower barriers to uptake, but practical deployment would still require service-based support for technical configuration, system integration and operational maintenance.

Burgas & Gabrovo (Bulgaria)

Case narrative

The VALORADA demonstrators in Burgas and Gabrovo address a range of climate-related risks affecting Bulgarian Municipalities, with particular attention to water stress, drought conditions and urban resilience. These regions face increasing climate pressures, including rising temperatures and prolonged droughts, alongside location-specific risks. In Burgas, heavy rainfall events can lead to flash floods that affect infrastructure and agricultural land, while Gabrovo faces warmer winters and drought conditions that affect forests, ecosystems and public health across both urban and mountainous areas. Within this context, the VALORADA approach focused on developing climate risk indicators and a visualisation platform combining local datasets with Earth observation data. The indicators addressed topics such as flash floods, drought conditions, forest fire risks, air quality and urban heat islands, with the objective of supporting local climate adaptation planning and monitoring climate-related risks at municipal level. The scalability workshop held in Plovdiv brought together municipal representatives, regional authorities and other stakeholders to explore how the VALORADA indicators and dashboard could support climate-informed decision-making in Bulgarian municipalities. The workshop combined

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presentations on the development of the VALORADA tools and indicators with practical demonstrations of the platform and exchanges with representatives from Burgas and Gabrovo Municipalities on their experience using the tools. The discussion highlighted that the VALORADA tools can support local climate adaptation planning by providing visualised climate-risk information and structured indicators that help municipalities better understand and monitor climate impacts. At the same time, the workshop aimed to explore how other municipalities could adopt or test these indicators within their own local climate risk management and adaptation strategies.

Stakeholders

The workshop brought together a diverse group of stakeholders involved in climate risk management and local governance. Participants included municipal representatives from Burgas and Gabrovo, representatives from approximately 18 Bulgarian Municipalities, the Regional administration of Plovdiv Region, as well as national institutions such as the Fire Safety Directorate of the Ministry of Interior and representatives from Academia. The participation of municipal authorities was particularly significant, as local administrations are the main actors responsible for implementing climate adaptation measures at city level. The presence of national agencies and research organisations also contributed to the discussion by providing broader perspectives on disaster risk management and environmental monitoring. Overall, the stakeholder composition indicates that the VALORADA tools may be particularly relevant for municipal authorities seeking to strengthen their climate risk assessment and adaptation planning capacities.

Discussion points

- **Enablers:** The workshop discussions indicated that the VALORADA dashboard and indicators were perceived as useful tools for supporting climate-risk awareness and planning at municipal level. The live demonstration of the platform helped illustrate how environmental indicators and visualisation tools can support the monitoring of risks such as drought, flooding and urban heat. The experience shared by representatives from Burgas and Gabrovo Municipalities also helped demonstrate how such tools can be used in practice to support local climate adaptation discussions.
- **Barriers:** Although detailed technical barriers were not extensively discussed during the workshop, participants highlighted the broader challenges municipalities face when integrating new analytical tools into existing local governance processes. These include the need to align new tools with existing planning practices and the administrative capacity required to interpret and use climate indicators effectively.
- **Support:** The workshop highlighted the importance of continued knowledge exchange and practical demonstrations in helping municipalities understand the potential value of the tools. Participants expressed interest in further engagement and discussions on how the VALORADA indicators and dashboard could be applied within their own municipal contexts.
- **Uptake:** The workshop attracted close to 50 participants, including representatives from 18 municipalities, regional administrations, national institutions and research organisations. The event provided a platform for exchanging views on how climate-risk indicators and environmental visualisation tools can support local governance and climate adaptation planning. Overall, the workshop demonstrated interest from Bulgarian municipalities in exploring the use of climate indicators and visualisation tools for climate adaptation planning, while also highlighting the importance of peer exchange between municipalities that have already experimented with such approaches.

Replication

- **Pathway:** The workshop discussions suggested that replication in other municipalities would likely take the form of adapting the VALORADA indicators and dashboard to local contexts, particularly in cities facing similar climate challenges such as drought, flooding or urban heat.
- **Prerequisites:** Although detailed technical prerequisites were not explicitly defined during the workshop, the discussion highlighted that successful adoption would be highly dependent on the ability of municipalities to interpret climate indicators, integrate new tools into existing decision-making processes and ensure that local institutions have the capacity (technical, institutional and organizational) to use and maintain the tools over time.

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- **Replication & exploitation pathway:** In the Bulgarian case, replication is likely to depend on the combination of transferable indicators, visualisation tools and practical exchange between Bulgarian municipalities. The workshop showed that replication would require access not only to the dashboard and indicators, but also to the methodological approach used to connect datasets with climate-risk indicators. Demonstrations, peer exchange and experience sharing between municipalities emerged as particularly important, as they help potential adopters understand how the tools could be further used and potentially applied into strategic documents related to climate adaptation and local risk management processes. The most relevant exploitation route here is therefore based less on a fully defined service model and more on a knowledge-exchange approach, where methodological reuse is supported by demonstrations, peer learning and continued municipal dialogue.

Přerov & Mladá Boleslav (Czechia)

Case narrative

The Czech demonstrators focused on urban climate risks affecting the statutory cities of Přerov and Mladá Boleslav. The workshop materials show that the cases addressed overheating, drought and hydrological extremes, with a strong focus on urban heat, water-related pressures and the condition of urban green infrastructure. In practical terms, Přerov concentrated on the degradation of urban ecosystems due to overheating, while Mladá Boleslav focused on extreme heat and its effects on people's health, particularly in relation to urban transport. The broader workshop framing also referred to drought, water management and flood-related risks.

The workshop presented the VALORADA indicators, dashboard and catalogue as tools to support local climate adaptation planning and to help municipalities gain more localised climate information. The purpose was not only to present the tools, but also to encourage other Czech municipalities and regional actors to explore how similar indicators could be tested or adopted in their own planning processes.

The discussion also reflected the gradual development of the Czech demonstrators within the project. According to the workshop materials, the cities had been involved since 2023 through earlier workshops, implementation activities, indicator discussions and tool demonstrations. By the time of the scalability workshop, the discussion had shifted from initial problem identification towards the practical use of indicators and tools and their possible uptake in other local contexts. Overall, the workshop suggested that the Czech demonstrators are particularly relevant for municipalities seeking to improve evidence-based urban adaptation planning, especially in relation to heat, water stress and the management of green infrastructure. At the same time, the debate showed that successful uptake depends not only on the technical value of the tools, but also on municipal capacity, political support, long-term budget ensurance, and the ability to communicate climate adaptation needs more clearly to wider local audiences.

Stakeholders

The Czech workshop was strongly centred on municipal experience. The discussion was dominated by representatives of the two demonstrator cities, Přerov and Mladá Boleslav, together with the project partner ASITIS. The workshop communications indicate that it also brought together about 10 experts from Czech municipalities, regional authorities and climate planning professionals, although the interactive debate itself was mostly driven by the municipal representatives and that other participants contributed less actively.

This stakeholder profile is important for interpretation. On the one hand, it confirms that the workshop reached the type of users most likely to adopt the tools in practice, namely local authorities and municipal planners. On the other hand, the limited visible contribution from other actor groups suggests that future scale-up may require stronger engagement beyond municipalities alone, especially with regional and national actors who can support broader political backing, policy alignment and dissemination. This is also reflected in the Mentimeter responses, where ministries, local governments and regional authorities were identified as important actors to involve in order to increase impact at broader scale. Overall, the stakeholder composition suggests good potential for city-

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to-city replication and peer learning, but also indicates that longer-term scale-up would benefit from stronger involvement of enabling actors beyond the municipal level.

Discussion points

- **Enablers:** The workshop highlighted several factors supporting uptake. The tools were presented as useful for generating more localised climate information and for creating a basic information framework that municipalities could later translate into GIS systems or planning documentation. The workshop also benefited from a strong peer-learning dimension, as representatives from both cities explained why they joined the project, how they used the outputs and what value they saw in the indicators and tools. The focus on concrete urban challenges, such as overheating, drought and green infrastructure, also made the relevance of the tools easier to understand for potential adopters.
- **Barriers:** The workshop suggest that the main barriers were institutional and organisational rather than purely financial. Municipal representatives pointed to limited prior experience with climate-related data collection and use and stressed that political support is essential for such initiatives to move forward. The discussion also referred to the lack of ability to connect climate issues across different parts of public space and city administration, which suggests broader coordination challenges. In addition, low awareness of these kinds of tools at national level and fragmented decision-making were identified in the Mentimeter responses as important barriers to wider scale-up.
- **Support:** Participants pointed to several forms of support that would help adoption. Responses to the audience highlighted training or capacity building, clearer alignment with the policy framework and practical demonstrations or case studies as the most important support needs. It is also noted the importance of materials in local language, especially easy to understand awareness-raising materials for the public, rather than only technical outputs. This was reinforced by the discussion, where municipal representatives stressed that outcomes should not remain limited to high-level reports and should also be translated into accessible formats such as brochures or other public-facing materials.
- **Uptake:** The available evidence points to strong interest in the tools. In the final workshop question on whether the city or department would be interested in using these or similar indicators and tools in planning or decision-making, all recorded votes selected “Yes, definitely.” The workshop communications also describe the session as a strong exchange on climate-informed local governance, bringing about 10 participants from Czech municipalities, regional authorities and climate-planning professionals. Taken together, the workshop suggests that the Czech case has strong relevance for municipal adaptation planning, but that successful uptake depends on practical support, political backing and clearer communication of the value of climate adaptation tools both within administrations and towards the public.

Replication

- **Pathway:** The workshop materials suggest that replication would most likely take the form of adaptation to local context rather than direct copying. The tools were discussed as useful examples that could support other cities facing similar climate risks, but the emphasis was on applying similar indicators and approaches within local planning and adaptation processes rather than on deploying an identical dashboard unchanged. Overall, integration into the existing frameworks such as GIS was mentioned as one of the paths forward to foster replication.
- **Prerequisites:** The available evidence points to several practical conditions for replication. Municipalities would need sufficient capacity to work with climate-related data, some degree of political or institutional support and clearer alignment between the tools and existing policy and planning frameworks. The workshop also suggests that uptake would be easier where municipalities already have dedicated structures or offices dealing with climate adaptation, as Mladá Boleslav was described as being further ahead partly for this reason. When it comes to the financial constraints, the participants mentioned that the lack of funding is not among the biggest issues, however, a long-term budgetary support is important for scaling and replicability.
- **Replication and exploitation pathway:** The Czech case suggests that replication should be centred on the reuse of the VALORADA approach with strong support for communication and peer learning. The workshop made clear that replication would require more than access to a dashboard alone: it would

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need the indicators, the visualisation tools, practical demonstrations, examples of use, training materials and explanatory resources that make the outputs understandable both to technical users and to wider local audiences. Because participants also stressed the importance of awareness materials in local language, the replication package should include communication resources alongside technical documentation. In exploitation terms, the evidence does not point to a fully defined service or platform model. Instead, it suggests an approach based on methodological reuse, peer exchange and practical demonstrations, supported by communication materials that can help broaden local understanding and support uptake.

Central Greece (Greece)

Case narrative

The Central Greece demonstrator focused on a multi-hazard context combining coastal and soil erosion, wildfires and floods, with particular attention to the island of Evoia and, in the broader regional discussion, to water stress and agricultural impacts in Thessaly. Central Greece is a region increasingly exposed to climate pressures affecting coastal zones, forests, agriculture, infrastructure and local livelihoods. These include repeated megafires in Evoia, flood impacts linked to storms such as Daniel and Ianos, coastal erosion, drought and water scarcity and broader heat-related pressures.

Before the scalability workshop, the demonstrator had already advanced through several stages, including earlier workshops, indicator development, implementation discussions, and feedback from the Region of Central Greece. During the implementation of the project, there was regular interaction with the region on the visual presentation of indicators, the choice of metrics, dashboard components, and the identification of additional data and services that could support operational use. This iterative process continued in 2025, with further refinement of the tools and indicators, including new water-stress and agricultural adaptation tools for Thessaly.

The scalability workshop itself was designed to introduce the VALORADA indicators and visualisation tools to Greek and Cypriot authorities outside the consortium, while using Central Greece as a concrete example of how such tools can support adaptation planning. The event combined methodological explanation, user experience from the region, a live demonstration of the platform and an interactive discussion on possible uptake in other regions. Overall, the Central Greece case illustrates how the VALORADA approach was applied in a complex regional context where different climate risks overlap and where decision support requires combining Earth observation, climate information and local datasets. It also shows that the demonstrator had moved beyond early problem definition towards a more operational phase focused on tool refinement, practical use and external uptake.

Stakeholders

The Central Greece workshop had a broad participant profiles. It brought together close to 50 participants from Greek and Cypriot municipalities, regional authorities and climate adaptation practitioners. It also involved project partners, regional representatives from Central Greece and discussion of a possible national government perspective on climate tool uptake. The workshop discussions showed that the main stakeholders involved were from the Region of Central Greece, with particular attention to Evoia, and from the Municipality of Chalkida. This reflected a demonstrator that was closely connected to both regional and municipal realities, which is important when considering possible pathways for institutional uptake. Overall, the stakeholder participation pointed to a solid basis for horizontal exchange with other Greek-speaking regions, while also showing some vertical relevance, as the discussion touched on national-level enabling conditions and policy alignment. At the same time, participation from private-sector actors or technical integrators beyond the project partners did not appear to be strong.

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Discussion points

- **Enablers:** One of the main strengths of the Central Greece case was the combination of peer explanation and practical demonstration. In the workshop, participants could see how the tools had been developed, how they responded to the climate risks addressed in the demonstrator, and how they could be used in practice through the live platform demonstration. The exchange with local representatives also helped ground the discussion in real experience and lessons learned, making the tools easier to understand as support for decision-making rather than only as technical outputs. Another important enabling factor was the breadth of the tools presented. The case covered coastal change, erosion, wildfires, flood exposure, and protected areas, showing a set of visual outputs and indicators that were already closely linked to concrete local challenges. This gave the demonstrator immediate relevance and helped participants see its practical value.
- **Barriers:** At the same time, the workshop made clear that the main barriers were less about whether the tools could be developed technically and more about the conditions needed for their wider use. The discussions showed that further capacity building, continued feedback, and additional refinement were still important, pointing to the need for user familiarity and support in interpretation. It also became clear that broader uptake depends on governance and organisational conditions, not only on the technical platform itself. In particular, the exchange pointed to challenges linked to awareness, coordination, and the distribution of responsibilities across institutions, even if these aspects were not explored in depth by all participants.
- **Support:** The clearest support needs that emerged were training and capacity building, technical assistance, and guidance on how to interpret and use the indicators. Throughout the process, it became evident that short and practical support sessions could play an important role in helping users better understand the EO and climate data behind the VALORADA tools and services.
- **Uptake:** The workshop showed clear interest in the demonstrator and confirmed its relevance for adaptation planning. It brought together a broad group of participants from Greece and Cyprus and created a strong exchange around how climate-risk indicators and visualisation tools can support more data-informed decisions. At the same time, while the level of engagement was encouraging, the feedback collected during the session was not sufficient to draw strong conclusions on adoption readiness. What it did show, however, was that the demonstrator generated attention, opened discussion on practical use, and provided a good basis for further follow-up.

Replication

- **Pathway:** The Central Greece case pointed clearly towards replication through adaptation to local context rather than direct transfer. Throughout the workshop, the discussion was not about simply copying the demonstrator as it was, but about how other Greek and Cypriot authorities could use the same approach in their own territories. This made it clear that the most realistic replication pathway would be to reuse the overall methodology and logic of the tools, while adapting the data, indicators, and territorial focus to local needs and planning contexts.
- **Prerequisites:** The process also highlighted several conditions that would be important for replication. These included continued capacity building, technical support, and guidance on how to interpret and use the indicators in practice. It also became clear that replication depends on whether local and regional authorities can connect the tools to their own planning responsibilities and adaptation priorities. In that sense, technical availability alone would not be enough; some degree of institutional support and ownership would also be needed for the approach to be taken up in a meaningful way.
- **Replication and exploitation pathway:** The Central Greece case shows that replication would need to build on both the methodological and practical elements of the VALORADA approach. A replication package would therefore need to include the indicators, the visualisation tools and the methodological pathway linking Climate Impact Chains to operational indicators, together with metadata, structured data inputs and catalogue functions that make the approach understandable and reusable. The workshop also showed the importance of practical demonstrations in helping authorities see how the outputs can support real decisions. From an exploitation perspective, the case points to a hybrid route that combines methodological reuse with continued engagement, demonstration and capacity building. Open access to visual and explanatory materials can support initial uptake, but technical partner support remains important for interpretation, adaptation and operational use.

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Occitanie (France) – Sicoval & Montpellier

Case narrative

The Occitanie demonstrator focused on two distinct but complementary climate-risk contexts: agricultural water stress in Sicoval and urban heat island effects in Montpellier. In Sicoval, the VALORADA work centred on drought and water scarcity, with the aim of supporting local adaptation through better understanding of agricultural water stress and the use of future scenarios that combine crop type, farming practices, climate change and water availability. In Montpellier, the focus was on urban heat islands and their effects on vulnerable populations and municipal vegetation management.

The scalability workshop presented these two use cases as practical examples of how the VALORADA indicators and visualisation tools could support local and regional authorities beyond the project consortium. The workshop combined an introduction to the VALORADA methodology, a live demonstration of the indicators and dashboard, and direct user feedback from Sicoval and Montpellier representatives. The purpose was not only to show the tools, but also to discuss under which conditions they could be adopted or adapted in other French territories facing similar climate risks.

The discussion showed that the demonstrator had reached a stage where the tools were concrete enough to trigger interest, but that their practical value still depends on how well they can be connected to existing planning systems and local decision-making needs. The workshop therefore moved beyond the technical presentation of the platform and focused strongly on usability, institutional fit, hosting, costs and long-term ownership. Overall, the Occitanie case illustrates a context in which the technical feasibility of the indicators and dashboard was largely recognised, but where successful uptake depends on whether the tools can be embedded into existing public planning and data environments and supported through clear governance and sustainability arrangements.

Stakeholders

The workshop brought together 12 representatives from the Occitanie region and at least one private actor involved in climate adaptation. Local and regional authorities were the dominant voices in the discussion which suggests regional authorities, local administrations, national ministries and research institutions are the key actors that would need to be involved to make the indicators and tools more effective at scale.

This stakeholder profile is significant for understanding likely replication routes. It suggests that scale-up in the French context is likely to be institution-driven, especially through local and regional public authorities and possibly through regional observatories or public governance platforms. At the same time, participants also indicated that private actors could benefit from the tools as users, even if they were not considered central to the governance of scale-up. This may point to future opportunities for service providers or consultancies, but the discussion remained mainly focused on public-sector adoption. Overall, the most realistic route for scale-up is through institutional adoption or integration into public planning systems, rather than through a purely market-driven approach.

Discussion points

- **Enablers:** Participants recognised several strengths in the VALORADA approach. The platform was seen as useful for exploring climate vulnerability indicators and for supporting climate risk analysis, particularly in relation to urban heat islands and adaptation planning. The ability to combine Earth observation data with local socio-economic datasets was considered an important asset and open data was seen to compensate for gaps in local datasets, especially for smaller municipalities. The structured dashboards and the broader Climate Impact Chain logic were also valued to organise climate impact analysis in a more systematic way.
- **Barriers:** The workshop notes identify several barriers that could limit replication. Data collection and harmonisation can be time-consuming, as illustrated by the Montpellier case, where assembling the

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necessary local datasets required substantial effort. Participants also noted that data availability differs significantly between territories, which may affect comparability. Other barriers included uncertainty about the hosting model, the cost of long-term operation and how to align indicators with the timing and requirements of local climate plans. Usability issues were also raised: the platform was described as technical and currently available only in English, while some participants questioned whether the spatial resolution was sufficient for detailed urban planning. Trust in the indicators was linked to the transparency of the underlying data and methods.

- **Support:** The most important support need is integration with existing planning systems and internal tools. Training and capacity building were also strongly requested, followed by guidance on how to interpret the indicators, demonstrations or case studies and clarification on how the tools align with policy frameworks. These results suggest that access to the platform alone would not be enough for uptake; users need support in connecting the tools to their own institutional workflows.
- **Uptake:** The workshop showed clear but conditional interest in the tools. According to the Mentimeter results, 80% of participants indicated openness to using the indicators and tools, either directly or with support. However, half of those interested indicated that they would need additional support before adoption. The tools are viewed positively, but that uncertainties remain, especially around hosting, cost, technical complexity and language accessibility. Taken together, the discussion suggests that the Occitanie case has good replication potential, but that adoption is likely to depend on training, interpretation support, integration with local systems and a clearer long-term operating model.

Replication

- **Pathway:** The discussion indicates that replication is most likely to occur through adaptation to local contexts, rather than through direct adoption of the existing platform. Participants raised repeated questions about how local entities could add or replace data, how the approach could be transposed to other territories and how the tool could be aligned with local climate adaptation plans and data environments.
- **Prerequisites:** Several conditions appear necessary for successful replication. These include clearer access to datasets and transparent documentation of how indicators are produced; integration of the tool with existing planning or decision-support systems; a defined institutional responsibility for hosting and maintenance; training and user support; and alignment with local climate plans and reporting cycles. Participants also repeatedly highlighted the importance of resolving questions around cost and long-term funding before adoption could become operational.
- **Replication and exploitation pathway:** In Occitanie, replication is most likely to happen through adaptation and integration rather than through direct reuse of the existing platform. The workshop showed that a useful replication package would need to include the indicator methodologies, the dashboard and visualisation logic, access to underlying datasets or metadata, and practical resources to help users understand and apply the indicators. Because stakeholders repeatedly stressed the need for interpretation support and integration into existing planning systems, the package should also include training resources, explanation of the indicators and guidance for linking the tools to local planning and GIS environments. The exploitation route emerging from this case is clearly hybrid: methodological openness and transparency are important to support reuse, but they need to be combined with service-based support and, where possible, institutional integration into regional platforms or observatories in order to address hosting, cost and long-term responsibility.

Cross-workshop synthesis

Chapter 5 consolidates the evidence collected through the demonstrator workshops presented in Chapter 4. The findings synthesised here are **structured using the workshop outcome framework** introduced in Section 3.5, which organises stakeholder feedback into comparable elements such as adoption signals, barriers and enabling conditions. These results are then **interpreted through the scalability assessment framework** described in Section 3.3, allowing the analysis to examine replication readiness from technical, governance, economic and organisational perspectives. In this way, the chapter translates demonstrator-level evidence into cross-cutting insights on the conditions influencing the scale-up potential of VALORADA solutions.

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Overall adoption signals and stakeholder profile

The scalability workshop series provided a **structured mechanism for testing the transferability of VALORADA solutions beyond the demonstrator regions**. Across the five workshops, stakeholders from regional administrations, municipalities, research organisations and technical partners were exposed to the validated indicators and dashboards and asked to assess their relevance and applicability in their own contexts.

Despite the diversity of climate risks and governance contexts addressed by the demonstrators, the workshops revealed broadly consistent adoption signals. **Stakeholder interest in the VALORADA indicators and dashboards** was generally strong, with participants recognising their potential to support climate adaptation planning, risk assessment and territorial decision-making. Workshop participation was dominated by public authorities, particularly regional administrations and municipal technical departments responsible for climate adaptation and environmental planning. This confirms that the workshops reached the primary institutional actors responsible for operational implementation. Research organisations and technical consultancies were present to a lesser extent, while private service providers and national data custodians were only marginally represented.

The composition of participants suggests that replication is most likely to occur through **institutional adoption** by regional and local administrations, supported by technical partners where necessary. At the same time, the limited presence of some actor groups indicates that post-project scale-up may benefit from targeted engagement with national data providers, technical integrators and service providers.

Technical transferability and data conditions

Across the workshops, the technical architecture of the VALORADA indicators and dashboards was generally perceived as reproducible. Participants highlighted several elements that support the technical transferability of the approach:

- the **use of open European datasets**, particularly Copernicus and ECMWF products
- the indicator “notes/recipes” **linking indicators to datasets** and **calculation logic**
- the **metadata catalogue** documenting indicator construction and **data sources**

Together, these elements **increase methodological transparency** and help reduce technical barriers for other regions wishing to reproduce the indicators.

However, workshop discussions also highlighted several practical constraints related to data availability and management. In particular, the availability and quality of local datasets varied significantly between regions. In some cases, assembling socio-economic, environmental or land-use datasets required substantial effort from local administrations. Differences in spatial resolution, update frequency and data harmonisation were also identified as potential challenges for operational use.

Overall, the evidence suggests that the **VALORADA methodological framework is technically transferable**, but that the availability and quality of local datasets remain an important factor influencing practical implementation.

Governance, sustainability and operational integration

Across the workshop series, the most frequently mentioned challenges were not technical but institutional. Stakeholders consistently emphasised that successful adoption depends on governance arrangements, operational integration and long-term sustainability. Participants highlighted several conditions required for operational uptake:

- clearly defined **institutional ownership** of the indicators and tools
- defined **responsibilities** for dataset management and indicator updates
- **integration** with existing public-administration information systems

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- sustainable **hosting** and **maintenance** arrangements

Many regional administrations already operate multiple digital platforms and data infrastructures. As a result, introducing new analytical tools requires integration with existing workflows rather than the creation of parallel systems.

Stakeholders also raised questions regarding long-term funding, operational costs and hosting responsibilities once project support ends. These discussions indicate that replication models will likely involve a combination of open methodological reuse and service-based technical support to ensure sustainable operation.

Taken together, the workshops demonstrate that governance integration and operational sustainability are the decisive factors in moving from demonstrator tools to operational climate-risk services.

Replication pathways and enabling conditions

The workshop evidence suggests that replication of VALORADA solutions is not limited to the transfer of individual indicators, but concerns the broader **analytical approach developed in the project**. This includes the Climate Impact Chain (CIC) methodology, the indicator logic, the combination of datasets, and the resulting outputs used to support decision-making, such as dashboards, visualisations and other analysis-based tools. In practice, what is replicated is therefore the **methodological and analytical framework**, together with the way it is translated into operational outputs that can support planning and risk-informed decisions.

On this basis, three main replication pathways can be identified:

- **Adaptation to local context,** where the broader VALORADA approach is reused, including the CICs, the analytical logic, the indicator framework and the resulting outputs, while datasets, thresholds and governance arrangements are adjusted to local conditions.
- **Integration into existing platforms or tools**, where the analysis and outputs developed through VALORADA — such as dashboards, visualisation tools and indicators-based decision-support elements — are embedded into regional data infrastructures, observatories, GIS environments or other existing planning and decision-support systems. In this case, the added value lies not only in the indicators themselves, but in the way the overall analysis is structured and made usable within local workflows.
- **Adoption with limited adaptation**, which may be feasible where local institutional needs, workflows and available datasets are already relatively close to those of the demonstrator cases. Even in such cases, some adjustment of data inputs, parameters and institutional arrangements would normally still be required, so this pathway should not be understood as a fully direct transfer without modification.

Across the workshops, **adaptation to local context** emerged as the most realistic pathway for most regions. More generally, the evidence confirms that successful replication depends less on reproducing a dashboard exactly as it is, and more on transferring the underlying analytical logic in a form that can be adapted, integrated and maintained within local institutional contexts.

Participants also identified several enabling conditions that would facilitate replication. These include **training** and **capacity-building** activities for technical staff, guidance on interpreting indicators, practical demonstrations and case studies and support for integrating the tools into existing GIS or planning environments. Stakeholders also recommended improving the usability of the dashboards and providing clearer access to the underlying data sources and calculation methods in order to strengthen user confidence.

Overall, the cross-workshop synthesis shows that transferability depends not only on technical reproducibility, but also on how well the approach aligns with institutional workflows and governance structures. These findings provide the basis for the operational guidance developed in Chapter 6.

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Evidence for scale up and replications

This chapter translates the evidence gathered through the demonstrator workshops and the cross-workshop synthesis into practical guidance for replication. Chapters 4 and 5 showed that while the technical components of the VALORADA framework are broadly transferable, **successful adoption depends primarily on institutional integration, governance arrangements and long-term operational sustainability**. The purpose of this chapter is therefore not to repeat the workshop findings, but to turn them into an operational guide for regions and institutions considering uptake of VALORADA solutions.

Building on the synthesis of workshop evidence, replication should be understood as the configuration of the VALORADA approach within a new institutional context, rather than the direct transfer of demonstrator tools. In most cases, adopting regions will reuse the methodological core of VALORADA (including Climate Impact Chains, indicator logic, documented indicator recipes and elements of the technical architecture), while adapting datasets, thresholds and governance arrangements to their own territorial and institutional context. In this sense, what can be "scaled up" is not a fixed tool, but a **structured replication package** that can be configured, integrated and sustained in different ways depending on the adopter's needs and capacities.

Replication pathways

The evidence from the workshop series suggests three main pathways for replication. The first is **direct adoption**, where a region uses the indicators and tools with only limited modification. This pathway is likely to be feasible only where institutional mandates, workflows and datasets are already closely aligned with those of the original demonstrator. The second, and by far the most common, is **adaptation to local context**, where the methodological structure of VALORADA is reused while datasets, thresholds and governance arrangements are adjusted to local conditions. The third is **integration into existing platforms**, where VALORADA components are embedded into a region's established GIS, observatory or planning environment rather than introduced as a stand-alone system. Across the workshops, the second pathway is the most realistic route for most regions.

In practical terms, replication follows a sequence of steps. It begins with defining the **decision-use case**, so that the adopting region or institution is clear about which planning, reporting, risk-management or investment processes the VALORADA approach is expected to support. The next step is **data-source mapping**, which goes beyond checking the availability of local data alone. At this stage, the aim is to understand which datasets are already available, which are restricted or institutionally controlled, and where data gaps may need to be filled through open or shared sources such as Copernicus, ECMWF or other relevant datasets. In this sense, replication depends not only on local data readiness, but on the ability to identify a workable combination of local, national and open data sources.

A third step is to establish a basic **governance arrangement**, assigning responsibility for decision use, technical operation, data stewardship and maintenance. Only once these foundations are in place does replication move into **technical configuration and validation**, where datasets are combined, the analytical workflow is configured, and the resulting outputs — such as indicators, visualisations and decision-support elements — are checked for relevance, usability and interpretability. The final step is **operational embedding**, meaning that the analysis and its outputs are connected to routine institutional workflows rather than remaining a stand-alone pilot exercise.

Workshop evidence repeatedly shows that when this sequence is reversed — for example, when technical deployment begins before data sources have been clarified or governance roles have been agreed — replication tends to stall. What matters most is therefore not the transfer of a single product, but the careful configuration of the broader VALORADA approach in a way that fits the data environment, institutional setting and decision-making needs of the adopting context.



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Fig 3. Replication sequence

Minimum conditions and cost-reduction practices

The workshops identified a relatively consistent set of minimum conditions that need to be in place before replication can succeed. First, there must be a **clear institutional use case**, meaning that the indicators are linked to a real decision process rather than developed in isolation. Second, **roles and responsibilities** must be defined, especially for decision ownership, data management, technical operation and maintenance. Third, a region needs at least a **minimum operational capacity**, including both dataset access and the staff or partners able to work with the system. Fourth, the indicators and tools must be able to **fit within existing workflows**, particularly GIS environments, planning instruments and reporting processes. Finally, there must be at least a basic understanding of the **hosting and maintenance model**, including how ongoing operation will be supported over time. These conditions are consistent with the broader conclusion of the deliverable that governance embedding and workflow integration matter more than technical complexity alone.



Fig 4. Minimum conditions

Workshop evidence also points to several practices that can reduce the cost and complexity of replication. One is the reuse of **open European datasets**, especially Copernicus and ECMWF products, which reduces the burden of data acquisition and improves transferability. Another is the use of **documented indicator notes/recipes**, which make the methodological logic transparent and allow new adopters to reproduce indicators without rebuilding the process from the beginning. Costs can also be reduced by treating replication as a **phased process**, starting with indicators that can be produced using already available datasets and only later expanding to more demanding or exploratory indicators. Finally, participants repeatedly highlighted the value of **training, peer exchange and practical demonstrations**. These do not only build confidence; they also reduce the time and effort required for users to understand and operationalise the tools. In this sense, capacity building is not an additional dissemination activity but one of the core mechanisms that makes replication more feasible.

Governance, sustainability and monitoring

The strongest message emerging from the workshops is that replication becomes meaningful only when it is paired with **a realistic governance and sustainability model**. Regions may recognise the usefulness of the tools, but adoption remains fragile if there is no clarity on who hosts the platform, who updates datasets and indicators, who provides support to users and how recurring costs are covered. For this reason, **long-term uptake depends not only on technical transfer, but also on a clear operational model that defines ownership, maintenance and support arrangements from the outset**. Depending on the context, this may involve internal operation by a regional authority, service-based support from an external provider, or hybrid arrangements combining open methods with external technical assistance.

Monitoring should also be treated as part of the replication model rather than an afterthought. Regions adopting the VALORADA approach should be able to track whether indicators are actually being used in institutional workflows, whether they have been integrated into planning documents or decision-support systems, whether users find them understandable and useful and whether the hosting and update arrangements remain functional over time. In this way, monitoring helps distinguish between tools that have merely been demonstrated and tools that have achieved operational uptake. This is particularly important in the context of VALORADA, where the objective is not simply to multiply dashboards, but to support the sustained use of climate-risk indicators within institutional systems and climate-adaptation service portfolios.

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Exploitation

This chapter explains how VALORADA results can continue to generate value beyond the lifetime of the project. It introduces the main concepts used in the exploitation work, including exploitation, sustainability and Key Exploitable Results (KERs), in order to provide a clear common basis for the analysis. It then describes the approach followed in VALORADA to identify, assess and refine the project results with the strongest potential for future uptake. In this context, the chapter presents the methodology used, including the two exploitation workshops and the in-depth interviews with partners leading the most promising results. It also explains how this process led to the selection and characterisation of the final KER portfolio. Building on this, the chapter analyses the possible pathways through which these results can be further developed, adopted, integrated or sustained after the end of the project. Particular attention is given to their maturity, target users, barriers, support needs and long-term sustainability conditions. The chapter also highlights the differences between the KERs and the need for differentiated exploitation models. Finally, it provides a synthesis of the main findings and sets the basis for recommendations aimed at supporting the continued uptake and long-term impact of VALORADA results.

General considerations on exploitation

To ensure clarity and consistency throughout this work, the following key terms are used:

- **Exploitation of project results** refers to the use of project outcomes beyond the scope and duration of the original project. This includes their uptake in further research activities, as well as their development into products, processes, or services. It may also involve commercialisation efforts or contributions to initiatives that support market uptake indirectly, such as standardisation activities or the development of common frameworks and practices.
- **Project sustainability** refers to the capacity of a project to continue delivering value to its stakeholders over time, beyond the duration of initial funding. This implies ensuring that outcomes remain relevant, usable, and maintainable, while balancing environmental, social, and economic dimensions in the longer term.
- **Key Exploitable Results (KERs)** are project outputs that demonstrate a particularly high potential for uptake and impact beyond the project's immediate scope and timeframe. These results are characterised by their applicability, scalability, and replicability across different contexts and regions, and therefore represent priority assets for exploitation activities.

Effective exploitation of project results is central to maximising the impact and long-term legacy of European-funded initiatives. European projects are not only expected to generate knowledge, but also to ensure that this knowledge is translated into tangible benefits for society, policy, and markets. In this context, exploitation plays a critical role in bridging the gap between research outputs and real-world application, thereby contributing to the return on public investment.

This perspective is strongly reflected in European research and innovation policy. For example, work from the Joint Research Centre highlights the importance of climate services in supporting decision-making across climate sensitive sectors such as agriculture, water management, and disaster risk reduction. JRC studies emphasise that climate services, combining Earth observation data with modelling and socio-economic information, are essential for enabling evidence-based decisions and strengthening resilience to climate change impacts.

However, exploitation is not a straightforward objective. It depends on several interrelated factors, including the maturity and robustness of project results, their relevance to user needs, and the existence of market demand. Such demand is often shaped by evolving policy frameworks, regulatory environments, and broader socio-economic trends, all of which are dynamic and not always predictable. As a result, exploitation pathways cannot be fully predefined and must remain adaptable over time.

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Exploitation approach in the context of VALORADA

Building on these general considerations, the VALORADA project has adopted a structured yet flexible approach to the exploitation of its results. This approach acknowledges both the opportunities and constraints associated with the development of climate services, particularly in relation to market maturity, user readiness, and the evolving policy landscape.

The exploitation approach was carried out from December 2024 to January 2026, spanning from the initial to the final exploitation workshop. This timeframe reflects a progressive and iterative process aligned with the evolution of the project results. The approach was designed to progressively identify, assess, and refine project results with the highest potential for uptake. At the same time, it allows for continuous adaptation as results evolve in terms of maturity, usability, and relevance to stakeholders.

By combining a systematic methodology with iterative engagement with project partners, the approach ensures that exploitation activities remain grounded in the project's objectives while being responsive to emerging opportunities. In this context, particular attention is given to the identification and further development of Key Exploitable Results (KERs), which represent the main drivers of the project's long-term impact and sustainability.



Fig 5. VALORADA's exploitation approach

VALORADA's exploitation methodology

The methodology underpinning the development of the exploitation approach is based on a structured and iterative process involving continuous dialogue with the consortium members responsible for developing the project results. Particular attention was given to those results that were initially identified as having high potential for exploitation.

The approach is centred around three main activities: two dedicated exploitation workshops and a series of in-depth interviews with partners responsible for the most promising results. The first exploitation workshop, held in December 2024, served as an initial mapping, filtering, and prioritisation step to identify project results with high potential for exploitation. This was followed by a series of in-depth interviews conducted between March and June 2025 with partners leading the development of these results, enabling a more detailed characterisation of their maturity, challenges, and exploitation potential. The process concluded with a second exploitation workshop in January 2026, which provided an opportunity to validate findings, gather feedback, and align the consortium on the future exploitation pathways of the selected Key Exploitable Results.

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This methodology enabled a comprehensive assessment of all project results, followed by a more focused analysis of those meeting key criteria such as scalability, potential impact, and relevance to user needs and market opportunities. Through this process, a subset of results was selected and defined as Key Exploitable Results (KERs).

Once identified, these KERs were further characterised through detailed analysis to better understand their exploitation potential, including their strengths, limitations, and possible pathways to uptake. This step was essential to ensure that the exploitation strategy is both targeted and grounded in the specific attributes of each result.

First Exploitation workshop (December 2024)

The first exploitation workshop, held in December 2024, represented the starting point of the structured process designed to support the exploitation of VALORADA project results. In line with the overall methodological approach, this initial session focused on establishing a shared understanding among consortium partners of the exploitation methodology, including its objectives, process, and expected outcomes, as well as key concepts such as exploitation, sustainability, and Key Exploitable Results (KERs). This common foundation was essential to ensure alignment across partners and to support the effective implementation of subsequent exploitation activities.

The workshop began by introducing the key concepts underpinning the exploitation approach, including exploitation of project results, project sustainability, and the identification of Key Exploitable Results (KERs). This step was essential to ensure a common conceptual framework across partners, enabling consistent engagement in the process and alignment in expectations.

A central component of the workshop was the collaborative mapping of project results with potential for exploitation. Consortium partners actively contributed to identifying a broad range of assets generated within the project, including tools, datasets, climate services, and data catalogues. This exercise ensured that all relevant outputs were considered, reflecting the diversity and interdisciplinary nature of VALORADA.

Building on this mapping exercise, initial reflections were gathered regarding the potential applicability, users, and value of the identified results. While no definitive prioritisation was conducted at this stage, the workshop enabled a first screening of results based on their perceived relevance, maturity, and potential for impact. This provided an important basis for the more detailed assessment and prioritisation activities carried out in subsequent steps of the methodology.

The workshop also served as an opportunity to introduce the overall exploitation process and its progressive nature, including the role of future workshops and targeted analyses. Tools such as the collaborative Miro board were used to structure discussions and systematically capture inputs, ensuring transparency and continuity throughout the process.

Overall, the first exploitation workshop played a critical role in creating a **shared vision for exploitation** within the consortium bridging knowledge gaps and pre-assumptions across different Work Packages of VALORADA, while generating a comprehensive overview of project results. This initial mapping laid the groundwork for the identification and subsequent characterisation of Key Exploitable Results, forming a key step towards the development of a robust and actionable exploitation strategy.

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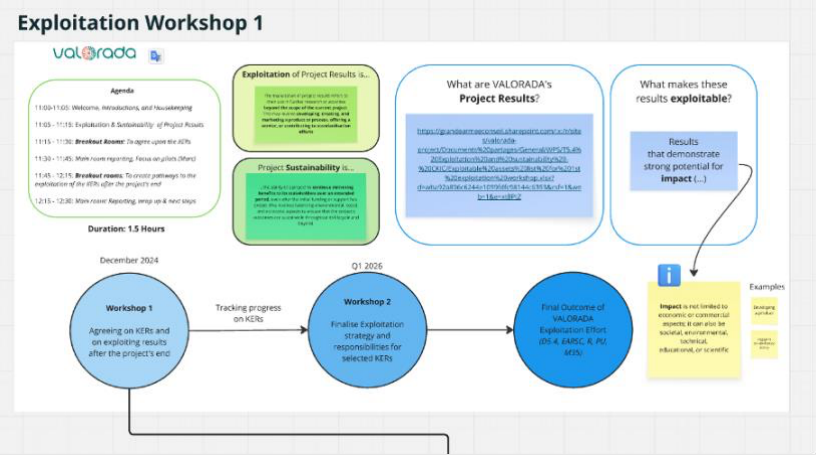
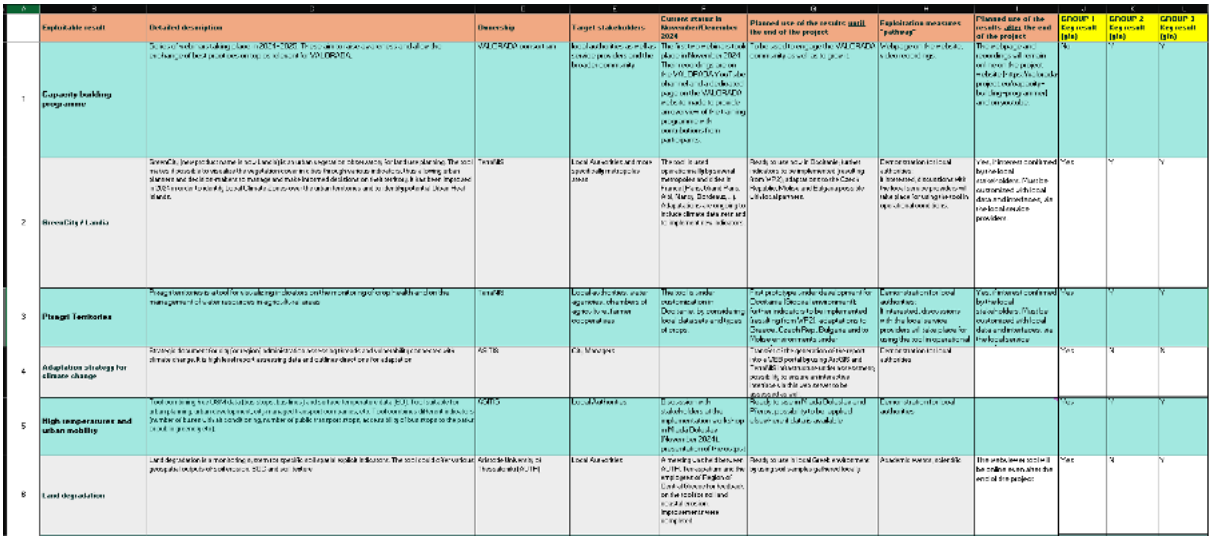


Fig 6. Extract from Miro board used during the first exploitation workshop

In-depth interviews with partners leading the development of the KERs and KERs refinement (2025)

Following the first exploitation workshop, a preliminary list of exploitable results was established through a collaborative process involving representatives from across the consortium. This marked an important step in operationalising the exploitation approach, as it enabled a transition from a broad inventory of 19 project results to a more focused subset of 10 results with initial exploitation potential.



	Exploitable result	Detailed description	Ownership	Target stakeholders	Current stance in November/December 2024	Planned use of the results until the end of the project	Exploitation measures "pathway"	Planned use of the results after the end of the project	GROUP 1 Key result (y/n)	GROUP 2 Key result (y/n)	GROUP 3 Key result (y/n)
1	Capacity building programme		VALORADA consortium						Y	Y	Y
2	StreetCity Lands		TerraBIS	Local Authorities and more specifically municipalities			Demonstration in local authorities		Yes	Y	Y
3	Piraeus Territories		TerraBIS	Local authorities, water agencies, chambers of agriculture, business cooperatives			Demonstration in local authorities		Yes	Y	Y
4	Adaptation strategy for climate change		AS-TR	City Municipal			Demonstration in local authorities		Yes	N	N
5	High temperatures and urban mobility		KDAPO	Local Authorities			Demonstration in local authorities		Yes	Y	Y
6	Land degradation		Aristotle University of Thessaloniki (AUTH)	Local Authorities			Academic sector, scientific		Yes	N	Y

Fig 7. Extract of the spreadsheet used to identify the initial list of 19 project results

Building on this outcome, additional bilateral exchanges with partners, combined with further insights into the maturity and development status of the results, allowed for a more refined selection. This iterative process led to the consolidation of a final set of five Key Exploitable Results (KERs), representing those outputs with the strongest potential for impact, scalability, and sustainability.

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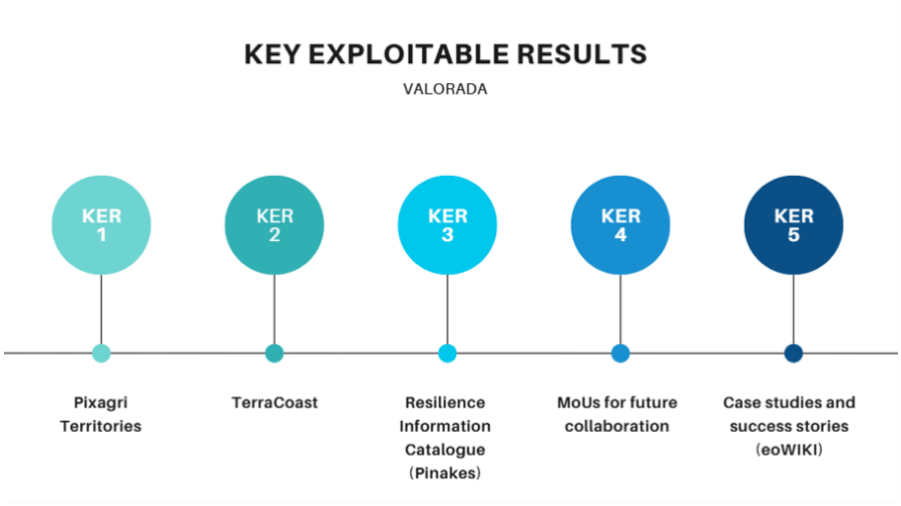


Fig 8. VALORADA's Key Exploitable Results (KERs)

At this stage, a more detailed characterisation of the selected KERs was required to inform the next phase of the exploitation process. To this end, in depth interviews were conducted with the organisations leading the development of each KER. These interviews were designed to systematically explore the key dimensions influencing the exploitation potential of each result.

The interviews covered a comprehensive set of aspects, including stakeholder engagement and collaboration dynamics, the scope and target beneficiaries of each KER, alignment with relevant policy frameworks, and the maturity and readiness of the results. In addition, particular attention was given to identifying existing barriers and challenges, including technical, organisational, and financial constraints, as well as aspects related to funding opportunities, intellectual property considerations, and future development pathways.

This structured and qualitative assessment provided a deeper understanding of each KER, highlighting both their strengths and their limitations. It also enabled the identification of tailored opportunities for further development and uptake, thereby ensuring that the subsequent exploitation activities are grounded in a realistic and well-informed assessment of each result's potential.

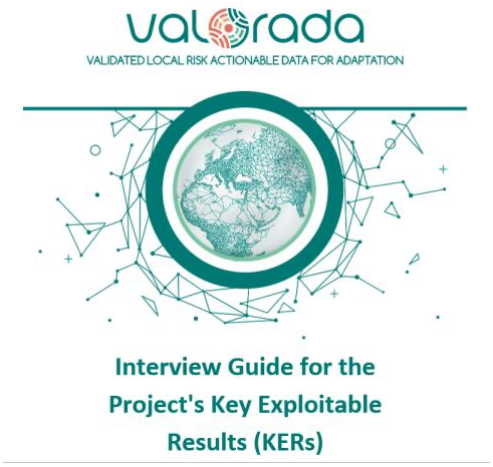


Fig 9. Illustration of the interview guide designed for partners leading the Key Exploitable Results (KERs)

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Second exploitation workshop (January 2026)

The second exploitation workshop, held on 8 January 2026, represented the final collective step in the methodological process supporting the exploitation of VALORADA project results. Building on the outcomes of the first workshop and the subsequent in-depth interviews with Key Exploitable Results (KERs) owners, this session aimed to consolidate the consortium's shared understanding of the selected KERs and further refine their exploitation potential.

Rather than focusing on the identification or prioritisation of results, the primary objective of this workshop was to create a dedicated space for dialogue between KER leaders and the wider consortium. This enabled partners to present the current status of their results, highlight remaining challenges, and receive targeted feedback and support in view of the final phase of the project.

The workshop was structured around three complementary components. First, a brief recap of the outcomes of the first exploitation workshop was provided, ensuring continuity and alignment across the different stages of the process. Second, key insights and recurring themes emerging from the in-depth interviews with KER leaders were synthesised and presented to the consortium. This helped frame the discussion by highlighting common challenges, opportunities, and critical aspects related to exploitation.

The core of the workshop was dedicated to presentations delivered by the organisations leading the development of the KERs. Each partner provided a structured update on their respective result, guided by a set of common questions designed to ensure consistency and comparability across presentations. These updates focused on two main time horizons: the status of the KER before the end of the project, and its anticipated development and exploitation potential beyond the project's duration.

For the current phase, partners described the maturity of their KERs, outlining their stage of development and the actions required to reach the end of the project. Particular attention was given to identifying any remaining gaps, as well as opportunities for collaboration and support within the consortium. For the post project phase, partners reflected on the potential exploitation pathways of their KERs, including future development needs, engagement with target users, and possible routes towards scaling and sustainability.

This structured exchange provided the consortium with a comprehensive and up to date overview of the KERs, while enabling direct interaction between partners. It also allowed for the clarification of outstanding questions and the identification of synergies across different results.

Overall, the second exploitation workshop played a key role in **validating and strengthening the exploitation approach** by ensuring that it is grounded in the latest development status of the KERs and informed by collective expertise. It also contributed to enhancing ownership across the consortium and aligning efforts towards the finalisation of robust and actionable exploitation pathways.

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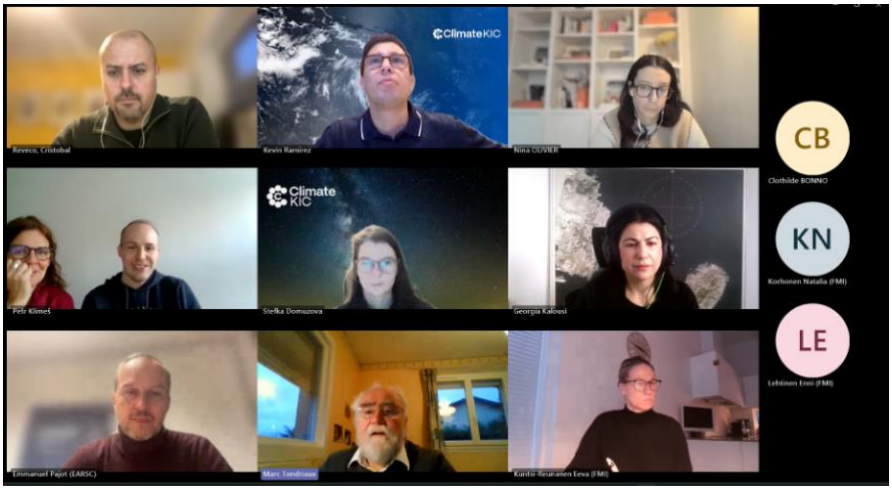


Fig 10. Screenshot of the second exploitation workshop

Operational pathways for KER uptake and sustainability

This section presents the final set of five Key Exploitable Results (KERs) identified through the structured exploitation approach and provides an analysis of their potential pathways to uptake, as well as the main challenges that remain to be addressed. The insights presented here are grounded in the evidence collected throughout the process, including the exploitation workshops, in depth interviews with KER owners, and continuous exchanges with consortium partners.

For each KER, the analysis aims to capture not only its current level of maturity, but also its potential to generate value beyond the project's duration. This includes identifying possible routes for exploitation, such as further research and development, integration into existing services or platforms, commercialisation opportunities, or uptake by public authorities and policy frameworks. Particular attention is given to the alignment of each KER with user needs, market demand, and relevant policy priorities, as these factors are critical in determining successful uptake.

In addition to outlining opportunities, this section also highlights the key barriers and constraints that may affect the exploitation of each KER. These may include technical limitations, lack of long-term funding, regulatory or policy uncertainties, challenges related to data availability or interoperability, and issues linked to ownership or intellectual property. Understanding these factors is essential to defining realistic and actionable exploitation pathways.

The section further considers the sustainability dimension of the KERs, examining the conditions required to ensure their continuity and relevance over time. This includes identifying potential stakeholders and partners who could support further development, as well as exploring opportunities for scaling and replication across different regions and contexts.

Overall, this analysis provides a comprehensive and forward-looking perspective on how the VALORADA KERs can transition from project results to impactful and sustainable solutions. It also serves as a foundation for the development of targeted recommendations and actions to support their continued uptake and long-term impact.

To ensure consistency with the VALORADA results inventory, it should be clarified that Pixagri Territories and TerraCoast are pre-existing partner assets that were applied, adapted and/or validated in the context of the VALORADA demonstrators and exploitation discussions. Their inclusion in the exploitation analysis reflects their potential role in future uptake and replication pathways, while recognising that they remain subject to the respective ownership and licensing conditions of the developing partners. In parallel, the Flood, Agriculture,

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Protected Area, Forest and Land Degradation tools are acknowledged as VALORADA-developed and/or open-access demonstrator outputs with strong relevance for replication and future exploitation.

In order to provide a clearer overview of the nature and exploitation potential of the VALORADA Key Exploitable Results, the identified KERs can be grouped into four broad categories of results.

The first category includes new or adapted tools and services developed, applied, or further refined within the scope of the project. This category includes both VALORADA developed demonstrator outputs and pre-existing partner assets that were further adapted, validated, or integrated with additional datasets and functionalities in response to user needs identified through the demonstrators. In this context, tools such as Pixagri Territories and TerraCoast are recognised as pre-existing partner assets applied and adapted within VALORADA, while the Flood, Agriculture, Protected Area, Forest, and Land Degradation tools are considered VALORADA developed and/or open access outputs with strong potential for future replication and exploitation.

The second category includes indicators, catalogues, and knowledge based resources that support resilience assessment, decision making, and information accessibility. This includes, for example, the Resilience Information Catalogue (KER 3), which consolidates and structures relevant information resources generated and collected during the project. These results contribute to facilitating knowledge transfer, improving accessibility to project outputs, and supporting informed decision making by public authorities, practitioners, and other stakeholders interested in resilience and climate adaptation planning.

The third category includes demonstrator outputs and case study results generated through the implementation of the VALORADA pilot activities. These results provide practical evidence on the applicability, relevance, and transferability of the project approaches across different regional and thematic contexts. In addition to showcasing the operational value of the developed methodologies and tools, the demonstrators also generate lessons learned, validation insights, and examples of potential replication pathways that can support future uptake and scaling activities beyond the project duration.

The fourth category includes collaboration and uptake enabling results, particularly the Memoranda of Understanding (MoUs) recommended by the project to support future cooperation and long-term stakeholder engagement. These agreements represent an important foundation for sustaining the project legacy beyond the funding period by fostering continued collaboration between partners, regional authorities, and other relevant stakeholders. In this context, the MoUs can be considered enabling mechanisms that support future exploitation, replication, and institutional uptake of the VALORADA results across different regions and application domains.

***Table 1**: Summary of VALORADA'S key exploitable results*

KER	Target users & stakeholders	Maturity & readiness	Main exploitation pathways	Key barriers & challenges
Pixagri Territories	Local and regional public authorities (agriculture, water management), agricultural sector stakeholders, insurance and finance actors, local service providers	High maturity (operational, TRL ~9); already deployed and ready for market adaptation	Service provision (SaaS or licensing), partnerships with local intermediaries, integration into climate service platforms	Need for strong local engagement (customer intimacy), access to local data, limited public sector budgets, competition with free services
TerraCoast	Municipalities, regional authorities, conservation agencies, national ministries, private sector (infrastructure, energy), insurance and risk organisations	Advanced maturity (TRL ~8); operational and being refined for pilot regions	Service provision for coastal management, open-source platform deployment, capacity building, use in protected areas and risk assessment	Dependence on EO data availability, integration with legacy systems, limited financial capacity of public authorities, need to demonstrate long-term value
Resilience Information Catalogue (Pinakes)	Climate service providers, local and regional authorities, researchers, data analysts	Prototype stage (TRL 5–6); demonstration available, further validation ongoing	Open-access resource, integration into climate services, support tool	Long-term maintenance and updating, user adoption, ensuring usability and relevance

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			for data and indicator selection	
MoUs for future collaboration	Consortium partners (tool owners and regional partners), potential external partners (SMEs, networks), public authorities (indirect beneficiaries)	Under development; expected ready at project end	Formal collaboration agreements, licensing and joint service provision, structured post-project cooperation	Uncertainty in willingness to pay, need for agreement on pricing and revenue sharing, legal and IP considerations, partner commitment
Case studies and success stories (eoWIKI)	Dissemination actors, EO networks, public authorities, private sector users, general public	Methodology established; case studies under development and validation	Dissemination via eoWIKI, events, communication channels; awareness raising and market uptake support	Validation by demonstrators, limited long-term evidence, ensuring consistency and quality across cases

Key Exploitation Result 1: Pixagri Territories

- **Description and value proposition:** Pixagri Territories is a climate service designed to support local institutions in rural areas by assessing the sensitivity of the agricultural sector to climate risks, particularly water scarcity and drought. The service provides actionable insights to inform adaptation strategies, including optimising water use and supporting decisions on crop substitution. By combining climate data, soil information, and forecasting capabilities, the KER enables evidence-based decision making to enhance resilience in water dependent agricultural systems.
- **Target users and stakeholders:** The primary users are public authorities at local and regional level, particularly those responsible for agricultural planning and water resource management. Additional users include private sector actors such as agricultural chambers, insurance companies, financial institutions, and agri-food stakeholders. Local service providers play a key role as intermediaries, supporting data collection, contextualisation, and engagement with end users.
- **Maturity and readiness:** The KER is already at a high level of maturity and is operational within the Terranis platform. It can be deployed through different technical configurations, including Software as a Service models. While the core functionality is ready for exploitation, minor improvements are ongoing, particularly related to user interface enhancements and the integration of additional modelling capabilities.
- **Exploitation pathways:** The primary exploitation pathway is based on service provision to public authorities and other stakeholders, either directly or through partnerships with local intermediaries. The solution can be offered through subscription-based models or licensing agreements, particularly in contexts where local partners facilitate deployment and adaptation. Additional opportunities include integration into broader climate service platforms and alignment with policy driven initiatives on climate adaptation.
- **Barriers and challenges:** A key challenge relates to the need for strong local engagement, often referred to as customer intimacy, particularly when deploying the solution in new geographical contexts. This includes access to local data, understanding regulatory frameworks, and building trust with end users. Financial constraints also represent a barrier, especially given the limited capacity of public institutions to commit to long term service contracts. Furthermore, competition with freely available project-based services may affect willingness to pay.
- **Sustainability and support needs:** Ensuring long term sustainability will require the establishment of strong partnerships with local service providers, as well as the identification of viable business models adapted to different market contexts. Additional support is needed in terms of market analysis, stakeholder engagement, and coordination with existing networks and initiatives. Exploring hybrid funding models, including public private partnerships, may also be relevant.
- **Scalability and replication potential:** The KER demonstrates strong potential for both geographic and functional scaling. Geographic expansion can be achieved by adapting the service to new regions through

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collaboration with local partners. Functional scaling may involve the integration of more advanced modelling capabilities, including future scenarios and adaptation pathways, further increasing the value of the service.

- **Intellectual property and governance considerations:** The intellectual property rights are currently held by Terranis. Future deployment in other regions may require the establishment of licensing agreements with local partners. In addition, considerations related to data sharing and compliance with open data principles, such as FAIR requirements, may influence exploitation strategies.

Key Exploitation Result 2: TerraCoast

- **Description and value proposition:** TerraCoast is a coastal monitoring tool designed to support the analysis of long-term coastal dynamics through the integration of Earth Observation data and multi temporal indicators. The solution provides standardised information on shoreline position, coastal erosion trends, beach width, vegetation boundaries, and the impacts of sea level rise. By combining these indicators into a unified platform, TerraCoast enables users to identify erosion hotspots, assess historical changes, and support evidence-based decision making for coastal management and climate adaptation.
- **Target users and stakeholders:** The primary users of TerraCoast are regional and local public authorities responsible for coastal zone management, environmental protection, and spatial planning. This includes municipalities, regional governments, and conservation agencies, particularly in areas such as protected coastal zones. Secondary users include national level institutions such as ministries of environment, tourism, and civil protection, as well as private sector actors, including companies involved in infrastructure development and renewable energy projects. Coastal observatories, insurance companies, and risk assessment organisations also represent potential stakeholders.
- **Maturity and readiness:** TerraCoast has reached a high level of maturity and is currently at an operational stage, with a Technology Readiness Level of approximately 8. The core methodologies and indicators have already been implemented and tested in real world contexts. Within the VALORADA project, the tool is being further refined and adapted to specific pilot areas and user requirements. By the end of the project, TerraCoast is expected to be a validated and demonstrated solution, with improved usability, clearer links to decision making processes, and enhanced visualisation of indicators.
- **Exploitation pathways:** The main exploitation pathway for TerraCoast is through its use as a service for public authorities, supporting coastal monitoring, reporting, and climate adaptation planning. The solution may also be deployed as an open-source platform, facilitating broader uptake and adaptation to different regional contexts. Additional pathways include its use as a monitoring tool for protected areas, such as Natura 2000 sites, and as an analytical input for risk assessment and insurance related applications. The exploitation strategy may combine capacity building activities with service provision, allowing users to progressively adopt and integrate the tool into their workflows.
- **Barriers and challenges:** Several challenges may affect the exploitation of TerraCoast. From a technical perspective, the solution is highly dependent on the availability and continuity of Earth Observation data, particularly from Copernicus services. Integration with existing systems used by public authorities also represents a challenge, as these systems may be outdated or lack the necessary infrastructure. Financial constraints are another key barrier, particularly at local and regional levels, where limited budgets may restrict the adoption of new services. In addition, there is a need to demonstrate the added value of continuous monitoring solutions in a context where stakeholders may prioritise short term, reactive approaches over long term data driven planning.
- **Sustainability and support needs:** Ensuring the long-term sustainability of TerraCoast will require continued engagement with public authorities and the development of viable funding and business models. This may include a combination of service-based approaches and capacity building activities aimed at increasing user awareness and readiness. Additional support is needed in terms of dissemination and communication, particularly through the development of use cases and success stories that demonstrate the value of the solution. Strengthening partnerships with regional stakeholders and networks will also be critical to support uptake and long-term use.
- **Scalability and replication potential:** TerraCoast shows strong potential for replication and scaling across different coastal regions. The tool can be adapted to new geographical contexts by integrating local data and tailoring indicators to specific user needs. Initial discussions have already identified opportunities for expansion to regions such as Occitanie, with further potential across European coastal areas. In addition, ongoing technical improvements, including automation and enhanced processing capabilities, will support the scalability of the solution.

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- **Intellectual property and governance considerations:** The TerraCoast platform follows a hybrid approach to intellectual property. While certain algorithms and technical components remain protected, the user interface and overall platform are designed to be open source, facilitating wider access and adoption. The exploitation strategy also includes a model where initial access or demonstrations may be provided free of charge to support capacity building and user engagement, with the aim of transitioning towards more formal service agreements over time.

Key Exploitation Result 3: Resilience Information Catalogue (Pinakes)

- **Description and value proposition:** The Resilience Information Catalogue, also referred to as Pinakes, is a structured repository designed to support users in navigating and understanding climate related data and indicators. Inspired by the concept of an organised catalogue, the tool connects datasets with climate resilience indicators through a framework based on the climate impact chain. It provides metadata, data requirements, and methodological guidance, enabling users to identify which data are needed for specific indicators and, conversely, which indicators can be derived from available data. By addressing both data scarcity and data overload, the catalogue offers a structured approach to improve the accessibility, usability, and relevance of climate information for adaptation planning.
- **Target users and stakeholders:** The primary users of the catalogue are intermediary organisations and companies providing climate services, as well as local and regional public authorities involved in climate adaptation planning. These users benefit from clearer guidance on how to identify, access, and use relevant datasets. Secondary users include researchers and analysts, who can use the catalogue to better understand the relationships between datasets and indicators, and to identify validated data sources for specific climate scenarios. The tool also has potential relevance for broader communities engaged in climate data management and knowledge sharing.
- **Maturity and readiness:** The Resilience Information Catalogue is currently at a prototype stage, with an estimated Technology Readiness Level between 5 and 6. A demonstration version is already available online, and the tool is being tested in environments that reflect real world use conditions. By the end of the project, the catalogue is expected to be available as an open resource, hosted for example on a shared platform such as GitHub, with improved usability and validated content based on feedback from project partners.
- **Exploitation pathways:** The primary exploitation pathway for the catalogue is through open access dissemination, positioning it as a reference framework for climate data management and indicator selection. Rather than being commercialised as a standalone product, the catalogue is intended to support and enhance existing climate services by providing a structured backbone for data and indicator integration. It can be used by public authorities and service providers to guide data driven decision making and may also be integrated into broader platforms or tools developed within or beyond the project. Its value lies in enabling more efficient and informed use of data, rather than direct revenue generation.
- **Barriers and challenges:** At this stage, no significant technical or regulatory barriers have been identified. However, the long-term effectiveness of the catalogue will depend on its usability, relevance, and continued maintenance. Ensuring that the tool remains up to date and populated with high quality, validated information may require sustained engagement from users and contributors. In addition, achieving widespread adoption may depend on demonstrating its practical value to both data providers and users.
- **Sustainability and support needs:** The sustainability of the catalogue relies on its adoption as a shared resource by the climate services community. Continued support will be needed in terms of user engagement, feedback collection, and iterative improvement of the tool. Dissemination activities, including demonstrations and use cases, will be important to increase visibility and encourage uptake. In the longer term, integration with other platforms or initiatives may provide a pathway to ensure maintenance and further development.
- **Scalability and replication potential:** The catalogue has strong potential for scalability, as its structure and conceptual framework can be applied across different regions and contexts. It can be expanded by incorporating additional datasets, indicators, and use cases, making it increasingly valuable over time. The approach is also replicable in other projects or domains where structured data management and indicator mapping are required.
- **Intellectual property and governance considerations:** No major intellectual property constraints have been identified. The catalogue is intended to be developed as an open and accessible resource, supporting transparency and collaboration. Governance considerations will focus on how the catalogue is maintained, updated, and curated over time, particularly if it is to remain a reliable and widely used reference tool.

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Key Exploitation Result 4: Memoranda of Understanding (MoUs) for future collaboration

Following the reflection developed in D3.4, MoUs should be clearly positioned as optional post-project cooperation instruments, not as mechanisms to manage, restrict or govern VALORADA results. The project outputs remain open, modular and context-specific, combining methodologies, indicator workflows, demonstrator experience and, where relevant, partner-owned tools or background components. For this reason, any future MoU would only support voluntary collaboration between interested organisations, for example through knowledge exchange, joint activities or future service development. It would not affect ownership, access rights, dissemination or the open reuse of VALORADA outputs. This distinction is important to ensure that VALORADA remains an open and adaptable knowledge ecosystem, while still allowing partners to explore future cooperation where concrete demand and mutual interest exist.

In this context, the following KER should be understood as a supporting collaboration instrument rather than as a formal exploitation framework for VALORADA results.

- **Description and value proposition:** The Memoranda of Understanding (MoUs) for future collaboration represent a structured, non-technical key exploitable result aimed at enabling the continuation and scaling of VALORADA outcomes beyond the project's lifetime. The MoUs define the framework for collaboration between key actors, particularly tool owners and regional partners, establishing clear roles, responsibilities, and conditions for the joint exploitation of project results. By formalising these relationships, the MoUs provide a mechanism to ensure continuity of services, facilitate market uptake, and support the long-term delivery of climate services to cities and regions.
- **Target users and stakeholders:** The primary users of this KER are the technical partners within the consortium, including tool owners and regional partners who are directly involved in the development and delivery of VALORADA solutions. Secondary beneficiaries include cities, municipalities, and regional authorities, which may continue to access and benefit from the services enabled through these collaborations. Additional stakeholders may include external organisations, such as SMEs, research institutions, and networks, that could join or replicate similar collaboration frameworks.
- **Maturity and readiness:** The possibility of establishing Memoranda of Understanding (MoUs) has been discussed among partners as a potential mechanism to support future collaboration and facilitate the longer term uptake and use of selected VALORADA results beyond the project duration. While the MoUs are not considered a direct project output to be formally developed within the scope of VALORADA, they are recognised as a possible enabling instrument that could help sustain cooperation between relevant stakeholders after the end of the project. In this context, any future implementation of such agreements would depend on the level of interest, alignment, and commitment among the involved partners and stakeholders.
- **Exploitation pathways:** The primary exploitation pathway consists of establishing formal agreements between partners to enable the continued provision, adaptation, and commercialisation of VALORADA solutions. This includes defining collaboration models for service delivery, market development, and revenue sharing. The MoUs may also support licensing arrangements and joint service provision models, ensuring that solutions developed within the project can be deployed in different regions through coordinated partnerships. In the longer term, this approach could evolve into more formal structures, such as associations or networks, inspired by existing initiatives, while remaining tailored to the specific context of VALORADA.
- **Barriers and challenges:** The successful implementation of the MoUs depends on several factors. A key challenge is the uncertainty regarding the willingness and capacity of end users, particularly public authorities, to pay for continued services. This directly affects the feasibility of the collaboration models defined in the agreements. In addition, partners must reach consensus on key aspects such as pricing structures, revenue sharing mechanisms, and roles in service delivery. Legal and intellectual property considerations also need to be clearly addressed to avoid potential conflicts. Finally, ensuring long term commitment from all parties represents an important organisational challenge.
- **Sustainability and support needs:** The sustainability of this KER relies on the establishment of strong and mutually beneficial partnerships between consortium members. Continued support is needed to finalise the MoU template, clarify legal and commercial aspects, and align expectations among partners. Insights from market analysis and user engagement activities will be essential to ensure that the collaboration models are

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realistic and viable. In addition, coordination with relevant networks and initiatives may support broader adoption and replication of this approach.

- **Scalability and replication potential:** The MoU framework has strong potential for replication beyond the VALORADA project. Similar collaboration models could be adopted by other European projects or networks aiming to ensure the long-term exploitation of their results. Opportunities for scaling include engaging additional partners, such as SMEs or organisations involved in Earth Observation services, for example through existing networks and working groups focused on regional and local applications. This could contribute to strengthening the wider ecosystem for climate services in Europe.
- **Intellectual property and governance considerations:** Intellectual property and governance are central to this KER. The MoUs are expected to define clear provisions regarding ownership, licensing, and the use of data, tools, and services developed within the project. They will also address aspects such as confidentiality, liability, and territorial rights where relevant. Establishing transparent and fair governance arrangements will be essential to build trust among partners and ensure the effective implementation of the collaboration framework.

Key Exploitation Result 5: Case studies and success stories for eoWIKI

- **Description and value proposition:** This KER focuses on the development of case studies and success stories that document and communicate the impact of VALORADA solutions in a clear and accessible way. Based on a structured methodology inspired by the SEBS approach[6], each case study presents a narrative that describes the challenge faced by a specific user, the solution provided by VALORADA, and the resulting benefits and broader impacts. All case studies have now been completed, covering the different demonstrators and reflecting their specific contexts. By translating complex technical outputs into user centred stories, this KER aims to demonstrate the value of climate services and support their wider uptake across different contexts and sectors.
- **Target users and stakeholders:** The primary users of this KER are dissemination and outreach actors, including organisations responsible for promoting Earth Observation applications, such as networks and platforms dedicated to climate and space-based services. Secondary users include public authorities, private sector actors, and other potential users of climate services who can benefit from increased awareness of available solutions. Local technical partners and regional stakeholders involved in the demonstrators also play a key role in validating and promoting the case studies.
- **Maturity and readiness:** The methodology for developing case studies is well established and has been successfully applied within the project. The case studies are being disseminated through projects and partners websites and are incorporated at the EARSC eoWIKI[7]
- **Exploitation pathways:** The main exploitation pathway for this KER is through dissemination and awareness raising. The case studies will be published and promoted through dedicated platforms such as eoWIKI, as well as through project communication channels, events, and conferences. Rather than generating direct financial value, this KER contributes indirectly to exploitation by increasing visibility, demonstrating impact, and supporting the uptake of VALORADA solutions by new users and markets.
- **Barriers and challenges:** The main challenge associated with this KER relates to the validation of case study content by demonstrators and stakeholders, ensuring that the information presented is accurate, relevant, and representative of real-world use. In addition, the limited duration of solution deployment within the project may constrain the ability to fully assess long term impacts. Ensuring consistency and quality across all case studies also requires careful coordination.
- **Sustainability and support needs:** Sustaining the impact of this KER depended on dissemination efforts and the integration of case studies into established platforms. Ongoing support is needed in terms of communication, including the promotion of success stories through targeted channels and events. Collaboration with dissemination partners was essential to maximise visibility and ensure that the case studies reach relevant audiences.
- **Scalability and replication potential:** The approach used to develop the case studies was highly replicable and can be applied to other projects, regions, and sectors. Additional case studies can be developed beyond

[6] https://earsc.org/sebs/about-sebs/

[7] https://earsc.org/2026/04/24/turning-climate-data-into-action-valorada-champion-stories-now-available/ , https://earsc.org/projects/, https://earsc-portal.eu/display/EOwiki/EO+in+Action

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the project's lifetime as solutions mature and new applications emerge. The methodology also provides a scalable framework for documenting and communicating the impact of climate services in a structured and comparable way.

- **Intellectual property and governance considerations:** No significant intellectual property constraints have been identified for this KER. The case studies were intended to be openly shared to maximise their dissemination and impact. Governance considerations relate primarily to ensuring proper validation, attribution, and coordination among partners involved in their development and publication.

Comparative analysis and synthesis of the KERs

The analysis of the five Key Exploitable Results (KERs) highlights both the diversity of outputs generated within VALORADA and the range of pathways through which these results can contribute to long term impact. While the KERs differ significantly in nature, from technical tools and data services to governance mechanisms and dissemination products, several common patterns emerge that are critical for shaping the overall exploitation strategy.

A first key observation relates to the **diversity of exploitation pathways**. Some KERs, such as Pixagri Territories and TerraCoast, are positioned for direct uptake through service provision models targeting public authorities and private sector actors. Others, such as the Resilience Information Catalogue, follow an open access approach, aiming to support the broader ecosystem of climate services without direct commercialisation. In parallel, non-technical KERs, including the MoUs for future collaboration and the case studies, play an enabling role by facilitating partnerships, strengthening market uptake, and increasing awareness. This diversity highlights the need for a differentiated exploitation approach that recognises the specific characteristics and value propositions of each type of result.

A second important finding concerns the **critical role of stakeholders and partnerships**. Across all KERs, successful exploitation depends on strong engagement with users, particularly local and regional authorities, as well as intermediary organisations such as service providers. In many cases, local partners are essential to ensure access to data, contextual knowledge, and user networks. This reinforces the importance of building and maintaining collaborative frameworks, such as those envisaged through the MoUs, to support the long-term deployment and adaptation of solutions.

The analysis also reveals a set of common barriers and challenges. **Financial constraints, particularly at the level of public authorities**, represent a recurring limitation for the uptake of services. This is often linked to limited budgets, short term funding cycles, and competition with freely available project-based solutions. Technical challenges, such as data availability, interoperability, and integration with existing systems, are also relevant for several KERs. In addition, organisational factors, including the need for sustained commitment from partners and the capacity to maintain and update solutions over time, play a significant role in determining long term success.

Another cross-cutting aspect is the importance of **usability and user-oriented design**. Several KERs highlight the need to ensure that solutions are accessible, understandable, and aligned with user needs and workflows. This includes not only technical usability, but also the ability to clearly communicate value, as illustrated by the role of case studies and success stories. Enhancing user engagement and demonstrating tangible benefits are therefore key enablers of exploitation.

In terms of **scalability and replication**, all KERs demonstrate potential for extension beyond the initial project context. However, achieving this potential requires careful adaptation to local conditions, including regulatory frameworks, data availability, and user needs. The involvement of local partners and the development of flexible deployment models are therefore essential to support scaling efforts.

Finally, the analysis underlines the importance of **sustainability mechanisms**. Ensuring the continuity of KERs beyond the project requires a combination of technical, financial, and organisational measures. These include the identification of viable business models, the establishment of long-term partnerships, the integration of solutions into existing systems and processes, and the continued dissemination and promotion of results.

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Overall, the comparative analysis confirms that the exploitation of VALORADA results cannot rely on a single approach. Instead, it requires a coordinated strategy that combines different pathways, leverages the strengths of each KER, and addresses common challenges through targeted actions. This integrated perspective provides a strong foundation for defining recommendations and next steps to maximise the long-term impact of the project.

Recommendations for future exploitation of VALORADA results

Building on the analysis of the Key Exploitable Results (KERs) and the insights gathered throughout the exploitation process, this section outlines a set of recommendations aimed at maximising the long-term impact, uptake, and sustainability of VALORADA outcomes beyond the project's duration. These recommendations reflect both project-specific lessons and broader considerations relevant to the exploitation of climate services in the European context.

A first key recommendation is to **adopt differentiated exploitation strategies tailored to the nature of each KER**. Given the diversity of results, a one-size-fits-all approach is unlikely to be effective. Technical solutions such as Pixagri Territories and TerraCoast would benefit from clearly defined service models and targeted user engagement strategies, while enabling assets such as the Resilience Information Catalogue, MoUs, and case studies could play a stronger role in supporting ecosystem development, knowledge sharing, and awareness raising. Aligning exploitation pathways with the specific characteristics of each KER is likely to increase their chances of successful uptake.

A second recommendation is to further strengthen engagement with target users and local stakeholders. Continued and structured interaction with end users, particularly local and regional authorities, will be essential to ensure that solutions remain aligned with real needs and operational constraints. Greater emphasis could be placed on co-development approaches, capacity building activities, and tailored user support, as these elements are critical to building trust and facilitating adoption. In this context, the role of local intermediaries could be further reinforced, given their importance in bridging the gap between solution providers and end users.

Third, it is recommended to further **explore and consolidate viable business and funding models** that reflect the realities of the climate services market. The analysis suggests that securing long-term financial commitment from public authorities remains challenging, particularly in contexts characterised by limited or short-term funding cycles. Exploring flexible approaches, including subscription-based services, public–private partnerships, and hybrid funding models, may provide more sustainable pathways. In parallel, further efforts to demonstrate the economic value of climate services, for example through avoided costs or efficiency gains, could help strengthen willingness to pay.

Another key recommendation is directed to the organisations leading the development of the Key Exploitable Results (KERs), highlighting the continued importance of investing in **dissemination, communication, and the demonstration of impact beyond the project's duration**. Tools such as case studies and success stories could be further developed and more systematically promoted to showcase the tangible benefits of VALORADA solutions. Clear and accessible communication will remain essential to reach new users, support informed decision making, and facilitate market uptake. Leveraging existing platforms, networks, and events can further enhance visibility and outreach going forward.

Efforts to improve interoperability, usability, and the integration of solutions will remain important beyond the project's duration. Ensuring that tools and services can be more easily embedded into existing workflows and systems used by public authorities may significantly reduce barriers to adoption. This may include simplifying user interfaces, improve data accessibility, and align outputs with policy and reporting requirements. Further alignment with European data standards and frameworks would also support broader uptake.

In addition, it is recommended to further develop and operationalise long-term collaboration frameworks to support post-project exploitation. The MoUs developed within the project provide a strong foundation and could be further refined and implemented to clarify roles, responsibilities, and potential revenue-sharing mechanisms. Strengthening links with existing networks and initiatives may also support continuity and scaling.

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Finally, ensuring the long-term maintenance and evolution of project results should be considered a priority. This may involve identifying responsible actors for the continued development and updating of tools, datasets, and platforms, as well as securing appropriate resources. For open-access solutions, community-driven approaches and integration into existing infrastructures could provide viable pathways. For service-based solutions, clearly defined ownership and operational models will be essential.

In conclusion, maximising the long-term impact of VALORADA results will depend on the continued alignment of exploitation strategies with user needs, the development of sustainable funding and business models, and the strengthening of collaboration beyond the project's lifetime. By building on these recommendations, the project outcomes can continue to contribute to climate adaptation and resilience, while also providing useful insights for future European initiatives.

Policy context and policy recommendations

Role of Policy in Supporting VALORADA Scale-up

The scale-up and replication of VALORADA results are closely connected to the broader European policy landscape on climate adaptation, data governance, and the use of EO. While the technical and methodological components developed within the project are designed to be transferable, their long-term uptake depends on how well they can be aligned with existing policy frameworks and embedded into institutional processes. In practice, this means that the adoption of VALORADA results is influenced by several factors. These include their alignment with EU and national climate adaptation strategies, their ability to support planning and reporting processes at regional and local level, and the extent to which policy instruments and funding mechanisms enable their continued use. Without this policy alignment, even technically robust tools may remain limited to project-based applications.

This section provides a short summary of the key policy insights emerging from the VALORADA policy briefs and highlights their relevance for supporting the uptake and long-term use of the project's results.

Key Insights from VALORADA Policy Briefs

The VALORADA policy work, embodied in two policy briefs, highlights several closely related dimensions that are particularly relevant for climate adaptation. The **first policy brief**[8] tackles the need for harmonisation of data and open standards; data accessibility, sharing, and uptake in line with existing EU policy frameworks; co-design and process-oriented approaches to include local and regional stakeholders and authorities; and targeted visualisation solutions and clear communication of uncertainties. The **second policy brief**[9] focuses on the role of local perception and place-based knowledge in adaptation measures; and the need to better understand and unlock the value of local data. The following paragraphs summarise the main messages from both policy briefs, which are available on the VALORADA project website.

The first policy brief focuses on the use of EO data and climate information for climate adaptation in European regions. First, according to the experience and findings of VALORADA's technical partners, fragmentation, data silos, and other barriers prevent the full potential of data uptake, especially at the local level. Therefore, the brief advocates for breaking down such barriers, supporting existing policy frameworks on data use, making use of dedicated data spaces to foster data sharing, upholding FAIR principles, ensuring EO and climate information interoperability, and for the simplification of existing environments.

Second, the policy work under VALORADA identified that even if a substantial amount of EO, climate, or socio-economic data is collected, local adaptation decision-makers often lack timely access to such resources. Therefore, it is crucial to foster strong collaboration across different governance levels, and ensure that

[8] https://valorada-project.eu/valorada-publishes-its-first-policy-brief-on-earth-observation-and-climate-adaptation/

[9] https://valorada-project.eu/wp-content/uploads/2026/04/VALORADA-Policy-Brief-2.pdf

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processed, decision-ready datasets reach cities and local authorities where needed. Trusted intermediaries can play a crucial role in this regard.

Third, the brief advocates for co-design frameworks and process-oriented approaches in climate services and policymaking, which would ensure an active involvement of municipalities and regions in the definition of requirements and output validation. Similarly, without the inclusion of local and regional authorities in policy- and decision-making, understanding of local needs and challenges and better-tailored solutions would be difficult to obtain.

Fourth, the project experience has shown that a targeted visualisation of solutions, capacity-building, and clear communication of uncertainties needs to be fostered to support the knowledge at the local level. Such tools can include interactive dashboards, best practices, or other tools which include clear adaptation indicators and uncertainty ranges. These steps make climate risks more actionable and understandable for local and regional authorities.

The **second policy brief** tackled the role of local perceptions, place-based knowledge, and the value of local adaptation data in EU climate risk assessment and adaptation. A first key insight from this brief is the importance of integrating local perception, place-based knowledge, and value systems into climate risk assessment. The brief shows that, while technical indicators and models are essential, they do not fully capture how climate risks are experienced, understood, and prioritised at local level. Climate risks are not only defined by physical exposure, but also by how communities perceive what is at stake, what should be protected, and which adaptation measures are acceptable. From this perspective, the inclusion of local knowledge and participatory approaches becomes a critical element of effective climate adaptation. The policy brief highlights that involving local and regional stakeholders in the co-design of indicators and data processes improves both the legitimacy and usability of the results. It also emphasises the need for tools that can combine quantitative datasets with qualitative, place-based information, such as local priorities, narratives, and contextual knowledge. These findings are directly reflected in the VALORADA approach, where Climate Impact Chains and indicators are developed together with stakeholders to ensure that they respond to real needs and decision contexts.

A second key insight concerns the value of local adaptation data and the challenges associated with its use. The policy brief underlines that while data does not have an inherent value on its own, it becomes valuable when it is interlinked with the specific context, circumstances, communities, and complementary datasets, and connected to decision-making processes. In many cases, the potential of local datasets — including socioeconomic, environmental, and EO-derived data — remains untapped in connection to climate adaptation. The analysis identified several common challenges. These include limited awareness of available datasets, difficulties in accessing or integrating data, and a lack of capacity to interpret and use it effectively. Fragmentation across institutions also plays an important role, as data is often managed in separate systems with limited coordination. As a result, even when data is available, it may not be used to its full potential.

To address these issues, the policy brief points to the importance of structured approaches such as data valuation frameworks and interoperable data catalogues, which help identify and organise relevant datasets. It also highlights the need for capacity building, so that local and regional authorities can better understand and use data in practice. Furthermore, it advocates for the inclusion of participatory, value-based methods in EU-level projects, the inclusion of diverse local values in assessments, prevention of negligence of human perspectives and social interactions when it comes to capturing data value, and long-term co-creation frameworks to include local and regional authorities. Finally, it stresses the importance of aligning these efforts with existing European data policies and frameworks, including initiatives related to data sharing and interoperability.

Policy Implications for Scale-up and Replication

Taken together, the insights from the policy briefs provide important guidance for the scale-up of VALORADA results. They highlight that successful uptake depends not only on technical solutions, but also on how these solutions are embedded within institutional, social and policy contexts.

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One key implication is the need for institutional embedding. Tools and indicators are more likely to be adopted when they are integrated into existing planning, reporting, and decision-making processes, rather than being used as standalone applications. Closely related to this is the importance of participatory approaches. The involvement of stakeholders in the design and use of indicators helps ensure that outputs are relevant, trusted, and aligned with local priorities. Capacity building also emerges as a central factor. Even when data and tools are available, their effective use depends on the ability of institutions to interpret and apply them. This requires training, guidance, and ongoing support. At the same time, issues related to data governance and interoperability remain critical, as the integration of different datasets depends on shared standards, accessible infrastructures, and clear data management practices. Overall, the policy perspective confirms that scale-up is not only a technical process, but also an institutional and organisational one, requiring alignment between tools, users, and policy frameworks.

Policy Recommendations for Supporting Scale-up

Building on the VALORADA experience, several policy-oriented recommendations can be identified to support the wider uptake of the project's results.

- A first recommendation is to promote participatory and value-based approaches in climate adaptation. This includes ensuring that local knowledge, stakeholder perspectives, and place-based characteristics are systematically integrated into risk assessment and decision-making processes.
- A second recommendation is to support the development of data integration frameworks that enable the combination of EO, climate, and local datasets. This requires tools and platforms that are not only technically robust, but also accessible and usable for public authorities.
- Third, there is a clear need to strengthen capacity building for local and regional authorities. Providing training, guidance, and technical support can significantly improve the ability of institutions to use indicators and data in practice.
- Fourth, policy efforts should continue to facilitate interoperability and data sharing. Aligning with existing European initiatives and standards can help reduce fragmentation and improve the usability of data across different contexts.
- Finally, enabling long-term operational models is essential. This includes supporting governance arrangements, hosting solutions, and funding mechanisms that allow tools and indicators to be maintained and updated over time.

Taken together, these recommendations aim to ensure that VALORADA results move beyond project-level outputs and become embedded within institutional systems, supporting climate adaptation efforts across different regions.

Recommendations

The evidence collected through the VALORADA demonstrators and scalability workshops confirms that scaling VALORADA outcomes across European regions is not primarily a technical challenge but an **institutional and operational one**. The project has shown that it is possible to build a robust approach by combining **Earth Observation data**, **methodological frameworks such as Climate Impact Chains**, and **decision-support outputs**. But it has also shown that this is only the starting point. Whether these results continue beyond the project depends on how well they connect to **institutional needs**, **operational realities** and **long-term responsibilities**.

Looking first at the **demonstrators**, one of the clearest lessons is that value is created when the approach is linked to something concrete. Where the analysis supported a real process — such as **planning**, **adaptation strategies**, or **risk management** — it was easier for stakeholders to understand its relevance and see how it could be used. Where this link was weaker, the results were still seen as interesting, but more difficult to place within day-to-day work. This suggests that future uptake should not start from the question of what can be transferred, but from what institutions actually need to do, and how the VALORADA approach can support that.

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The **scalability workshops** reinforce this point. They show that interest in the results is not the main limitation. Stakeholders generally recognised the usefulness of the approach. The difficulty lies in moving from interest to use. This depends on a set of conditions that are mostly institutional rather than technical: **who takes ownership**, **who manages the data**, **how the outputs are maintained**, and **how they fit into existing systems**. The workshops also make clear that replication is rarely about copying a tool. In most cases, it involves adapting a broader analytical approach to a new context, with different data, different priorities and different organisational structures. In this sense, the most realistic pathway is not direct adoption, but **adaptation to local context**, supported by integration into existing workflows.

The integration of the **exploitation work** adds an important layer to this understanding. It shows that not all results are meant to be taken up in the same way. Some elements of VALORADA — particularly **methodological assets**, catalogues and structured information — are well suited to **open reuse** and can support a wider community with relatively low barriers. Others — especially those closer to operational services — require **ongoing support**, **partnerships**, and in some cases **business models** to remain viable. The identification of the **Key Exploitable Results (KERs)** makes this distinction clearer and shows that future uptake will depend on matching each type of result with the right form of support. This means that replication and exploitation should not be treated separately. They are part of the same process: transferring something and ensuring that it can continue to function over time.

Across both the workshops and the exploitation analysis, one theme appears repeatedly: the importance of **capacity building and support**. Stakeholders are not only interested in accessing results, but in understanding them and being able to use them confidently. This includes interpreting outputs, linking them to their own work and adapting them to their context. For this reason, **training**, **demonstrations**, and **peer exchange** should be seen as core elements of uptake. In many cases, they are as important as the technical components themselves. This also points towards the role of **service-based support**, particularly where more complex adaptation or integration is required.

The project also highlights the need to take a more flexible view of **data readiness**. One of the concerns often raised is the availability of local data. VALORADA shows that this does not have to be a limiting factor if data is approached more strategically. In practice, replication can rely on combining **local**, **national** and **open European data sources**, including Copernicus and ECMWF. What matters is not having perfect data from the beginning, but being able to identify a workable combination that supports the analysis. This makes the approach more transferable and reduces barriers for regions with limited local datasets.

The **policy analysis** provides another important perspective. Uptake is much more likely when the VALORADA approach is clearly linked to existing **policy frameworks**, **adaptation strategies** and **reporting obligations**. Public authorities are more inclined to adopt and maintain something if it helps them respond to requirements they already have. In this sense, policy alignment is not an additional step, but one of the main drivers of uptake. It helps anchor the approach in real institutional mandates and creates a stronger justification for its continued use.

Another element that becomes clear when looking across all parts of the project is the role of **partnerships**. Long-term use does not depend only on methods or tools, but also on the relationships that support them. The development of **collaboration frameworks**, such as the MoUs, points in this direction. These can help define roles, share responsibilities and create continuity beyond the project. More broadly, connecting VALORADA results with existing networks and initiatives can support their integration into a wider ecosystem, making scale-up more realistic.

Finally, the project underlines the importance of **usability**, **communication** and **trust**. For new users, it is not enough to have access to outputs. They need to understand how these outputs are produced, what they mean and how reliable they are in their own context. This is why clear documentation, transparency, case studies and practical examples play such an important role. They help make the approach understandable and credible, and they reduce the distance between technical development and real-world use.

Taken together, these elements point to a clear conclusion. The future of VALORADA does not depend on transferring a single tool, but on supporting the uptake of a **transferable analytical approach** that can be adapted to different contexts and sustained over time. This requires a combination of **institutional embedding**,

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appropriate exploitation models, **capacity building**, **policy alignment** and **collaboration**. Where these conditions are in place, the results developed in the demonstrators have the potential to move beyond the project and contribute to **evidence-based climate adaptation** across a wider range of European regions.

The final chapter brings together the main lessons of the deliverable and turns them into recommendations for future uptake of the VALORADA approach across Europe. It shows that scale-up is not mainly a technical issue, but depends on whether the approach can be embedded in existing institutional workflows and supported over time. Successful replication requires transferring the methodological core of VALORADA, providing practical support for adoption, and ensuring clear governance, hosting and operational responsibilities. Taken together, these elements offer a roadmap for moving from validated demonstrators to sustainable climate-risk services that can support evidence-based adaptation planning in other regions. Overall, the project demonstrates that effective scale-up of climate-risk indicators depends not only on data and technology but on governance embedding, methodological transparency, institutional capacity and sustainable operational models. Replication strategies that address these dimensions simultaneously are far more likely to transform pilot tools into operational climate services capable of supporting evidence-based climate adaptation across Europe.

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Annex

The annexes which will follow provide operational tools supporting exploitation translating strategic guidance into practical instruments that can be used by adopting regions. Those are related to the Methodology 1st Exploitation workshop, the Methodology 2nd Exploitation workshop and the Exploitation interviews template.

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Exploitation workshops concept note

Glossary

Exploitation of project results: The use of results in additional research activities beyond those covered by the current project. This includes developing, creating, and marketing a product or process, providing a service, or engaging in standardisation activity.

Project sustainability: Project sustainability generally refers to the ability of a project to continue delivering benefits to its stakeholders over an extended period, even after the initial funding or support has ended. This involves balancing environmental, social, and economic aspects to ensure that the project's outcomes are sustainable throughout its lifecycle and beyond.

Key exploitable results (KERs): These results are project outcomes that demonstrate strong potential for impact and applicability beyond the project's immediate scope. These results are notable for their high exploitability, meaning they can be adapted, utilised, or commercialised to create value for stakeholders, users, or broader markets. Additionally, KERs are characterised by their scalability and replicability, indicating they can be expanded to larger contexts or applied in different regions and settings. This combination of attributes makes KERs central to the project's sustainability strategy, as they represent assets that can drive ongoing benefit and impact in related sectors or industries.

1. Introduction

Project background

VALORADA aims to raise awareness regarding the untapped potential of data in addressing region and local specific climate risks and effectively adapting to climate change. It achieves this by integrating both technical, socio-economic and governance perspectives, ensuring a comprehensive approach. It also facilitates the creation of interdependencies between various types of data, bridging the gap between in-situ data and Earth Observation/Climate data. VALORADA emphasises the importance of ground data for climate analyses, observation, and tool validation.

During its three-year duration, VALORADA will enable the integration of diverse datasets that merge local knowledge with climate and non-climate datasets through co-developed data manipulation tools and climate data. The implementation of dedicated scalability and replicability activities will be conducted within at least 10 European regions. Additional project activities include the development of capacity-building schemes for end users as well as providers of climate services.

2. Purpose of the workshops

The VALORADA exploitation workshops are designed to maximise the project's impact by actively engaging project partners, who bring essential knowledge and direct experience in developing project results. Through a series of three targeted workshops, these partners will collaboratively explore practical applications and market opportunities for VALORADA's results. Each session will encourage partners to contribute insights, exchange expertise, and build a cohesive strategy for scaling and sustaining VALORADA's outcomes across diverse regions and sectors. This approach will ensure that the collective expertise within the consortium informs effective, impactful exploitation of the project's results.

3. Methodology

The methodology for conducting exploitation workshops within the VALORADA project centres on a three-part approach, designed to effectively identify, prioritise, and explore the pathways for key assets generated by the project.

1. **Mapping potential assets**: The first stage will involve a comprehensive mapping exercise to identify all assets generated by the project that hold exploitation potential. This will include climate services, tools and data catalogues.

2. **Prioritising key exploitable assets**: The next element will focus on evaluating these assets to determine the ones with the highest potential for impact and exploitation. This prioritisation will help us concentrate resources and planning efforts on assets likely to deliver the greatest value.

3. **Exploring exploitation pathways**: For each prioritised asset, the workshop will explore exploitation pathways, including the development of tailored value propositions where relevant. This stage will also involve creating business models using tools like the Business Model Canvas to systematically assess commercial viability and strategic fit.

A Miro board will serve as the primary tool for structuring this work, capturing key insights from each workshop and visually tracking the logical progression of each asset towards successful exploitation.



4. Workshops objectives

The workshop aims to provide a structured approach for identifying, prioritising, and planning the exploitation of project results to maximise their impact and sustainability.

The main objectives are:

1. **Comprehensive mapping of project results**: Conduct a thorough review to identify all potential assets generated by the VALORADA project. This mapping will serve as the foundation for assessing which results hold the most promise for exploitation.

2. **Prioritisation of high-potential assets**: Collaboratively assess and prioritise project assets with the greatest potential for exploitation, focusing on factors such as anticipated impact, attractiveness to users, scalability, and alignment with market needs. This prioritisation will ensure a targeted approach to resource allocation.

3. **Development of sustainability and exploitation strategies**: Define essential elements for the long-term sustainability and exploitation of key assets, including identifying suitable markets, crafting compelling value propositions, and exploring diverse exploitation pathways.

4. **Preparation for market readiness**: Evaluate and outline next steps for preparing high-potential assets for market introduction, including any necessary business model refinement (e.g., using tools like the Business Model Canvas) and stakeholder engagement strategies.

The three workshops to be organised will help align the project outcomes with real-world applications and facilitate impactful contributions to climate service innovation.

5. Scaling and replicability

The VALORADA project's success in scaling and applying its results holds particular significance for Europe's efforts to enhance climate adaptation through climate services. Addressing climate change at scale is essential for effectively managing its impacts, particularly in areas like agriculture, water resources, and urban planning, where climate risks can be severe. By focusing on creating assets that are scalable and adaptable, the project strengthens Europe's resilience, allowing diverse regions and sectors to benefit from tools that predict, monitor, and mitigate climate-related risks.

6. Workshop's structure and timeline

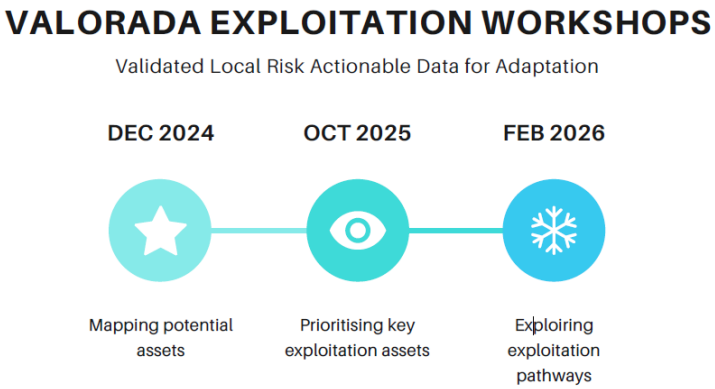
The exploitation workshops for the VALORADA project will be structured progressively to align with the project's lifecycle, ensuring that the approach adapts to the maturity of the project's outcomes as they evolve.

1. **First Workshop – December 2024**: The first workshop will establish a foundational understanding of the exploitable assets generated to date. This session aims to collaboratively validate and document these initial assets, ensuring accuracy through input from consortium partners. Additionally, this workshop will serve as an introductory forum, presenting the exploitation and sustainability strategies for project outcomes and key concepts for long-term impact. Consortium partners will be introduced to the structured process defined for the exploitation of the project assets which will set a cohesive direction for future activities.

2. **Second Workshop – October 2025**: The second workshop will concentrate on refining and prioritising the list of exploitable assets, focusing on those with the highest implementation impact, stability, replication potential, and overall relevance for exploitation. This phase will aim to narrow down and intensify efforts on assets with the greatest potential to create societal impact and sustainability.

3. **Third Workshop – February 2026**: The final workshop will take place toward the end of the project, enabling a strategic assessment of the pre-selected assets based on the project's progress, stakeholder feedback, and any recent policy developments. This workshop will focus on defining clear pathways for the exploitation of key project results, potentially including detailed value propositions, mapping of target users, and applying tools like the Business Model Canvas.

These workshops are designed to leverage tools like an interactive Miro Board, serving as a live repository and progression map for the various elements discussed, ensuring that insights and decisions are systematically documented and accessible to all partners throughout the project's course.



7. Expected impact

The workshops are expected to generate actionable insights and guidance to support the future exploitation of the project results. A primary impact will be the identification of high-potential assets, focusing on those most likely to yield significant impact and value for target users. Given the limited resources within the consortium dedicated to exploitation activities, it will be essential to prioritise assets with the strongest potential for long-term sustainability and societal benefit. In addition, the outcomes and findings of the workshop will also integrate aspects of the legacy concept, strategy, and potential legacy roadmap. This selective approach ensures that time and resources are invested in assets with the greatest likelihood of meaningful application, supporting the project's contribution to climate adaptation and resilience through the effective use of its outputs.

8. Expected outcomes of the workshops

To ensure alignment, it's essential to clarify the expected outcomes of the three workshops being organised with project partners.

Below is an initial outline of outcomes for each workshop.

Workshop 1:
Expected outcomes:

- Establish a shared understanding of the exploitation approach, including the role of the workshops
- Clarify key concepts such as exploitation, sustainability, and exploitable assets among project partners

- Develop a list of exploitable assets through collaborative workshop activities

Workshop 2:
Expected outcomes:

- Select and prioritise project results with the highest exploitation potential
- Develop consensus on grouping categories for project results and define criteria that make a result exploitable

Workshop 3:
Expected outcomes:

- Define clear exploitation pathways for key project results, potentially including value propositions, target user mapping, and tools like the Business Model Canvas
- Collect additional elements to strengthen the final exploitation plan due in month 35

9. Conclusion

The VALORADA project's structured approach to the exploitation of its results reflects a commitment to enhancing the impact of climate services within the European context. Through a series of workshops, the project will progressively map and refine its exploitable assets, aligning these assets with user needs and emerging climate policy demands. The initial workshop, set for December 2024, will take a preliminary snapshot of assets, fostering consortium-wide engagement and establishing a clear framework for exploitation. Subsequent workshops will narrow the focus to high-impact assets and lay the groundwork for sustainable exploitation pathways, incorporating tools like the business model canvas to ensure comprehensive planning.

By prioritising assets based on potential impact and relevance, the workshops will optimise resource use within the consortium, maximising value for stakeholders in climate adaptation efforts. This selective process will enable VALORADA to drive meaningful, scalable outcomes in the climate services domain, supporting the EU's overarching goals for resilience and sustainable development. Through this methodology, VALORADA not only aims to contribute valuable climate solutions but also to set a replicable standard for future projects seeking to translate research outputs into real-world impact.

10. Resources

- Miro board: https://miro.com/app/board/uXjVL_wuu5A=/
- Exploitation concept note (task 5.4): T5.4 Exploitation concept note

- List of exploitable assets: Exploitable assets list for 1st exploitation workshop

Methodology of the second exploitation workshop

The second exploitation workshop was designed as a follow up to the first workshop, with a strong focus on supporting partners leading the development of VALORADA's Key Exploitable Results (KERs) during the final phase of the project. Rather than introducing a new identification or selection exercise, the main objective of this workshop was to provide an opportunity for KER leaders to update the wider consortium on the current status of their KERs, highlight remaining challenges, and seek targeted feedback or support ahead of the project's conclusion.

The workshop therefore combined three complementary elements:

- A brief recap of the outcomes of the first exploitation workshop
- A synthesis of key questions and issues discussed during bilateral meetings held with KER leading partners
- A collective review and discussion of the status, needs, and exploitation related considerations of the current KERs

Main workshop activity: Partner Presentations on KER Development

The central part of the second exploitation workshop was dedicated to presentations by partners leading the development of the Key Exploitable Results (KERs). Each partner was asked to provide an update on their KER and address a set of guiding questions to ensure a comprehensive overview of the current status and future needs of their results. These questions were structured around two maturity levels: before and after the end of the project.

The partners addressed the following points during their presentations:

Name of Key Exploitation Result (KER):

Organisation:

Short description of the KER:

Maturity level (before end of project):

- Where is the KER now?
  Briefly describe the current stage of development of the KER (e.g. concept, prototype, pilot, or ready for uptake). The aim is to provide a qualitative overview of progress rather than relying on formal classifications such as TRLs.
- Where will the KER be at the end of the project?
- What needs to be done until the end of the project?
- What support do you need from partners?

Maturity level (after the end of the project):

- What potential for exploitation do you foresee for your KER after the project ends?
- What support do you need from partners?

- What needs/will be done after the end of the project?
  Outline the main actions planned or needed to further develop or exploit the KER. This may include technical improvements, engagement with potential users, validation activities, or other plans for scaling and sustainability.