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iv. Utilising tourism statistics for business and policy analysis

A sustainable tourism indicator system for Andalusia: Implementation for public management

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I. Introduction

Control over the promotion and management of tourism in Andalusia has been transferred to the Spanish Autonomous Communities, which have full autonomy when it comes to any action that specifically influences the planning of this sector. Thus, it seems natural that Andalusia, a region with autonomy over its tourism policy and where tourism has great economic importance, should be afforded tools that are capable of providing as complete an understanding as possible of the tourism situation, as well as how tourism relates to other economic, territorial, and environmental areas.

The General Plan for Sustainable Tourism in Andalusia 2014–2020 was created as a basic and essential tool in the management of Andalusia's tourism resources from the perspective of integral sustainability. As a concept, it is more than just the result of specific actions and, indeed, is a model for process and procedure management imbued in every sense with respect for the local environment and the local people who put them in practice. This plan defines the principles that characterize integral tourism sustainability, which are therefore the principles upon which the indicator system is based. These principles consider sustainability as follows:

- Sustainability as a way to defend local values (natural, cultural, ethnographic, landscape, environmental, etc.), since these values represent the various forms of tourism activity.

- Sustainability as an efficient and fair way of producing tourism services, which must promote the development of the business, ensuring the profitability and competitiveness of businesses that manage tourism products, with particular emphasis on the stability and quality of employment.

- Sustainability as a means of governance based on transparency, participation, and joint decision making, the latter characterized by subsidiarity and public-private and public-public cooperation.

- Sustainability as a means of territorial cohesion, so that the tourism activities contribute to balanced development in the various territories of Andalusia.

- Sustainability as a social means of appropriating tourism activities for citizens.

- Sustainability as a continuous means of investigation, development, and innovation.

Special importance is placed on evaluating public policies by identifying the effects they have on the target population and the extent to which they resolve the original problems. In this sense, the incorporation of indicators that can help

diagnose and monitor the situation at the tourism destination before, during, and after planning becomes a key element.

In short, the vast economic significance of tourism in Andalusia together with the region's autonomy over tourism policies and the need to measure their effects combine to support the search for appropriate tools of measurement and analysis. In response to this challenge, the Indicator System for Sustainable Tourism in Andalusia was created.

This indicator system allows measurement of the key aspects addressed in the General Plan for Sustainable Tourism in Andalusia, such as the enhancement of natural, cultural, territorial, and scenic resources; the stability and quality of employment; and the complementary relations between the products, overall quality, innovation, and competitiveness of the destination.

One of the main requirements in most plans implemented by any section of the administration is the development of a system of indicators for monitoring and verification that makes it possible to understand the effects of plan-related activities. In relation to tourism policies, up-to-date, dynamic, and interrelated indicator systems that provide an overall vision of the destination are particularly important, because tourism policies are not static phenomena but, in addition to diagnosis, require evaluation and continuous reworking if necessary.

II. The system: Methodology

The Indicator System for Sustainable Tourism in Andalusia comprises more than 300 indicators for the year of analysis, as well as a reference point for each that is (in most cases) the average value of each indicator for the three-year period prior to the year of analysis, in such a way that the whole system comprises a four-year period, which is usually the planning period.

This system **allows measurement of the evolution toward sustainability** but does not determine whether the tourism destination is sustainable or not. The reason is that, while the value of the indicator is compared with the evolution of this same indicator throughout a specified period, the desired thresholds or benchmarks are not defined.

The **methodology** uses synthetic indicators for three different levels of analysis. The first level corresponds to seven key areas: governance, territory, vulnerability, profitability, diversification, quality, and innovation. Within each key area are different key topics, 40 in total. The different indicators are therefore also included within these key topics. The result of this system is therefore a set of synthetic indicators that determine whether the tourism system is evolving toward sustainability or not.

For the individual treatment of each indicator, as well as their construction, we use the reference point technique. Originally proposed by Wierzbicki (1980), this technique is based on consideration of reference points, which are constructed based on the desired values for each of the objectives (indicators). These desirable values are not a standard or defined benchmark but are designed by establishing a desired tendency or evolution with respect to past values. In this paper, we compare the values for 2012 with the average of the same variables for 2008-2011. It was not possible to obtain the necessary information for all the indicators for the time series required and in those cases we worked with shorter periods or usually established the benchmarks by obtaining the values of the variables for all of Spain to assess whether Andalusia is below or over the national average for the indicators in question.

Once the reference points are specified, a scaled function of success measures the proximity of the values of each indicator to their corresponding reference points. These functions of success also incorporate **weightings**, whose role may vary from mere standardized factors to parameters that capture the preferences of the central decision maker (Ruiz et al., 2009).

Each individual key indicator is provided a weight by the **technicians** who perform the calculations and who know the concepts to be measured and the different sources of information and statistics available (Figure 1). The weight imposed on the indicator depends on **the extent to which it identifies the concept to be**

measured, that is, whether it is a direct or indirect measure or a partial or complete measure. The weights range from three (direct and complete measure) to one (indirect and partial measure).

Not all the key themes are equally relevant in the valuation of each key area for Andalusia and their importance was determined by **90 experts via an online survey.** These recognized experts, who are familiar with Andalusian tourism destinations, identified the relative importance of each key theme in the definition of each key area. A weight higher or lower than one thus means that the experts contacted assigned greater or lesser importance to the specific key theme in the definition of its key area.
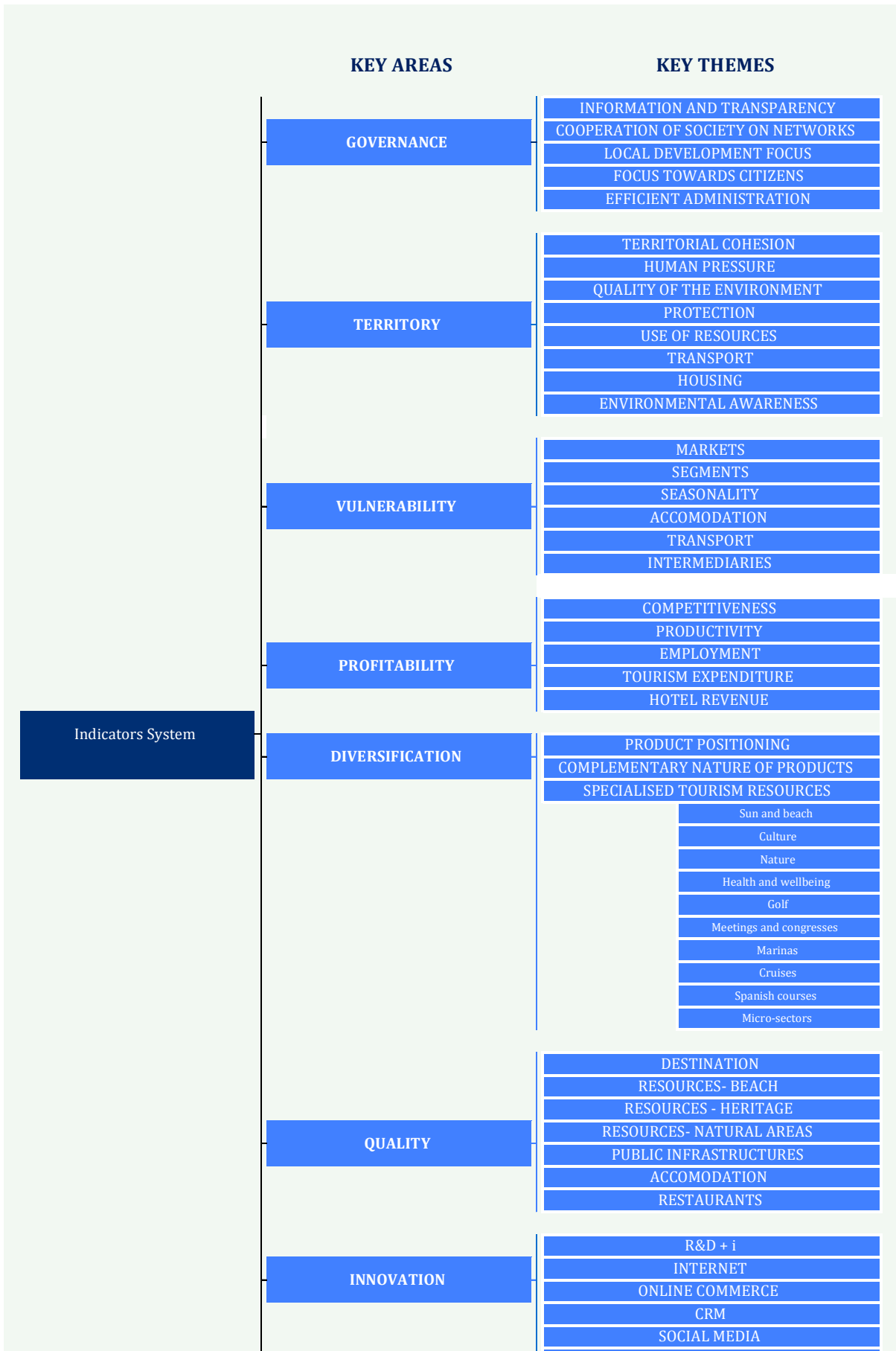
The importance of each key area was identified by a central **decision maker or policy makers in order to incorporate their policy decisions into the system**.

Figure 1

Finally, the system comprises 7 key areas and 40 key as it is shown in the figure 2:

Figure 2.

KEY AREAS

KEY THEMES

Indicators System

GOVERNANCE
- INFORMATION AND TRANSPARENCY
- COOPERATION OF SOCIETY ON NETWORKS
- LOCAL DEVELOPMENT FOCUS
- FOCUS TOWARDS CITIZENS
- EFFICIENT ADMINISTRATION

TERRITORY
- TERRITORIAL COHESION
- HUMAN PRESSURE
- QUALITY OF THE ENVIRONMENT
- PROTECTION
- USE OF RESOURCES
- TRANSPORT
- HOUSING
- ENVIRONMENTAL AWARENESS

VULNERABILITY
- MARKETS
- SEGMENTS
- SEASONALITY
- ACCOMODATION
- TRANSPORT
- INTERMEDIARIES

PROFITABILITY
- COMPETITIVENESS
- PRODUCTIVITY
- EMPLOYMENT
- TOURISM EXPENDITURE
- HOTEL REVENUE

DIVERSIFICATION
- PRODUCT POSITIONING
- COMPLEMENTARY NATURE OF PRODUCTS
- SPECIALISED TOURISM RESOURCES
  - Sun and beach
  - Culture
  - Nature
  - Health and wellbeing
  - Golf
  - Meetings and congresses
  - Marinas
  - Cruises
  - Spanish courses
  - Micro-sectors

QUALITY
- DESTINATION
- RESOURCES- BEACH
- RESOURCES - HERITAGE
- RESOURCES- NATURAL AREAS
- PUBLIC INFRASTRUCTURES
- ACCOMODATION
- RESTAURANTS

INNOVATION
- R&D + i
- INTERNET
- ONLINE COMMERCE
- CRM
- SOCIAL MEDIA
- MOBILE TECHNOLOGY

The **governance** area evaluates the performance of the regional government in terms of creating networks that foster collaboration among stakeholders, the participation of the residents and the private sector in the policy making of the destination, and the efficiency of administrative processes.

Tourism and **territory** are inevitably connected. Territory is simultaneously the physical support and attraction for tourism. The aim is to launch an evaluation of the sustainability of the territory – i.e. of the destination – with variables that are not always tourism–related, taking into account the interrelations of tourism with the heritage–related, natural, social, economic and institutional surroundings.

Vulnerability area refers to the likelihood that the destination will be harmed by exposure to tensions associated with the surroundings and the lack of or poor capacity for adaptation to these changes. Strong dependence on a single factor is disadvantageous, since the destination would be at the mercy of changes in the environment not controlled by the destination. Vulnerability is therefore understood as **a state of susceptibility to environmental, economic, or social stress**. Even if this concept is usually assessed under the focus of the natural environment or natural disasters, we also include such aspects as economic and social sustainability.

This area allows us to understand the **degree of vulnerability of the tourism demand** with respect to, for instance, the structure of its markets of origin in such a way that if we rely on just a few markets, we become more dependent on their evolution and therefore more vulnerable. This same logic is applied to the rest of the themes in this area: segments, seasonality, accommodation, transport, and intermediaries.

Evolution toward sustainability is positive for all the key themes except for seasonality and transportation, which have decisively influenced the negative evolution of the whole area, given the value of the synthetic indicators for the different key themes, together with the weightings provided by the experts.

Profitability area analyzes the performance of tourism as an economic sector, including aspects such as **income generation**, employment, and **multiplier effects**. The evolution has been mostly positive; however, the negative development of employment has influenced the overall negative evolution of the area.

Diversification area intends to measure the degree of complementarity between different products/demands, as well as whether the image offered by Andalusia transmits this range of offers. It assesses the **resources susceptible to being used as tourism assets**, taking into account the capacity and diversity of tourism products available in Andalusia (sun and beach, culture, natural areas, wellness, etc.). This area also assesses the **complementary nature** of these products and

whether the **image of Andalusia transmits the whole range of products** actually offered.

The objective of **quality** area is to evaluate satisfaction of demand and the ability and performance of the supply to meet tourists demands, i.e. approaching the measurement of from demand and supply perspective.

In terms of demand, quality means satisfactory and adequate meet clients' expectations, and therefore includes indicators of demand satisfaction such as the complaints/claims that they might express with regard to the various aspects of tourism.

For the quality of supply, standards of quality have mainly been used (ISO, Q Turística, etc.), along with more specific data such as the number of blue flags for beaches or monuments recognised as world heritage sites by UNESCO. Measures of accessibility, quality of training/education, etc., have also been used.

Tourism is a sector that is strongly influenced by the development of new technologies, especially the mass adoption of the internet by consumers, reaping huge benefits for this sector, which has had to adapt itself rapidly to new market conditions. **Innovation** area includes measurements of Internet usage by potential demand and supply, online commercialization, customer relationship management, social networks, and mobile technology. This area measures the adequate development of technology at the destination in terms of both the potential and real demand and the supply.

A **computer program** specifically designed for this system manages the vast amount of information contained in the indicator system, given the obvious complexity in drawing up more than 300 synthetic indicators. Certain characteristics of the system, as well as its **graphic design**, were modified and adapted for easier interpretation by the general public and politicians, who are the end users of a system that involves a fair amount of internal complexity.

The interpretation follows the **universal color code of traffic light systems**: Green is displayed if the aspect measured is evolving toward sustainability, yellow if it is constant (within a range of $\pm1\%$), and red if it is evolving away from sustainability.

III. The system: Results. Special emphasis on quality area.

At the time this document was written, not all the key areas of the indicator system were finalized, since the areas of governance and diversification are still under development. Due to magnitude of the systems, we present an example based on quality area results. A greater level of detail is presented for this area, including an analysis at the core indicator level.

Figure 3:
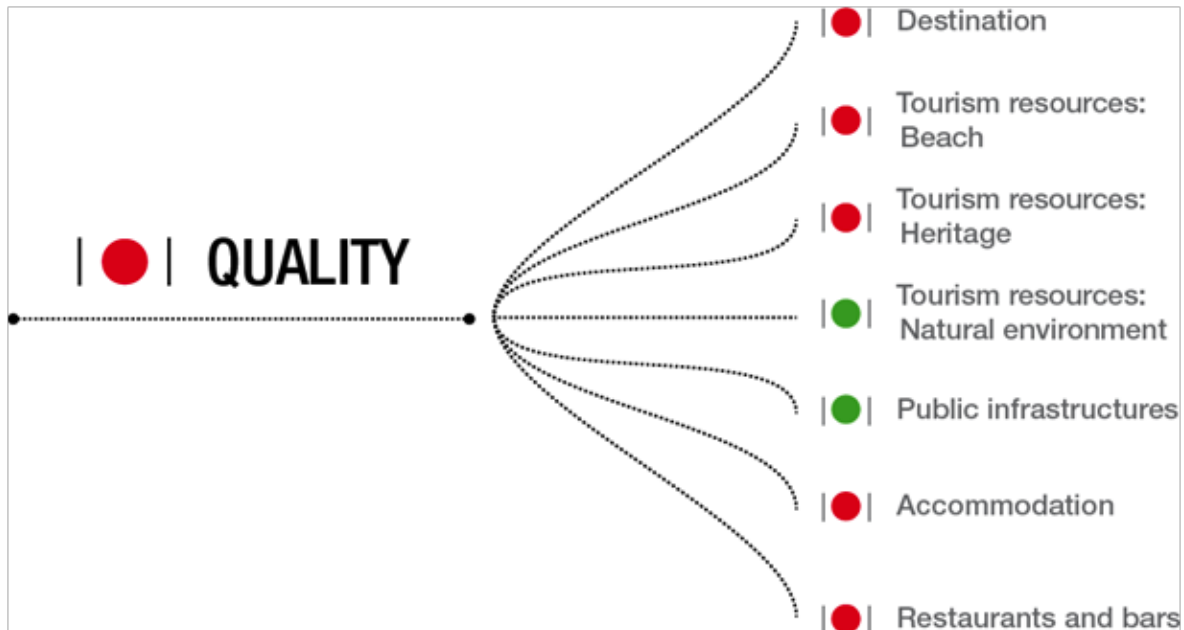
The objective of this area in the indicator system is to perform a quality assessment for Andalusia as a tourist destination that incorporates all the aspects that are relevant in a quality measurement (figure 3) while addressing the particular circumstances of the tourism sector. The definition and, therefore, the measurement of tourism quality presents certain difficulties, because, in addition to the fact that quality is a rather broad concept and difficult to define, we must add the problems that arise from the intangible and multisectoral nature of tourism services.

There are still some definite aspects and measuring quality requires an assessment of the gap between consumer expectations about the service they receive and their **perceptions of the actual service received.** In that sense, it is the **market** that primarily provides information.

In terms of market perception, two basic statistical sources are utilized. The first is the Andalusian Tourism Situation Survey (ATSS), a quarterly statistical survey

offering information on tourism demand in Andalusia, yielding information on the views expressed on tourist offers and services received during tourists' stay, among other aspects. The second source of information is a specific tourist satisfaction survey that is based on the contacts gathered in the ATSS survey process. This source leverages the contact information of the interviewees who consented to provide further information and helps develop a set of specific quality indicators.

The market results regarding satisfaction are not distinct and separate but, rather, form a continuum that ranges from loyalty to dissatisfaction, the latter manifested as complaints or simply the lack of repeat customers. This measure also includes indicators of complaints and claims, representing the most dissatisfied tourists, as well as the degree of loyalty to Andalusia and recommendations of Andalusia as a tourist destination.

To approximate quality, it is also necessary to incorporate more objective measurements that report whether or not certain essential features are present that destinations and tourism service providers need to meet tourist demand. To this end, the indicator system incorporates aspects such as quality standards and certifications and the quality of the infrastructure, services, and staff attending to tourist demand.

In addition to measuring quality at the tourist destination in an overall sense, key elements of the destination are also provided in a separate analysis: its main resources (sun and beach, nature, culture), the necessary basic infrastructure in any tourist destination (transport, health, cleaning), as well as key tourism subsectors (accommodations and food).

Key theme: Tourist destination

This key theme includes the overall assessment of Andalusia as a tourist destination, as well as assessment of its capacity to adequately meet the demands of tourists (figure 4).
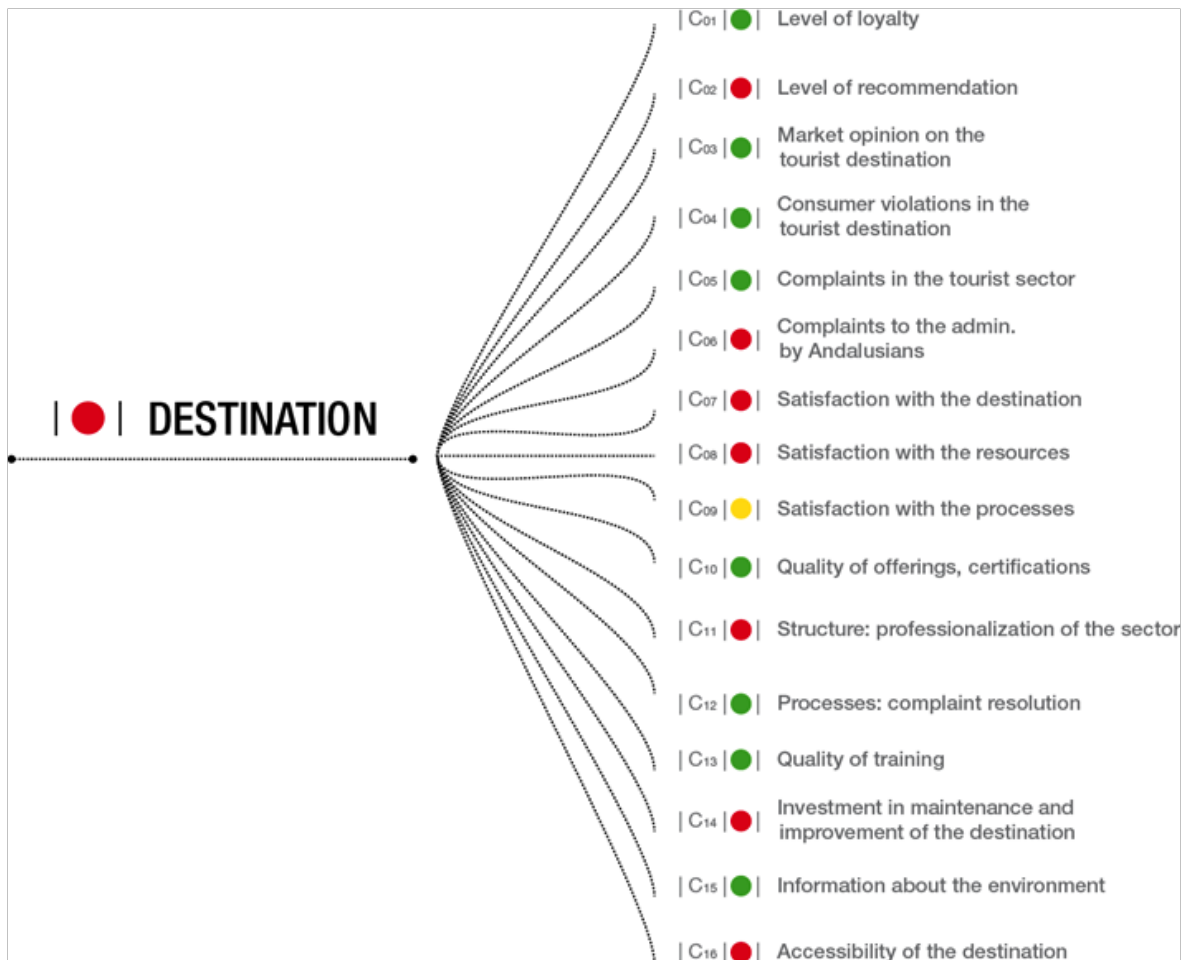
The results relating to **market perception** show us that the destination's evolution toward sustainability has been positive in terms of the loyalty of tourists to Andalusia, the overall opinion tourists have of Andalusia as a tourist destination, consumer complaints, and the resolution process. As for the market's satisfaction with services received, progress toward sustainability remains stable.

Those aspects that show a negative trend are the percentage of tourists coming to Andalusia motivated by the recommendation of other tourists; complaints facing the administration (ombudsman); tourist satisfaction with the social environment, courtesy, customs, contact, and interaction; as well as tourists' general impressions of the destination's resources.

As for measurements **of the destination's ability to meet market needs**, the aspects that are evolving favorably include quality certification or standards for characteristic and secondary tourism activities, fewer infringements of consumer protection in Andalusia, and a positive trend in requesting both statistical information and any other type of information about the sector. Aspects presenting a negative trend are the administration's decreased budgetary efforts in investing in maintenance and in improving the destination, due to the climate of budget cuts in the public sector, as well as the lesser importance of accessible tourism resources in Andalusia compared to the national average.

In terms of **training and professionalization** in the sector, we reach two important conclusions from the analysis of the two indicators included in this measurement area (C11 and C13 below). First, the presence of tourism education in the post-compulsory secondary education system is not consistent with the importance of employees with this level of training in this sector and, second, the number of professional education centers specific to tourism that have a certificate of recognition for excellence is higher in Andalusia than the national average.
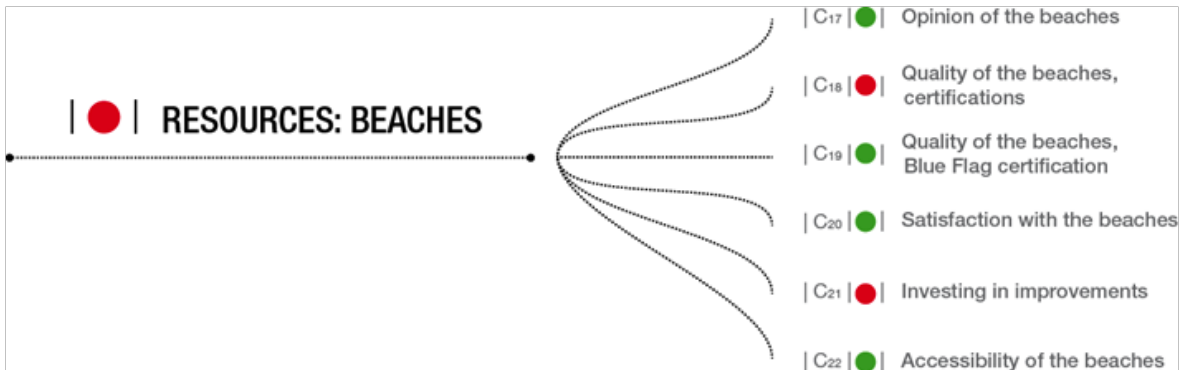
Figure 4.

C01	🟢	Level of loyalty
C02	🔴	Level of recommendation
C03	🟢	Market opinion on the tourist destination
C04	🟢	Consumer violations in the tourist destination
C05	🟢	Complaints in the tourist sector
C06	🔴	Complaints to the admin. by Andalusians
C07	🔴	Satisfaction with the destination
C08	🔴	Satisfaction with the resources
C09	🟡	Satisfaction with the processes
C10	🟢	Quality of offerings, certifications
C11	🔴	Structure: professionalization of the sector
C12	🟢	Processes: complaint resolution
C13	🟢	Quality of training
C14	🔴	Investment in maintenance and improvement of the destination
C15	🟢	Information about the environment
C16	🔴	Accessibility of the destination

| 🔴 | DESTINATION

The aggregation and summary of all this information relating to the destination as a whole reveal a negative trend during 2012, compared to 2008–2011, influenced primarily by lesser investments by the public administration in the maintenance and improvement of the destination, in addition to the low level of professionalism in the tourism sector.

Key theme: Resources—Beaches
Figure 5.

| C17 | 🟢 | Opinion of the beaches
| C18 | 🔴 | Quality of the beaches, certifications
| C19 | 🟢 | Quality of the beaches, Blue Flag certification
| C20 | 🟢 | Satisfaction with the beaches
| C21 | 🔴 | Investing in improvements
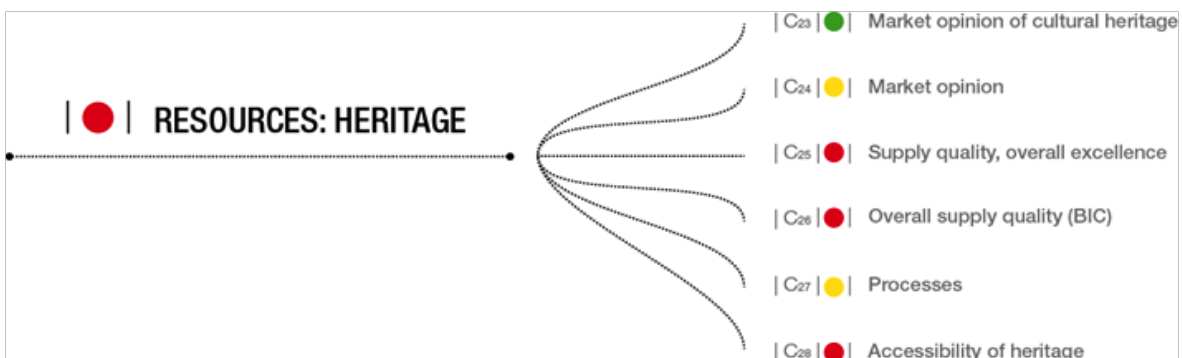| C22 | 🟢 | Accessibility of the beaches

In the beach area, market perception shows a positive trend, as in the case of Blue Flag certifications. Similarly, Andalusia has a higher percentage of accessible beaches than the national average. However, the negative trend in other types of quality certifications, along with a decline in public investment in improving the beaches, produces a negative overall trend in this key theme.

Key theme: Resources—Heritage

The overall market perception of the region's cultural heritage and the services received during tourists' stay in Andalusia exhibit a stable or positive trend (figure 6). A negative trend is presented by the quality measured in terms of conservation and protection of the heritage environment. What most specifically makes the overall trend for the key theme negative is the threat intensity coefficient indicator provided by UNESCO, which presents a negative trend. Likewise, the accessibility of cultural heritage in Andalusia is below the national average.
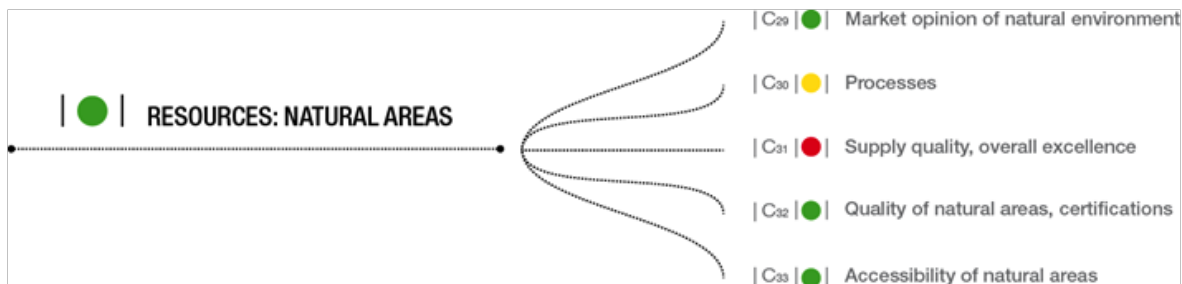
Figure 6:

| C23 | 🟢 | Market opinion of cultural heritage
| C24 | 🟡 | Market opinion
| C25 | 🔴 | Supply quality, overall excellence
| C26 | 🔴 | Overall supply quality (BIC)
| C27 | 🟡 | Processes
| C28 | 🔴 | Accessibility of heritage

Key theme: Resources—Natural areas

The quality of natural areas as tourism resources demonstrates a positive trend in terms of market perception, quality certifications, and even the level of accessibility, compared to the national average. However, as in the heritage category, the threat intensity coefficient provided by UNESCO shows a negative trend. Nevertheless, the overall trend in this key theme for the study period is positive (figure 7).

Figure 7:

| C29 | ● | Market opinion of natural environment
| C30 | ● | Processes
| C31 | ● | Supply quality, overall excellence
| C32 | ● | Quality of natural areas, certifications
| C33 | ● | Accessibility of natural areas
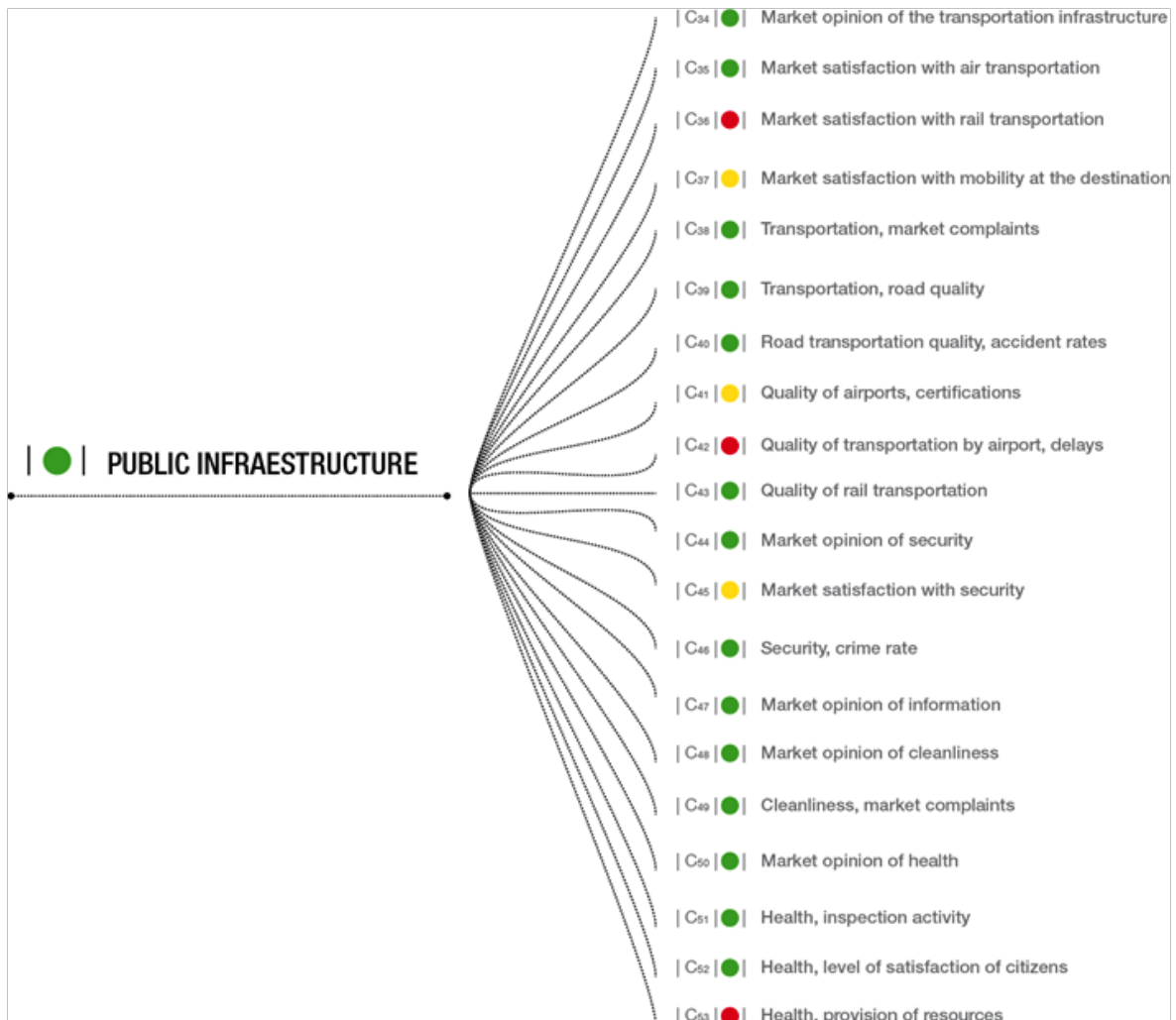
Key theme: Public infrastructure

The **transportation infrastructure** is noted for its significance in the public infrastructure affecting tourism. The indicators linked to market perception have a positive trend overall, including the overall market opinion of the transportation infrastructure and satisfaction with air transportation. Complaints and claims in connection with transportation also have a positive trend. However, this is not the case with satisfaction with mobility at the destination, which holds steady, and market satisfaction with rail transportation, which is trending downward.

The indicators for measuring the capacity of the transportation infrastructure to meet market needs show a positive trend with respect to roadways (in terms of their quality and accident rates) and rail transportation. Regarding airports, the trend in quality certifications is observed to be stable, while a negative trend is revealed for delays.

Other aspects of public infrastructure with relevance for tourism have shown overall improvements, such as **security, cleanliness, health, and** the provision of information. In particular, the opinions of the tourism market and residents about health show a positive trend, despite decreased resources. Tourists perceive an improvement in security with the drop in crime, even though the satisfaction they express remains stable. Market opinion and complaints received regarding cleanliness, information, and inspection activities in terms of health and market control also show favorable development.

Development toward sustainability in the quality of public infrastructure as a whole during 2008–2012 has been positive (figure 8).

Figure 8:

| C34 | 🟢 | Market opinion of the transportation infrastructure
| C35 | 🟢 | Market satisfaction with air transportation
| C36 | 🔴 | Market satisfaction with rail transportation
| C37 | 🟡 | Market satisfaction with mobility at the destination
| C38 | 🟢 | Transportation, market complaints
| C39 | 🟢 | Transportation, road quality
| C40 | 🟢 | Road transportation quality, accident rates
| C41 | 🟡 | Quality of airports, certifications
| C42 | 🔴 | Quality of transportation by airport, delays
| C43 | 🟢 | Quality of rail transportation
| C44 | 🟢 | Market opinion of security
| C45 | 🟡 | Market satisfaction with security
| C46 | 🟢 | Security, crime rate
| C47 | 🟢 | Market opinion of information
| C48 | 🟢 | Market opinion of cleanliness
| C49 | 🟢 | Cleanliness, market complaints
| C50 | 🟢 | Market opinion of health
| C51 | 🟢 | Health, inspection activity
| C52 | 🟢 | Health, level of satisfaction of citizens
| C53 | 🔴 | Health, provision of resources

| 🟢 | PUBLIC INFRAESTRUCTURE

Key theme: Accommodations

The **market perception** of accommodations reveals a positive trend in terms of overall opinion and satisfaction with treatment by staff. This is consistent with the decline in consumer complaints in connection with accommodations. Perceived satisfaction with regulated accommodations and services received therein remain stable, while a decline has been observed in terms of satisfaction with the infrastructure of these accommodations.

In terms of **supply** indicators, a greater number of quality certifications at establishments is observed, with the increased presence of high-end (four- and

five-star) establishments. There is less personalized service to tourists due to the lower number of staff employed per establishment, which ties in with a decrease in terms of investment in maintenance and improvements made by the supply end. Likewise, accommodation establishments in Andalusia are at a disadvantage in terms of accessibility compared to the national average.

The development of the key theme of quality of accommodations as a whole shows a negative trend in 2012 compared to the average for 2008–2011 (figure 9).
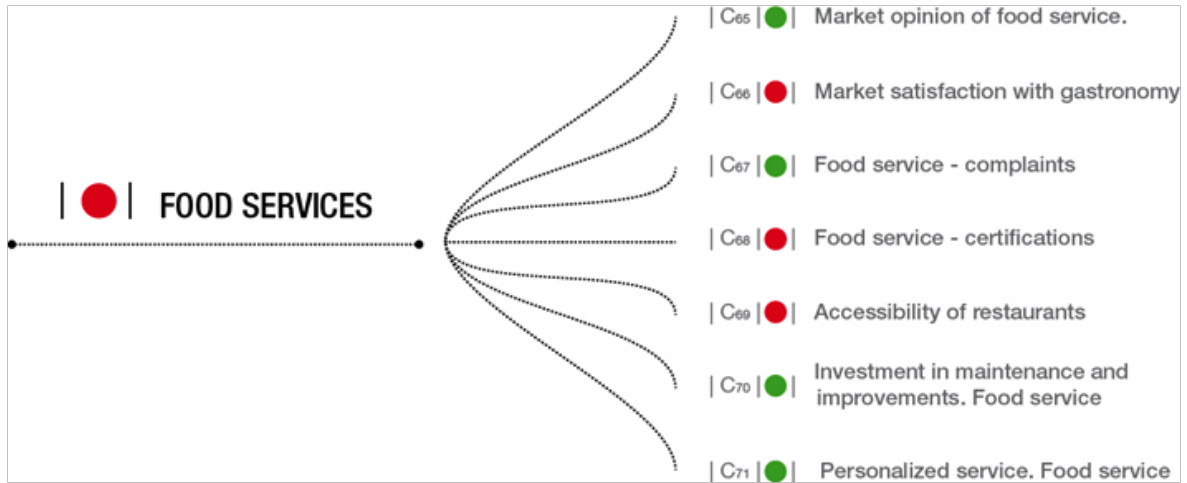
Figure 9:
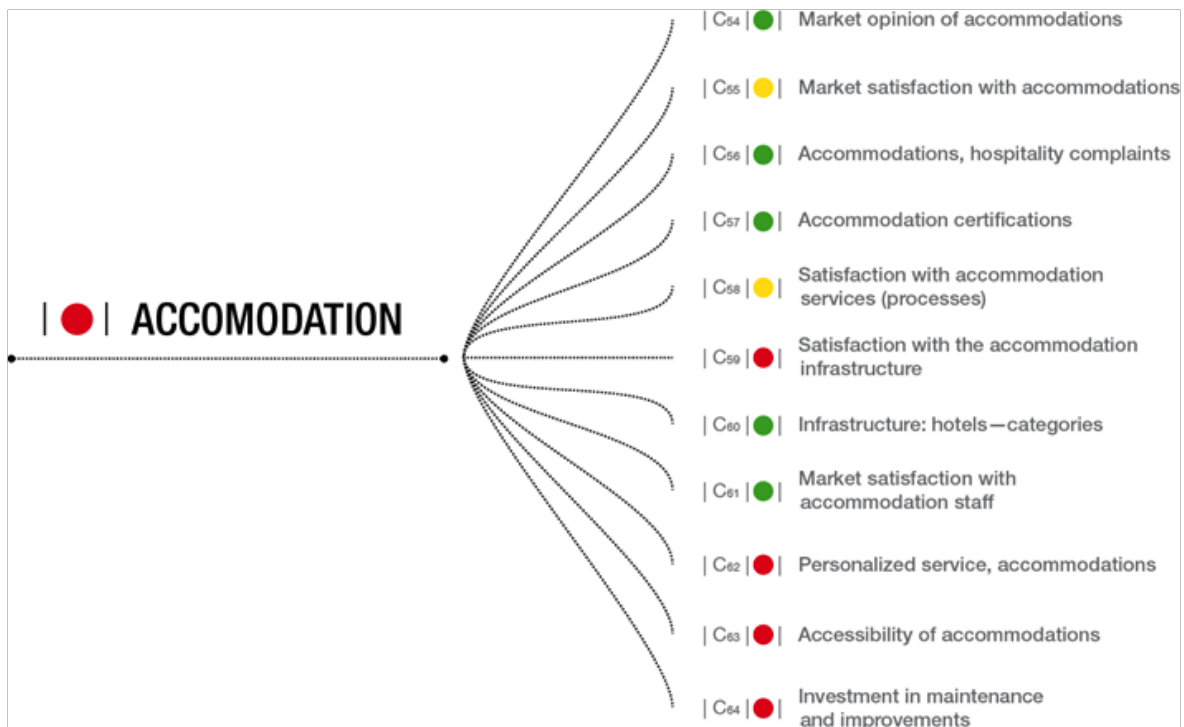
Key theme: Food service

The **market perception** of food service shows a positive trend in terms of general opinion; however, tourists' perceived satisfaction is trending in the opposite direction. Complaints by the market, which also includes the resident population, showed improvement in 2012.

On the **supply side**, investment in maintenance and improvements in the restaurant industry and the number of employees per establishment are improving, although the number of quality certifications reveals a negative trend. Andalusian restaurants also exhibit lower accessibility, compared to the Spanish average.

As a whole, the indicators included in the key theme of food service present a negative trend for the study period (figure 10).

Figure 10:

| C65 | 🟢 | Market opinion of food service.

| C66 | 🔴 | Market satisfaction with gastronomy

| C67 | 🟢 | Food service - complaints

| C68 | 🔴 | Food service - certifications

| C69 | 🔴 | Accessibility of restaurants

| C70 | 🟢 | Investment in maintenance and improvements. Food service

| C71 | 🟢 | Personalized service. Food service

FOOD SERVICES 🔴

IV.   Usefulness in decision making

Indicators are useful tools in the decision making process, both in the planning stage and in public management. Their value lies in objectively revealing the reality of a tourist destination. Moreover, not only are these tools able to offer an analysis of the baseline situation, but also they enable progress to be monitored, which is very important when one considers that tourism policies are not stationary objects.

Three key stages are detected in planning: design, which necessitates a strong diagnosis (context indicators); implementation, which requires control and monitoring (management indicators or operating indicators); and, finally, the results of their application (outcome indicators and impact indicators, the latter requiring longer-term measurements than the former).

In this sense, the Indicator System for Sustainable Tourism in Andalusia enables two different kinds of measurements: The first is more strategic and responsible for sketching initial and final scenarios; it outlines the precise situation of the tourism destination before and after planning. The other kind of measurement involves a continuous assessment that serves as a warning system predicting deviations in results or significant changes in the environment, meant to allow for timely rectifications and to avoid imbalances to the sustainable tourist destination model.

Thus, managers in the Andalusian destination can use the indicator system for the following purposes:

- Diagnosing the destination by identifying weaknesses in its progress toward sustainability and tracking them.

- Identifying new threats and changing trends that warrant consideration during planning.

- Assessing the current situation with the purpose of contributing to progress toward sustainability and reducing the level of uncertainty of tourism policies.

- Setting realistic goals and objectives, with reference to the current levels of the different indicators.

- Assessing the level of success of the steps taken on the basis of observed changes. It is noteworthy that, given the complexity of the measured reality, there need not be a direct cause-effect relation between the steps taken to develop tourism policy and the development of the indicators. This is yet another application of the system, since it will detect where other factors may have influenced the observed unsatisfactory evolution of certain indicators.

- Learning the situation at the destination after planning is complete and incorporating experience and knowledge of the process for future developments.

Moreover and equally important is the fact that, because of this experience, Andalusia currently enjoys a comprehensive information system that supports the development of up-to-date, dynamic, and interrelated indicators and fills in the gaps identified where the analysis of tourism could improve.

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