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Abbreviations

GDPR	General Data Protection Regulation
MHS	Monitoring Heritage System
UAVs	Unmanned Aerial Vehicles
SMEs	Small and Medium-sized Enterprises
MED	Mediterranean / Euro-MED context
WP	Work Package



Executive summary

This report presents the **Impact Assessment of Pilot Results** developed under **Activity 2.4 of the TOURISMO project**. The assessment focuses on the **initial effects of the pilot actions implemented in eight pilot areas** across seven Mediterranean destinations: Rhodes, Florence, Valencia Port, Valencia City Centre, Limassol, Varna, Biševo Island and Golden Bay. These pilots represent diverse territorial contexts, including historic cities, UNESCO and heritage sites, cruise-related areas, coastal destinations, islands and protected natural environments.

The objective of the report is **to assess how the pilot actions have contributed to tourism flow management**, with particular attention to their effects on the **tourism experience** and on the **living conditions** in the involved territories. In line with the project approach, the assessment also considers how the pilots have supported a better understanding of local pressures, stakeholder needs, heritage and environmental conditions, and the capacity of destinations to use shared evidence for more sustainable decisions.

Given the current stage of implementation, this report does not aim to provide a definitive measurement of long-term territorial impact. Instead, it identifies **available evidence of change, initial effects and potential pathways** through which the pilot actions may generate further benefits.

The assessment follows a mixed-method approach, combining **quantitative and qualitative evidence**. Quantitative evidence includes pilot-generated data collected through technologies and monitoring systems, such as people counting systems, UAVs/drones, mobility datasets and environmental monitoring, as well as complementary information from open-data sources, all available through dashboards in the **Snap4City platform**. Qualitative evidence includes feedback from pilot partners, visitor and stakeholder surveys, workshops, info days, meetings and follow-up exchanges with local actors. The analysis is structured through an **action-outcome-impact** logic and interpreted through **four interrelated dimensions: governance, socio-economic conditions and visitor experience, heritage and cultural assets, and environmental sustainability**.

The main operational outcome identified across the pilots is the creation of a **stronger evidence base for tourism flow management**. In several pilot areas, tourism flows that were previously understood mainly through estimates, manual observation or fragmented information can now be monitored through more structured data. This has **improved the capacity of pilot territories to identify visitor concentration, peak periods, overcrowding situations, access constraints and potential pressure on public spaces, heritage sites and natural areas**.



Regarding the tourism experience, the assessment shows that the pilots have created **useful conditions to support better trip planning, reduce uncertainty, identify accessibility issues**. Examples such as live crowd information in Golden Bay and flow monitoring in Rhodes show how data can help visitors make more informed choices and can support future actions related to routing, access and visitor information.

The impact on local communities and living conditions is more complex and will require longer-term observation. However, the pilots already provide valuable evidence for understanding how tourism interacts with daily life, public space, mobility and access to some services. The report highlights that the capacity of a destination to receive tourism cannot be measured only through visitor numbers, beds, tickets or formal occupancy limits. It also depends on **when visitors arrive, how they move, which services and resources they use**, and whether tourism pressure remains compatible with local quality of life and the long-term sustainability of the territory.

The report also underlines that the **social acceptance of monitoring technologies is essential**. The installation of devices in public or semi-public spaces requires transparency, clear communication and privacy safeguards. In the pilots, devices were selected and deployed with attention to anonymised data collection, GDPR compliance and the protection of visitor privacy. Communication actions, including on-site information, meetings and info days, are therefore an important part of the process, helping to **explain the purpose of monitoring** and to frame it as a tool for improving the use of shared spaces rather than as surveillance.

A key conclusion of the assessment is that **data only become operationally valuable when they are connected to governance structures, coordination mechanisms and practical response capacity**. Monitoring systems, dashboards and tourism intelligence tools can improve the understanding of visitor flows, but their real impact depends on whether the information generated is interpreted, shared and used by the actors responsible for the destination. In this sense, TOURISMO combines digital monitoring with a strong focus on multi-actor coordination, adaptive management and operational decision-making.

The first monitoring results and pilot outputs have already been shared with stakeholders through meetings, reports, dashboards, info days and follow-up exchanges. In several cases, this information is beginning to **support decision-making within the pilots, helping local actors identify pressure points, discuss possible responses, adjust operational priorities and plan future actions**. This represents an important early impact, as it shows that the data generated were not only being collected, but is progressively entering governance and management processes.

The assessment also identifies relevant elements for **transferability**. The TOURISMO approach should not be understood as a fixed model to be replicated identically in other territories. Its main



transferable value lies in the intervention logic tested through the pilots: identifying local pressure points, collecting and integrating relevant data, making information accessible through digital tools, involving stakeholders from an early stage, and translating evidence into practical responses adapted to each destination. This approach can **support other Mediterranean territories facing similar challenges related to visitor concentration, seasonality, heritage pressure and environmental vulnerability.**

Although the impacts of the pilots are still emerging, the evidence collected demonstrates that data-driven tools, when combined with local knowledge and stakeholder cooperation, can support more sustainable, transparent and collaborative tourism flow management.



1. Context, Objectives and Analytical Framework

1.1. Context

TOURISMO addresses one of the key challenges currently faced by Mediterranean destinations: how to manage tourism flows in a more sustainable, informed and collaborative way. Across the Mediterranean, destinations with very different scales, tourism profiles and governance structures are experiencing similar pressures linked to visitor concentration, seasonality, mobility constraints, environmental vulnerability, pressure on heritage and natural assets, and the increasing complexity of territorial management.

In this context, the project tests **how data-driven tools and innovative monitoring systems can support better decision-making in tourism destinations**. The aim is not only to **improve the quality of tourism services and the visitor experience**, but also to **take into account the living conditions of local communities and the conservation needs of cultural and natural heritage**. TOURISMO therefore promotes a more balanced approach to tourism flow management, in which data, stakeholder cooperation and sustainability principles are used together to support more resilient destinations.

The project is implemented through **eight pilot areas** located in seven Mediterranean destinations: Rhodes in Greece, Florence in Italy, Valencia Port and City Centre in Spain, Limassol in Cyprus, Varna in Bulgaria, Biševno Island in Croatia, and Golden Bay in Malta. These pilots represent a wide variety of territorial contexts, including historic cities, UNESCO and heritage sites, cruise destinations, coastal areas, islands and protected natural environments. This diversity makes it possible to **test different technological and management approaches under real conditions**, while also identifying common challenges and transferable lessons.

At the current stage of the project, many of the pilot actions have already generated relevant outputs, particularly in terms of data availability, monitoring capacity and stakeholder awareness. Their broader impact will become more visible as the information collected is further analysed, validated and used by local actors in management processes. For this reason, this report focuses on the **initial results and observable effects** of the pilot actions, while also identifying the conditions that may enable longer-term impact and transferability across other Mediterranean destinations.

3. How would you describe the current development of the pilot impacts?

6 respuestas

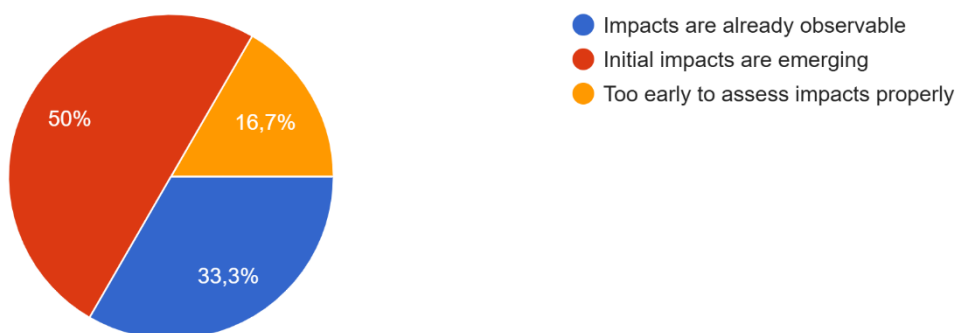


Figure 1 – Pilot partners' survey results. Current development of the pilots' impacts.

1.2. Objectives of the Impact Assessment

The objective of this impact assessment is **to evaluate the effects of the pilot actions implemented** within TOURISMO in the territories involved, with particular attention to **how these actions may influence tourism flow management, the quality of the tourism experience and the living conditions of the regular population**. In line with the project approach, the assessment also considers how the pilot results contribute to a better understanding of local pressures, stakeholder needs and the capacity of destinations to use data and shared evidence in support of more sustainable management decisions.

Given the current stage of implementation, this report does not aim to provide a definitive measurement of territorial impact. Rather, it seeks to **identify available evidence of change, initial effects and possible pathways through which the pilot actions may generate longer-term benefits for the destinations and their key stakeholders**. This includes looking at whether the actions have improved monitoring capacities, supported operational awareness, encouraged stakeholder cooperation, or created useful knowledge for addressing tourism concentration, visitor management and the balance between tourism activity, local life and heritage or environmental conservation.

The assessment is also intended to **support the mutual learning process among TOURISMO partners**. By comparing results, challenges and lessons emerging from different pilot contexts, the report contributes to strengthening the overall TOURISMO approach and to identifying elements that may be adapted or transferred to other Mediterranean destinations facing similar tourism flow management challenges.



1.3. Methodology

The assessment follows a mixed-method approach, combining **quantitative and qualitative evidence** in order to capture both measurable changes and perceived impacts associated with the pilot actions in diverse Mediterranean contexts. The analysis is based on several sources of information, including pilot-generated data, previous project deliverables, pilot questionnaires, tourist surveys and sentiment analysis developed under Activity 2.2, and action-output-impact tables completed by the pilot partners.

Quantitative analysis

The quantitative component of the assessment is based on:

- Pilot-generated data, collected through the **technologies and monitoring systems** deployed in each pilot area, including sensors, counting systems, mobility and environmental data available in the Snap4City platform.
- **Operational indicators**, derived from the available data, where technically feasible.

Qualitative analysis

The qualitative component complements the quantitative analysis by **capturing perceptions, experiences and governance-related effects** that may not be fully reflected through numerical data. It is structured around three main perspectives:

- Visitor perspective, based on **tourist and satisfaction surveys**, including aspects such as perceived overcrowding, quality of experience, accessibility and overall satisfaction.
- Stakeholder perspective, based on **feedback collected through workshops, info days, meetings, surveys and follow-up exchanges** with relevant actors.
- **Governance and management perspective**, focusing on the extent to which the pilot actions have contributed to improved decision-making, coordination among stakeholders, and the use of data in operational and strategic processes.

Impact assessment logic

The analysis follows a **simplified impact pathway approach**, linking the actions implemented in each pilot to the changes generated and their potential effects at destination level.

For each pilot, the assessment is structured around three sequential elements:

- **Action:** the specific tools/solutions implemented within the pilot. (e.g. installation of counting cameras)



- **Outcome:** the immediate operational changes resulting from the action (e.g. improved data availability)
- **Impact:** the broader territorial effects observed or reasonably evidenced (e.g. changes in visitor distribution, reduction of pressure on specific areas, etc).

Analytical framework

To enable a coherent and comparable analysis across the different pilot sites, the assessment is structured according to four main dimensions, commonly reflected in international and European sustainable tourism frameworks and in several deliverables of the TOURISMO project:

- **Destination management and governance**, including coordination mechanisms, stakeholder engagement, decision-making processes and the integration of data into tourism flow management.
- **Socio-economic dimension and visitor experience**, addressing the relationship between tourism activity, local communities, service accessibility and the quality of the tourism experience. This includes, where relevant, aspects such as accessibility, safety, information provision, perceived overcrowding, visitor satisfaction and the distribution of tourism-related benefits across the territory.
- **Heritage and cultural assets**, covering the protection, management and preservation of heritage sites and cultural assets affected by tourism activity.
- **Environmental sustainability**, focusing on the relationship between tourism flows and environmental impacts, including pressure on natural areas, resource use, and the capacity of destinations to manage tourism activity within local environmental limits.

This structure should allow a consistent reading of results while maintaining sufficient flexibility to reflect the diversity of pilot contexts, including urban and natural destinations.

Limitations and scope

Given the pilot nature of the actions and the relatively short implementation period, the assessment focuses on observable and evidence-based impacts, while acknowledging that some effects may only materialise in the longer term.

Furthermore, not all pilots are expected to provide evidence across all dimensions with the same level of depth, due to differences in scope, data availability and local conditions.



2. Impact Assessment of Pilot Actions

This chapter presents the initial assessment of the pilot actions implemented within TOURISMO, following the **action–outcome–impact** logic defined in the methodology. The analysis does not aim to provide a separate narrative for each pilot area, but rather to **identify common patterns, early results and emerging effects** across the different territorial contexts represented in the project.



The pilot actions have been developed in highly diverse Mediterranean destinations, including historic urban centres, cruise-related areas, coastal and island environments, protected natural areas and heritage sites. For this reason, the type of evidence generated is not identical across all pilots. Some actions are mainly based on **real-time or near-real-time monitoring systems**, while others combine **digital tools, visitor surveys, stakeholder engagement, forecasting approaches or specific studies on accessibility, mobility and environmental pressure**.

The assessment therefore focuses on the extent to which these actions have improved the understanding of tourism flows, strengthened data availability, supported operational awareness and contributed to more informed destination management. Particular attention is given to the **balance between four interrelated dimensions: governance, socio-economic conditions and visitor experience, heritage and cultural assets, and environmental sustainability**. Hence, these four dimensions are used throughout the analysis as an underlying framework for interpreting the different types of evidence generated by the pilots.

At this stage, the results should be understood as **preliminary but relevant**. The pilot actions have already produced concrete outputs and, in several cases, initial effects are emerging. However, their broader territorial impact will depend on how the data and knowledge generated are progressively used by local stakeholders to support planning, coordination and adaptive management.



2.1. Pilot Profiles and Implemented Actions

As mentioned before, the TOURISMO pilots were designed to respond to different tourism flow management challenges, but the actions implemented can be grouped around a set of common intervention areas. Across the pilot territories, the project tested a combination of **digital monitoring, data integration, stakeholder engagement and operational support tools** adapted to the specific conditions of each destination.

A first group of actions focused on the **direct monitoring of visitor flows and occupancy levels**. These actions included the installation of **people-counting systems, sensors, intelligent cameras or other non-intrusive devices** to collect information on the number, movement and concentration of visitors in strategic areas. This type of action was particularly relevant in heritage and urban contexts, such as Valencia City Centre, Florence, Limassol and Rhodes Medieval City, where understanding the intensity and timing of visitor presence is essential for managing pressure on sensitive cultural sites and public spaces.

A second group of actions addressed the **integration and visualisation of data through digital platforms and dashboards**. All pilots worked on connecting different sources of information, including sensor data, open datasets, environmental information, mobility data, cruise-related data or visitor statistics, in order to make tourism flows easier to interpret and use. The use of **Snap4City** and other dashboard-based tools (like MHS app) was central to this process, providing a **common framework for monitoring, visualising and sharing information** with relevant stakeholders.

A third type of action focused on the **analysis of specific tourism pressure points**, such as access routes, waiting times, peak periods, mobility constraints or environmental carrying capacity. In island and coastal contexts, including Biševo Island and Golden Bay, these actions are especially relevant for understanding how visitor concentration interacts with limited access capacity, fragile natural environments and seasonal peaks. In cruise-related contexts, such as Valencia Port or Limassol, the focus was placed on better understanding how passenger arrivals are distributed in time and space and how this may affect the relationship between the port area and the city.

The pilots also included actions aimed at **improving the quality, accessibility and sustainability of the tourism experience**. These actions were not limited to measuring visitor numbers, but also considered how visitors move through the destination, what information they receive, how accessible routes and services are, and how congestion or environmental conditions may affect the quality of the visit. For example, in Varna, aerial observation and field analysis were used to support the **study of accessibility conditions** and the development of **alternative routes adapted for people with reduced mobility**.



Finally, **stakeholder engagement and coordination activities** were an essential component of the pilot actions. Workshops, info days, meetings, surveys and follow-up exchanges helped to contextualise the data collected, validate local needs and involve public authorities, tourism actors, heritage managers, environmental stakeholders and, where possible, local community representatives. This governance dimension is particularly important because the value of monitoring technologies depends not only on the data they generate, but also on the capacity of local actors to interpret that data and translate them into practical management responses.

2.2. Observed Outcomes and Operational Changes

The pilot actions mentioned above have generated a set of initial outcomes that are mainly related to **improved monitoring capacity, better data availability and greater operational awareness** among the actors involved. Although these outcomes differ in scope and maturity across the pilot areas, they show that the project has already contributed to **strengthening the capacity of destinations to understand tourism flows** and to identify situations that may require management attention. Overall, the main operational change generated by the pilots is the creation of a **stronger evidence base for tourism flow management**.

2. Overall, to what extent do you believe the pilot actions generated a positive impact in your territory?

6 respuestas

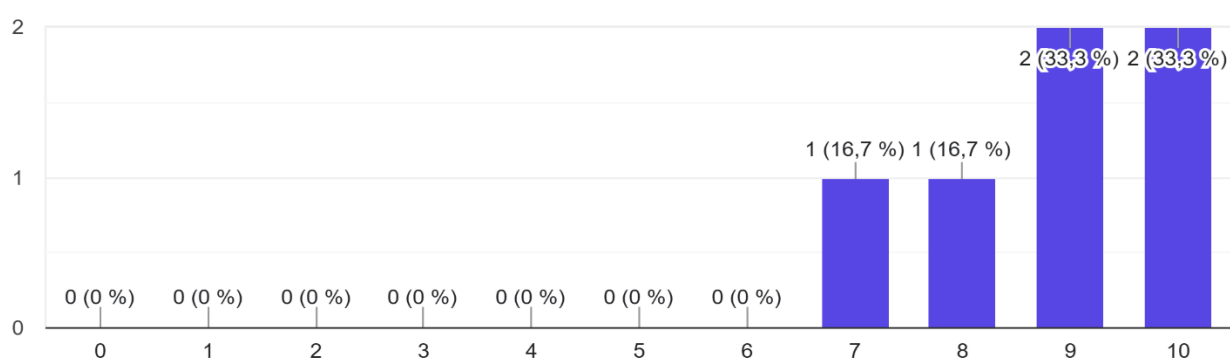


Figure 2 – Pilot partners' survey results.

Perceived positive impact of the pilot actions in the territory.

One of the most relevant outcomes is the **increased availability of data on visitor presence, movement and concentration**. In several pilot areas, tourism flows that were previously understood mainly through estimates, manual observations or fragmented information can now be monitored through more systematic and structured data. This is particularly relevant in places where tourism pressure is highly concentrated in time or space, such as heritage sites, cruise-



related areas, beaches, islands or historic urban centres. For example, the use of people-counting systems in Valencia City Centre and Rhodes Medieval City provides a **clearer understanding of when and where visitor pressure occurs**, while the monitoring of cruise passenger flows in Valencia Port supports a more detailed reading of **arrival patterns and their possible effects on the city**.

A second important outcome is the **development of digital dashboards and data visualisation tools**. These tools have helped to **transform raw data into information that can be more easily interpreted** by technical teams, public authorities and other stakeholders. In this sense, platforms such as Snap4City have provided **a common digital environment to integrate different types of data**, including sensor data, environmental information, mobility-related data, visitor flows and open datasets.

The pilots have also contributed to improving the **identification of peak periods, overcrowding situations and critical areas**. This does not necessarily mean that pressure has already been reduced in all cases, but it does mean that destinations are better equipped to recognise where and when pressure is likely to occur. This is an important operational change, because it creates the **basis for preventive management** rather than reactive responses. In coastal and natural contexts such as Golden Bay, this can support the assessment of **carrying capacity and environmental pressure studies**. In island contexts such as Biševno, it can contribute to **a better understanding of waiting times, access limitations and seasonal concentration**. In urban contexts, it can help to **identify hotspots, mobility constraints and moments of higher visitor density**.

Another relevant outcome is the **improvement of operational awareness among local stakeholders**. The information generated by the pilots has supported a more **evidence-based dialogue** between tourism managers, local authorities, heritage managers, SMEs, environmental actors and other relevant stakeholders. This is particularly important because the same data can be relevant for different management needs, including visitor experience, heritage conservation, public-space management, accessibility, safety and environmental sustainability.

The pilot actions have also helped to **broaden the understanding of tourism pressure beyond visitor numbers alone**. The data and observations collected show that the capacity of a destination to receive tourism is influenced not only by the number of visitors, available beds, tickets or formal capacity limits, but also by when visitors arrive, how they move, which services they use, how long they stay, what resources they consume and how their presence affects local communities and sensitive assets. This first outcomes are the base for a broader understanding, which is essential for **developing indicators that reflect the real conditions of the territory and not only its tourism volume**.



2.3. Impact on Tourism Experience

The pilot actions have affected, or are expected to affect, the tourism experience mainly by **improving the capacity of destinations to understand how visitors move, where pressure is concentrated and which factors may influence the quality of the visit**. At this stage, the impact on visitors should be understood as an initial and emerging effect rather than as a fully consolidated change across all pilot areas. However, the evidence collected suggests that the pilots have created useful conditions to **support better trip planning, reduce uncertainty, improve accessibility and identify situations where overcrowding may affect the visitor experience**.

According to the preliminary impact assessment questionnaire completed by the pilot partners, the most frequently identified effect on tourism experience is **improved trip or visit planning through live data or digital tools**. All responding pilots selected this aspect as an effect already observed or expected in their area. Other frequently mentioned effects include a **planned distribution of visitors between hotspots and alternative locations, improved visibility of lesser-known sites, routes or local experiences, and increased awareness of sustainable tourism options**. These results suggest that the main contribution of the pilots is not only the measurement of visitor flows, but also the possibility of **using this information to guide visitors, support more balanced movement patterns and improve the way destinations communicate available options**.

5. Which aspects of the TOURISM EXPERIENCE have been (or are expected to be) affected in your pilot area?

6 respuestas

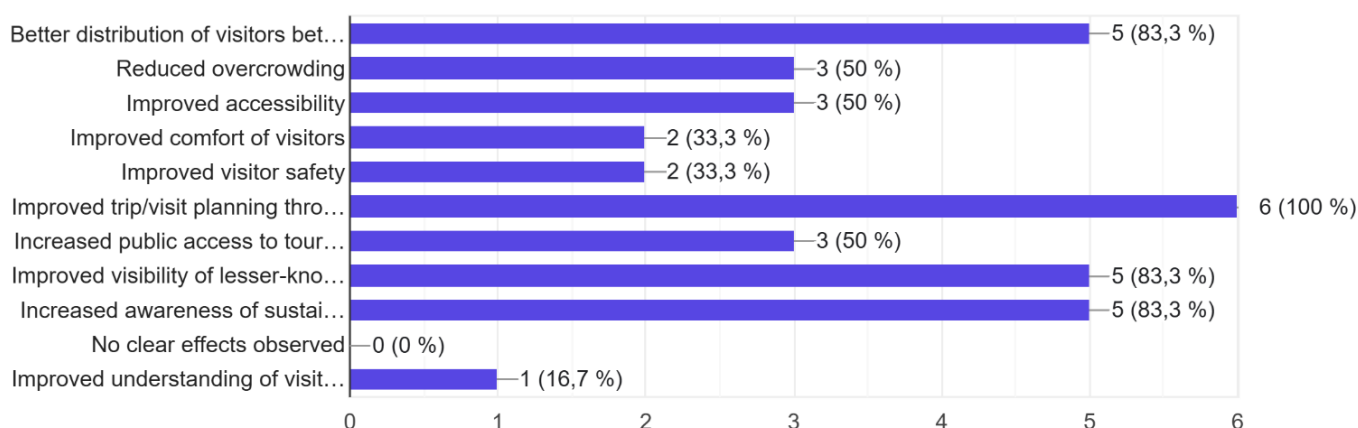


Figure 3 – Pilot partners' survey results. Impact on tourism experience.



One clear example is the Golden Bay / Ramla tal-Mixquqa pilot in Malta, where real-time crowd monitoring is used to **inform visitors about current pressure levels before they arrive on site** through online live monitoring channels (YouTube), allowing them to decide whether to visit at another time or choose a less crowded nearby area. This type of action can directly support a better visitor experience by reducing uncertainty, avoiding unnecessary travel to already saturated spaces and encouraging more balanced use of the surrounding territory.

It is also important to note that redistributing visitors towards alternative sites or less crowded areas is not automatically positive. While better distribution may help reduce pressure on saturated hotspots and improve the visitor experience, **it can also generate new tensions if it is not carefully planned**. Moving visitors towards new areas may create additional pressure on neighbourhoods, services or public spaces that were not previously exposed to high tourism intensity. For this reason, **redistribution strategies should be designed in coordination with local stakeholders and, where possible, with the participation of residents or neighbourhood representatives**, in order to avoid transferring existing problems from one area to another.

The pilot actions also provide evidence that can support the management of perceived overcrowding. By identifying peak periods, access points, waiting times or areas of high concentration, the pilots make it possible to **better understand when the visitor experience may be affected by congestion**. This is particularly relevant in heritage areas, historic centres, cruise-related environments, islands and coastal destinations, where the quality of the visit can be strongly influenced by the number of people present at the same time, the availability of space, the quality of access and the capacity of local services. For example, in Rhodes Medieval City, the pilot identified congestion risks in narrow historic pathways and around high-demand access points, where the simultaneous arrival of tourist groups, buses and cruise-related flows may generate queues, mobility delays and safety or accessibility issues. The monitoring of these patterns provides a basis for improving visitor routing, access management and the overall quality of the visit.

Overall, the pilot actions show that **better data can support improved planning, accessibility, information provision and visitor distribution**, but these benefits depend on **how the evidence generated is translated into practical measures**. The initial outcomes therefore suggest a positive contribution to the quality of the tourism experience, while confirming that further work is needed to consolidate these effects and assess their real impact on visitor behaviour and satisfaction over time.

Visitor perception results

Activity 2.2, Forecast and Sentiment Analysis to Support Future Decision-Making Processes, provides direct evidence on how visitors perceived the tourism experience in the pilot areas. The



analysis is based on georeferenced questionnaires distributed through **QR codes** in the pilot destinations and completed by tourists and visitors. The collected responses were processed through **SnapAdvisor**, an **AI-based analysis service** integrated into the Snap4City system, which generated summaries of visitor satisfaction, key strengths, critical issues and emerging trends. Although the results should be interpreted with caution due to the different sample sizes, collection periods and local contexts covered by each pilot, they provide a valuable evidence base for identifying the factors that most directly affect visitor satisfaction, comfort, accessibility and willingness to return.

Across the analysed pilots, **the overall visitor experience was generally positive**, particularly in relation to the attractiveness of the destinations, cultural and natural heritage, local identity and willingness to return or recommend the place. In Valencia, visitors expressed high levels of satisfaction and particularly valued the historic centre, cultural heritage, modern architecture, local cuisine, cleanliness and the general urban organisation of the city. However, the visitor experience was affected by recurring urban pressures such as localised congestion, heat discomfort during warmer periods, slow public transport, noise and high prices.

In historic urban destinations, the sentiment analysis shows that cultural value remains the main driver of satisfaction, but that **overcrowding and urban management conditions can significantly influence the quality of the visit**. In Florence, visitors continued to recognise the exceptional cultural, artistic and architectural value of the historic centre, but the responses also reflected a more polarised perception, with concerns related to overcrowding, long queues, noise, cleanliness, insufficient public facilities and the increasing orientation of some areas towards mass tourism. In Rhodes Medieval City, the positive response to predefined routes in Rhodes suggests that visitors may be receptive to visitor flow management tools when these are clearly linked to a less crowded, more accessible and better organised visit.

The results from other urban pilots also confirm the importance of **accessibility, urban comfort and public space management** in shaping the tourism experience. In Varna, respondents described the city centre as attractive and welcoming and expressed strong willingness to return and recommend it, while also identifying accessibility for people with reduced mobility, pedestrian infrastructure, parking, public transport connections, cleanliness, green spaces and conflicts between pedestrians, bicycles and electric scooters as areas for improvement. In Limassol Old Town, visitors reported a generally positive experience and valued the cultural and historical character of the area, but highlighted the need for better transport connectivity, parking, signage, tourist information, cleanliness, accessibility and more diversified cultural activities, as well as environmental comfort measures such as shade and resting areas.

In coastal and nature-based pilots, the results point to a different set of factors shaping the tourism experience. In Golden Bay, Malta, visitors valued the landscape, recreational



opportunities and natural setting, but satisfaction was strongly affected by sanitation, toilet maintenance, litter, microplastics, cleanliness, overcrowding, limited space and environmental pressure. The results collected across different periods show that overcrowding may be more visible during peak periods, but problems related to infrastructure, maintenance and environmental quality can continue to affect the visitor experience beyond the highest season. By contrast, in Biševo Island, visitor satisfaction was exceptionally high. Visitors particularly valued the island's authenticity, natural beauty, tranquillity, geological heritage, educational value of its visitor's centre and absence of excessive tourism pressure. The main suggestions were not linked to dissatisfaction, but to the possibility of **enriching the experience through complementary activities, workshops, interpretation, gastronomy and family-oriented services**, while preserving authenticity and avoiding forms of development that could compromise the qualities visitors value most.

These findings reinforce the relevance of the TOURISMO pilot actions, as this evidence can help identify critical issues, monitor visitor sentiment over time, and evaluate the effects of management actions.

2.4. Impact on Local Communities and Living Conditions

The impact of tourism on local communities is one of the most sensitive dimensions of sustainable destination management. In many Mediterranean destinations, tourism is a major source of economic activity, employment, cultural exchange and international visibility. However, when visitor flows become highly concentrated in specific places, seasons or time windows, they may also affect the daily life of residents, the use of public space, access to services, mobility, environmental quality and the sense of belonging to the neighbourhood. For this reason, the assessment of local impact cannot be limited to visitor numbers alone, but must consider the **balance between tourism benefits and the capacity of the territory to absorb pressure without undermining quality of life**.

The pilot actions contribute to this reflection by providing **evidence on how tourism pressure is distributed in space and time**. The capacity of a site or destination to receive tourism is not only defined by hotel beds, ticket quotas, formal capacity limits or the number of available attractions. It is also shaped by when visitors arrive, how they move, which routes and services they use, how long they stay, how much waste is generated, which resources are consumed, and whether the pressure is seasonal or continuous throughout the year. A destination may be able to "survive" peak periods, but this does not necessarily mean that the model is socially or environmentally sustainable in the long term. TOURISMO aims to make these dynamics more visible and, therefore, more manageable.



The evidence generated by the pilots is particularly relevant for public authorities and site managers because it helps identify pressure points that may affect both visitors and residents. In urban and heritage contexts, monitoring can reveal moments of congestion around monuments, streets, entrances or public spaces. In coastal and natural areas, it can show how overcrowding affects access roads, parking, waste, protected areas and shared environmental resources. In cruise destinations, it can help understand how large numbers of passengers arriving within short time windows interact with the daily functioning of the city. These insights do not automatically solve the problem, but they provide a more objective basis for discussing it with the actors concerned.

6. Which aspects of the LOCAL LIVING CONDITIONS have been (or are expected to be) affected in your pilot area?

6 respuestas

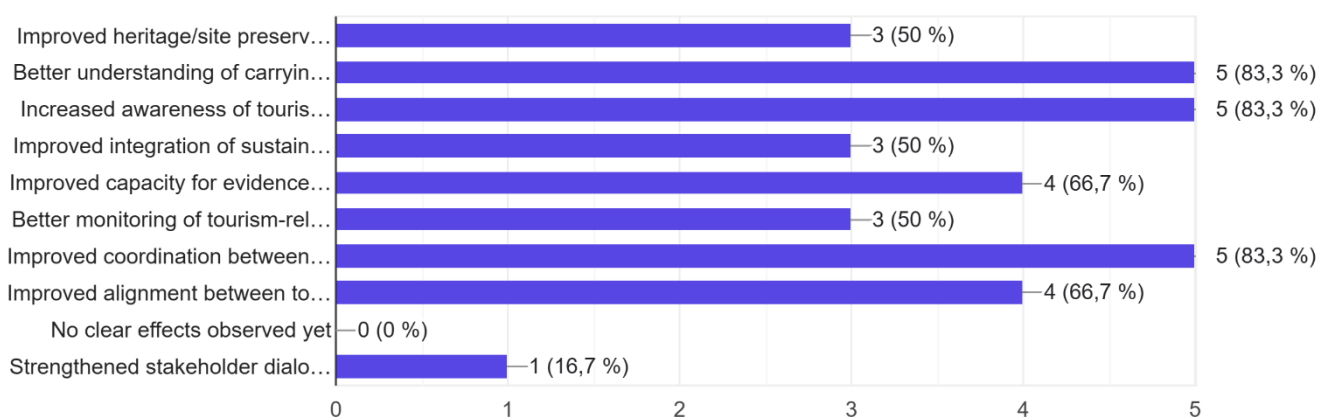


Figure 4 – Pilot partners' survey results. Impact on local living conditions.

A key issue emerging from the pilots is that **monitoring technologies must be socially accepted in order to be effective**. Several TOURISMO actions involved the installation of devices in public or semi-public spaces considered suitable for outdoor monitoring in high-traffic urban tourism areas. In these cases, the selected devices were designed to collect **anonymised and aggregated data**, without identifying individuals, **in line with GDPR requirements** and with the protection of visitor privacy. However, legal compliance is not always enough to guarantee social trust. Cameras and sensors may be misunderstood by residents or visitors if their objective is not clearly explained, especially in places where people are already sensitive to tourism pressure or to the feeling of being monitored.

For this reason, **communication** is not a secondary activity, but part of the management approach itself. On-site plaques, information panels, info days, meetings with stakeholders and other communication actions are essential to **explain why devices are installed, what type of data are collected**, what is not collected, and how privacy is protected. This type of transparency can



help reduce mistrust, avoid misinterpretations and prevent possible vandalism or rejection of the equipment. More importantly, it helps frame monitoring not as a form of surveillance, but as a tool for improving the management of shared spaces.

The pilots also show that the visibility of monitoring devices may have different meanings depending on the context. In some cases, visible cameras can contribute to more responsible behaviour. In Malta, for example, the beach monitoring system and live visual information can help visitors decide whether to go to the site, but at the same time, the fact that the beach is being “observed” may also help **discourage behaviours that damage the natural environment**, such as leaving waste, entering protected dune areas or using the space irresponsibly. In this case, monitoring can support both visitor management and a broader sense of collective care for a natural site.

In other contexts, discretion is essential. The Valencia City pilot illustrates this dual logic very clearly. At La Lonja, the outdoor people-counting camera is visible and monitors an exit area where unauthorised entry may occur if staff are not present. In this case, the visible presence of the device may support site management and have a dissuasive effect. Inside the building, however, the approach is completely different. As a World Heritage site, La Lonja requires strict protection against any visual or physical alteration. For this reason, sensors were installed in **low-visibility locations, minimising their impact on the architectural integrity** and heritage values of the monument. This experience opens an important path for other heritage sites that need to monitor tourism activity without compromising conservation principles or visitor perception.

An equally important aspect in evaluating social impact is how the information generated by the pilots is used in territorial management. Data can help identify saturated areas and support strategies to redirect visitors towards alternative routes, sites or time slots. However, as mentioned earlier, redistribution should not be understood as simply moving pressure from one crowded place to another. Instead, it needs to take into account not only the efficiency of flows, but also everyday life, local identity, access to housing and services, and the social fabric of the destination. If poorly planned, **redistribution may generate new tensions in residential neighbourhoods or public spaces** that were not previously exposed to high tourism intensity. It may also create temporary attraction nodes that, once they lose visibility or promotional support, risk becoming abandoned or degraded.

Promoting local culture can give communities opportunities for recognition, participation and economic benefit, but it should not lead to the commodification of local life or to tourism-led gentrification. For this reason, **any redistribution strategy should be designed with local authorities, tourism actors, site managers and, where possible, representatives of residents** or neighbourhood communities. The objective should be **to reduce pressure, not to transfer it**.

From this perspective, the TOURISMO does not treat residents and visitors as opposing groups, but as users of the same territory whose needs must be balanced through better information,



stronger coordination and more adaptive governance. Data can help **make conflicts visible before they become problems, support decisions before pressure becomes unsustainable, and prevent damage to cultural heritage or the environment before it becomes irreversible.** They can also create a **shared language and a common tool** around which institutions, tourism actors and local communities can come together, exchange perspectives and collaborate on more balanced destination management.

In this sense, the fact that the platform used in the project is mainly open, with **data available to the wider public and an interface that does not require advanced technical knowledge**, is particularly relevant. This accessibility is one of the most important impacts of the project, as it helps move tourism data beyond specialised technical teams and makes it **easier for different actors to understand, discuss and use the same evidence.** By making information more transparent and easier to interpret, the platform can support broader participation, strengthen trust and contribute to more open and accountable decision-making.

3. Contribution to Tourism Flow Management and Data-Driven Decision-Making

The results analysed in the previous chapter show that the main contribution of TOURISMO is not limited to the deployment of monitoring technologies. The project has tested how data can become part of a **wider management cycle**: observing tourism pressure, interpreting its effects, sharing evidence with relevant actors and supporting decisions that are better adapted to local conditions.

The evidence collected through the pilot partners' survey shows that the strongest impacts are related to an **improved understanding of tourism flows, an improved capacity to identify overcrowding situations, and improved evidence-based decision-making**. These results suggest that the main contribution of the pilots is not simply the production of new data, but the **creation of a more reliable basis** for interpreting tourism pressure and discussing management responses.

4. To what extent did the pilot contribute to the following outcomes?

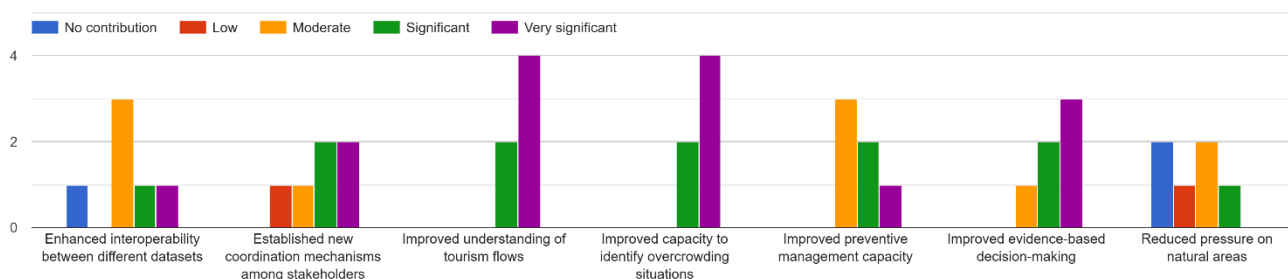


Figure 5 – Pilot partners' survey results. Contributions to TOURISMO outcomes.

This is particularly relevant because tourism pressure is not always visible in the same way. In some destinations, it appears through seasonal peaks; in others, through short time windows linked to cruise arrivals, queues, overcrowded access points, pressure and damage on heritage buildings, or the intensive use of beaches and natural areas. By making these patterns more visible, the pilots help destinations move from general perceptions of congestion towards more precise evidence on **where, when and why pressure occurs**.

The contribution to flow management is therefore twofold. First, the pilots improve situational awareness by combining different types of information, such as sensor-based monitoring, visitor counting systems, mobility data, ticketing systems, cruise-related information, open datasets and



environmental data. Second, they provide a basis for action by **helping local actors identify which situations require attention**, which areas may need preventive measures, and which decisions should be supported by further evidence or stakeholder discussion.

In operational terms, this means that destinations are better equipped to anticipate pressure rather than respond only after problems have already appeared. Although the reduction of pressure on saturated areas is still an emerging result, the pilots have created the **conditions for earlier, better targeted and more proportionate responses**. This is a relevant contribution to data-driven decision-making, because it links tourism intelligence with practical questions such as access management, visitor information, route planning, heritage protection, environmental pressure and coordination between stakeholders.

Activity 2.2 further strengthens this management cycle through the **forecasting functionalities** developed within the Snap4City platform. By combining historical observations, real-time data streams and contextual variables such as weather conditions or events, the forecasting tools allow pilot destinations to estimate future visitor flows, occupancy levels and other tourism-related indicators. This adds a predictive layer to the monitoring system, enabling stakeholders not only to understand current or past pressure, but also to **anticipate potential peak periods**, prepare operational responses and assess future scenarios before pressure becomes critical.

3.1. From Data to Decision-Making

One of the main conclusions shared by all TOURISMO pilots is that **data only become operationally valuable when they are connected to governance structures, coordination mechanisms and practical response capacity**. Monitoring systems, dashboards and tourism intelligence tools can improve the understanding of visitor flows, but their real impact depends on whether **the information generated is interpreted, shared and used by the actors responsible for managing the destination**. For this reason, the TOURISMO approach combines digital monitoring and tourism intelligence with a strong focus on multi-actor coordination, adaptive management and operational decision-making.

Part of the evidence used for this assessment was collected through the surveys and meetings carried out with pilot managers and local stakeholders during the previous work developed under WP1 and WP2. These exchanges helped to identify local management needs, stakeholder expectations and the types of decisions that could potentially be supported by the data generated in each pilot area. In this sense, the project has not treated data collection as an isolated technical task, but as part of a broader process of **dialogue, validation and learning among partners and local actors**.

The pilots also confirm that integrated data ecosystems are a **prerequisite for effective visitor**



management. Combining heterogeneous data sources, such as mobility data, sensor-based monitoring, ticketing systems, open data, environmental information or cruise-related data, enables a more complete understanding of what is happening in each territory. This integration supports real-time or near-real-time situational awareness and provides a stronger basis for adaptive governance. It allows destinations to move from fragmented observations towards a more structured reading of visitor pressure, peak periods, access constraints, environmental conditions and potential management responses.

The first monitoring results and pilot outputs have already been shared with stakeholders through meetings, reports, dashboards, info days and follow-up exchanges. In several cases, this information is beginning to support decision-making processes within the pilots, by helping local actors identify pressure points, discuss possible responses, adjust operational priorities or plan future actions. This is a relevant early impact, as it shows that **the data generated are not only being collected, but is progressively entering governance and management processes.**

3.2. Transferability to Other Mediterranean Destinations

TOURISMO pilots offer relevant lessons for Mediterranean destinations facing similar challenges related to visitor concentration, seasonality, environmental vulnerability and heritage pressure. However, transferability should not be understood as the direct replication of identical technologies or actions. The diversity of pilot contexts shows that **each destination requires solutions adapted to its scale, governance capacity, territorial characteristics and management priorities.**

What can be transferred most effectively is the overall intervention logic developed through the project. This includes the identification of local pressure points, the collection and integration of relevant data, the use of digital tools to make information understandable, the involvement of stakeholders from an early stage, and the translation of evidence into practical management responses. These elements can be adapted to different contexts, whether they are historic cities, cruise destinations, coastal areas, islands, protected natural sites or heritage buildings.

A key transferable lesson is that visitor management should not rely on a single source of information but instead requires **integrated data ecosystems.** The pilots show that combining different datasets can provide a more accurate and useful understanding of tourism pressure. This approach can be particularly valuable for destinations that currently depend on isolated statistics, occasional surveys or informal perceptions of overcrowding.

Another transferable element is the importance of **making data accessible and usable.** Open or semi-open dashboards, visual interfaces and indicators can help bring tourism intelligence beyond specialised technical teams. This is especially important for smaller municipalities, heritage



managers, local tourism actors or community representatives who may lack advanced technical expertise but need to understand the evidence to participate in decision-making.

The project also shows that transferability depends on governance conditions. Technologies can be replicated relatively easily, but their long-term use requires administrative mandates, maintenance capacity, stakeholder trust and clear procedures for acting on the information generated. For this reason, **future replication should combine technological adaptation with institutional preparation and stakeholder engagement.**



4. Conclusions

The assessment of the TOURISMO pilot actions shows relevant initial evidence on how **data-driven tools can support more sustainable tourism flows across different Mediterranean territories**. Although the full territorial impact of the pilots will require further observation and validation, the results already show a clear contribution to understanding where, when and how tourism pressure occurs, and how this pressure may affect visitors, residents, heritage assets and natural environments.

One of the main conclusions of the report is that the **pilots have improved the capacity of destinations to move from general perceptions of tourism pressure towards more structured and shared evidence**. Visitor counting systems, environmental sensors, dashboards, surveys, aerial observation, live crowd information and integrated data platforms have helped make tourism flows more visible and easier to interpret. This is an important step for Mediterranean destinations where pressure is often concentrated in specific seasons, time windows, routes, access points or sensitive sites.

Regarding the tourism experience, the evidence collected through the pilot partners' survey confirms that **improved visit planning through live data or digital tools** is one of the most widely recognised effects. Examples such as live crowd information in Golden Bay or flow monitoring in Rhodes show how data can help visitors make more informed choices and how destinations can begin to anticipate situations that may affect the quality of the visit.

The effects on residents' quality of life will require longer-term monitoring and continued governance efforts, but the project already shows that tourism management can move beyond reactive responses. The pilots already provide some useful evidence for understanding how tourism interacts with daily life, public space, mobility and access to services in overcrowded areas. The report also highlights that **visitor redistribution must be planned carefully**. Moving tourists from saturated hotspots to alternative areas can reduce pressure, but if it is not designed with local stakeholders and, where possible, residents or neighbourhood representatives, it may create new tensions or transfer problems elsewhere.

A further conclusion is that tourism capacity cannot be assessed only through visitor numbers, beds, tickets or formal occupancy limits. The sustainability of a destination also depends on when visitors arrive, how they move, which resources they use, what pressure they create on public spaces and services, and whether local communities can continue to live, work and use their territory without losing quality of life. This **broader understanding of capacity** is one of the most important lessons emerging from the pilots.

The project also confirms that **data alone are not enough**. Its value depends on whether it is connected to institutions, coordination spaces and practical response capacity. The first monitoring results have already been shared with stakeholders through meetings, reports, dashboards, info days and follow-up exchanges, and in several cases they are beginning to support local discussions and decisions. This shows that the pilots are not only producing information, but also helping to build a **common evidence base for dialogue and future action**.

The following table summarises the main contributions of the pilots according to the four analytical dimensions used in this assessment:

Analytical dimension	Main contribution observed	Examples of evidence from the pilots	Longer-term potential
Governance	The pilots have strengthened the capacity of destinations to observe tourism flows, share evidence and support more informed coordination among stakeholders.	Dashboards, monitoring systems, pilot reports, stakeholder meetings, info days and shared data environments have helped make tourism pressure more visible and easier to discuss.	Stronger evidence-based governance, improved coordination between public authorities and tourism actors, and greater capacity for adaptive management.
Socio-economic	The pilots have created conditions to improve visit planning, accessibility, information provision and the management of perceived overcrowding, while also highlighting the need to consider residents' quality of life.	Visitor-flow monitoring, live crowd information, surveys, accessibility studies, alternative routes and analysis of pressure on public spaces show how tourism experience and local living conditions are connected.	Better visitor distribution, more inclusive tourism experiences, reduced pressure on saturated areas and more balanced relationships between tourism activity and local communities.
Heritage and cultural assets	The pilots have shown how data can support the preventive management of heritage sites affected by tourism pressure, without compromising their physical or visual integrity.	Integrated monitoring of heritage areas and buildings, combining people-counting systems and environmental sensors to assess how visitor presence may affect conservation conditions.	Improved preventive conservation, better understanding of the relationship between visitor flows and heritage vulnerability, and replicable approaches for other sensitive cultural sites.
Environmental sustainability	The pilots have contributed to a broader understanding of how tourism flows interact with natural areas, resource use, mobility, waste and local environmental limits.	Monitoring in coastal, island and protected areas has supported the identification of pressure on beaches, access routes, environmental quality, carrying capacity and sensitive natural assets.	More sustainable management of tourism pressure, stronger environmental resilience and better alignment between tourism activity and the carrying capacity of Mediterranean destinations.



5 . Annexes

5.1 Annex 1: Summary of Pilot Actions, Outputs and Impacts

PILOT AREA	ACTION IMPLEMENTED	OUTPUTS	IMPACT	STAKEHOLDERS
VALENCIA CITY	Environmental conditions inside heritage buildings are monitored through sensors in the Valencia City pilot.	Environmental conditions within the buildings are continuously monitored, and a conservation condition index is automatically calculated through a dedicated algorithm.	Building managers become more aware of indoor environmental conditions and can compare them with occupancy levels, helping them make operational decisions such as increasing ventilation during peak visitor periods. This contributes to improving visitor comfort and supporting preventive conservation of the heritage buildings.	Building managers, visitors, public authorities, heritage managers
	Installation of people-counting cameras at the entrances of two strategic heritage buildings (La Lonja and Museum of the City)	Real-time and historical occupancy data for both sites	Improved understanding of visitor volumes and flow dynamics, enabling the identification of overcrowding periods, seasonal patterns and peak demand periods to support future planning and management decisions	Valencia City Council, heritage site managers, tourism authorities, visitors



	Integration of pilot data into the Snap4City platform, combining sensor data and open public datasets	Public dashboard for tourism and heritage monitoring in Valencia's historic centre	Open-access tool available to citizens and stakeholders, providing real-time and historical data to support planning, decision-making and a better understanding of tourism dynamics in the area	Tourism SMEs, hotels, event organisers, municipal authorities, researchers, citizens
	Generation of automated monthly reports for heritage managers and municipal staff	Monthly reports delivered by email including graphs, trends and simplified interpretation of environmental conditions, occupancy levels and conservation indicators	Increased awareness and institutional capacity for evidence-based management, facilitating faster identification of risks and operational needs	Heritage managers, Valencia City Council staff, conservation professionals
	Installation of people-counting cameras at the entrance of the Museum's temporary exhibition area	Real-time and historical visitor data for a previously unmonitored free-access space	Enabled the museum to quantify attendance in temporary exhibitions for the first time, improving understanding of visitor behaviour and supporting exhibition planning and resource allocation	Museum management, exhibition coordinators, Valencia City Council
	Installation of a people-counting camera in the Sala Dorada of La Lonja to assess accessibility conditions	Data on occupancy patterns and visitor density in a heritage space accessible only via stairs	Evidence-based assessment of how many visitors access the upper floor, providing managers with objective information to evaluate accessibility conditions and identify potential barriers affecting inclusive access,	Heritage managers, accessibility officers, Valencia City Council, visitors

D.2.4.2 Impact Assessment of Pilot Results



			particularly for visitors with reduced mobility	
	Use of pilot monitoring data during stakeholder meetings and project workshops	Shared evidence base for discussions and decision-making	Stronger coordination between tourism management and heritage conservation stakeholders through the use of objective and transparent information	Valencia City Council, heritage managers, tourism authorities, project partners
GOLDEN BAY	Installation of AI cameras and visitor counting systems at Ramla tal-Mixquqa (Golden Bay, Malta).	Live streaming of the beach through YouTube channel, allowing people to see real-time occupancy and site conditions before visiting.	Visitors can make more informed decisions about whether or when to go to the beach, potentially helping reduce overcrowding during peak periods, improving visitor experience and reducing pressure on the natural environment.	Visitors, tourism businesses, local residents, public authorities, MTA officials, local councils, Red Cross, surfers.
	Development of a dedicated dashboard to visualise live visitor-counting and beach-density data.	Dedicated dashboards	By calculating real-time density and available personal space from the counts, we validated the beach's safe carrying capacity and proved it is frequently breached during peak surges. This provides the objective evidence required for authorities to enforce dynamic capacity limits	Visitors, tourism businesses, local residents, public authorities, MTA officials, local councils, Red Cross, surfers.

D.2.4.2 Impact Assessment of Pilot Results



			and regulate commercial concessions.	
	Correlation of vehicular traffic data with pedestrian arrivals to better understand access pressure and beach use patterns.	Dedicated dashboards	By correlating uphill vehicular traffic with beach pedestrian arrivals, the system exposed a high-risk bottleneck where pedestrians are forced to share narrow access ramps with heavy vehicle traffic. This data serves as the primary policy driver to implement immediate structural interventions, such as the physical pedestrianisation of the lower ramp.	Visitors, tourism businesses, local residents, public authorities, MTA officials, local councils, Red Cross, surfers.
	Configuration of AI-based alerts and notifications to detect environmental risks and safety-related events on the beach.	Alerts and Notifications	The AI cameras act as active environmental guardians, automatically detecting "sand dune breaches" when visitors cross protective cordons and triggering instant alerts to Majjistrat Park rangers for intervention.	



FLORENCE	Data Integration and Analytical Monitoring The Florence pilot deployed an integrated monitoring and decision-support framework, synthesising tourism flow analysis, mobility datasets, and digital visualisation tools to assess visitor pressure across specific urban and cultural hotspots.	Tourism-related data from heterogeneous sources were systematically aggregated and ingested into the TOURISMO platform. These were subsequently cross-examined and visualised through interactive dashboards, enabling real-time tracking of visitor densities, temporal trends, and potential overcrowding thresholds.	The pilot significantly advanced the empirical understanding of tourism dynamics and visitor pressure, thereby fostering more data-driven strategies for urban monitoring and destination management.	Public authorities, destination management organisations (DMOs), tourism operators, cultural institutions, research organisations, local communities, visitors.
	Stakeholder engagement and governance Multi-stakeholder engagement and collaborative governance activities were executed within the Florence pilot through workshops, Infodays, technical exchanges and dissemination events involving a wide array of territorial actors.	The governance activities led to the creation of a collaborative network of territorial actors, establishing a structured mechanism for ongoing dialogue and cooperation on data-driven destination management.	The activities strengthened institutional coordination, supporting a cohesive approach to tourism management. Furthermore, they catalysed strategic discussions on carrying capacity issues, sustainable tourism challenges, and data-informed governance models.	Public authorities, DMOs, tourism operators, tech providers, SMEs, cultural institutions, research organisations, local communities.
	Awareness raising, knowledge exchange and dissemination activities The Florence pilot promoted awareness-raising, knowledge exchange, and dissemination activities aimed at increasing literacy on sustainable	The pilot facilitated an initial transfer of knowledge regarding data-driven methodologies, laying the groundwork for a shared understanding of analytical tools among relevant destination management actors.	The pilot enhanced the institutional capacity of local stakeholders to interpret data analytics, supporting long-term strategic planning. It also stimulated a higher level of civic and institutional	Public authorities, DMOs, urban planners, cultural heritage managers, research organisations.



	tourism challenges, tourism pressure dynamics, and the strategic role of data-driven approaches in tourism management.		responsiveness towards tourism pressure patterns and carrying capacity constraints.	
	Spatial diagnosis of tourism pressure in urban context The Florence pilot conducted a granular spatial diagnosis of tourism pressure within key urban matrices, focusing on mapping geographical distribution patterns, visitor concentration, and congestion hotspots.	Mapping of critical high-density zones and identification of explicit spatial clusters of tourism pressure, derived from the geospatial analysis of consolidated platform indicators.	The pilot supported a comprehensive mapping of spatial inequalities in tourism pressure in the monitored areas, contributing to a clearer identification of vulnerable micro-areas subject to recurrent concentration phenomena.	Public authorities, DMOs, urban planners, cultural heritage managers.
	Temporal dynamics assessment of visitor flows The Florence pilot carried out an assessment of the temporal trajectories of visitor flows, focusing on the identification of peak periods, seasonality, and variability of tourism pressure over time.	Chronological profiling of visitor traffic, isolating temporal peaks, seasonal patterns, and daily fluctuations through the granular analysis of time-series data.	The pilot refined the predictability of temporal concentration phenomena, supporting more informed interpretation of peak periods and facilitating proactive mitigation strategies for urban pressure management.	Public authorities, DMOs, tourism operators, cultural institutions.



VARNA	Observation of sites of touristic interest and a hotels' study in terms of their adaptability for people with movable disabilities.	Creation of a specialized map in Bulgarian and English languages by the Union of Tourist Guides in Bulgaria with the support of Varna Municipality, containing two alternative routes, adapted for people with disabilities. Dissemination largely the new routes to interested organizations and local stakeholders.	Creation opportunities and adapted environment for visitors and tourists with movable disabilities/people in wheelchairs.	Visitors and tourists with disabilities, tourist guides, public authorities and institutions - owners and/or managers of cultural & historical heritage sites.
	Creation of a new specialty "Unmanned Aerial Vehicles" at the Vocational High School of Computer Modeling and Computer Systems in Varna from the beginning of the new school year /2026-2027/.	Training and preparing professionals for the use of "Unmanned Aerial Vehicles" for the needs of the city's economy, incl. in the Tourism sector.	The availability of trained personnel and access to drones at lower prices will enable drones' regular use to monitor the behavior of tourist flow, to observe and investigate the condition of tourist sites in the city and its surroundings, to make better and real data based decisions for their management and improvement of cultural and historical assets.	Education and Youth Activities Directorate at the Municipality of Varna, the Career Guidance Center, schools, students, parents and other interested stakeholders.



BIŠEVO ISLAND	The installation of the new Queue management System equipment with customized software and people counting devices - sniffing devices/ counters to monitor the flow of people) that can track the movement of people from point A to point B. The selection of sensors and the queue management system is based on geographical position and available infrastructure in the locations of the Biševo Island pilot and the nature preservation requirements of each site. The selected equipment is fully in line with the real needs of Nautical Center Komiža and the goals of the The People Counting devices are dedicated to tracking the movement of people from a certain location A – “Blue Cave” location (where a first sniffer device will be installed) to location B (the second sniffer device location) - Visitor Center Biševo, and the related count. Smart Spot Crowd	Data is visualised in Snap4City dashboards and automatically sent to building managers through periodic reports. The existing "custom-made" software has been modified for the purposes of issuing and printing pre-typed tickets either through RFID cards (users, carriers and agencies) or through the retail box office. Control of the number of issued tickets, canceled tickets, user records and the type of issued tickets is ensured through real-time cloud access. When printing each ticket with the automatic system, each visitor is assigned/printed on the ticket - the boarding number with which the redomat is connected. When canceling tickets in a row (up to 12 pax), the next set of boarding numbers is automatically displayed alternately on the redomat, thus ensuring the regulation of the user queue. Implementing a QR code-based sentiment analysis system is crucial for the Nautical Centre Komiža because it transforms passive management into real-time experience optimization, directly impacting sustainability and satisfaction for the 150,000+ annual	By providing real-time data on visitor flow, peak hours, and high-traffic days, these stakeholders will gain valuable insights into how the influx of tourists impacts the development of sustainable tourism in the Vis Archipelago area. The installed equipment will enable the Nautical Center Komiža, as the concessionaire of the Blue Cave location and the Visitor Center Biševo, to address the issue of re-routing tourists, prevent delays and unnecessary crowds, and enhance the overall visiting experience. Although the data collection process is still ongoing and the full results will be visible after the peak summer season, the pilot has already shown strong potential for supporting data-driven tourism management in the sensitive natural heritage area of Biševo Island.	Nautical Center Komiža, Destination Management Organizations and destination managers in the Vis Archipelago Area, regional and local authorities, play an essential role in managing tourism at the local level to help attract tourists and support businesses within its boundaries. They're also responsible for promoting it through positioning statements, branding campaigns, high-quality product development, effective communication with stakeholders (e.g., residents), and maximizing financial resources available from both public and private sources while ensuring value for money spent on projects that meet overall objectives.
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	Monitoring allows the detection of smart devices that work with WiFi or Bluetooth interfaces (phones, tablets, hands-free, and wearables). The main goal of this service is to detect, temporarily accumulate, and report the number of devices detected in the last few minutes to track the flow of devices in the location where the device is installed.	visitors to the Blue Cave.		
RHODES	Meetings and Consultations with members of the Municipality of Rhodes, the Ephorate of Antiquities of the Dodecanese, the South Aegean Region, local tourism SMEs, and tech providers for the joint preparation of a detailed technical study describing the equipment to be installed, the exact installation locations, and the technical works necessary for the solution's deployment.	Technical Proposal	Strengthened inclusivity, participation of local actors in smart tourism interventions and enhanced social acceptance. Strengthened implementation of technologically innovative solutions in a sensitive cultural heritage environment.	Public authorities (Municipality of Rhodes, the South Aegean Region, and the Ephorate of Antiquities of the Dodecanese), Tourism SMEs, technology SMEs, local residents, visitors, and natural and heritage management authorities.



	Assessment of the technical proposal by the Municipality of Rhodes and the Ephorate of Antiquities of the Dodecanese to ensure compliance with local regulations, GDPR requirements, and heritage preservation guidelines.	Formal Approval of the Pilot design	Enhanced Institutional Cooperation and Governance for the deployment of data-driven sustainable destination management solutions. Preservation and sustainable management of culturally sensitive areas. Reduced environmental pressures on spatially sensitive areas. Improved quality of visitor and resident experience.	Project partners, public authorities, procurement bodies, technology providers and future users of the monitoring system.
	Preparation of a tender document detailing the technical and operational specifications of the equipment required, the quantities required and the requested installation services, ensuring compliance with GDPR provisions and with the preservation requirements applicable to the Medieval City, specifying the deadlines and setting a maximum price, as well as other conditions such as supply guarantee and maintenance of the equipment.	Tender Document for Equipment Procurement and Installation	Improved understanding of visitor movements and capacity for efficient, reliable, and scalable tourism monitoring and management in the Medieval City of Rhodes. Creation of a replicable resource-efficient use case for sustainable tourism solutions in culturally sensitive destinations.	Project partners Local authorities and DMOs in other destinations. Natural and Heritage Management Authorities in other destinations. Technology SMEs. Policymakers



	Publication of the tender on the national electronic platform for Public Procurement for Supplies and Services, where it stayed open for at least 10 days, so that any interested company could submit an offer.	Open Tender on the National electronic platform for Public Procurement for Supplies and Services.	Greater transparency and competitiveness in the procurement process, supporting compliant acquisition of the technical equipment required for the pilot.	Project partners, public authorities, procurement bodies, technology providers and future users of the monitoring system.
	Selection of the proposal fulfilling all regularity, technical, financial and operational criteria	Service Contract for Equipment Procurement and Installation	Secured the contractual basis for the installation and operationalisation of the monitoring infrastructure, enabling the pilot to move from design to implementation.	Selected service provider, project partners, Municipality of Rhodes, Ephorate of Antiquities and destination management stakeholders.
	Installation of outdoor people-counting radars at the main gates of the Medieval City, connected to the existing security and traffic camera infrastructure for power supply and internet connectivity.	Operational deployment of eight outdoor people-counting radar network at the main gates of the Medieval City of Rhodes	Strengthened Evidence Based, Proactive and Adaptive Sustainable Tourism Governance.	Public authorities involved in the Pilot, (Municipality of Rhodes, the South Aegean Region, the Ephorate of Antiquities of the Dodecanese). Tourism SMEs such as hotels and accommodation providers, restaurants and cafés, retail shops and local markets, tour operators and guides, cultural and creative SMEs. Technology SMEs, local residents, visitors.



	Development of a dedicated dashboard for the Rhodes pilot site enabling the integration of data from the installed monitoring infrastructure within the Snap4City platform, including data storage, processing, analytics, transformation, publishing, and interoperability functionalities.	An operational, interoperable dashboard integrated within the Snap4City platform, enabling real-time and historical visualisation and analysis of tourism flow data from the Rhodes pilot site.	Improved capacity to monitor visitor flows through a shared digital environment, supporting operational decision-making and long-term evidence-based management.	Municipality of Rhodes, Ephorate of Antiquities, destination managers, tourism authorities, cultural heritage managers and project partners.
	Data comparative analysis between December 2025 and April 2026, highlighting seasonal differences on tourism flows.	Comparative Analysis with conclusions on tourism flow patterns between high and low tourism periods.	Enhanced understanding of seasonal variations and peak-pressure patterns, supporting more targeted management measures for the Medieval City.	Municipality of Rhodes, Ephorate of Antiquities, tourism authorities, local businesses, residents, visitors and project partners.
	Info day presenting the objectives, activities, results, and benefits of the pilot to the wider public, with particular emphasis on engaging and facilitating synergies among the solution's main target groups, namely local authorities/DMOs, SMEs, technology providers, as well as visitors, and local residents.	Increased awareness generating follow-up actions supporting safety and sustainable destination management objectives.	Behavioural change and increased stakeholder synergies. Strengthened inclusivity, participation of local actors in smart tourism interventions and enhanced social acceptance.	Local stakeholders, public authorities, tourism operators, residents, visitors, cultural heritage managers and project partners.



	Local engagement workshops enabling a deeper exploration of the adoption barriers, implementation challenges, and corresponding support mechanisms that could facilitate and incentivise the uptake of the solution by each stakeholder group	Use Case Scenarios tailored to each stakeholder Group	Enhanced Institutional Cooperation and Governance mechanisms for the sustainable uptaking and upscaling of data-driven sustainable destination management solutions.	Municipality of Rhodes, Ephorate of Antiquities, local tourism businesses, residents, visitor-facing services, cultural heritage managers and project partners.
VALENCIA PORT	Installation of PAX sensors in the Port of Valencia (Cruise terminal, finger at the cruise dock, Shuttle bus stop and on the Cruise berth)	Real-time data of people flows	Improved understanding of cruise passengers flow dynamics, enabling the identification of peak periods, seasonal patterns and most visited locations to support future planning and management decisions	Public authorities, port authorities, transport operators and visitors
	Installation of Intelligent Cameras in strategic points of Valencia City and Valencia Port (La Lonja, Cathedral and Torres de Serranos) (Cruise Berth and exit of the Cruise Terminal)	Real-time number of passengers disembarking and embarking from/to the cruise ship.	Improved the information of the number of passengers disembarking and embarking from/to the cruise ship.	Public authorities, port authorities, transport operators and visitors



	Gathering pax wifi sensors data from the Valencia region smart city platform and integration of pilot data into the Snap4City platform and generation of specific pilot Dashboards, combining sensor data and intelligent cameras and open public datasets	Public dashboard for tourism and heritage monitoring in Valencia port	Open-access tool available to citizens and stakeholders, providing real-time support planning, decision-making and a better understanding of tourism dynamics in the area	Public authorities, port authorities, transport operators and visitors
LIMASSOL	Install and use thermal cameras in Molos Multifunctional Park, Old Port Square and Castle Square to monitor pedestrian flows, visitor numbers and peak hours.	Real-time and historical data on people flows, visitor concentrations, daily/weekly/seasonal trends and peak visiting times; dashboard visualisation through the Snap4City environment.	Improved evidence base for crowd management, event planning, resource allocation and safer movement in high-traffic public spaces.	Municipal authorities, city planners, local residents, tourist visitors, business owners and workers, event organisers and participants, vulnerable groups and emergency responders.
	Integrate crowd-density, flow and temperature data into urban management processes and smart city platforms.	Data on overcrowded or underused areas, temperature variations, crowd density and environmental conditions; inputs for planning seating, lighting, infrastructure and visitor-flow measures.	Better public space management, improved comfort and safety, reduced congestion and more informed urban planning/facility improvement decisions.	Municipality of Limassol, Tourism Board of Limassol, local authorities, local businesses, tourism operators, emergency services and law enforcement.



	Implement stakeholder engagement and behaviour-influence actions: public information campaign, info days, workshops, etc.	Awareness materials, public information events, stakeholder meetings, visitor feedback through digital tools	Increased public trust, stronger stakeholder coordination, better understanding of visitor motivations and obstacles	ANELEM, tourism operators, local authorities, residents, civil society organisations, SMEs, cultural associations, environmental NGOs, educational institutions, visitors and local community ambassadors.
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5.2 Annex 2: Pilots questionnaire

TOURISMO – D2.4.2 Impact Assessment of Pilot Results

The objective of this questionnaire is to identify:

- Improvements in sustainable tourism flow management in your pilot area,
- how tourism experience may have been affected,
- how living conditions for the local population may have been affected,
- and how the pilot actions and generated data may have supported governance, coordination and data-driven decision-making processes

Pilot areas

1. Please select your pilot area *

- ☒ Rhodes
- ☐ Florence
- ☐ Limassol
- ☐ Varna
- ☐ Biševo Island
- ☐ Golden Bay
- ☐ Valencia Port
- ☐ Valencia City



General Assessment

2. Overall, to what extent do you believe the pilot actions generated a positive impact in your territory? *

	0	1	2	3	4	5	6	7	8	9	10	
None	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very high

3. How would you describe the current development of the pilot impacts? *

- ☐ Impacts are already observable
- ☐ Initial impacts are emerging
- ☐ Too early to assess impacts properly



4. To what extent did the pilot contribute to the following outcomes? *

	No contribution	Low	Moderate	Significant	Very significant
Enhanced interoperability between different datasets	☐	☐	☐	☐	☐
Established new coordination mechanisms among stakeholders	☐	☐	☐	☐	☐
Improved understanding of tourism flows	☐	☐	☐	☐	☐
Improved capacity to identify overcrowding situations	☐	☐	☐	☐	☐
Improved preventive management capacity	☐	☐	☐	☐	☐
Improved evidence-based decision-making	☐	☐	☐	☐	☐
Reduced pressure on natural areas	☐	☐	☐	☐	☐



5. Which aspects of the **TOURISM EXPERIENCE** have been (or are expected to be) *
affected in your pilot area?

- ☐ Better distribution of visitors between hotspots and alternative locations
- ☐ Reduced overcrowding
- ☐ Improved accessibility
- ☐ Improved comfort of visitors
- ☐ Improved visitor safety
- ☐ Improved trip/visit planning through live data or digital tools
- ☐ Increased public access to tourism-related data and information
- ☐ Improved visibility of lesser-known sites, routes or local experiences
- ☐ Increased awareness of sustainable tourism
- ☐ No clear effects observed
- ☐ Otro: _____



6. Which aspects of the **LOCAL LIVING CONDITIONS** have been (or are expected to be) affected in your pilot area? *

- ☐ Improved heritage/site preservation
- ☐ Better understanding of carrying capacity issues
- ☐ Increased awareness of tourism impacts on heritage and/or natural areas
- ☐ Improved integration of sustainability considerations into tourism management
- ☐ Improved capacity for evidence-based decision-making
- ☐ Better monitoring of tourism-related environmental pressures
- ☐ Improved coordination between tourism and territorial management actors
- ☐ Improved alignment between tourism activity and local sustainability priorities
- ☐ No clear effects observed yet
- ☐ Otro: _____



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