Sustainable tourism

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Beyond projects: institutionalizing biodiversity and sustainable tourism practices in the Mediterranean

THEMATIC PAPER

Nature & Biodiversity

by Community4Tourism

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Executive Summary

The Mediterranean faces a growing challenge in balancing tourism development with the protection, restoration, and long-term management of biodiversity. Coastal zones, islands, rural landscapes, and protected areas are fundamental to the region's tourism economy, but they are increasingly exposed to cumulative pressures resulting from high visitor densities, infrastructural development, environmental degradation, and climate change. The challenge, therefore, lies not only in reducing tourism-related damage but also in supporting tourism models that actively restore ecosystems, enhance territorial resilience, and support local socio-economic development.

This Thematic Paper examines how the six projects of the Nature and Biodiversity Cluster address this challenge. Together, they provide complementary tools, solutions, and strategies that support nature-positive practices in Mediterranean tourism. The key challenge, however, is ensuring these solutions move beyond pilot implementation and become embedded in policies, planning instruments, and management routines that support regenerative tourism development. This requires shifting from project-based experimentation to institutional adoption through integration into policy frameworks, clear implementation leadership, long-term funding and operational support, stronger cross-sectoral coordination, and monitoring systems that iteratively inform context-specific action over time.

Mediterranean tourism can become more regenerative, biodiversity-sensitive, and resilient, through the real-world implementation of the Cluster's tools, strategies, and solutions, but only if they are embedded within governance mechanisms capable of replicating, coordinating, and sustaining their implementation beyond the timeframe of the Cluster projects.

1. The challenge: Integrating biodiversity into Mediterranean tourism models and policies

The Mediterranean faces a growing challenge in balancing tourism development with the protection, conservation, and restoration of biodiversity. Many coastal areas of the Mediterranean, and especially its vast array of islands, comprise highly tourism-dependent economies yet are greatly exposed to the impacts of climate change, given that the region is experiencing a faster rate of warming compared to the global average. As one of the world's most visited regions and a recognised biodiversity hotspot, its natural and cultural assets are both the foundation of its tourism economy and increasingly at risk from tourism-related pressures, including concentrated visitor flows, infrastructural development, and environmental degradation. Consequently, the loss of biodiversity occurring due to such pressures leads to a decline in nature-based tourism activities such as diving and birdwatching. To not only halt but indeed reverse the negative impacts of tourism on Mediterranean biodiversity and ecosystems, a shift beyond the paradigm of sustainable tourism practices towards regenerative tourism is required. Alongside the benefits for biodiversity and improved health of native ecosystems, such regenerative tourism models should also be viewed as an opportunity to showcase local natural and cultural heritage, combatting rural depopulation and facilitating economic development.

Nature-based Solutions (NbS) generate an array of environmental, social, and economic benefits through context-specific and cost-effective interventions supported by nature, providing benefits to both biodiversity and local communities. NbS interventions, for example the restoration of coastal ecosystems and rural land management practices to support agrobiodiversity, can help to protect local flora and fauna, as well as facilitating climate change adaptation strategies. By leveraging the socio-ecological benefits of NbS, integrating ecosystem condition indicators into destination management, and restructuring tourism models to facilitate biodiversity restoration are just a few ways in which tourism can be viewed as an emerging enabler of ecosystem regeneration.

Municipalities and local communities throughout the Mediterranean are developing a variety of climate resilience strategies and sustainable tourism models, which could be replicated and scaled to support biodiversity across the region's tourism hotspots. To ensure national, regional, and local authorities embed restorative tourism practices across the Mediterranean, policies must be woven into national, regional,

and local governance systems responsible for managing tourism and environmental resources. However, policymakers require cross-sectoral guidance and integrated toolkits to support decision-making when addressing such interdisciplinary challenges.

The six projects within the Nature & Biodiversity Cluster contribute directly to this effort by developing a range of tools, methodologies, and approaches that support nature-based, regenerative tourism practices with the aim of protecting, restoring and showcasing local biodiversity and cultural heritage. They provide solutions that address key dimensions of the challenge, including governance models linked to agrobiodiversity and community-based approaches (MED-GIAHS, INSPIRE), tools to assess and manage tourism pressure (TO CARE MED), spatial strategies to redistribute visitor flows (ECO-SEAROUTES), digital platforms to guide tourism behaviour (PortCREW), and approaches to protect dark-sky environments (MedSkyTour). Together, these solutions demonstrate that practical, scalable, and replicable responses to the sustainability challenge already exist.

Despite this, the experience of these projects shows that the impact of such solutions is often limited by their lack of integration into governance systems. While tools may be developed and tested successfully, they are not always embedded within the planning frameworks, institutional mandates, and operational processes that shape long-term tourism development. As a result, their application frequently remains confined to pilot phases or specific territories, reducing their potential to drive wider systemic change.

This Thematic Paper addresses this challenge by examining how the solutions developed by the Nature & Biodiversity Cluster can be embedded within governance systems across the Mediterranean. It identifies the conditions under which these tools can be transferred, scaled, and sustained, and highlights strategic tourism management phases during which policymakers and practitioners can integrate the tools into existing institutional frameworks, complementing solutions and strategies produced by other projects within the Sustainable Tourism Mission of the Interreg Euro-MED Programme.

2. Context: Global, European, national, and local governance

This section maps the governance landscape within which biodiversity-sensitive and sustainable tourism solutions can be embedded beyond project lifecycles. It explores where decisions are made, the institutional arrangements that can facilitate operationalisation of the Cluster's solutions, and how different governance levels shape their continuity. Institutionalisation in the Mediterranean context depends on the influence and interaction of four governance levels: (i) global, (ii) European, (iii) national, and (iv) regional/local, each of which plays a distinct role in enabling or constraining the integration of project outputs into routine practice.

Policy frameworks developed by international organisations encourage the uptake of regenerative tourism practices worldwide. Strategies promoted by UN Tourism provide key policy guidance for balancing tourism growth with environmental protection, cultural preservation, and community wellbeing. These policies encourage tourism models that promote sustainable economic development, as well as safeguarding ecosystems and local livelihoods. Similarly, the agrobiodiversity strategies of the Food and Agriculture Organization (FAO) of the United Nations, particularly through the Globally Important Agricultural Heritage Systems (GIAHS), highlight the importance of protecting traditional agricultural systems, biodiversity, and cultural landscapes. In the Mediterranean context, these frameworks support regenerative tourism approaches that value local heritage, sustainable food systems, and long-term ecological resilience.

At the European level, governance frameworks provide strategic direction, legitimacy, and funding rationale. Policy agendas such as the Nature Restoration Regulation, European Green Deal, the EU Biodiversity Strategy for 2030, and Farm to Fork establish the priorities within which sustainable tourism models may interact, while the Birds and Habitats Directives, Natura 2000 governance, and coastal and marine environmental-quality frameworks reinforce biodiversity-related obligations. These frameworks do not directly determine local implementation, but they shape the policy narratives and facilitate funding streams that allow public authorities to justify adoption. This is reflected across the Cluster projects, where MED-GIAHS and INSPIRE align agrobiodiversity with rural resilience and biodiversity stewardship, TO CARE MED links tourism management to ecosystem protection, and MedSkyTour frames light-pollution reduction within wider environmental-quality agendas. In this sense, the European level functions primarily as a source of orientation and legitimacy rather than direct execution.

At the national level, these broad objectives are translated into operational instruments that influence implementation on the ground. Planning provisions, tourism strategies, protected-area systems, rural development measures, maritime and coastal regulations, and grant programmes all shape whether project tools can be adopted, financed, and coordinated across territories. This intermediate level is especially important for cross-sectoral solutions since it often determines both access to funding and coordination capacity. This is particularly evident in ECO-SEAROUTES and PortCREW, whose routes, hubs, platforms, and cruise-port strategies depend on coordination between tourism bodies and port authorities across Mediterranean nations. It is equally relevant for MedSkyTour, where reduction of light pollution may require alignment between tourism promotion, environmental governance, and technical standards for public illumination, already supported by national strategies in some European Member States such as France. At this scale, institutionalisation depends on whether strategic goals are translated into operational regulations, support schemes, and coordination mechanisms.

Regional and local institutionalisation become visible in practice because this is where strategies, plans, and tools feed into operational decisions, service arrangements, and everyday management routines. Multi-level governance models involving a range of actors, including regional authorities and municipalities, managers of protected areas, local tourism offices, ports and marinas, as well as community organisations, can provide a collaborative decision-making space by drawing upon diverse perspectives. For example, MED-GIAHS empowers rural stakeholder networks through its range of place-based tools and solutions. The project has also demonstrated the long-term benefits of regenerative tourism approaches to rural revitalisation and territorial resilience, with one pilot municipality reporting an estimated population increase of around 15% during the implementation of sustainable tourism and GIAHS-related actions, emphasising the importance of regional and local governance impact.

Viewed together, these governance levels are complementary rather than sequential. Global initiatives and European frameworks provide direction and legitimacy, national entities translate these into financing and coordination schemes, followed by regional and local actors who determine practical implementation and continuity. The value of the Cluster solutions depends on effective implementation in real administrative routines, which is the applied governance question addressed in Section 3.

3. In-depth analysis: Barriers and enablers of institutionalisation

This section examines the barriers and enablers that shape whether biodiversity-sensitive and regenerative tourism practices become institutionalised after project funding ends, ensuring the long-term impact of nature-positive tourism models, tools, and strategies in the Mediterranean. The central challenge is typically not a lack of innovation, but limited institutional uptake: Tools may be developed, tested, and validated, yet remain disconnected from the administrative systems responsible for implementation and long-term maintenance.

From a governance perspective, institutionalisation depends on a set of conditions that can facilitate the uptake of novel tools and strategies. Such tools and solutions require a clearly identified institutional owner, an operational mandate, and a defined point of entry into decision-making processes. They must also be supported by coordination arrangements, stable financing, and monitoring mechanisms that enable continued use and maintenance. Consequently, their long-term operability depends on whether they can be anchored within existing governance structures and sustained through clearly defined roles, responsibilities, and resources. The analysis that follows identifies five recurring conditions that determine whether project results transition into routine practice: ownership, coordination capacity, inclusive stakeholder engagement, financial and operational continuity, and long-term accountability and monitoring.

Taken together, these five conditions reflect one key message: the main roadblocks to the institutionalisation of the Cluster's tools and solutions occur when policymakers are unsure of how to embed these tools within governance structures. The challenge is not simply to produce effective tools, but to ensure that they are associated with institutions, decision routines, coordination mechanisms and resources capable of sustaining them. As summarised below, Figure 1 frames these key barriers associated with the institutionalisation of the Cluster's tools and solutions, alongside the potential risks if the solutions are not embedded within governance structures, and the actionable steps that can be taken to enable their impact beyond the lifetime of their respective Cluster projects.

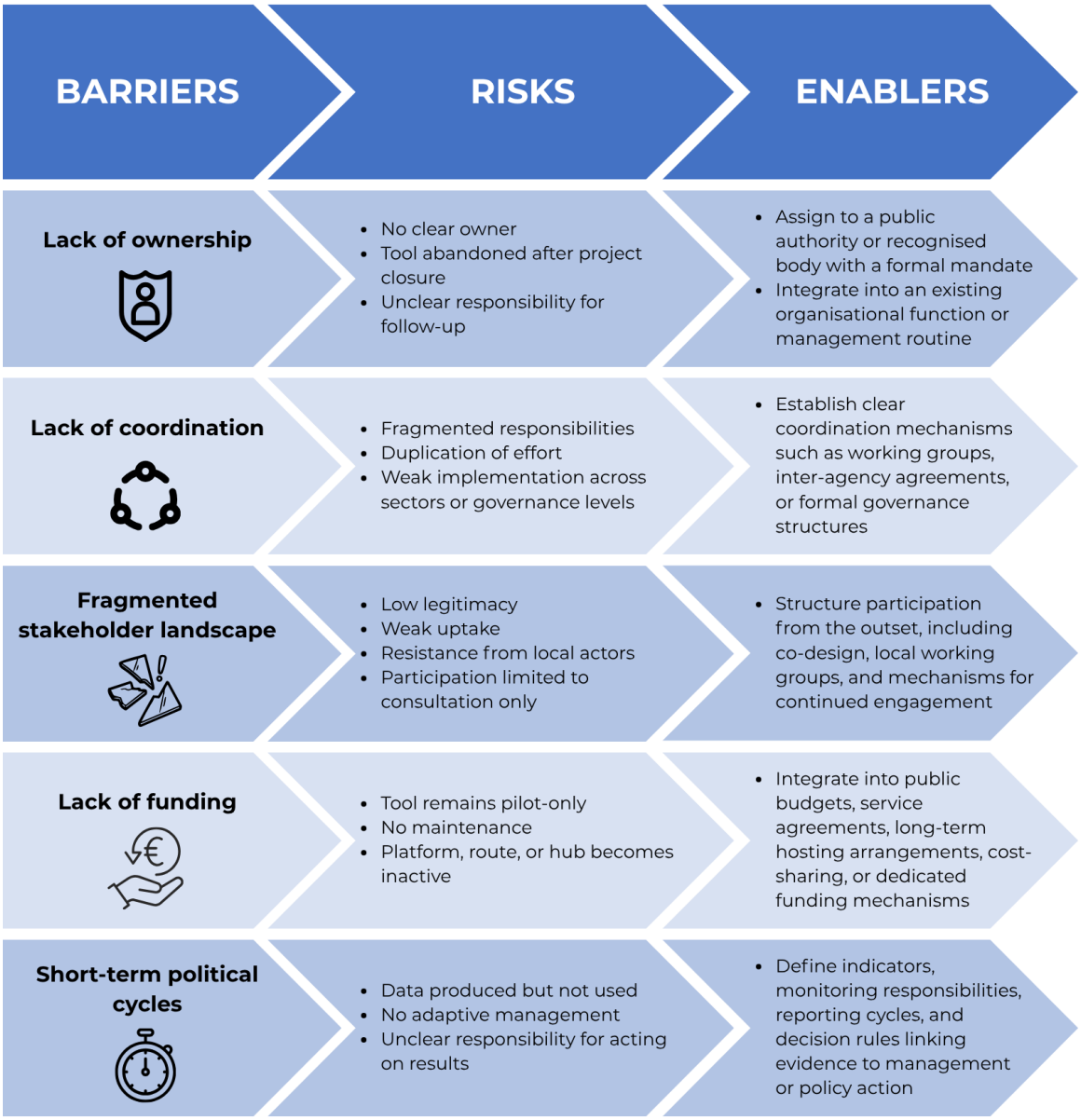


Figure 1. The key barriers to institutionalising the Cluster's solutions, alongside the associated risks, followed by actionable steps to facilitate uptake within governance structures.

4. The Cluster proposals: Operational pathways to institutionalisation

4.1 Introduction to the Cluster's tools and solutions

The Nature & Biodiversity Cluster offers a diverse, complementary set of solutions to advance regenerative tourism in the Mediterranean. The solutions are grouped into four main typologies, described below and illustrated in Figure 2, based upon their implementation phases within a tourism management strategy:`

1. *Strategic planning and decision-support tools*
   The Strategy for Sustainable Agricultural Tourism (MED-GIAHS) provides a roadmap for integrating tourism and the preservation of agricultural landscapes. Additionally, the TCCL Tool (TO CARE MED) introduces a data-driven shift from reactive to proactive tourism management, whereas the Dark Sky Self-Assessment Guide (MedSkyTour) supports territorial planning to reduce the impacts of light pollution on human health and biodiversity.

2. *Governance and implementation frameworks*
   These solutions, including the Joint Guide for Action Plans (MED-GIAHS) and Community-based model for local agrobiodiversity (INSPIRE) emphasise structured multi-stakeholder participatory planning and co-design processes. They also encourage iterative development to enable long-term adaptation to dynamic environmental and socio-economic conditions.

3. *Capacity building and knowledge-transfer mechanisms*
   Training programmes and guidance materials such as the Joint Training Plan (MED-GIAHS) equip local actors with the skills needed to apply context-sensitive regenerative tourism models and marketing strategies through stakeholder engagement workshops. The Community Heritage Hubs (ECO-SEAROUTES) act as local engagement platforms to enhance community capacity building.

4. *Market-facing and tourist engagement tools*
Promotional tools help connect sustainable offerings with visitors. The PortCREW Online Platform uses digital technology to guide tourists, especially cruise passengers, toward lesser-known attractions. Similarly, the MED-wide eco-nautical itineraries (ECO-SEAROUTES) facilitate coastal-inland tourism offers, redistributing the socio-economic benefits of tourism across the territory.

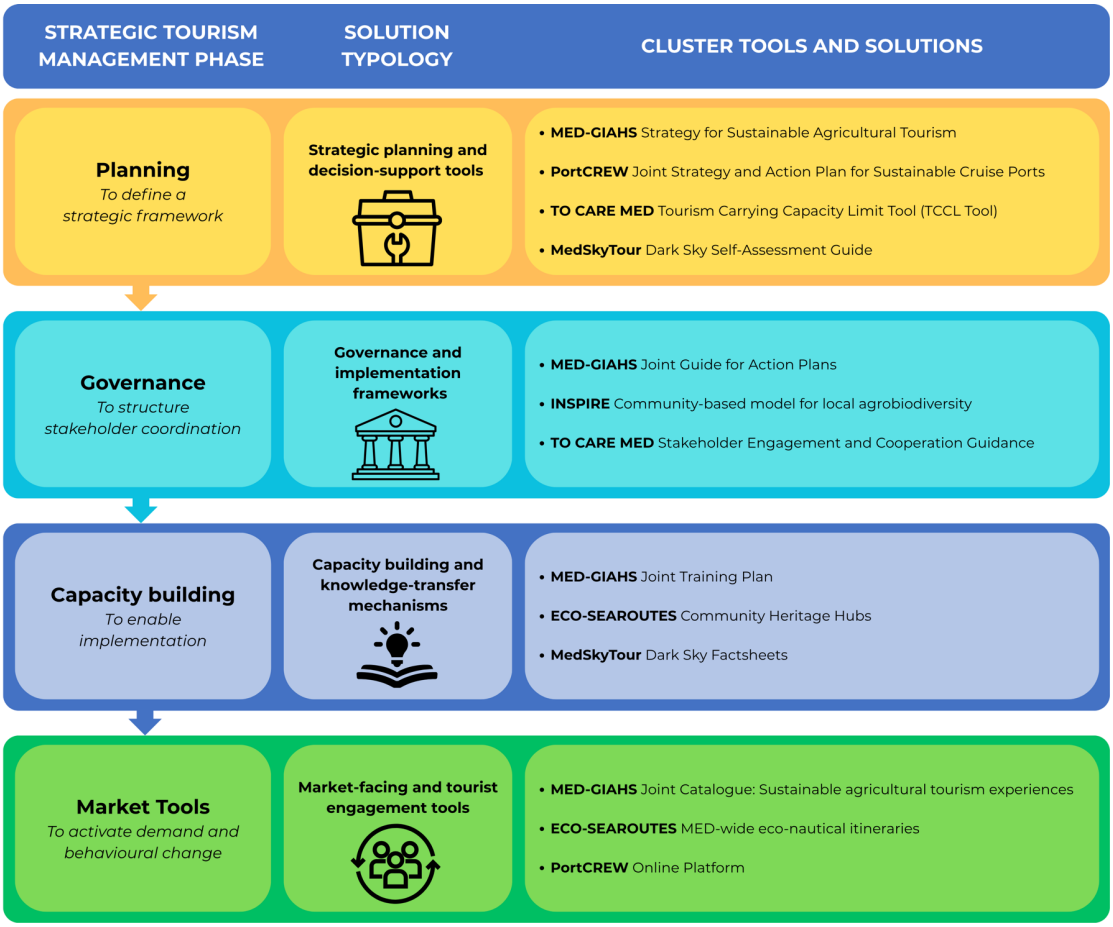


Figure 2. The solutions developed by the Cluster aggregated by their typology and aligned with key phases of strategic tourism management.

4.2 Factsheets showcasing the tools and solutions

The factsheets in this section showcase a selection of the tools developed by the Cluster projects, colour-coded in accordance with their typology (Fig. 2), highlighting the respective lead actors in implementation, how to operationalise the solutions, their innovative aspects and the challenges they seek to address.

TO CARE MED

Tourism Carrying Capacity Limit Tool (TCCL Tool)

Target users

Municipalities and managers of protected areas

Type of solution

Strategic planning and decision-support tools

Keywords

- Tourism carrying capacity
- Pressure thresholds
- Ecosystem condition
- Tourism flow
- Heritage safeguarding

What

- The Tourism Carrying Capacity Limit (TCCL) Tool measures tourism pressure by examining the destination as an integrated system of interrelated components, including attractions, accommodation, food services, and mobility.
- The TCCL Tool identifies the component that reaches its capacity threshold first and uses it as the benchmark for determining the destination's overall sustainable tourism limit.
- The primary purpose is to inform strategic decision-making by pinpointing critical pressure points and guiding effective management.

Why

- The tool enables destinations to shift from reactive tourism management toward proactive, capacity-based planning by supporting informed decision making on visitor management policies and infrastructural investment.
- By linking tourism flows to the operational limits of local infrastructure and services, stakeholders can anticipate when tourism pressure may exceed sustainable thresholds, helping to safeguard natural and cultural heritage, preserve high-quality visitor experiences, and promote the well-being of local communities.

How

- The tool maps destination capacities across accommodation, attractions, food services, and mobility networks, while segmenting visitors by accommodation type and travel behaviour to measure differentiated tourism pressure.
- It integrates operational capacity, tourism flow, and expenditure data to identify the subsystem that reaches its threshold first as the destination's limiting factor, enabling scenario simulations to test the impacts of alternative management and policy interventions.

Lessons learnt

- The TCCL Tool is implemented through a flexible, data-driven methodology that combines tourism flow data with capacity indicators for accommodation, mobility, and essential services across different destination types.
- Its application relies on stakeholder participation for data validation and management planning, alongside training and knowledge-transfer processes that enable local actors to adapt and interpret the tool within their specific environmental, social, and economic context.

Learn more about this solution

Tourism Carrying Capacity Limit Tool (TCCL Tool)

Discover more TO CARE MED tools

TO CARE MED website, Stakeholder Engagement and Cooperation Guidance

MedSkyTour

Dark Sky Self-Assessment Guide

Target users

Regional authorities, municipalities, and managers of protected areas

Type of solution

Strategic planning and decision-support tools

Keywords

- Astrotourism
- Artificial-Light-At-Night
- Dark sky reserves
- Light pollution
- Nocturnal biodiversity

What

- The Dark Sky Self-Assessment Guide is a practical tool designed to help regions, municipalities, protected areas, and tourism bodies evaluate their potential for dark sky protection and development.
- It provides a structured way of understanding lighting conditions, policy context, and tourism opportunities linked to natural night skies.

Why

- It was developed in response to widespread light pollution affecting over 85% of the Euro-MED region and its negative ecological, cultural, and economic impacts.
- At the same time, it aims to support the growing opportunity of dark sky tourism as a sustainable driver of biodiversity protection, rural development, and human well-being.

How

- The guide is implemented through a five-step process covering preparation, review of lighting laws, assessment of lighting practices, evaluation of dark sky and eco-tourism potential, and a SWOT analysis.
- It is supported by a ready-to-use template and can be applied by non-experts for assessment, planning, education, and community engagement.

Lessons learnt

- The guide is implemented through a place-based approach that combines stakeholder engagement, lighting and policy assessments, and integration into planning and decision-making processes.
- Its adaptable design supports replication and application across different regional contexts.

Learn more about this solution

Dark Sky Self-Assessment Guide

Discover more MedSkyTour tools

MedSkyTour website, Dark Sky Factsheets

INSPIRE

Community-based model for local agrobiodiversity

Target users

Municipalities, community groups, and ecotourism and agrotourism operators

Type of solution

Governance and implementation frameworks

Keywords

- Agrobiodiversity
- Gastronomic heritage
- Slow Food Travel
- Participatory approaches
- Rural regeneration

What

- The community-based model connects agrobiodiversity, cultural heritage, and experiential tourism through active participation of local communities.
- Using Living Labs, participatory planning, and digital tools, local stakeholders can co-design tourism experiences rooted in traditional food systems, biodiversity, and local identity, establishing a shared territorial framework that strengthens both rural ecosystems and local communities.

Why

- The model addresses biodiversity loss and unsustainable tourism by showcasing agrobiodiversity and gastronomic heritage.
- It aims to transform tourism into a regenerative force that supports ecological resilience, preserves local knowledge, and creates sustainable livelihoods linked to agrobiodiversity.

How

- The community-based model provides a general framework for participatory approaches in developing local Living Labs to co-design food tourism experiences.
- Importantly, the model enables flexibility for local application to facilitate replication in other areas of the Mediterranean, ensuring coherent place-based approaches.

Lessons learnt

- It is essential to establish strong community ownership and active participation of local stakeholders in decision making and implementation, with effective collaboration between municipalities, civil society, producers, tourism actors, and research institutions.
- Continuous capacity building, digital innovation, and knowledge exchange are crucial to strengthening local skills and transferability.

Learn more about this solution

Community-based model for local agrobiodiversity

Discover more INSPIRE tools

INSPIRE website, Tourism & Agrobiodiversity PACT,
Sustainable tourism experiences ground in agrobiodiversity

MED-GIAHS

Joint Training Plan

Target users

Municipalities and community groups interested in facilitating stewardship of local heritage

Type of solution

Capacity building and knowledge-transfer mechanisms

Keywords

- Agrobiodiversity
- Agricultural heritage
- Regenerative tourism
- Rural development
- Cultural landscapes

What

- The Joint Training Plan aims to equip stakeholders with the knowledge and skills required to apply innovative tools and strategies, fostering the institutionalisation of sustainable agricultural heritage tourism and biodiversity practices across the Mediterranean region.
- The plan guides project partners while allowing adaptation to local contexts through language adjustments, inclusion of relevant case studies, and country-specific best practices.

Why

- The plan was created to provide a structured foundation for building capacity around the FAO GIAHS approach.
- It outlines four key training modules covering the GIAHS application process, ways to enhance and leverage GIAHS recognition, effective marketing and communication strategies, and governance tools for traditional agrifood systems and landscapes.

How

- The training is designed to be delivered as a 12-hour programme, covering four modules, which can be spread across multiple weeks.
- Sessions may be conducted either in person or online, depending on local needs and circumstances.
- Each training activity should engage at least 25 participants, with partners tailoring the content and format to suit their specific audience and context.

Lessons learnt

- To ensure local success and suitability to the region, it is essential that the training materials are translated into local languages.
- Case studies should also be tailored to reflect the specific agricultural practices of each region.

Learn more about this solution

Joint Training Plan

Discover more MED-GIAHS tools

MED-GIAHS website, Strategy for Sustainable Agricultural Tourism, Joint Catalogue: Sustainable agricultural tourism experiences, Joint Guide for Action Plans

ECO-SEAROUTES

MED-wide eco-nautical itineraries

Target users

Regional authorities, port authorities, municipalities, and local tourism operators

Type of solution

Market-facing and tourist engagement tools

Keywords

- Nautical tourism
- Maritime mobility
- Territorial planning
- Tourist itineraries
- Spatial redistribution

What

- The ECO-SEAROUTES itineraries create cross-Mediterranean eco-friendly nautical routes, connecting ports and marinas that follow shared sustainability standards.
- Each region develops its own itineraries that go beyond the coast, incorporating inland cultural, natural, and community attractions. These are co-created with local stakeholders and reflect the unique character of each area, thereby building a multi-level tourism model that blends maritime travel with inland experiences.

Why

- This solution tackles major Mediterranean issues, such as overcrowded coastal tourism and environmental degradation, by shifting visitor flows away from busy coastlines toward inland regions.
- It also broadens tourism offerings by promoting cultural, nature-based, and community-led experiences through collaboration between ports, local authorities, and tourism stakeholders.

How

- Implementation begins with joint mapping of coastal pressures, environmental capacity, tourism patterns, ports, and inland assets.
- Local itineraries are then co-designed through collaborative workshops with local actors and are pilot-tested, with ongoing monitoring of their environmental and socio-economic impacts, as well as integration into regional and transnational tourism systems.
- Transnational eco-nautical itineraries will then be sustained through a shared platform.

Lessons learnt

- Applying this model across the Mediterranean requires strong stakeholder engagement, reliable territorial data, coordination between port and inland authorities, and flexible itineraries adapted to local cultural and environmental contexts.
- Its success also depends on a shared methodological framework, digital management tools, and a balance between transnational consistency and strong local ownership.

Learn more about this solution

MED-wide eco-nautical itineraries

Discover more ECO-SEAROUTES tools

ECO-SEAROUTES website, Community Heritage Hubs

PortCREW

Online Platform

Target users

Regional authorities, port authorities, municipalities, and local tourism operators

Type of solution

Market-facing and tourist engagement tools

Keywords

- Cruise tourism
- Open-source digital tools
- Tourism redistribution
- Natural and cultural heritage data integration

What

- The PortCREW platform is an innovative, open-source, web-based tool designed to collect, organise, and deliver daily news to cruise passengers, highlighting events, ecotourism activities, lesser-known attractions, and their historical, cultural, and natural significance.
- The platform helps cruise managers, port authorities, and local officials provide tailored, dynamic tourism information to manage and mitigate overtourism effectively.
- Compatible with all information screens, it has been tested in five ports.

Why

- By highlighting lesser-known natural and cultural attractions, the platform can gather and prioritise ecotourism destinations, aiming to reduce overtourism in coastal areas.
- The platform is designed to assist cruise operators and public authorities in delivering more tailored tourist information at cruise terminals, while also helping to create more sustainable, locally focused travel packages for cruise passengers.

How

- The PortCREW WebApp is an online application built to seamlessly integrate with existing information systems in tourist destinations, such as info kiosks, display screens, and posters.
- Its core concept is to use APIs to gather available tourism data and organise it according to travellers' needs and specific destination conditions, such as weather or time of year.

Lessons learnt

- The PortCREW platform will be open-source to encourage easy replication.
- To enable the long-term impact and accessibility of the platform, fragmented local data from various sources should be collated into a user-friendly database.
- By doing so, long-term access to fundamental data will be maintained and will facilitate future data inputs and iterative processes to improve the platform.

Learn more about this solution

Online Platform

Discover more PortCREW tools

PortCREW website, Joint Strategy and Action Plan for Sustainable Cruise Ports

4.3 Key considerations for successful replication of the tools and solutions

Across the Nature and Biodiversity Cluster projects, successful replication throughout the Mediterranean of the solutions developed depends on various enabling conditions. Projects consistently highlighted the importance of multi-stakeholder engagement in co-design processes, alongside capacity building, accessible and reliable data systems, and flexible implementation models tailored to local contexts. Key challenges included fragmented governance, lack of intersectoral data integration and limited policy recognition of traditional management systems. Long-term success further relies on financial sustainability, cross-sectoral collaboration between tourism, heritage, agriculture, and rural development actors, and effective communication and visibility tools.

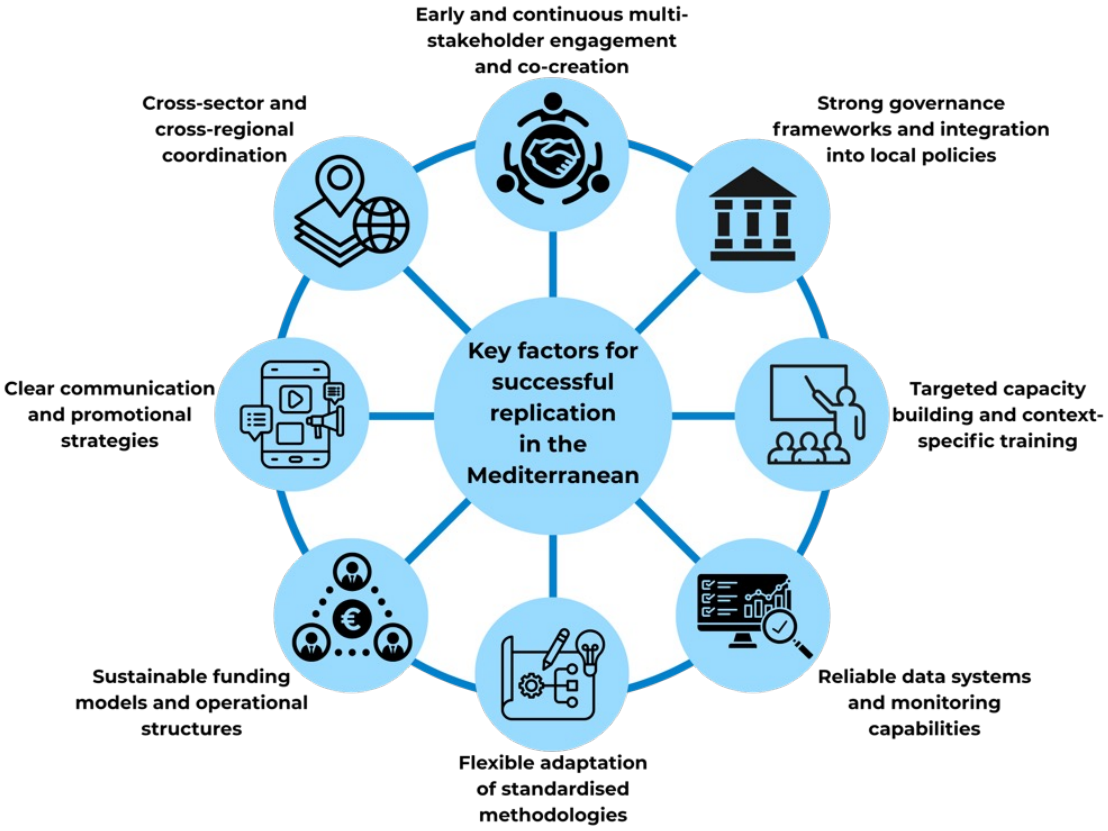


Figure 3. The key factors that facilitate successful context-sensitive replication of the solutions in other areas of the Mediterranean.

4.4 Institutional integration pathways for the Cluster's solutions

To ensure the long-term uptake and institutionalisation of these solutions beyond the timeframe of the Cluster projects, and based upon the lessons learnt and key success factors reported, this section draws upon the previous aspects of this document to pave institutional integration pathways for each tool, solution, and strategy developed within the Cluster, illustrated in Annex 1. The figures highlight target stakeholders and governance levels that could lead implementation, the highest priority barriers pertaining to each solution that must be addressed to enable implementation, followed by key conditions to support replication in other areas of the Mediterranean. Drawing upon the integration pathways in Annex 1, numerous cross-cutting patterns and potential roadblocks are identified for each solution typology.

The highest priority barriers that should be addressed to embed strategic planning and decision-support tools in existing frameworks are mainly associated with a lack of coordination and fragmented stakeholder landscape, which could lead to isolated and misaligned strategies across governance levels, resulting in an incoherent approach. In relation to governance and implementation frameworks, one of the key factors for successful replication entails the flexible adaptation of standardised methodologies to achieve a context-appropriate application, while ensuring continuous multi-stakeholder engagement throughout the process.

Regarding capacity building and knowledge-transfer mechanisms, a lack of ownership and fragmented stakeholder arrangements threaten the long-term viability of the Cluster's solutions. To successfully replicate them across the Mediterranean, strong governance frameworks are required to ensure that the solutions are embedded within policy and assigned to an institution, overcoming the barrier of ownership.

Lastly, the market-facing and tourist engagement tools could also face issues associated with a fragmented stakeholder landscape and a lack of coordination, resulting in isolated applications of the solutions which gradually lose momentum over time and risk falling out of usage. Cross-sectoral and cross-regional coordination will therefore be vital to institutionalisation, accompanied by clear promotional strategies of the solutions, especially when interacting with local tourism operators.

Despite the variety of solutions developed by the Cluster and the

range of contextual origins, they face similar recurring challenges that could restrict their institutionalisation and long-term impact. It is therefore vital to map foreseeable solution-specific barriers and to consider how best to replicate the solutions through placed-based approaches.

5. Synergies and opportunities for integration

The solutions developed within the Cluster's projects focus on an array of tourism challenges in the Mediterranean, yet they are closely connected in their objectives, approaches, and opportunities for integration, which maximises their individual impact by pinpointing bridging points. Each project tackles specific structural challenges ranging from overtourism in coastal areas, ecosystem degradation, and the loss of agrobiodiversity, among others. When considered together, these projects offer complementary tools and methods that could be synergistically integrated into a strategic tourism management plan, proposed here as potential implementation scenarios and visualised in Annex 2.

5.1 Implementation scenarios

Coastal and Island Tourism Management System: A strong synergy exists between ECO-SEAROUTES, TO CARE MED, and PortCREW through spatial planning, carrying capacity assessment, stakeholder engagement, and visitor flow management (Annex 2, Fig. A). ECO-SEAROUTES provides MED-wide eco-nautical itineraries and Community Heritage Hubs that redistribute tourism through connected coastal–island–inland routes and co-created experiences, reducing pressure on overvisited areas. TO CARE MED complements this with the Tourism Carrying Capacity Tool (TCCL Tool), enabling destinations to define environmental and socio-cultural thresholds and translate them into adaptive management and local action plans. Integrating these thresholds into ECO-SEAROUTES itineraries ensures that redistribution does not simply shift pressure elsewhere but achieves a more balanced territorial spread. PortCREW adds an operational layer through its Online Platform and Joint Strategy and Action Plan for Sustainable Cruise Ports, steering cruise visitors toward lesser-known assets and supporting smarter distribution of tourism flows across coastal and island destinations.

Rural Agrotourism and Landscape Diversification: Another synergy can be identified between TO CARE MED, INSPIRE, and MED-GIAHS, particularly in relation to rural development (Annex 2, Fig. B). INSPIRE and MED-GIAHS both focus on valorising agrobiodiversity, cultural landscapes, and traditional knowledge through tourism. These initiatives aim to diversify tourism and generate socio-economic opportunities in rural areas while preserving ecological and cultural assets, forming part of the MED-wide eco-nautical itineraries (ECO-SEAROUTES). However,

such approaches also risk generating new forms of pressure as successful destinations attract increasing visitor numbers. The application of the TCCL Tool within INSPIRE Living Labs and MED-GIAHS sites would enable stakeholders to monitor and regulate tourism intensity from the outset, ensuring that these emerging destinations remain within sustainable limits. This integration would support a proactive rather than reactive approach to sustainability, preventing the well-documented phenomenon whereby initially sustainable destinations become degraded due to their own success.

Coastal-Rural Value Chain Integration: Further synergies emerge across INSPIRE, MED-GIAHS, ECO-SEAROUTES, and PortCREW by linking local experience creation with visitor routing and flow management. INSPIRE and MED-GIAHS focus on place-based tourism experiences such as food routes, agricultural practices, and heritage activities, while ECO-SEAROUTES provides the eco-nautical and inland routing framework that connects these assets into wider coastal–island–inland itineraries, increasing visibility, accessibility, and balanced territorial development (Annex 2, Fig. C). This integration supports the redistribution of visitors toward less-visited areas, strengthening local engagement and economic benefits while reducing pressure on overcrowded destinations. In maritime contexts, PortCREW's digital platform for cruise flow management and destination promotion complements ECO-SEAROUTES itineraries by enabling direct inclusion of these routes, which can be further enriched with INSPIRE and MED-GIAHS experiences, thereby guiding cruise tourism toward alternative inland and rural destinations, supporting a shift from concentrated tourism patterns to a more distributed, territorially integrated model.

Mobility and Territorial Planning: Although MedSkyTour operates within a more specialised domain, focusing on astrotourism and the mitigation of light pollution, it nevertheless presents meaningful opportunities for cross-project integration. Its emphasis on nocturnal ecosystems and dark-sky preservation introduces an additional environmental measure that complements the broader sustainability objectives of the other initiatives. For instance, carrying capacity assessments developed within TO CARE MED could be applied to sensitive dark-sky areas to define limits on visitor numbers, infrastructure, and night-time activity, ensuring that tourism does not compromise sky visibility or disturb nocturnal wildlife. ECO-SEAROUTES and PortCREW could incorporate astrotourism destinations into their itineraries and platforms. Moreover, given that maritime traffic contributes

to light pollution, there is potential for coordination in defining navigation practices or routing strategies that minimise impacts on designated dark-sky zones. In this way, MedSkyTour can both benefit from and contribute to the broader ecosystem of sustainable tourism tools, illustrated through the mobility and territorial planning approach in Annex 2, Fig. D.

5.2 Project synergies beyond the Cluster

In addition to the synergies between the Cluster's tools described above, further synergies can be identified with projects beyond the Cluster. For example, the Interreg SReST project is highly complementary to INSPIRE, given that both Interreg initiatives position agrobiodiversity and local food systems as foundations for sustainable tourism, while using community-led approaches to strengthen rural development. INSPIRE develops a regenerative tourism model in the Mediterranean through Living Labs and Slow Food Travel-inspired co-creation, aiming to reconnect tourism with agrobiodiversity, cultural heritage, and local economies. SReST applies similar principles in the Danube region by promoting Slow Food tourism routes and valorising traditional landscapes through territorial experimentation. Together, they align with the implementation of agrobiodiversity and gastronomic tourism experiences, making them complementary rural resilience models to integrate into the *Rural Agrotourism and Landscape Diversification Implementation Scenario* (Annex 2, Fig. B).

Similarly, the Horizon Europe project CARDIMED is highly relevant to this implementation scenario due to its focus on NbS in the Mediterranean. The project promotes climate-resilient land management approaches, such as agroforestry, crop rotation, and terracing, contributing to biodiversity enhancement and soil restoration, closely aligned with the valorisation of agrobiodiversity underpinning MED-GIAHS and INSPIRE. A clear synergy lies in linking visitor experiences to demonstrable sustainable land management practices that support traditional rural landscapes.

The synergy between the Interreg REVERS project and TO CARE MED lies in their shared goal of protecting fragile ecosystems in tourism destinations, but they operate at different levels of management and decision-making. Since REVERS focuses on integrating ecotourism development with biodiversity conservation in protected areas, the Tourism Carrying Capacity Limit (TCCL) Tool from TO CARE MED could support the spatial planning approach in REVERS to better define visitor limits and

zoning in protected areas within the *Mobility and Territorial Planning Implementation Scenario* (Annex 2, Fig. D).

These are just a few examples of the numerous synergistic opportunities between the Cluster solutions and the wider European policy and governance landscape. Their recombination would greatly facilitate sustainable tourism development, biodiversity conservation, protection of socio-cultural heritage, and local economic activities, contributing to a more regenerative tourism model in the Mediterranean.

6. Key messages from the MED Cluster Nature and Biodiversity

The Nature & Biodiversity Cluster shows that sustainable and biodiversity-sensitive tourism in the Mediterranean is already supported by a strong portfolio of tested tools across six projects. The main challenge in promoting regenerative and nature-positive tourism in the Mediterranean is not the need to develop new tools but how best to embed existing solutions into governance systems to maximise long-term, real-world impact. The value of the Cluster's solutions lies in their complementarity, offering an integrated approach that combines strategic planning, governance, capacity building, and market-engagement mechanisms to protect and restore biodiversity while also supporting local economies.

Policy action should select, combine, and embed these synergistic solutions within tourism, spatial planning, protected area, and operational frameworks. Clear institutional responsibilities, sustained funding, and stronger coordination across sectors and governance levels are essential to ensure long-term implementation and impact. While EU frameworks provide direction, success depends on effective national, regional, and local adaptation. The priority is therefore to integrate, coordinate, and institutionalise these solutions to support a regenerative, nature-positive Mediterranean tourism model. In conclusion, the following key messages emerge from the MED Cluster on Nature and Biodiversity to support actual implementation:

Integrate biodiversity-sensitive and regenerative tourism solutions into existing policy and planning instruments

The Cluster's tools should be linked to tourism strategies, rural development plans, protected area management plans, visitor management systems, port governance frameworks, and local development instruments, rather than being treated as isolated innovations.

Clearly assign institutional ownership and operational responsibility

Each solution requires an identifiable authority, organisation, or governance body responsible for adopting, implementing, updating, and maintaining it.

Support adoption through coordination across sectors and levels of governance

Effective implementation depends on collaboration among stakeholders in tourism, the environment, agriculture,

heritage, transportation, and local development, as well as alignment between European, national, regional, and local governance contexts.

Link solutions to sustainable financing and operational mechanisms

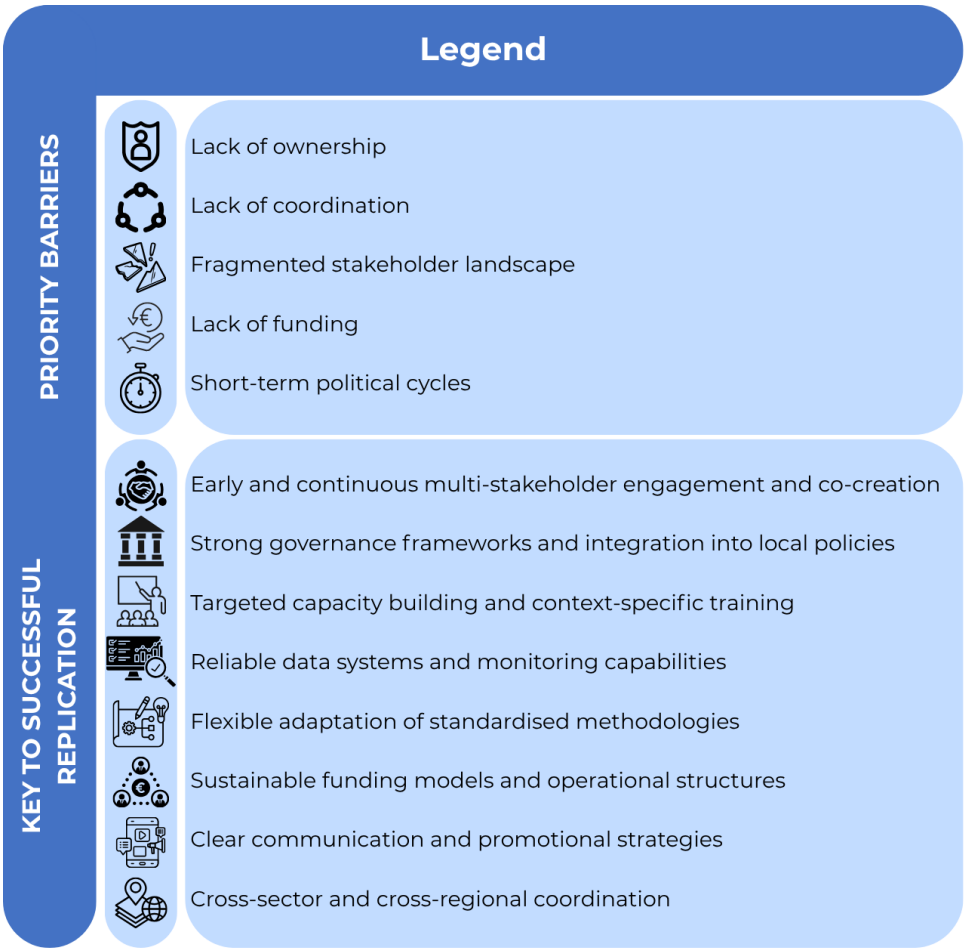
Long-term impact requires that tools and practices be linked to budget lines, service contracts, public programmes, or other financing mechanisms capable of supporting maintenance, staffing, and iterative improvement.

Use existing solutions as building blocks for regenerative and place-based tourism models

The value of the Cluster's solutions lies not only in individual tools, but in their complementarity. Tourist itineraries and experiences, digital platforms, carrying-capacity tools, agrobiodiversity-based models, and stakeholder-engagement approaches can generate synergistic impacts through integrated territorial strategies.

Annex 1: Institutional integration pathways

The figures below map institutional integration pathways that facilitate the uptake of the Cluster's solutions, as referred to in Section 4.4. The solutions have been aggregated by the respective phase of strategic tourism management where they could come into play, flagging the barriers of highest priority for the implementation and institutionalisation of each solution. Additionally, key enabling conditions to support the successful replication of the solutions across the Mediterranean have been listed.



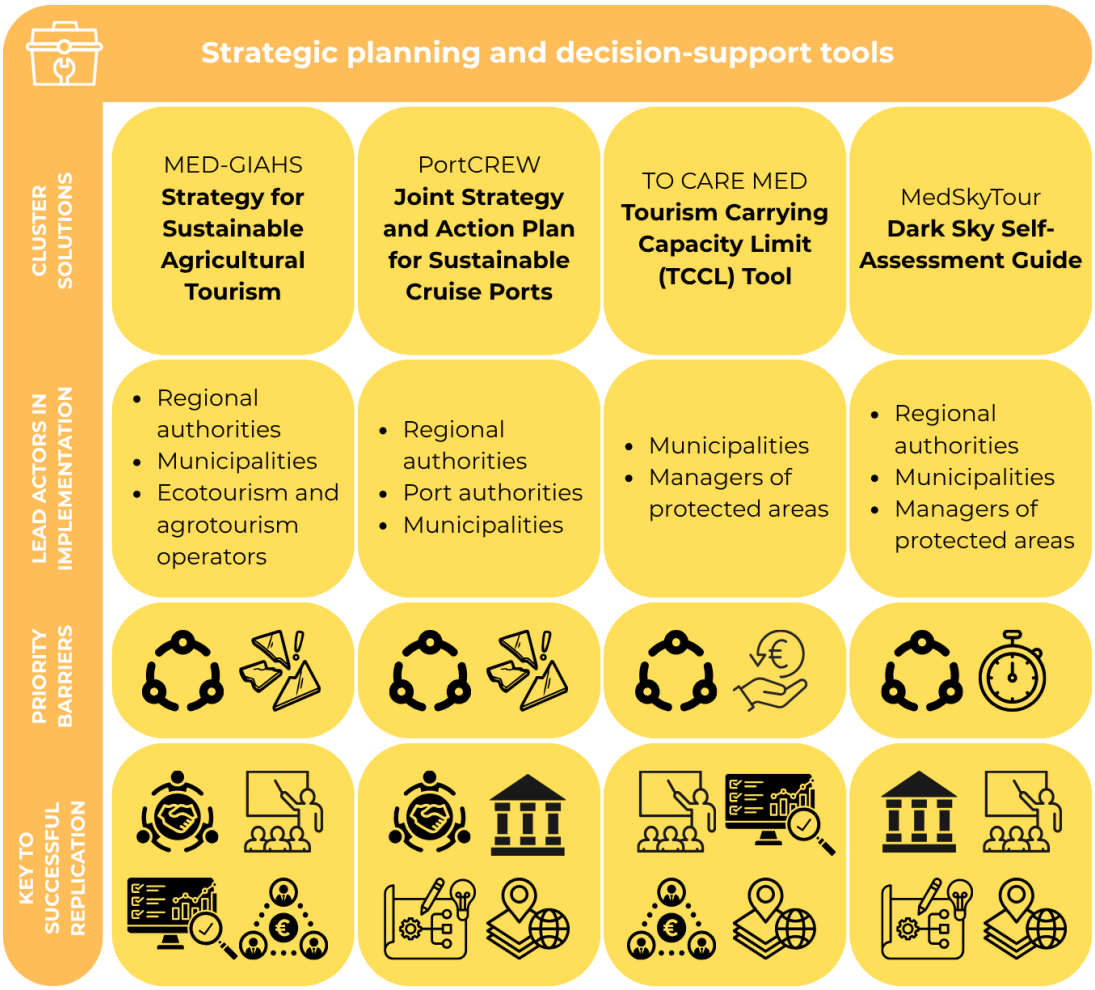


Figure A. The institutional integration pathway for the implementation of the Cluster's strategic planning and decision-support tools, indicating the target governance level that should lead implementation, the barriers of highest priority for the corresponding solution, followed by the key factors that should be considered for replication in other areas of the Mediterranean.the Mediterranean.

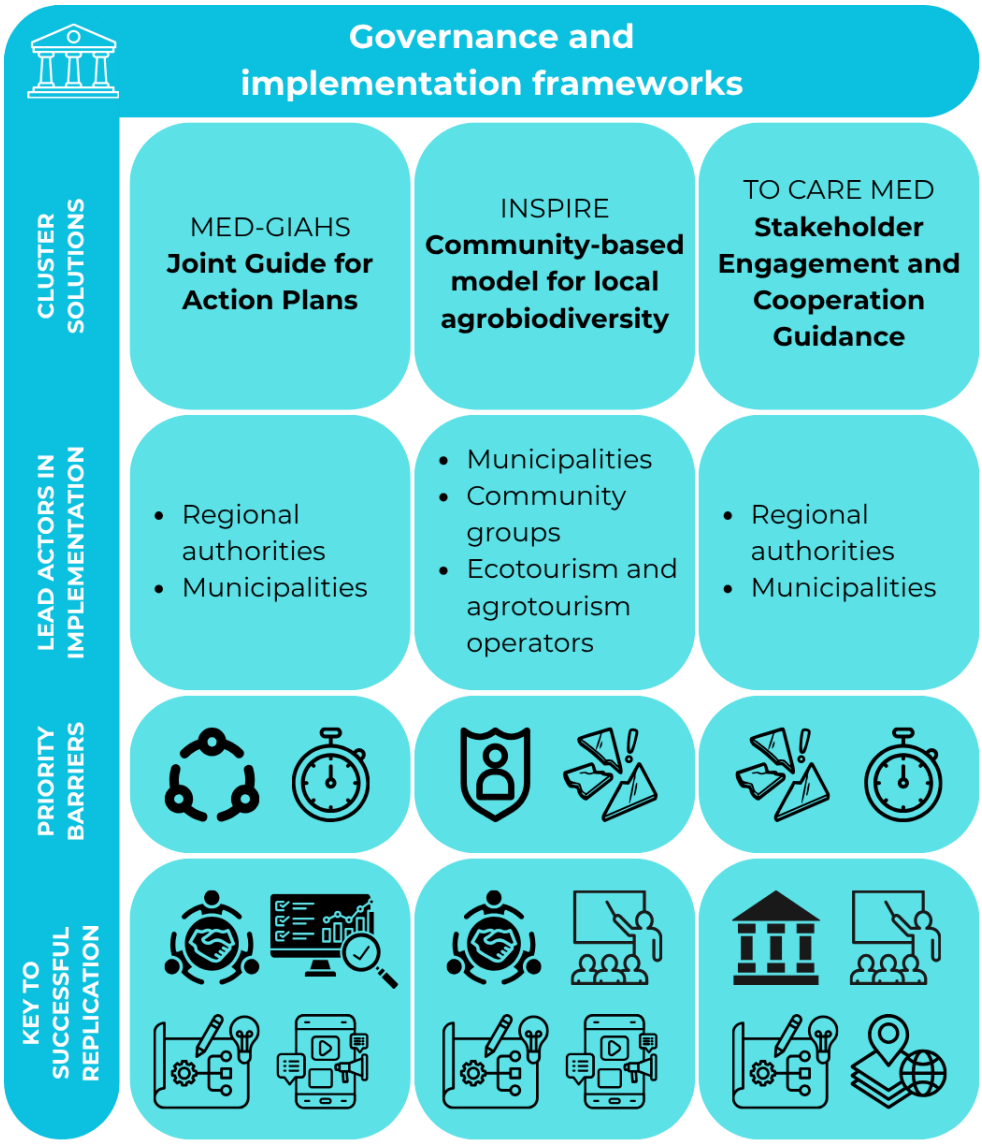


Figure B. The institutional integration pathway for the implementation of the Cluster's governance and implementation frameworks, indicating the target governance level that should lead implementation, the barriers of highest priority for the corresponding solution, followed by the key factors that should be considered for replication in other areas of the Mediterranean.

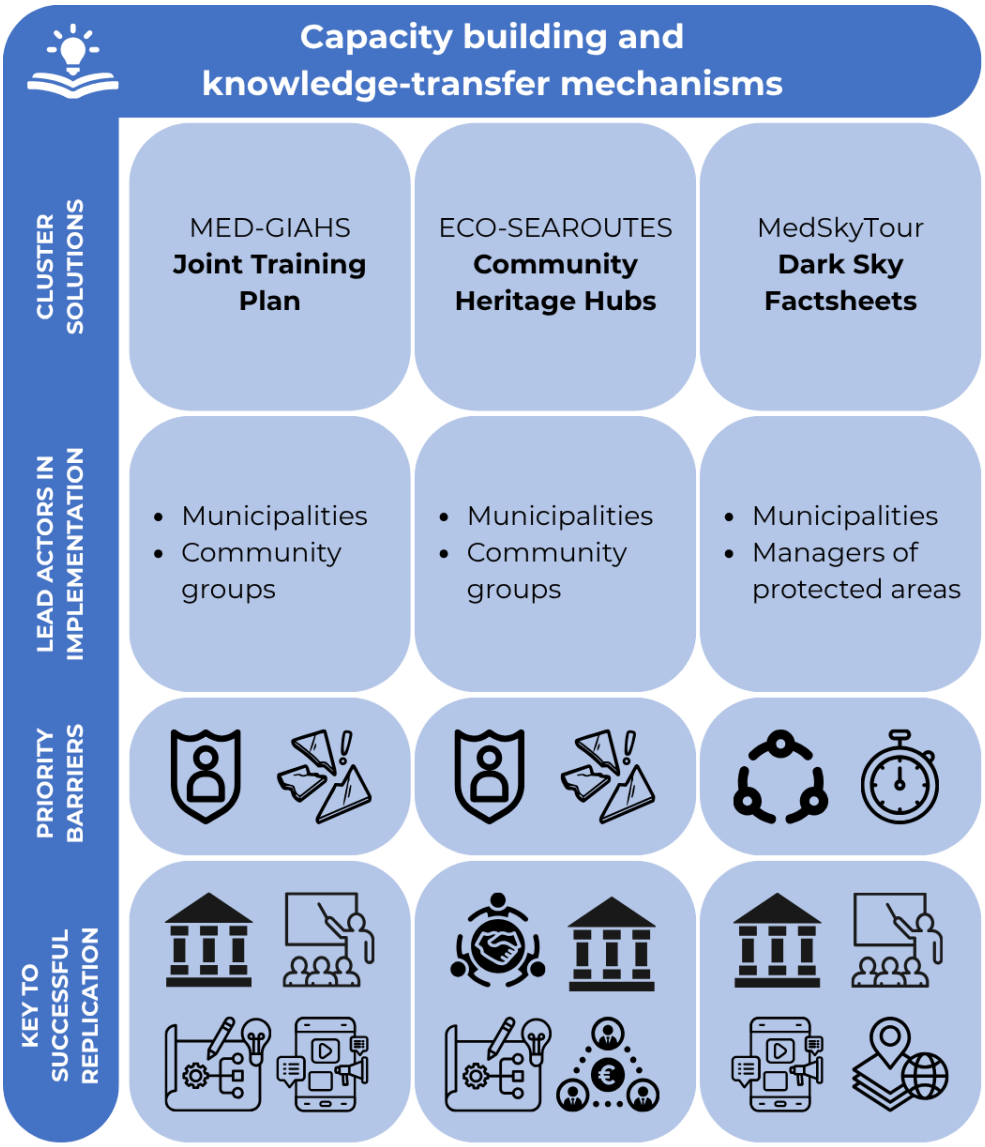


Figure C. The institutional integration pathway for the implementation of the Cluster's capacity building and knowledge-transfer mechanisms, indicating the target governance level that should lead implementation, the barriers of highest priority for the corresponding solution, followed by the key factors that should be considered for replication in other areas of the Mediterranean.

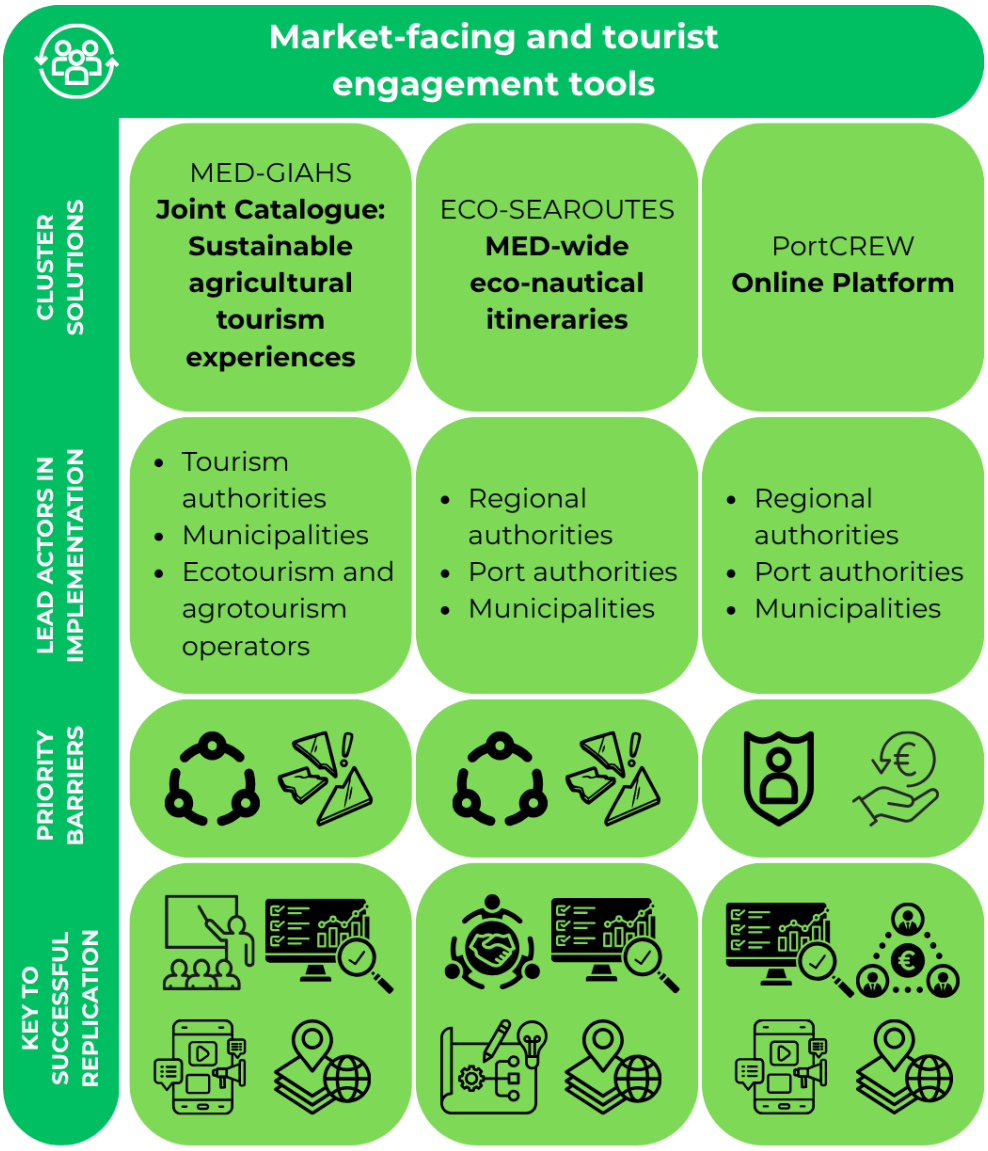


Figure D. The institutional integration pathway for the implementation of the Cluster's market-facing and tourist engagement tools, indicating the target governance level that should lead implementation, the barriers of highest priority for the corresponding solution, followed by the key factors that should be considered for replication in other areas of the Mediterranean.

Annex 2: Implementation scenarios

The complementarity between the solutions and their potential synergies have been proposed as implementation scenarios, explained in Section 5.1. and illustrated below in Figures A-D, showcasing the recombination of various tools, strategies, and solutions to different territorial planning objectives.

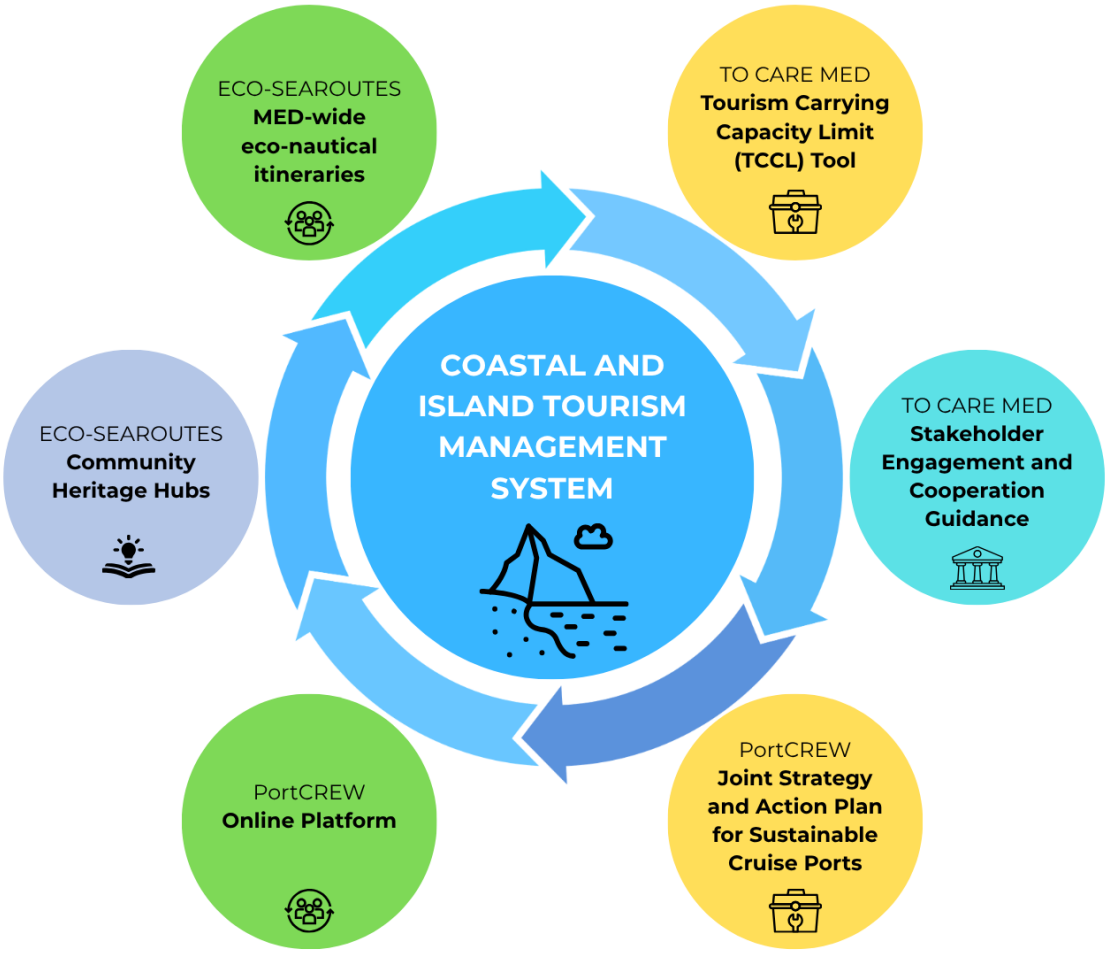


Figure A. A potential implementation scenario of the Cluster's solutions to develop a tourism management system in coastal areas and on islands.

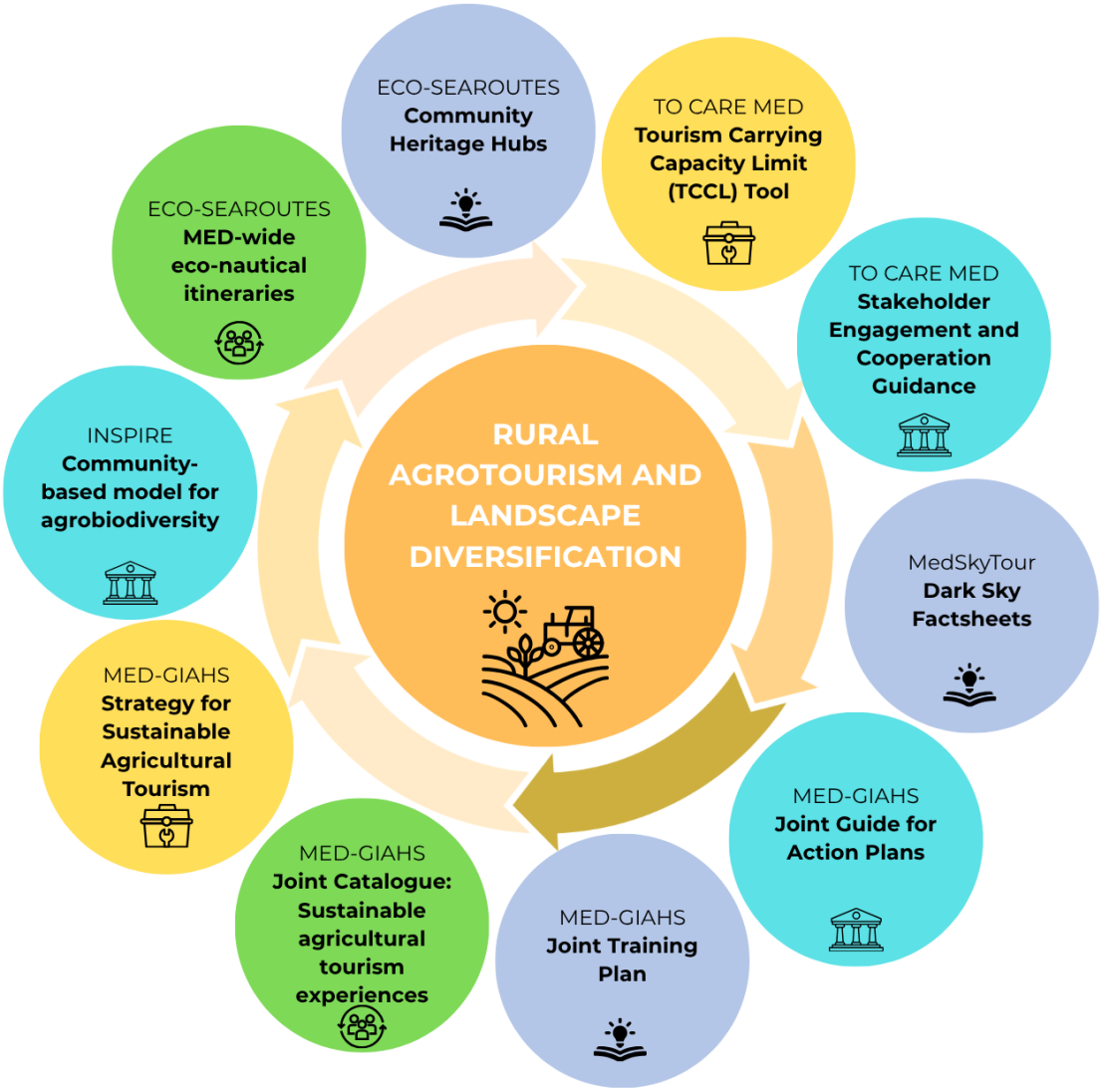


Figure B. A potential implementation scenario of the Cluster's solutions to enhance marketable tourism experiences focused on rural and agricultural areas.

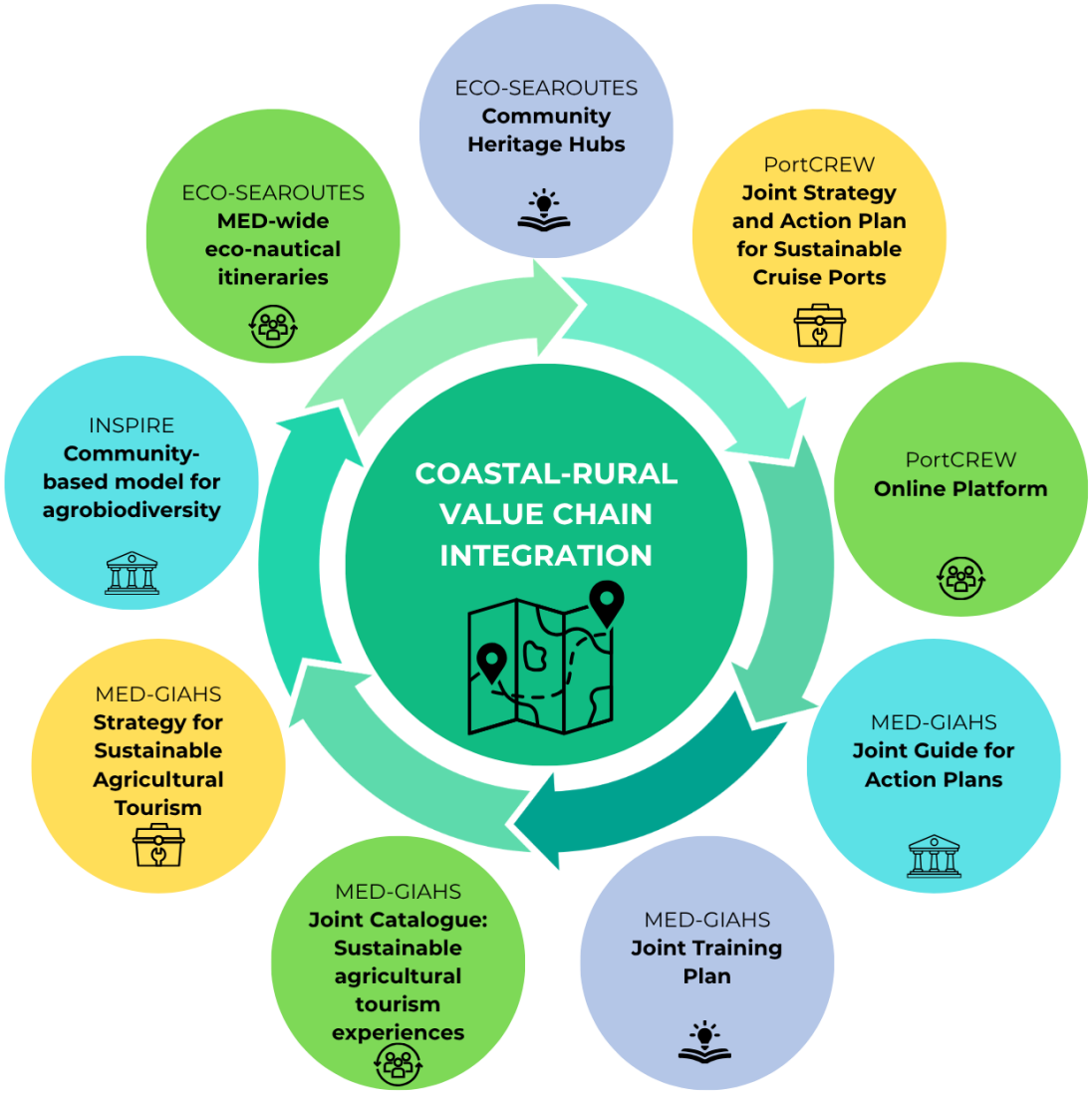


Figure C. A potential implementation scenario of the Cluster's solutions to better link tourism experiences across coastal and rural sites to showcase natural and socio-cultural heritage.

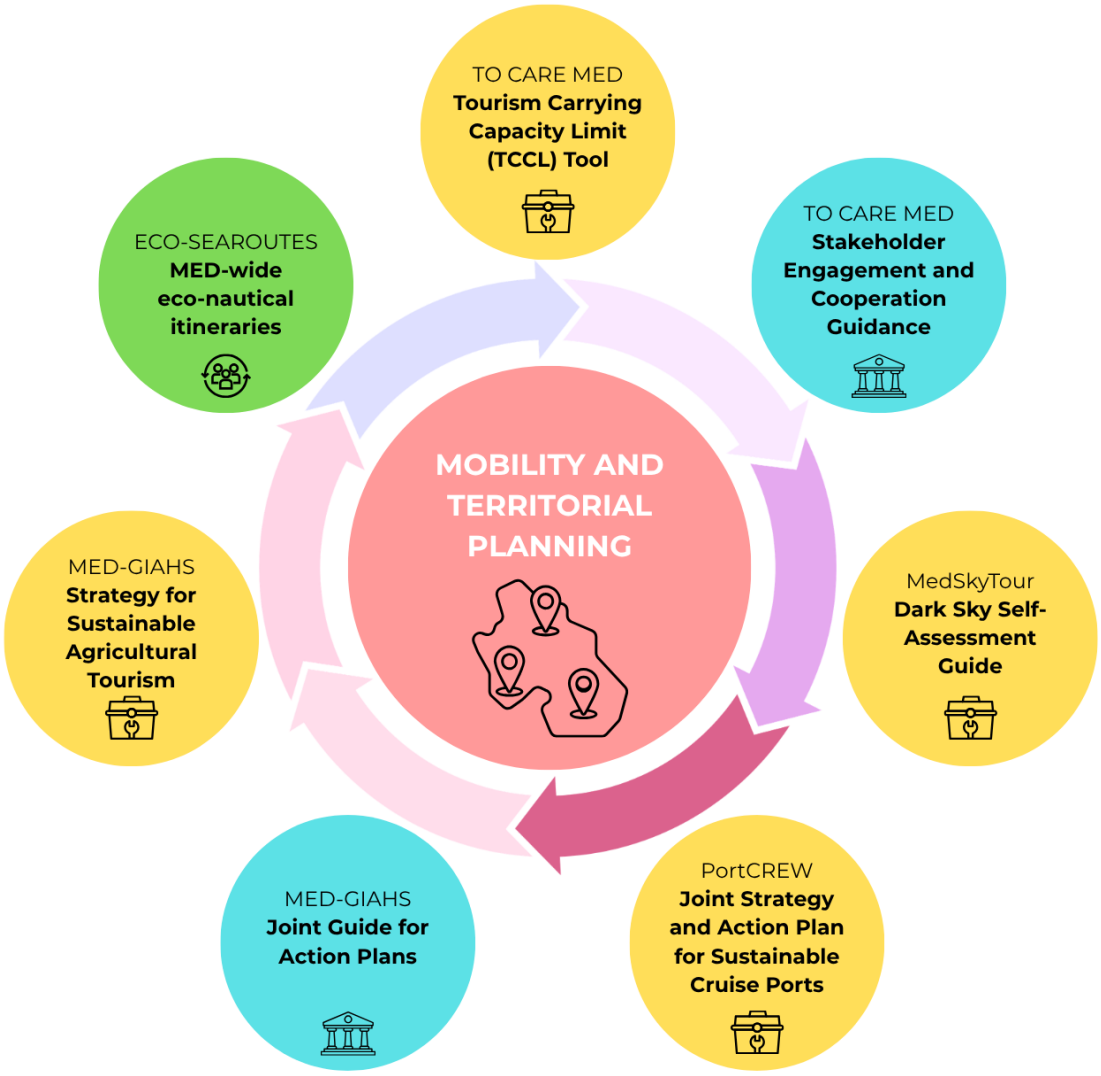


Figure D. A potential implementation scenario of the Cluster's solutions to better manage visitor flow across the territory, linking diverse tourism experiences across landscapes.

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This document has been developed in the framework of the Thematic Community Project of the Sustainable Tourism Mission of the Interreg Euro-MED Programme 21-27 (Community4Tourism project) and its activity of the Mediterranean Clusters.

The Mediterranean Clusters are the main project's proposal for the support of the transferring of practices and results to other actors and territories, and their integration into local, regional, national and European policies and strategies, covering the 4 main topics that the Sustainable Tourism Mission integrates: innovation, circular economy, climate change and nature & biodiversity.

This document is the Thematic Paper of the MED Cluster on Nature and Biodiversity. It aims to provide an in-depth technical analysis of a specific challenge identified by the Cluster members - namely, "Beyond Projects: Institutionalizing Biodiversity and Sustainable Tourism Practices in the Mediterranean"- by highlighting relevant tools, methodologies, and good practices developed by the thematic projects, in order to facilitate the transferability of these outputs to other stakeholders and destinations.

The MED Cluster on Nature and Biodiversity is co-coordinated by University of Thessaly and the University of Tirana.

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