Interreg Euro-MED

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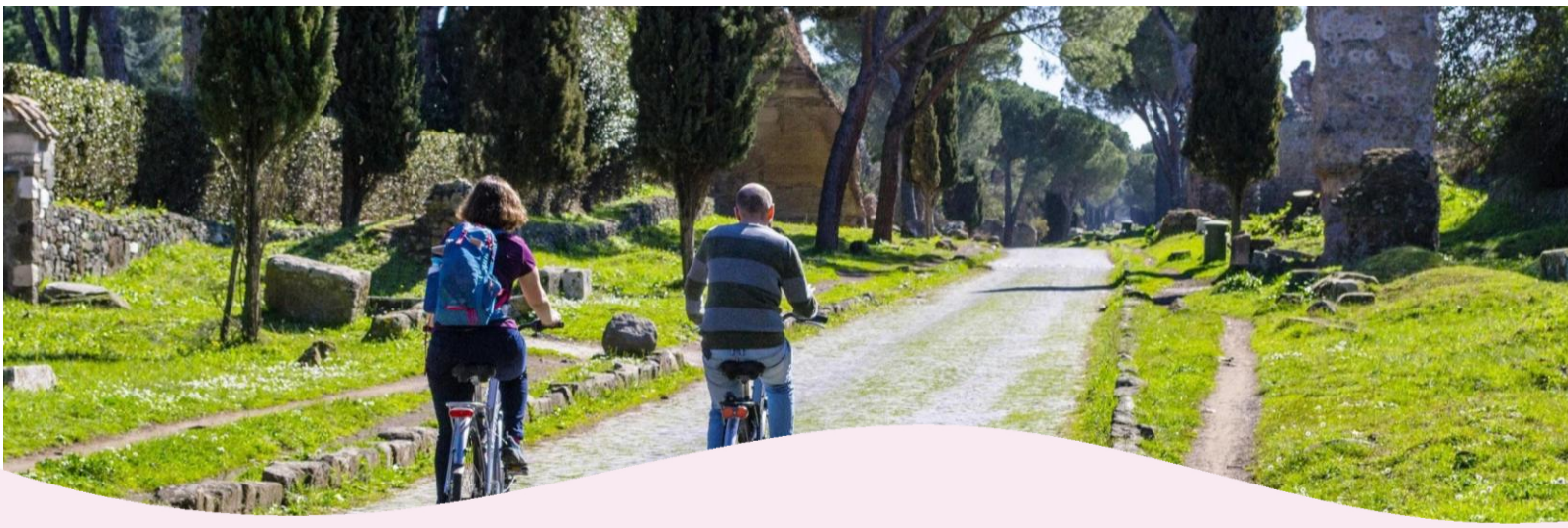
TOURISMO

TOURISMO - Tourism Innovative and Sustainable Management of flows

Activity 1.2

Revision and Enrichment of HERIT-DATA List of Indicators

Project Website: www.tourismo.interreg-euro-med.eu



Deliverable 1.2.1

Tourism Sustainability Indicators Report: Enriched list of sets of indicators relevant to TOURISMO pilot actions.	
Project title	Tourism Innovative and Sustainable Management of flows
Project acronym	TOURISMO
Programme	Interreg Euro-MED Programme
Mission	Enhancing sustainable tourism
Priority	Smarter MED
Deliverable N° & Title	**Deliverable 1.2.1:** Tourism Sustainability Indicators Report: Enriched list of sets of indicators relevant to TOURISMO pilot actions.
Work package N° & Title	WP1 - Design and Setup of Solutions' Deployment
Activity N° & Title	**Activity 1.2:** Revision and Enrichment of HERIT-DATA List of Indicators
Partner in charge	FSMLR (Fundación Santa María La Real)
Partners Involved	READ SA, UNIFI, FRI, FV, ANELEM, VEDA, RERA SD, MRDDF, KiNNO, FSMLR
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Table of Contents

1. Summary

Deliverable **D.1.2.1 "Tourism Sustainability Indicators Report",** as part of **Activity 1.2 "Revision and Enrichment of HERIT-DATA List of Indicators"**, builds on the foundation established by its predecessor, HERIT-DATA.

The primary aim of this report is **to update and refine the set of indicators previously developed under the HERIT-DATA project (2019)**. The process involves critically reviewing the existing indicators and making adjustments to better meet the specific needs of the TOURISMO pilot areas. This initial revision serves as a preliminary mapping of the pilots' needs, which may undergo further modifications as the project evolves and as real-world data from initial monitoring activities becomes available.

The document also elaborates on **methodologies for data collection and the validation process**, ensuring that the indicators are not only relevant but also feasible for practical application. Detailed sections on 'Data to Collect' and 'Thresholds' set the stage for a dynamic adjustment process throughout the project lifecycle. This iterative approach acknowledges the evolving nature of the project's needs and emphasizes the **flexibility required to adapt to emerging data** and insights, ensuring that the sustainability assessments remain as relevant and useful as possible.

Activity 1.2	
Title	Revision and Enrichment of HERIT-DATA List of Indicators
Start period	Period 1, 1 - 6
End period	Period 1, 1 - 6
Description	Under the leadership of the FSMLR, PPs will revise and enrich the HERIT-DATA set of tourism related indicators to be collected per pilot area so as to allow new data collection to be ingested by specific feeds, that can be useful for utilization and exploitation by SMEs and other stakeholders under TOURISMO activities. The enriched list will enclose sets of indicators related to sustainability, environmental, socio-economic, governance, management, value chain, impact etc.
Partner(s) involved	ANELEM, FRI, FSMLR, FV, KiNNO, MRDDF, READ SA, RERA SD, UNIFI, VEDA

Deliverables 1.2

Running number	Deliverable title	Description	Delivery period
D.1.2.1	Tourism Sustainability Indicators Report	Enriched list of sets of indicators relevant to TOURISMO pilot actions.	Period 1, 1 - 6

2. Sustainable Tourism

The concept of sustainable tourism revolves around **practices that balance economic, environmental, and socio-cultural interests while ensuring long-term benefits for both local communities and tourists.** The **United Nations World Tourism Organization (UNWTO)** defines sustainable tourism as tourism that:

- Makes **optimal use of environmental resources**, maintains ecological processes, and conserves natural heritage and biodiversity.
- Respects the **socio-cultural authenticity of host communities**, preserves their heritage, and fosters tolerance.
- Ensures **viable, long-term economic operations that provide socio-economic benefits** fairly, including stable employment and poverty alleviation.

These principles establish the foundation for sustainable tourism. They align with broader sustainability ideals by emphasizing **equitable growth, responsible resource use, and cultural preservation**. Sustainable tourism aims to foster responsible management that brings positive changes to local environments, economies, and societies (UNWTO Guidebook).

TOURISMO acknowledges that a shift to conscious and sustainable tourism requires innovative approaches, participation of various ecosystem stakeholders, an improvement of the tourist experience, and a stronger engagement of end users. The challenges in achieving this sustainable tourism include **balancing economic growth with environmental preservation**, aligning the interests of diverse stakeholders, and ensuring consistent and transparent data collection across regions.

3. HERIT-DATA Sustainability Indicator System

The HERIT-DATA indicator system aimed to create a flexible, comprehensive tool for monitoring and managing **tourist saturation** in culturally significant areas, particularly those impacted by **cruise tourism**. By integrating elements from established frameworks like **ETIS, SIROCCO, and UTH**, and customizing them to the specific needs of coastal and maritime tourism, the HERIT-DATA system offered a reliable mechanism for sustainable tourism management.

3.1. Analysis of sustainability frameworks in HERIT-DATA

In the HERITDATA project, the starting point for creating the sustainable indicator system involved a **thorough analysis and synthesis of existing sustainability frameworks**. Since the **European Tourism Indicator System (ETIS)** is not designed to be a coastal and maritime-specific study, the **SIROCCO** and **THESSALY** indicators systems were also evaluated, extracting relevant elements to tailor the indicator system to the needs of HERITDATA.

SUMMARY TABLE							
1. GROUP	ETIS		SIROCCO		THESSALY		
2. PERIOD	ANCIENT (First Edition)	ACTUAL (2 years Revison)	PREVIOUS STUDIES (ETIS, GSTC System, Travelife System, EcoPorts System, EcoLabel Scheme)	ACTUAL (Maritime / Coast Objectifs)	PREVIOUS STUDIES (ESPON, ETIS, WTO Indicators, OECD Indicators)	ACTUAL (Particular Objectifs)	
3. YEAR	FEBRUARY 2013	MARCH 2016	until APRIL 2017 (First Draft)	MAY 2017	until MARCH 2017 (Last Data Collection)	MARCH 2017	
4. RESPONSIBLE ORGANIZATION	TSG and EC promoted by UNWTO and GSTC	TSG and EC promoted by UNWTO and GSTC	TSG and EC / GSTC / ABTA / ESPO / EU	CERTH, IMO, EC	TSG and EC / WTO / OECD	CO-EVOLVE based on WTO and OECD	
5. NUMBER OF INDICATORS	27 GREEN + 40 BLUE	43 GREEN	Depends on the most relevant Indicators chosen in each Organisation's Report	44 GREEN	Depends on the most relevant Indicators chosen in each Organisation's Report	24 D.I + 24 D.II + 32 D.III + 26 D.IV + 30 D.V	
6. TOTAL INDICATORS	67	**43** + Supplementary		**44**		**136**	
7. CLASSIFICATION OF THE INDICATORS (Sections and Criterias)	A. Destination Management B. Economic Value C. Social and Cultural Impact D. Environmental Impact	A. Destination Management B. Economic Value C. Social and Cultural Impact D. Environmental Impact *Supplementary Indicators	Depends on the most relevant Categories chosen in each Organisation's Report	A. Destination Management B. Economic Value C. Social and Cultural Impact D. Environmental Impact	Depends on the most relevant Categories chosen in each Organisation's Report	NEW CLASSIFICATION TYPES (Sections and Destinatons) C. Management and Optimization A. Socio - Economic Values D. Governance (new category) B. Environmental Impact	D.I_ Beach / Maritime Tourism D.II_ Urban / Cultural Tourism D.III_ Cruising D.IV_ Recreational Boating D.V_ Nature / Ecotourism
8. FURTHER INFORMATIONS	GREEN = CORE / ESSENTIAL BLUE = OPTIONAL /ADITIONAL (It also includes the seven-step guide implementation)	NOT BLUE INDICATORS BUT ADITIONAL INDICATORS: 1. Maritime and Coastal Torusim 2. Accessible Tourism 3. Transnational Cultural Routes	ONLY the Indicators and Categories which are more relevant to the final report are selected	SCTCS criteria adapted to the ETIS criteria	ONLY the Indicators and Categories which are more relevant to the final report are selected	ETIS completed with CO-EVOLVED destinations typology	
9. INITAITIVES AND MECHANISMS	EMAS / EU-Ecolabel / TOUERM / CSR	EMAS / EU-Ecolabel / TOUERM / CSR	ETIS criteria / Destination criteria (GSTC-D) or Hotel&Tour Operator criteria (GSTC-H&TO) / ABTA Operator System / SDM and PERS / EC-Regulation	EU Commission, Directives and Regulations / Value Chain (VC) activities & actors	ETIS criteria / Towards Green Growth: Monitoring Progress! Framework for Evaluation of Tourism Policies and Programmes! OECD Well-Being Indicators	ETIS criteria / Towards Green Growth: Monitoring Progress! Framework for Evaluation of Tourism Policies and Programmes! OECD Well-Being Indicators	
10. SUGGESTED ACTIONS	Tested and evaluated: 1. Over 100 destinations in Europe 2. During 2 years-period	1. Objectives of United Nations: 2030 (agenda for sustainable development) 2. UNWTO based on the 10-year framework programme of sustainability (10YFP)	Customisation of the individual indicators to be applied in maritime / coast / cruise tourism sector	¿ ? (same as the ETIS)	Address the new indicator's categorization and classification for tourism sustainability in coastal areas and destinations selected	¿ ? (same as the ETIS)	
ACRONYM MEANING	TSG_ Tourism Sustainability Group / EC_ European Commission / UNWTO_ United Nations World Tourism Organisation / GSTC_ Global Sustainable Tourism Council / EMAS_ Eco-Management Audit Scheme / TOUERM_ Tourism Environment Reporting Mechanism / CSR_ Corporate Social Responsibility		GSTC_ Global Sustainable Tourism Council / ABTA_ Association of British Travel Agents / ESPO_ European Sea Ports Organisation / EU_ European Union / SDM_ Self Diagnosis Method / PERS_ Port Enviromental Review System / CERTH_ Centre for Research and Technology Hellas / IMO_ International Maritime Organisation / SCTCS_ Sustainable Cruise Tourism Certification System		ESPON_ European Observation Network for Territory Development and Cohesion / WTO_ World Tourism Organisation / OECD_ Organisation for Economic Co-operation and Development / CO-EVOLVE_ Co-Evolution of human activities and natural system for sustainable coastal and maritime tourism		

1. 3.1.1. ETIS System Bases

The European Tourism Indicator System (ETIS) is a comprehensive tool designed to help destinations measure and enhance their sustainability. It encompasses various dimensions such as destination **management, economic value, social and cultural impact, and environmental impact**.

The bases of the ETIS´ principle, is that destination responsibility, ownership, and decision-making are all shared. Therefore, engaging all type of different stakeholder groups during the process of structuring, collecting and reporting information, is a powerful way to undertake an effective destination management.

ETIS is made up of a set of Indicators, a Toolkit, and a Dataset. These can be used on a voluntary basis, together or integrated into existing destination monitoring systems. The system is flexible, as it can be expanded or contracted to meet the needs of the specific destination. It also provides comparison over time and a gives a good basis for sustainable destination management. Besides, since March 2016, a list of supplementary indicators is suggested for further specialization on the destinations' special needs, covering issues such as cultural routes and accessible tourism.

2. 3.1.2. Sirocco Indicators System: Similarities and Differences with ETIS

The SIROCCO indicators system focuses on **sustainable tourism management in coastal and maritime areas**. It shares several similarities with ETIS, such as emphasizing stakeholder involvement and environmental sustainability. However, SIROCCO goes further in addressing the unique challenges faced by coastal regions, **including coastal erosion, marine biodiversity, and the impact of nautical activities on the environment**.

3. 3.1.3. UTH (Thessaly) Indicators System: Similarities and Differences with ETIS

The Thessaly (UTH) indicators system also provides valuable insights, particularly in terms of **integrating local cultural heritage with tourism management**. Like ETIS, UTH emphasizes the importance of preserving cultural assets and promoting community engagement. However, UTH utilizes a different structure than the other two systems: instead of taking the four dimensions of sustainability (economic, management, environmental and social/cultural) to divide them in individual criteria, the process chosen applies those four dimensions of sustainability given by the European Union into the five new categories proposed as the new five possible destinations:

- D.I Beach and Maritime Tourism
- D.II. Urban and Cultural Tourism
- D.III. Cruising
- D.IV. Recreational Boating
- D.V. Nature Ecotourism

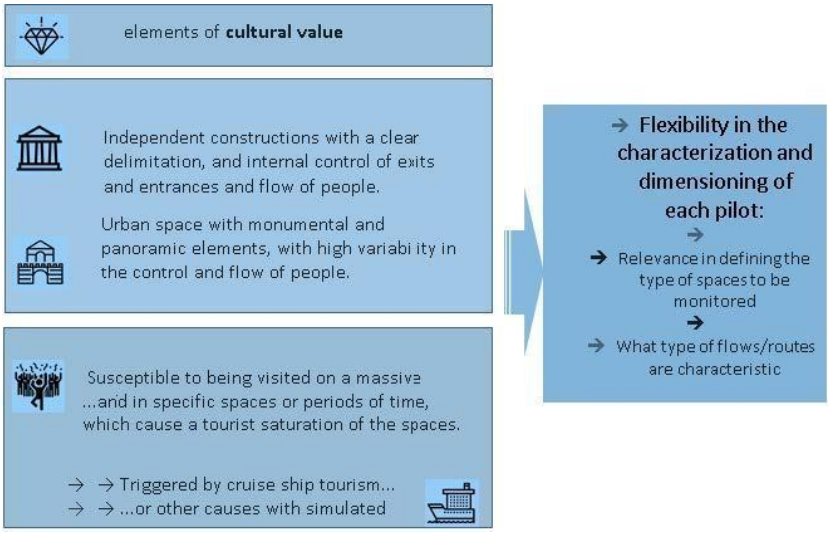
3.2. Design of the HERIT-DATA Indicator System

The comparison of these three systems involved a detailed analysis of their strengths and weaknesses, particularly in the context of coastal and maritime tourism. The following aspects were considered:

- **Relevance to Coastal and Maritime Tourism:** SIROCCO and UTH provided more targeted indicators for managing the unique challenges of coastal regions, while ETIS offered a broad framework applicable to various tourism contexts.
- **Stakeholder Engagement:** All three systems emphasized the importance of involving stakeholders in the monitoring and management process, aligning with HERITDATA's objectives of community involvement and sustainable tourism practices.

Data analysis involved synthesizing the insights from these three systems to create a **tailored set of indicators for HERITDATA**. The key focus areas included **environmental impact, cultural heritage preservation, economic sustainability, and community engagement**. This comprehensive approach ensured that the indicators were relevant, actionable, and aligned with the project's goals.

The purpose of the HERIT-DATA indicator system was to incorporate a set of indicators that allowed monitoring relevant information (HERIT-DATA) on the background, behaviour, characteristics, and impact of tourist saturation. This system was designed to enable the prediction, **real-time monitoring, and assessment of the effects of saturation** in predefined buildings, spaces, or heritage nuclei. The HERIT-DATA system, therefore, had to generate relevant information to support actions and decision-making for the sustainable management of selected heritage sites through the control of tourist saturation.



The central problem was defined as **"Tourist Saturation"** in spaces of cultural value that were susceptible to being visited massively in specific spaces or periods, primarily driven by cruise ship

tourism. This concept was particularly sensitive to the identity and tourist management aspects of each tourist area or site, so each pilot area had to characterize how saturation behaved and incorporate this specificity into the monitoring system: the HERIT-DATA system had to maintain a degree of flexibility to adapt to each city or site.

However, it was necessary to define some **common elements** when determining both how to measure the central problem: tourist saturation, and when characterizing a common monitoring system. The measurement of this set of dimensions should accurately characterize the episodes and changes in the saturation being monitored. Relevant dimensions included:

- **Density:** Precise information on the number of tourists, their locations, and the duration of their visits in different itineraries of buildings and heritage nuclei. This measure should define an objective saturation index based on the density of people per area and establish a saturation scale.
- **Flow:** Characterization of tourist flows and itineraries, providing both a static picture of tourist behaviour and a dynamic scene of the density of people in monitored spaces.
- **Perception:** Incorporation of a subjective measure of saturation related to the perception of users (tourists and residents). This measure indicated the effects of saturation on individuals and the real experience under different saturation levels.
- **Changes:** Data that accounted for changes in the effects caused by saturation episodes, allowing for monitoring the overall behaviour of the problem.

The set of data provided by different cities pointed to these dimensions of saturation characterization to varying degrees. A key aspect was to homogenize and give coherence to the dimensions linked to data that genuinely contributed to the measured dimension.

Another central aspect was the value of the monitoring system according to the object's results and intended use and analysis of the data. The purpose and use of the system were central to its design.

At least **three levels of "data use"** were identified and proposed depending on the type of analysis and decisions in sustainable heritage management:

- **Predictive and Preventive Level:** Incorporation of relevant data that anticipated saturation or allowed early access to predictors of potential saturation characteristics in each period and place. This included:

  - *Short-term Predictive:* Data that allowed predicting saturation characteristics with short anticipation (e.g., 1 day/1 week).

  - *Medium/Long-term Predictive:* Data that allowed predicting saturation characteristics with long anticipation, due to predefined flows (seasonal, holidays, key dates, etc.).

- **Sensor Level:** Data that showed a real-time picture of the saturation state of monitored spaces, relating to the dimensions defining the saturation problem: flow density of people, perceptions, environmental data, pressure on infrastructures and spaces, etc.

- **Strategic Level:** Measurement of effects and establishment of a global picture of the saturation problem's behaviour. This level visualized the effects, characterized different system elements (tourist typology, heritage type), and allowed for deep analysis and adjustment of the monitoring system.

It was necessary for the system to incorporate characterization data of the elements composing the monitoring, conditioning the analysis and interpretation of the data according to different tourism management forms in each city. Each city had to propose some characterization variables, at least at the following levels:

- Characterization of reservations and types of routes through heritage spaces.
- Characterization data of heritage spaces: building, historic center.
- Tourist characterization data.
- Economic data.
- Historical data on tourism volume and impact.

The data provided by different cities specified some characterization variables, particularly tourist typology and economic data.

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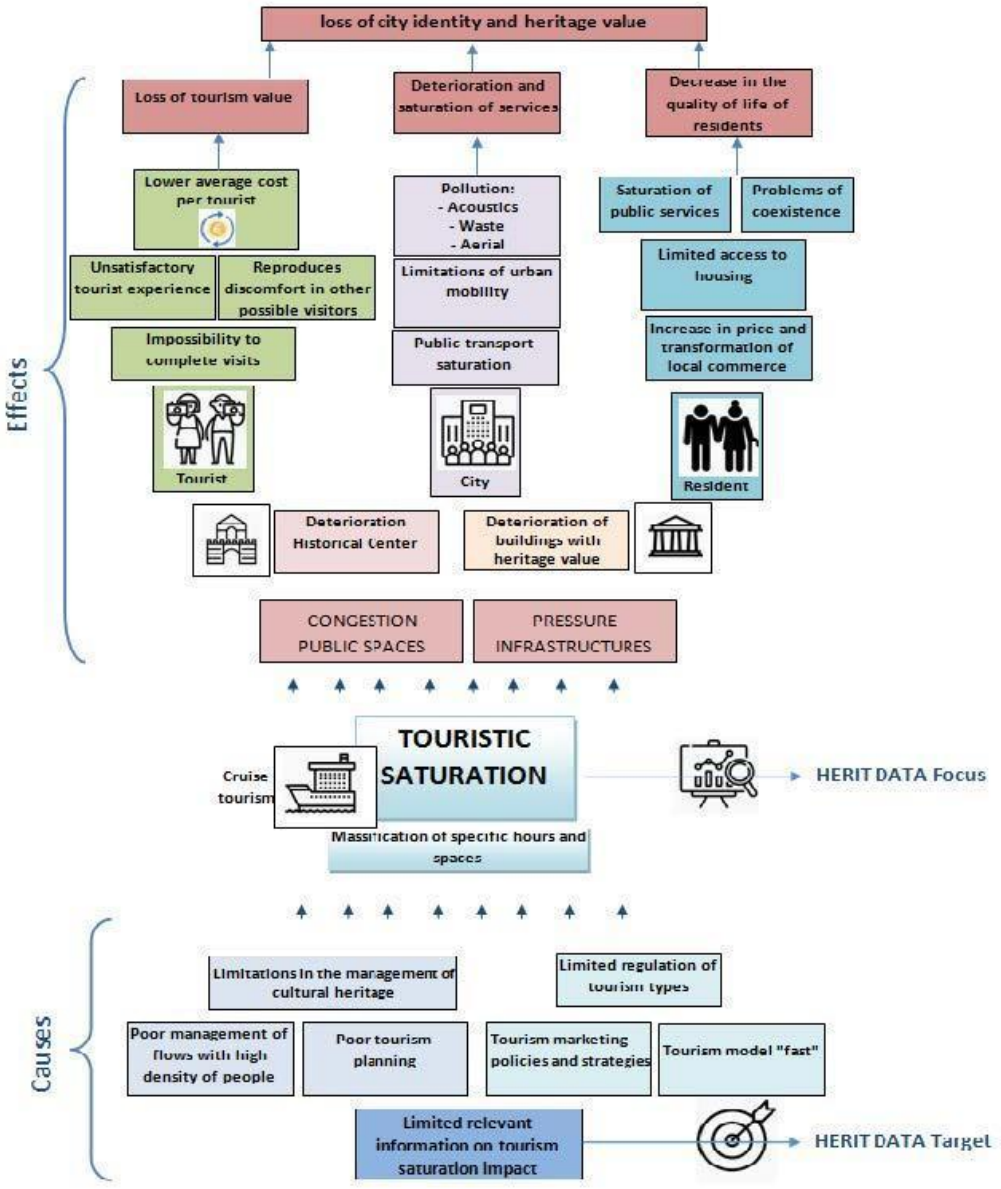

loss of city identity and heritage value
Loss of tourism value
Deterioration and saturation of services
Decrease in the quality of life of residents
Lower average cost per tourist
Pollution:
- Acoustics
- Waste
- Aerial
Saturation of public services
Problems of coexistence
Unsatisfactory tourist experience
Reproduces discomfort in other possible visitors
Limitations of urban mobility
Limited access to housing
Impossibility to complete visits
Public transport saturation
Increase in price and transformation of local commerce
Effects
Tourist
City
Resident
Deterioration Historical Center
Deterioration of buildings with heritage value
CONGESTION PUBLIC SPACES
PRESSURE INFRASTRUCTURES
TOURISTIC SATURATION
Cruise tourism
Massification of specific hours and spaces
HERIT DATA Focus
Causes
Limitations in the management of cultural heritage
Limited regulation of tourism types
Poor management of flows with high density of people
Poor tourism planning
Tourism marketing policies and strategies
Tourism model "fast"
Limited relevant information on tourism saturation impact
HERIT DATA Target

3.3. HERIT-DATA List of Indicators

After studying the different sustainability frameworks, the HERIT-DATA project decided to implement **six main indicator groups**:

- E.1 Building / Site Capacity Overcrowded
- E.2 Tourist City Flows
- E.3 People perception of overcrowded places
- E.4 Capacity and quality to services access (heritage area)
- E.5 Residential quality site
- E.0 Characterization of areas of heritage value

Based on these indicator groups, the HERIT-DATA project developed an Indicator List composed of **22 indicators**, each with its respective indicator components:

INDICATORS	INDICATOR COMPONENTS
(E1) I.1 Preservation Level in optimal conditions (environmental and architectural) of sites of cultural value	(E1) I.1.1 Environmental levels Sites
	(E1) I.1.2 Cost Investment - Maintenance sites
(E1) I.2 Optimal levels of overcrowding of sites of cultural value	(E1) I.2.1 Real saturation levels of people / spaces
	(E1) I.2.2 Expected saturation levels of people / spaces
(E1) I.3 Optimal levels of Tourists overnights	(E1) I.3.1 Overnights/(number of beds in un-official accommodation*30)
	(E1) I.3.2 Cost Investment - Maintenance sites
	(E1) I.3.3 Tourists overnights in official accommodations / number of residents (monthly) (georeferred)
	(E1) I.3.4 Tourists overnights in un-official accommodations / number of residents (monthly) (georeferred)
	(E1) I.3.5 Tourists overnights in all types of accommodations / number of residents (monthly) (georeferred)
	(E1) I.3.6 Ratio between the number of tourists overnights and the number of residents within a significant neighbourhood (to be defined according to the characteristics of the place or building, for example the UNESCO center)

(E2) I.4 Optimal levels of overcrowding of people transit	(E2) I.4.1 Detection real transit of nº people / area / time
	(E2) I.4.2 Analytics anticipated reserves management: prediction of critical values agglomerations
(E3) I.5 Tourists perception about adequacy of Overcrowded site experience	(E3) I.5.1 Real time perception overcrowded: Social net
	(E3) I.5.2 Index perception post-experience overcrowded (sample)
(E3) I.6 Real time perception overcrowded: Social net	(E3) I.6.1 Environmental levels Sites
(E3) I.7 Personal perception about adequacy of Security site experience	(E3) I.7.1 Real time perception Security: Social net
	(E3) I.7.2 Index perception post-experience Security (sample)
(E3) I.8 Personal perception about hygiene, sanitation and cleaning conditions site experience	(E3) I.8.1 Real time perception about hygiene, sanitation and cleaning conditions: Social net
	(E3) I.8.2 Index perception post-experience about hygiene, sanitation and cleaning conditions (sample)
(E3) I.9 Personal perception about cultural heritage preservation site experience	(E3) I.9.1 Index perception post-experience cultural heritage preservation (sample)
(E4) I.10 Optimal capacity of the urban cleaning service and decorum	(E4) I.10.1 Ratio people / baskets / containers
	(E4) I.10.2 Volume of solid waste collection
	(E4) I.10.3 Intervention ratio hygiene service by area
(E4) I.11 Capacity to maintain optimal citizen security	(E4) I.11.1 Crime rate (tourism and general) in target area (EUROSTAT indicators)
(E4) I.12 Capacity to ensure permitted ranges of contamination - basic environmental conditions in heritage areas	(E4) I.12.1 Air pollution ranges in heritage environment stations
	(E4) I.12.2 Range of noise pollution in heritage sites

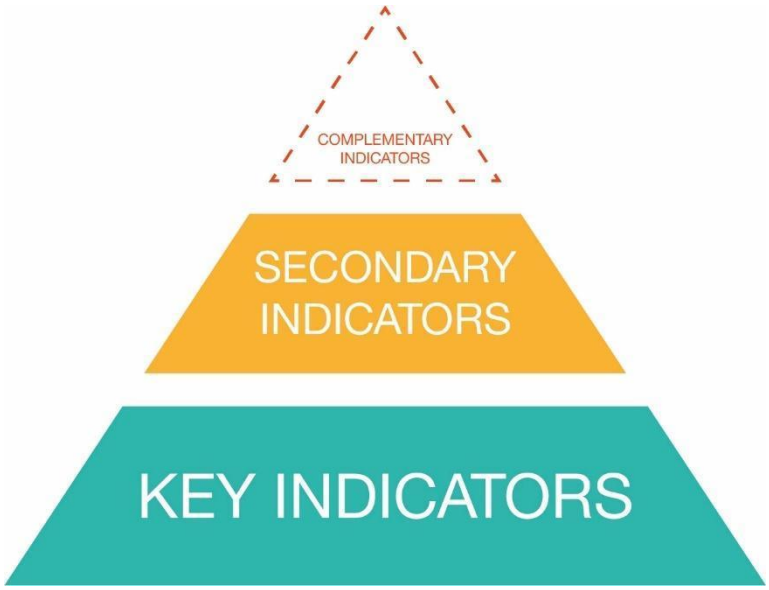
(E4) I.13 Fluid access to public transport in heritage areas	(E4) I.13.1 Waiting times in main transport public
(E4) I.14 Fluid access to parking spaces around heritage areas	(E4) I.14.1 % of free parking spaces in parking areas around the UNESCO center (daily).
(E5) I.15 Optimal levels of access to housing in tourist areas by local population	(E5) I.15.1 Residential / tourist housing ratio
	(E5) I.15.2 Housing value (m2): rent / buy
	(E5) I.15.3 Population movement flow analysis: historic center - other areas
(E5) I.16 Optimal levels of access to Employment quality in tourist areas by local population	(E5) I.16.1 Rate and quality employment in target areas
(E5) I.17 Optimal levels of access to local stores and products in tourist areas by residential population	(E5) I.17.1 Analysis of the commercial offer in the target area
(E5) I.18 Higher prices in target areas	(E5) I.18.1 Local price index
(E5) I.19 Lack of identity of the traditional activities within the UNESCO area	(E5) I.19.1 Employees' number of traditional activities (historical shops, handicraft shops, etc.) / total number of employees within the UNESCO area
(E0) 0.20 Characterization areas / sites of tourist value and tourism profiles	(E0) 0.20.1 Delimitation and basic characteristics of sites subject to saturation: sites / spaces / heritage areas
	(E0) 0.20.2 Characterisation and types of routes - Tourist shops
	(E0) 0.20.3 Characterization of tourist profile visiting heritage areas/sites
	(E0) 0.20.4 Characterization of tourist profile visiting heritage areas/sites
	(E0) 0.20.5 Historical data tourism heritage areas

	(E0) 0.20.6 Economic data tourism
(E0) 0.21 Access capacity charge (heritage area from port)	(E0) 0.21.1 Maximum number of passengers disembarkation day / hour
	(E0) 0.21.2 Historical disembarkation of passengers
	(E0) 0.21.3 Disembarkation forecast nº of passengers / itineraries x day / hour
(E0) 0.22 Capacity charge heritage area	(E0) 0.22.1 Capacity of saturation sites
	(E0) 0.22.2 Accommodation by Type
	(E0) 0.22.2 Public transport by type
	(E0) 0.22.2 Tourist services by type in heritage areas
	(E0) 0.22.2 Restoration by type in heritage areas
	(E0) 0.22.2 Parking spaces in heritage areas

4. TOURISMO Sustainability Indicator System

After a thorough review of the HERIT-DATA sustainability indicators, the indicators were classified into **three categories** based on their relevance to the project's goals. This process led to the identification of a streamlined list of **key indicators**, while others were designated as **secondary or as complementary**.

- **Key Indicators:** These are general and fundamental enough to be applied across all TOURISMO pilots, providing essential data to measure the impact of overtourism in various areas. This category offers a general framework that addresses the common challenges faced by the diverse pilot sites, forming the foundation of the indicator system.
- **Secondary Indicators:** These are applied only in specific pilots where they are deemed useful, based on unique objectives, priorities, and the data available. This selective approach allows each project to prioritize the needs of its stakeholders and align its efforts more effectively with its objectives, while still maintaining a consistent framework that facilitates regional cooperation and comparison.
- **Complementary Indicators**: Based on the experience of HERIT-DATA and the specific objectives of the TOURISMO project, these indicators are considered in specific cases if required but are generally excluded to streamline efforts and focus resources where they are most needed.



The categorization of these indicators was a **collaborative effort involving all pilot managers during a dedicated review session**. This activity aimed to validate the initially selected key indicators, and it also allowed to detect that two indicators, preliminarily categorized as secondary, were common across all pilots and thus reclassified as key indicators. Further refinements were made to **adapt these indicators to the specific context of the TOURISMO project**, enhancing their relevance and applicability.

Some of the changes made to the original list of HERIT-DATA indicators include the following adjustments to better align with the needs of the TOURISMO project's diverse pilot sites:

The indicator (E5) I.19 "Lack of identity of the traditional activities within the UNESCO area" has been modified to remove the phrase "within the UNESCO area." This change broadens the scope of the indicator, making it applicable to pilots that do not include areas recognized as UNESCO heritage sites, thus enhancing its relevance across different contexts.

The indicators "(E3) I.5 Tourists perception about adequacy of Overcrowded site experience" and "(E3) I.6 Real time perception overcrowded: Social net" have been merged into a single comprehensive indicator. The new indicator, named (E3) I.5 "Tourists perception about adequacy of Overcrowded site experience (Real time and post-experience)," combines both real-time and post-experience feedback, providing a more holistic view of tourist perceptions related to site overcrowding.

The outcome of this collaborative activity of categorizing and reviewing of the HERITDATA indicators is a table, which outlines the relevance of each indicator for each pilot, helping to validate the categorization of each as key, secondary, or complementary. This table will be instrumental in guiding the implementation and monitoring strategies across the various pilot sites, and represents an initial approach to identifying what needs to be measured, controlled, and monitored in each pilot.

It is important to outline that **this indicators list is subject to evolve throughout the project,** due to variations in data availability or the feasibility of data collection. Additionally, it is anticipated that **new indicators may be added** that are not currently contemplated in these early stages. This flexible approach ensures that the TOURISMO project can adapt to emerging needs and insights as the project progresses.

INDICATORS	RHODES CITY	FLORENCE CITY	VALENCIA PORT	VALENCIA CITY	LIMASSOL PORT	VARNA CITY	BISEVO ISLAND	GOLDEN BAY	KEY INDICATORS	SECONDARY INDICATORS
(E1) I.1 Preservation Level in optimal conditions (environmental and architectural) of sites of cultural value	X	X		X	X	X		X		X
(E1) I.2 Optimal levels of overcrowding of sites of cultural value	X	X	X	X	X	X	X	X	X	
(E1) I.3 Optimal levels of Tourists overnights	X	X		X	X	X		X		X
(E2) I.4 Optimal levels of overcrowding of people transit	X	X	X	X	X	X	X	X	X	

(E3) I.5 Tourists perception about adequacy of Overcrowded site experience (Real time and post-experience)	X	X	X	X	X	X	X	X	X	
(E3) I.7 Personal perception about adequacy of Security site experience										
(E3) I.8 Personal perception about hygiene, sanitation and cleaning conditions site experience	X	X	X		X	X	X	X		X
(E3) I.9 Personal perception about cultural heritage preservation site experience	X	X		X	X	X	X	X		X
(E4) I.10 Optimal capacity of the urban cleaning service and decorum										

(E4) I.11 Capacity to maintain optimal citizen security								X		X
(E4) I.12 Capacity to ensure permitted ranges of contamination - basic environmental conditions in heritage areas	X	X	X	X	X	X	X	X	X	
(E4) I.13 Fluid access to public transport in heritage areas	X	X	X	X	X	X		X		X
(E4) I.14 Fluid access to parking spaces around heritage areas		X			X	X		X		X
(E5) I.15 Optimal levels of access to housing in tourist areas by local population										

(E5) I.16 Optimal levels of access to Employment quality in tourist areas by local population										
(E5) I.17 Optimal levels of access to local stores and products in tourist areas by residential population										
(E5) I.18 Higher prices in target areas	X	X	X	X	X	X	X			X
(E5) I.19 Lack of identity of the traditional activities	X	X		X		X	X			X
(E0) 0.20 Characterization areas / sites of tourist value and tourism profiles	X	X	X	X	X	X	X	X	X	

(E0) 0.21 Access capacity charge (heritage area from port)			X							X
(E0) 0.22 Capacity charge heritage area	X	X	X	X	X	X	X	X	X	

4.1. Key Indicators

INDICATORS	INDICATORS COMPONENTS
(E1) I.2 Optimal levels of overcrowding of sites of cultural value	(E1) I.2.1 Real saturation levels of people / spaces
	(E1) I.2.2 Expected saturation levels of people / spaces
(E2) I.4 Optimal levels of overcrowding of people transit	(E2) I.4.1 Detection real transit of nº people / area / time
	(E2) I.4.2 Analytics anticipated reserves management: prediction of critical values agglomerations
(E3) I.5 Tourists perception about adequacy of Overcrowded site experience	(E3) I.5.1 Real time percepción overcrowded: Social net
	(E3) I.5.2 Index perception post-experience overcrowded (sample)
(E4) I.12 Capacity to ensure permitted ranges of contamination - basic environmental conditions in heritage areas	(E4) I.12.1 Air pollution ranges in heritage environment stations
	(E4) I.12.2 Range of noise pollution in heritage sites
(E0) 0.20 Characterization areas / sites of tourist value and tourism profiles	(E0) 0.20.1 Delimitation and basic characteristics of sites subject to saturation: sites / spaces / heritage areas
	(E0) 0.20.2 Characterization and types of routes - Tourist shops
	(E0) 0.20.3 Characterization of tourist profile visiting heritage areas/sites
	(E0) 0.20.4 Characterization of tourist profile visiting heritage areas/sites
	(E0) 0.20.5 Historical data tourism heritage areas
	(E0) 0.20.6 Economic data tourism

(E0) 0.22 Capacity charge heritage area	(E0) 0.22.1 Capacity of saturation sites
	(E0) 0.22.2 Accommodation by Type
	(E0) 0.22.2 Public transport by type
	(E0) 0.22.2 Tourist services by type in heritage areas
	(E0) 0.22.2 Restoration by type in heritage areas
	(E0) 0.22.2 Parking spaces in heritage areas

4.2. Secondary Indicators

INDICATORS	INDICATORS COMPONENTS
(E1) I.1 Preservation Level in optimal conditions (environmental and architectural) of sites of cultural value	(E1) I.1.1 Environmental levels Sites
	(E1) I.1.2 Cost Investment - Maintenance sites
(E1) I.3 Optimal levels of Tourists overnights	(E1) I.3.1 Overnights/(number of beds in un-official accommodation*30)
	(E1) I.3.2 Cost Investment - Maintenance sites
	(E1) I.3.3 Tourists overnights in official accommodations / number of residents (monthly) (georeferred)
	(E1) I.3.4 Tourists overnights in un-official accommodations / number of residents (monthly) (georeferred)
	(E1) I.3.5 Tourists overnights in all types of accommodations / number of residents (monthly) (georeferred)
	(E1) I.3.6 Ratio between the number of tourists overnights and the number of residents within a significant neighbourhood (to be defined according to the characteristics of the place or building, for example the UNESCO center)
(E3) I.8 Personal perception about hygiene, sanitation and cleaning conditions site experience	(E3) I.8.1 Real time perception about hygiene, sanitation and cleaning conditions: Social net
	(E3) I.8.2 Index perception post-experience about hygiene, sanitation and cleaning conditions (sample)

(E3) I.9 Personal perception about cultural heritage preservation site experience	(E3) I.9.1 Index perception post-experience cultural heritage preservation (sample)
(E4) I.11 Capacity to maintain optimal citizen security	(E4) I.11.1 Crime rate (tourism and general) in target area (EUROSTAT indicators)
(E4) I.13 Fluid access to public transport in heritage areas	(E4) I.13.1 Waiting times in main transport public
(E4) I.14 Fluid access to parking spaces around heritage areas	(E4) I.14.1 % of free parking spaces in parking areas (daily).
(E5) I.18 Higher prices in target areas	(E5) I.18.1 Local price index
(E5) I.19 Lack of identity of the traditional activities	(E5) I.19.1 Employees' number of traditional activities (historical shops, handicraft shops, etc.) / total number of employees
(E0) 0.21 Access capacity charge (heritage area from port)	(E0) 0.21.1 Maximum number of passengers disembarkation day / hour
	(E0) 0.21.2 Historical disembarkation of passengers
	(E0) 0.21.3 Disembarkation forecast nº of passengers / itineraries x day / hour

4.3. Complementary Indicators

The list of HERIT-DATA excluded indicators, which are considered complementary, includes:

(E3) I.7 Personal perception about adequacy of Security site experience: Security perception can be implicitly covered by broader indicators measuring overall tourist satisfaction. Obtaining accurate and reliable data on security perception through social media and surveys, as has been done in previous projects, can be problematic due to current privacy regulations and the continuous enhancements to these regulations in many countries. Additionally, no security issues were mentioned in interviews, except for Golden Bay, which focused more on vandalism and the destruction of nature, particularly regarding wildfires, rather than typical security concerns like theft.

(E4) I.10 Optimal capacity of the urban cleaning service and decorum: Collecting consistent and precise data on the number of litter bins, waste collection volumes, and the frequency of hygiene services across different heritage sites can be logistically challenging and resource-intensive. The complexity of standardizing this data across various locations makes it impractical for inclusion in the TOURISMO project.

(E5) I.15 Optimal levels of access to housing in tourist areas by local population: Collecting data on residential and tourist housing ratios, as well as housing values, and standardizing this data across various locations, makes it impractical for inclusion in the TOURISMO project. Moreover, while housing access is important for sustainable tourism, it does not directly align with the core objectives of managing tourist flows.

(E5) I.16 Optimal levels of access to Employment quality in tourist areas by local population: Employment quality is a multi-faceted issue that intersects with broader socio-economic policies and conditions beyond the scope of the TOURISMO project. Effective measurement and improvement of employment quality require integrated approaches involving labor market policies, education systems, and economic development strategies, which extend far beyond the direct influence of a tourism management project.

(E5) I.17 Optimal levels of access to local stores and products in tourist areas by residential population: The logistical challenges of collecting detailed data on the commercial offer in tourist areas are significant. This involves not only cataloging the number and type of retail stores but also continuously updating this information to reflect changes in the market. Such data collection efforts are resource-intensive and may not provide the direct, actionable insights necessary for the TOURISMO project's primary goals.

5. List of Data to collect

5.1. Data to collect for key Indicators components

INDICATORS COMPONENTS	DATA TO COLLECT
(E1) I.2.1 Real saturation levels of people / spaces	Number of people per square meter at critical monitoring points
(E1) I.2.2 Expected saturation levels of people / spaces	Number of people with reservations for tourist itineraries in places of cultural value. Tourist Itinerary: sites included in the itineraries and visiting hours of each of them.
(E2) I.4.1 Detection real transit of nº people / area / time	Number of persons in transit between two tourist points in a given time. Real time transit map - flows
(E2) I.4.2 Analytics anticipated reserves management: prediction of critical values agglomerations	Number of persons with anticipated reserve for each tourist itinerary X (tourist package or predefined tour) Tourist Itinerary X (predefined tour): sites included in the itineraries and visiting hours of each of them
(E3) I.5.1 Real time perception overcrowded: Social net	Number and type of words-comments in social networks related to the concept of "massification", identified as a negative aspect in the tourist visit.
(E3) I.5.2 Index perception post-experience overcrowded (sample)	Answers to questions of questionnaires made to real tourists to the perception of "overcrowding" or "tourist saturation" of the visited site.

(E4) I.12.1 Air pollution ranges in heritage environment stations	Levels of key pollutants that are harmful to human health and the environment: particulate matter (PM2,5 and PM10), tropospheric ozone (O3), nitrogen dioxide (NO2) and sulphur dioxide (SO2) - data from measuring stations located in heritage areas.
(E4) I.12.2 Range of noise pollution in heritage sites	Acoustic indices: noise index day, noise index evening, noise index night. Type of acoustic area to which the cultural heritage to be monitored belongs (defined according to the predominant use of the land, for example residential use, sanitary use, educational and cultural use, etc.).
(E0) 0.20.1 Delimitation and basic characteristics of sites subject to saturation : sites / spaces / heritage areas	List of Tourist Areas (Hinterland + City) - heritage and historical areas List of main tourist attractions per area Area (km2) of each heritage area/historical centre List of Cultural Heritage buildings per area
(E0) 0.20.2 Characterization and types of routes - Tourist shops	List of points of visit (tourist attraction) that are included in the itineraries / tours that are offered to tourists. Top five most popular tourist attractions (heritage and cultural attractions) included in tours.
(E0) 0.20.3 Characterization of tourist profile visiting heritage areas/sites	Number of tourists per country of origin Number of tourists per age Number of tourists traveling alone / with children Number of tourists by means of transport used to reach the tourist destination
(E0) 0.20.4 Characterization of tourist profile visiting heritage areas/sites	Number of tourist packages sold (total) Number of pre-sale tourist packages

(E0) 0.20.5 Historical data tourism heritage areas	Number of visitors per Touristic Areas/ year Number of tourists in the peak month and number of tourists in the least crowded month in the Touristic Areas (historical and heritage areas)
(E0) 0.20.6 Economic data tourism	Expenditure made by tourists (historical and heritage areas) - average daily spending per tourist Expenditure made by cruise ship tourists (on land)- average daily spending per tourist Cultural heritage site attraction promotion (€/year
(E0) 0.22.1 Capacity of saturation sites	Maximum number of tourists allowed in the historical center and in Cultural Heritage buildings Average time (tourists) spent in historical center and in Cultural Heritage buildings
(E0) 0.22.2 Accommodation by Type	Number of accommodations/beds in historical center Number of accommodations/beds in historical center- official accommodation: hotel, hostel, villas. Number of accommodations/beds in historical center - unofficial accommodation (tourist apartments)
(E0) 0.22.2 Public transport by type	Number of public bus stops in the historical center Number of metro stops (underground) in the historic center Number of train/tram stops in the historical center Number of (other public transport) stops in the historical center

(E0) 0.22.2 Tourist services by type in heritage areas	List of companies dedicated to cruise ships that arrive at ports linked to historical and heritage sites/zones Number of registered (officially certified) tourism enterprises operating the historic centre Number of unregistered (without official certification) tourism managers operating in the historic centre Number of Official tourism information in the historical center
(E0) 0.22.2 Restoration by type in heritage areas	Number of restaurants - historical center Number of bars (nigthclubs, pubs, etc.)
(E0) 0.22.2 Parking spaces in heritage areas	Number of parking spaces in parking around areas the historical center Number of free parking spaces in parking areas around the historical center

5.2. Data to collect for secondary Indicators components

INDICATORS COMPONENTS	DATA TO COLLECT
(E1) I.1.1 Environmental levels Sites	Environmental parameters: temperature, relative humidity, degree of humidity, luminosity, xylophagous detection, gases (CO2, CO, NO2, NO, O3, SO2). Material used in construction. Characteristics of the area to be monitored: movable property; air-conditioned/unheated space; covered/uncovered outdoor space, etc.
(E1) I.1.2 Cost Investment - Maintenance sites	Annual investment in maintenance of sites of cultural interest (€) Technical study of annual maintenance requirements (with estimated cost data in euros)
(E1) I.3.1 Overnights/(number of beds in un-official accommodation*30)	N. of beds in official accommodation facilities (georeferenced), N. of overnights in official accommodation facilities N. of beds in un-official accommodation facilities (AirBnB) (georeferenced), N. of overnights in un-official accommodation facilities overnights
(E1) I.3.2 Cost Investment - Maintenance sites	N. of beds in official accommodation facilities (georeferenced), N. of overnights in official accommodation facilities N. of beds in un-official accommodation facilities (AirBnB) (georeferenced), N. of overnights in un-official accommodation facilities overnights
(E1) I.3.3 Tourists overnights in official accommodations / number of residents (monthly) (georeferred)	N. of overnights in official accommodation facilities, N. of residents

(E1) I.3.4 Tourists overnights in un-official accommodations / number of residents (monthly) (georeferred)	N. of overnights in un-official accommodation facilities, N. of residents
(E1) I.3.5 Tourists overnights in all types of accommodations / number of residents (monthly) (georeferred)	N. of overnights in official + un-official accommodation facilities, N. of residents
(E1) I.3.6 Ratio between the number of tourists overnights and the number of residents within a significant neighbourhood (to be defined according to the characteristics of the place or building, for example the UNESCO center)	N. of overnights in official + un-official accommodation facilities, N. of residents, squared mile/meters around a specific site or building
(E3) I.8.1 Real time perception about hygiene, sanitation and cleaning conditions: Social net	Number and type of words-comments in social networks related to the concept of "hygiene, sanitary conditions and cleanliness", in the tourist visit made.
(E3) I.8.2 Index perception post-experience about hygiene, sanitation and cleaning conditions (sample)	Answers to questions of questionnaires made to real tourists to the perception of "hygiene, sanitary conditions and cleanliness", in the tourist visit made.
(E3) I.9.1 Index perception post-experience cultural heritage preservation (sample)	Number and type of words-comments in social networks related to the concept of "conservation of cultural heritage", in the tourist visit carried out.
(E4) I.11.1 Crime rate (tourism and general) in target area (EUROSTAT indicators)	Crime rate per 1,000 inhabitants: (total known criminal offences/total population) x1,000 Number of robberies with violence or intimidation Number of criminal offences and misdemeanours of all types of theft

(E4) I.13.1 Waiting times in main transport public	Average waiting time at public transport stops located in cultural heritage areas (by time zone and days of the week): by type of transport (bus, metro, etc.).
(E4) I.14.1 % of free parking spaces in parking areas	Number of parking spaces in parking areas. Number of free parking spaces in parking areas.
(E5) I.18.1 Local price index	Consumer Price Index (CPI) in each of the 12 groups according to the international classification of consumption in the European Union (EU): ECOICOP (European Classification of Consumption by Purpose).
(E5) I.19.1 Employees' number of traditional activities (historical shops, handicraft shops, etc.) / total number of employees	Demographics of economic activities by ATECO (Economic Activities Classification by ISTAT)
(E0) 0.21.1 Maximum number of passengers disembarkation day / hour	Maximum number of cruise passengers per every day of the week
(E0) 0.21.2 Historical disembarkation of passengers	Number of passengers disembarked by month and year
(E0) 0.21.3 Disembarkation forecast nº of passengers / itineraries x day / hour	Maximum number of passengers that will disembark per day of the week and hours

6. List of Thresholds

DATA TO COLLECT	THRESHOLD
Environmental parameters: temperature, relative humidity, degree of humidity, luminosity, xylophagous detection, gases (CO2, CO, NO2, NO, O3, SO2). Material used in construction. Characteristics of the area to be monitored: movable property; air-conditioned/unheated space; covered/uncovered outdoor space, etc.	To be defined according to the studied site
Annual investment in maintenance of sites of cultural interest (€) Technical study of annual maintenance requirements (with estimated cost data in euros)	
Number of people per square meter at critical monitoring points	To be defined according to the studied site
Number of people with reservations for tourist itineraries in places of cultural value. Tourist Itinerary: sites included in the itineraries and visiting hours of each of them.	
N. of beds in official accommodation facilities (georeferenced), N. of overnights in official accommodation facilities N. of beds in un-official accommodation facilities (AirBnB) (georeferenced), N. of overnights in un-official accommodation facilities overnights	93%

N. of beds in official accommodation facilities (georeferenced), N. of overnights in official accommodation facilities N. of beds in un-official accommodation facilities (AirBnB) (georeferenced), N. of overnights in un-official accommodation facilities overnights	93%
N. of overnights in official accommodation facilities, N. of residents	> 1
N. of overnights in un-official accommodation facilities, N. of residents	> 1
N. of overnights in official + un-official accommodation facilities, N. of residents	> 1
N. of overnights in official + un-official accommodation facilities, N. of residents, squared mile/meters around a specific site or building	To be defined according to the studied site
Number of persons in transit between two tourist points in a given time. Real time transit map - flows	Fluid crowd = 1 person /m2 Dense crowd = 2,5 person /m2 Very dense crowd = 4,3 person /m2

Number of persons with anticipated reserve for each tourist itinerary X (tourist package or predefined tour) Tourist Itinerary X (predefined tour): sites included in the itineraries and visiting hours of each of them	To be defined according to the studied site
Number and type of words-comments in social networks related to the concept of "massification", identified as a negative aspect in the tourist visit.	Monitoring of the trend and cycle of a series over time. Identification of an unusual increasing change of the negative reviews with respect a specific analysed topic
Answers to questions of questionnaires made to real tourists to the perception of "overcrowding" or "tourist saturation" of the visited site.	
Number and type of words-comments in social networks related to the concept of "massification", identified as a negative aspect for the residents.	Monitoring of the trend and cycle of a series over time. Identification of an unusual increasing change of the negative reviews with respect a specific analysed topic
Number and type of words-comments in social networks related to the concept of "hygiene, sanitary conditions and cleanliness", in the tourist visit made.	Monitoring of the trend and cycle of a series over time. Identification of an unusual increasing change of the negative reviews with respect a specific analysed topic
Answers to questions of questionnaires made to real tourists to the perception of "hygiene, sanitary conditions and cleanliness", in the tourist visit made.	

Number and type of words-comments in social networks related to the concept of "conservation of cultural heritage", in the tourist visit carried out.	Monitoring of the trend and cycle of a series over time. Identification of an unusual increasing change of the negative reviews with respect a specific analyzed topic
Crime rate per 1,000 inhabitants: (total known criminal offences/total population) x1,000 Number of robberies with violence or intimidation Number of criminal offences and misdemeanours of all types of theft	To be defined according to the studied site
Levels of key pollutants that are harmful to human health and the environment: particulate matter (PM2,5 and PM10), tropospheric ozone (O3), nitrogen dioxide (NO2) and sulphur dioxide (SO2) - data from measuring stations located in heritage areas.	PM10: The daily limit is 50 µg/m^3, which should not be exceeded more than 35 times per year (WHO). PM2.5: The annual limit is 25 µg/m^3 (WHO). NO2: The annual limit is 40 µg/m^3 and the hourly limit is 200 µg/m^3, which should not be exceeded more than 18 times per year (WHO). SO2: The hourly limit is 350 µg/m^3, which should not be exceeded more than 24 times per year (WHO). O3: The daily limit is 120 µg/m^3, which should not be exceeded more than 25 times per year on average over three years (WHO).

Acoustic indices: noise index day, noise index evening, noise index night. Type of acoustic area to which the cultural heritage to be monitored belongs (defined according to the predominant use of the land, for example residential use, sanitary use, educational and cultural use, etc.).	To be defined according to the studied site
Average waiting time at public transport stops located in cultural heritage areas (by time zone and days of the week): by type of transport (bus, metro, etc.).	> 10/15 minutes
Number of parking spaces in parking areas. Number of free parking spaces in parking areas (daily/Hour).	< 5%
Consumer Price Index (CPI) in each of the 12 groups according to the international classification of consumption in the European Union (EU): ECOICOP (European Classification of Consumption by Purpose).	To be defined according to the studied site

Demographics of economic activities by ATECO (Economic Activities Classification by ISTAT)	Negative change of the employees (referred to a specific ATECO), related to the middle term time series
List of Tourist Areas (Hinterland + City) - heritage and historical areas List of main tourist attractions per area Area (km2) of each heritage area/historical centre List of Cultural Heritage buildings per area	To be defined according to the studied site
List of points of visit (tourist attraction) that are included in the itineraries / tours that are offered to tourists. Top five most popular tourist attractions (heritage and cultural attractions) included in tours.	
Number of tourists per country of origin Number of tourists per age Number of tourists travelling alone / with children Number of tourists by means of transport used to reach the tourist destination	

Number of tourist packages sold (total) Number of pre-sale tourist packages	
Number of visitors per Touristic Areas/ year Number of tourists in the peak month and number of tourists in the least crowded month in the Touristic Areas (historical and heritage areas)	
Expenditure made by tourists (historical and heritage areas) - average daily spending per tourist Expenditure made by cruise ship tourists (on land)- average daily spending per tourist Cultural heritage site attraction promotion (€/year	
Maximum number of cruise passengers per every day of the week	To be defined according to the studied site
Number of passengers disembarked by month and year	
Maximum number of passengers that will disembark per day of the week and hours	
Maximum number of tourists allowed in the historical center and in Cultural Heritage buildings Average time (tourists) spent in historical center and in Cultural Heritage buildings	To be defined according to the studied site

Number of accommodations/beds in historical center Number of accommodations/beds in historical center- official accommodation: hotel, hostel, villas. Number of accommodations/beds in historical center - unofficial accommodation (tourist apartments)	
Number of public bus stops in the historical center Number of metro stops (underground) in the historial center Number of train/tram stops in the historical center Number of (other public transport) stops in the historical center	
List of companies dedicated to cruise ships that arrive at ports linked to historical and heritage sites/zones Number of registered (officially certified) tourism enterprises operating the historic centre Number of unregistered (without official certification) tourism managers operating in the historic centre Number of Official tourism information in the historical center	
Number of restaurants - historical center Number of bars (nigthclubs, pubs, etc.)	
Number of parking spaces in parking around areas the historical center Number of free parking spaces in parking areas around the historical center	

7. Implementation recommendations

The initial list of sustainability indicators established for the TOURISMO project represents a framework designed to address the immediate needs of managing tourist flows and preserving cultural and natural heritage sites. However, it is imperative to recognize that this list is not static and might be subject to modifications based on the evolving needs and insights gained from the pilot projects.

The dynamic nature of tourism sustainability requires **flexibility and responsiveness**. As pilots develop and implement their monitoring strategies, they may identify gaps in the current indicators or discover new metrics that better capture the unique challenges they face. For example, a pilot site focusing on coastal tourism in natural protected areas might need additional indicators related to marine biodiversity, which were not initially considered. Similarly, urban heritage sites might benefit from indicators focused on visual pollution to preserve the authenticity and character of historical sites.

An internal review of the indicator list will be conducted after all pilot sites have a clearer and updated understanding of what they need to monitor and how to do so. This iterative process, which will include reassessments during key stages such as the integration into the Snap4City platform, ensures that the indicators remain relevant, actionable, and aligned with the on-ground realities of the pilots throughout the entire project.

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