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Key words: Policy actors, sustainability, measurement, system of indicators, tourism.

1. INTRODUCTION

Tourism has been one of the fastest growing industries in the last years. Following six decades of consistent growth, tourism in 2019 was acknowledged as one of the world's most important economic sectors (OECD, 2020). Tourism has also been one of the most affected sectors by the unparalleled and fast-evolving COVID-19 health crisis (UNWTO, 2020a). The UNWTO estimates that international tourist arrivals could decline from 58% to 78% in 2020 (UNWTO, 2020b).

The steady increase of tourism activity already evidenced the important challenge of making this development compatible with a sustainable model (Butler, 1999), but, the 2020 severe drop of tourism activity has revealed the previously envisaged risks with severe implications on the business models of tourist destinations and the economic, social and environmental impacts that they will generate (Gallego & Font, 2020). In this context, the development of tourism strategies and policies based on the principles of sustainability emerges with growing prominence as a key policy issue for tourism (UNWTO, 2020a).

Tourism activities have important positive and negative impacts on the economy, the environment and the society. An effective management by Tourism Governments needs tools for measuring these impacts and and hence Tourism Governments need to put in place organizing structures for exploiting the data already available and for more effective data production, management and integration (UNWTO, 2020a; Gretzel et al, 2015). There are several initiatives, official frameworks and proposals aiming at conceptualising tourism sustainability and providing tools for its assessments (Niavis et al., 2019). The UNWTO "Statistical Framework for Measuring Sustainable Tourism" (UNWTO, 2016), with coverage for economic and environmental statistics, the UNWTO INSTO initiative (UNWTO, 2018), delineating generic areas that need to be monitored, and the European Tourism Indicator System (ETIS) initiative (European Commission, 2016) endorsed by the European Commission are the official proposals closer to the research we develop in this paper.

Academic research related to sustainability measurement has grown exponentially in recent years. However, far too often this effort has not been linked to governance (Holman, 2009), and this is one of the major fields of research that needs practical contributions: the real link between the use of the indicator and policy change (Innes & Booher, 2000).

This lack of connection might be due, partly, to the fact that many of the experiences that have been developed from a purely scientific approach tend to underestimate the importance of the political dimension (Rametsteiner et al., 2010) and, on the other hand, the academic approach has considered that the participation of the policy actors creates biases and impose subjectivity in the measurement (Tanguay, Rajaonson & Therrien, 2013). However, the dialogue between academics and policy actors can complement each other and favours the use of indicator systems as a tool for destination management that is scientifically valid and operational for decision-making (Tanguay, Rajaonson & Therrien, 2013), as evidence from the SISTA has demonstrated.

The performance of indicators as policy tools is co-dependent of the institutional embeddedness of the indicators highlighting the importance of dialogue between indicator creators and policy actors for the better usability profile of indicators (Bauler, 2012). In this research, we present a case study where policy actors were fully embedded and actually formed part of the group of creators (SISTA WG), together with the authors of this paper.

The purpose of this research is to evidence how policy actors influenced the success of the design and implementation of a system of indicators for managing the sustainability of tourism: the SISTA. This approach is one of the main contributions of this paper, which can serve as a reference to any tourist destination that seeks the creation of a

measurement system with a practical vocation and to the scientific community for the integration of the policy needs to the theoretical approaches.

The rest of the paper is as follows; Section 2 describes the methodology employed by this research, provides an overall description of the case study and of the development of the SISTA. In Section 3 we present the main results of the different stages of the process of developing the SISTA and how policy actors requirements were integrated. Finally, the paper ends up with the discussion and conclusions in Section 4.

2. MATERIAL AND METHODS.

2.1 Overview.

This research is a descriptive case study. What makes case study research distinct from experimental studies is that the case study is investigated in context and examined in its "real world setting" (Yin, 2014). The approach to this case study is descriptive, as we provide a description of the development of the SISTA, analysing the sequence of events after a certain amount of time has passed and describe its different characteristics in its context (Gerring, 2004). This strategy provides an “all-encompassing method” for systematically studying and describing a phenomenon (in this case, the definition and implementation of SISTA) within a real-life context (Yin, 2014).

Case studies are so extensively used in tourism research that it appears that its justification is no longer deemed necessary (Beeton, 2005). Case study is not only frequently used but also a highly useful and much needed approach in tourism research (Xiao & Smith, 2006).

We highlight some aspects of the case study that support its use as a valid methodological tool in tourism research and for this specific research (Beeton, 2005): 1. Can illustrate the complexities of a situation by recognizing more than one contributing factor; 2. Shows the influence of personalities and politics on an issue and 3. Can illuminate a general problem through examination of a specific instance.

We analyse the development of the SISTA accounting, among other “real world” factors, for the specific period in which it was implemented (at the beginning of a mandate period: 2012 -2014), and the territory for which it was defined (Andalusia Region in Spain). The study’s research question aligns with the methodology, as it develops a “how” question as a rationale for a single unit case study: How has the implication of policy actors in the design and implementation of the system of indicators influenced its success?

The analysis does not, however, focus solely on the individual case of SISTA, but offers the wider perspective of investigating and describing the perceived benefit of the implications of the policy actors in the design and implementation of a system of indicators for tourism sustainable development. The goal, therefore, is to expand and generalise theories (analytic generalisation) and not to extrapolate probabilities (statistical generalisation) (Yin, 2014).

With this aim, this paper presents a case study developed in Andalusia tourist destination. Andalusia is a Spanish region located at the South of the Iberian Peninsula, with a territory of 88 thousand square kilometers and a population of 8 million residents. There are various factors that worked as catalysts for the creation of the Indicators System for Sustainable Tourism Development in Andalusia for the evaluation of policies:

1. The major relevance in both absolute and relative terms of tourism in the Andalusian economy. Andalusia receives more international tourists than countries such as Thailand or the whole of Oceania, and more than three times than Argentina and the Dominican Republic. In 2019 Andalusia received a total of 12.4 million international tourists and the tourism sector accounted for 13% of Andalusia's GDP (Junta de Andalucia, 2019).

2. The substantial statistical development of Andalusia, with a capacity for creating its own statistics for both the tourism sector and other economic sectors with high levels of complexity. In the case of input-output tables Andalusia has developed them since 1975 (Cuadrado, 1980) and Tourism Satellite Account since 2000 (Junta de Andalucía, 2006).

3. Delegated powers in terms of tourism policy that has played in favour of development for organisations and tools to manage and monitor tourism.

By virtue of the full delegated powers of Spanish Regional Governments for tourism policy, in 2015 the Region of Andalusia started to define a new General Plan for the period 2016-2020. One of its goals was to provide for a monitoring tool that could follow up short term and medium term results of policy actions. This document was the "General Plan for Sustainable Tourism of Andalusia, Horizon 2020" (Junta de Andalucia, 2016a). Previously, the Tourism Regional Government identified as a priority the evaluation of policies and the creation of a system of indicators allowing the integration of the complex reality of Andalusia tourist destination and its evolution towards sustainability. In the rest of this section we describe the process followed for its definition.

2.2. SISTA working group (SISTA WG)

The SISTA was developed by an interdisciplinary group of 15 experts with a long trajectory (more than 10 years) in the field of Tourism, from the Regional Government itself and from academia. In the process of selecting the experts, one priority was to integrate persons with previous experience in research and projects related with tourism and, especially, with tourism sustainability. Another important skill was the knowledge of the reality and the specificities of the Andalusian tourism sector. There are many examples of high level tourism-related academic experiences carried out by Andalusian experts, also the public bodies of the Tourism Regional Government count with permanent staff with a long trajectory in statistics and development of plans. The high level of expertise in Andalusia favoured that most experts selected were based in Andalusia.

The different areas of expertise for this team ranged from Economics, Geography, Graphic Design, Information Technology, Marketing, Applied Mathematics and Statistics (table 1). The goal was to build a heterogeneous group in order to integrate different profiles (policy actors versus academics and producers of statistics versus users) with the aim of creating synergies and concurrence areas for the definition of an agreed model for the measurement of sustainability linked to Andalusia tourism policy.
Therefore, the SISTA WG integrated the approach of academics, policy actors and officials in order to be scientifically sound and valid for decision-making. It aims for scientific and social legitimacy (Tanguay, Rajaonson & Therrien, 2013). In addition, the institutional embeddedness played in favour of the usability of the system.

Table 1. Working group composition.

Area of expertise	Number of people	Regional Government / Academia
Economics	3	Regional Government - Policy actors
Geography	1	Academia
Graphic Design	1	Regional Government- officials
Information Technology	4	Academia
Marketing	1	Academia
Applied Mathematics	2	Academia
Statistics	3	Regional Government- officials

Source: Authors.

This multidisciplinary approach proved to be positive in order to avoid mistakes such as partial views of the tourism system too simplistic, too complex system requiring a high

level of expertise by the end users (policy actors, politicians, media, general public) or theoretical model not well adapted or not supported by the statistical development.

The process followed by this team was Group Decision Making (GDM), by generating multiple interactions among its members in order to reach a final decision. Previous to the GDM, all the members were aware of basic information, related research and relevant international guidelines and recommendations (United Nations, 2010) and the "General Plan for Sustainable Tourism of Andalusia, Horizon 2020" (Junta de Andalucía, 2016a) draft document available at that moment. Each member approached the decision process from a different perspective, but they all had a common interest in reaching agreement on selecting the best options (Roubens, 1997).

GDM development involved two different processes: First, the moderator selected the main ideas identified by the GDM as solutions to the topic, and then the GDM entered in a process of consensus until a sole solution was selected (Cabrerizo et al., 2010). For the SISTA WG, the selection process involved a dynamic and iterative exercise coordinated by a moderator (one of the authors of this paper) that was aware of the consensus degree and was in charge of trying to reach the maximum level of agreement. The method was to reduce the number of members left out of the agreement in each iteration (Cabrerizo et al., 2010). During the meetings (a total number of 8 rounds) the members expressed, discussed and adjusted their preferences to finally reach a consensus with an acceptable level of agreement (at least ¾ of the experts accepted the idea as the best solution). Every individual preference was integrated within the selection process in order to construct a collective solution.

The expectation was that the group could reach the maximum level of agreement before implementing the selection process. At the end of each interaction round, the members had information on how far or how close the group was to reach the consensus, which were the most controversial topics and the different preferences related to those topics with more level of disagreement (Pérez et al., 2013).

2.3. Methodological phases.

The development of the works carried out by the SISTA WG is based on a creative, collaborative and oriented towards policy actors participation, who are involved from the first stages of the SISTA design. This functioning allows taking advantage of their experiences and needs in order to make a proposal for sustainability measurement applied to decision making.

The methodology is based on a multidisciplinary, iterative, incremental and reflective process of four phases: understand, design, communicate and test. Table 2 summarises

the sequence of methodological phases. It also articulates key insights gained at each phase, and how the outcomes generated lead each phase onto the next.

Table 2. policy actors design process.

Phases	Goals	Use for policy actors	Outcomes informing the next phase
1. Understand	Identifying the dimensions integrating the concept of sustainability	There must be a clear correlation between the process of defining the concept from a strictly theoretical point of view and the design of a feasible System of Indicators with a more practical purpose. Positive relationship between the cost and the volume, quality and utility of the information that is collected.	Identify key aspects to be measured
2. Design	Determine the structure of the System and selection of indicators based on the theoretical framework diseñado en la fase anterior		2 challenges identified for its usability for policy actors: synthesise information and easy to understand
3. Comunicate	Definition of a visual identity and communication strategy.	The System should be easy to construct by the policy makers.	User friendly visualization of results.
4. Test	Elaboration of a pilot experience to study the feasibility of the SISTA.	The measurement needs to be understood as a process in continuous evolution.	Adjustment based on the pilot experience.

Source: Authors.

The group of 15 experts (SISTA WG) were working on the first three stages during one year (June 2012 - June 2013), and the last stage one was carried out by officials of the Regional Government (both authors belonged to this group) during the following year (September 2013 - September 2014). This sub-group, who would be in charge of its maintenance in the future, shared the results with the rest of the group and the adjustments were agreed upon by applying the procedure described above.

The need of a monitoring and diagnosis tool for policy purposes was the reason for the creation of SISTA. This was a requirement that policy actors presented at the beginning of the planning process with a clear commitment from their side, which was a critical element in the success of the performance measurement system (Franceschini et al., 2007).

The **Understand phase** pursued identifying the dimensions integrating the concept of sustainability that the draft of the planning document "General Plan for Sustainable Tourism of Andalusia, Horizon 2020" (Junta de Andalucía, 2016a) had defined.

In the definition of SISTA structure the policy actors required a high correlation with the theoretical concept of sustainability in the tourism-planning framework (Junta de Andalucía, 2016a), where sustainability was defined in an integral way by six main principles: 1. Sustainability as a way of defending local values (natural, cultural, ethnographic, landscape, etc.), since these values represent the various forms of tourism activity, 2. Sustainability as an efficient and fair way of producing tourism services, which must promote the development of the business ecosystem, ensuring the profitability and competitiveness of businesses that manage tourism products, with particular emphasis on the stability and quality of employment, 3. Sustainability as a means of governance based on transparency, participation and joint decision-making, where subsidiarity and public–private and public–public cooperation characterise decision-making, 4. Sustainability as a means of territorial cohesion, so that the tourism activity contributes to balanced development in the various territories of Andalusia, 5. Sustainability as a social means of appropriating the tourist activity for citizens and 6. Sustainability as a continuous means of investigation, development and innovation.
This definition of sustainability is fully compatible with the one by the World Tourism Organization (WTO, 2015): "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities". It integrates not only the basic dimensions of sustainability defined by the WTO (economic, social and environmental), but a broader and more detailed definition.

The SISTA WG analyzed each principle of the concept of sustainability included in tourism planning and defined the key aspects that should be measured. After this, the SISTA WG developed the **Design phase** identifying the key aspects that the System should contain to later carry out the selection of indicators responding to the basic principles of sustainable tourism, taking into account the idiosyncrasy of the territory (Andalusia Region).

Once the basic principles of sustainable tourism are properly integrated for political purposes, the uniqueness of each territory legitimises that each region can have its own

indicators (Tanguay, Rajaonson & Therrien, 2013; Sharpley, 2000). It is not feasible to measure the dimensions of sustainability and take into account the uniqueness of the territory with only few indicators but for a practical, flexible and operational model, there should not be an excessive number of indicators. The optimal number of indicators is an open debate without a clear answer, because it is dependent on the complexity of the concept to be measured and on the degree of coverage of the indicators for the different aspects integrating this concept (Gallego & Font, 2019). The number of indicators will be lower if we have adequate and exact information on the concept to be measured, otherwise the combination of two or more indicators will be necessary. The number of indicators is a critical element for any system of indicators and its survival as a tool.

The survival of the system of indicators through the planning process and beyond was discussed from the beginning with awareness that collecting data can be expensive, not only for the first exercise of definition but for its calculation over the time. The cost-effectiveness and the capacity for repeated measurement are included by Hezri (2004) within the longevity criteria affecting the tools assessing sustainability and developing indicators. Policy actors accounted for this issue requesting a positive relationship between the cost and the volume, quality and utility of the information that is collected.

Information is often not systematically kept and often lacks the continuity needed to allow trend analysis. Sometimes data gathering methodologies change thus complicating data interpretation and uniformity (Hezri, 2004). Accounting for this difficulty, SISTA WG decided that, whenever possible, indicators should be calculated using information from official bodies producing statistics that do not usually present this threat and, in addition provides many other advantages such as harmonisation of definitions and methodologies (United Nations, 2014). The standards-based framework can further support the credibility, comparability and outreach of various measurement and monitoring programmes pertaining to sustainable tourism (UNWTO, 2016).

Once the structure of the system and the indicators were selected, the **Comunicate phase** was focused on the definition of a visual identity and communication strategy including a user friendly visualization of results.

The SISTA WG made the decision not to limit the number of indicators. However, policy actors considered that the quantity of information collected by the indicator system can become an obstacle to the use of this information as a decision-making tool, and it is necessary to present the data in a concise and holistic way to support decision making (Gallego & Font, 2019). The solution adopted by the WG was to incorporate composite indicators to the SISTA, as they are recognised as a standard policy-maker approach that

may help to support political decisions and that can be simplified for public understanding (Tanguay, Rajaonson & Therrien, 2013).

The use of composite indicators, and the focus on the target audience with a user-friendly interface design with elements easy to interpret and understand by the end users are important contributions of the SISTA as a performance tool. The ability to provide an overall assessment of developments in the subject at hand, in a way that can be easily interpreted and communicated to the intended target audience are key components of a performance tool (Miola & Schiltz, 2019).

The design and communicate stages allowed the methodology of the SISTA to account for Important aspect of a set of indicators (Newton, 2001; Franceschini et al., 2007; Innes & Booher, 2000; Kitchin et Lauriault & McArdle, 2015): a)To diagnose the cause of the problem; b) To measure the impact of the potential solution; c) To assess whether a phenomenon is being transformed in the way desired or has reached a designated threshold or target; d) To provide evidential feedback loops that can be used to identify gaps between performance and expectation; e) To formulate new interventions; f) To set new (absolute or relative) goals and targets.

For the last stage, SISTA WG decided to test the system with real data. **Test phase** aimed at elaborating a pilot experience to study the feasibility of the SISTA and collect feedback from officers involved in the calculation and from policy actors as end users. Officers created a Minimum Viable Product and a prototype in order to test whether SISTA fulfilled the requirements of the different stakeholders involved (Baldassarre et al., 2017). This experience led the SISTA WG to consider the balance between desirability, feasibility, viability and sustainability (Baldassarre et al., 2020) by revising the coverage obtained with the available sources of information at the moment, and search for possible solutions for those aspects not sufficiently covered and by testing its usability by policy actors for their decision making activities.

In the following section we explain the solutions decided by SISTA WG and how the requirements of the policy actors were integrated and developed for each phase.

3. DECISIONS AND RESULTS.

During the **Understand phase** it was necessary to identify the dimensions integrating the concept of sustainability defined for the General Plan. To respond to this requirement, the SISTA WG established three levels of analysis. The first and most general defined the “key areas'' that offer an integral vision of the destination. The second level of analysis identifies “key themes” within the previously defined “key areas”. In the third level of analysis, finally the individual simple indicators are included.

The 7 key areas are: governance, territory, vulnerability, profitability, diversification, quality and technology.

Governance: as an evaluation of the performance of the government in terms of creating networks that foster collaboration among stakeholders, of the participation of the residents and private sector in the policy making of the destination and of the efficiency of the administrative processes.

Territory: assessing territorial cohesion, human pressure, environmental quality, environmental protection, use of natural resources, transport and housing and environmental awareness.

Vulnerability: monitoring the state of susceptibility of the Andalusian tourism sector to environmental, economic or social stress. Even if this concept is usually assessed under the focus of the natural environment or of natural disasters, it also applies here to economic and social sustainability.

Profitability: measuring tourism as an economic sector, including income generation, employment and multiplier effect.

Diversification: evaluating the available resources susceptible to being used as tourism assets.

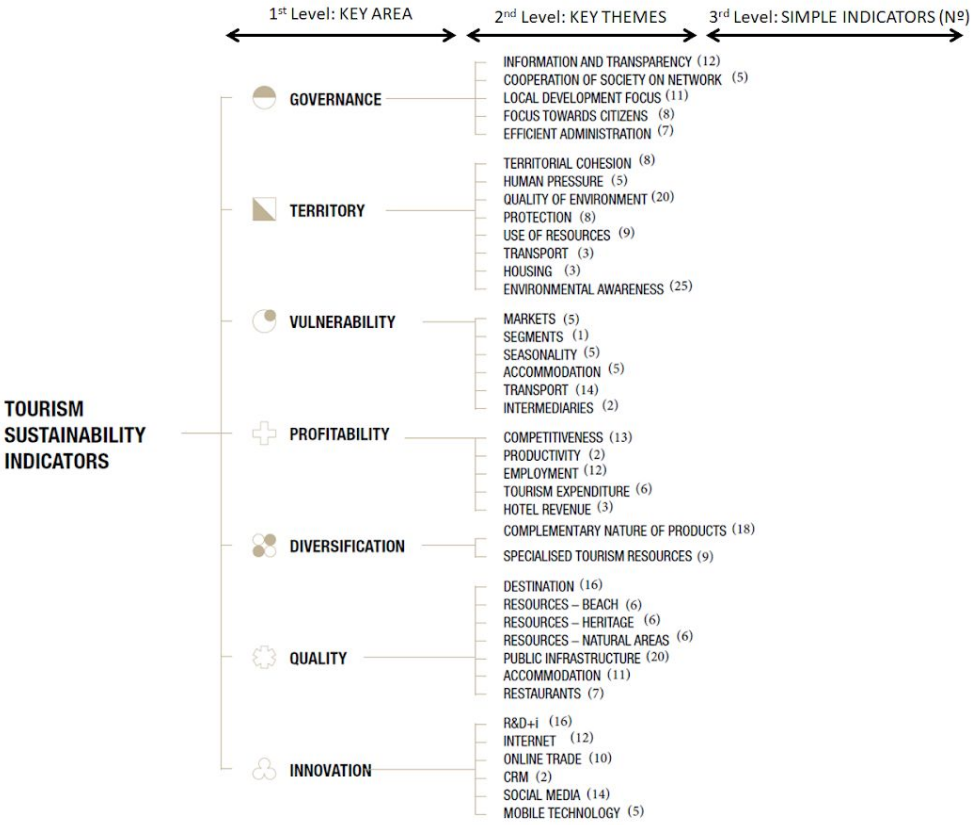
Quality: assessing the destination as a whole, the different resources (beaches, natural areas, cultural heritage...), the infrastructures and the accommodation and restaurant subsectors.

Technology: evaluating the level of penetration of ICT in the tourism sector as a whole in favour of destination sustainability.

The aim was not to have a direct correspondence of these seven key areas with the 6 principles defining the theoretical concept of sustainability in the tourism-planning framework (Junta de Andalucía, 2016a, 2016b), that would have been very restrictive, but to reach a final set of indicators that cover those 6 principles that integrates the fundamental pillars of tourism sustainability (economic, environmental and social), as defined later on by international recommendations (UNWTO, 2016; European Commission, 2016). The definition of the 7 key areas is a key finding of the SISTA and are still valid nowadays: it incorporates those new aspects integrated in the tourism policy and identified as essential for the sustainability of Andalusian tourist destination.

The **Design phase** aimed at designing the structure of the system and selecting indicators based on the theoretical framework identified in the planning document (Junta de Andalucía, 2016a). The figure 1 represents the structure of SISTA including an enumeration of key areas and key themes. However, given the large number of simple indicators included in the system (348), it has not been possible to include them in the figure and we have only included (in brackets) the number of them included in each key theme. A detailed description of the indicators included can be found in the document (bilingual version Spanish / English) "Sustainable Tourism Development Indicator System for Andalusia" (Junta de Andalucía, 2016b).

Figure 1. Structure of SISTA.



Source: Authors, based on Junta de Andalucía (2016b). In brackets, the number of simple indicators.

The SISTA WG ended up defining 348 simple indicators which responded to the policy actors requirement of interpreting the complex reality of tourism and integrating the multiple dimensions of sustainability as defined in the planning document. The SISTA WG understood that the practical application should guarantee the availability of data for the calculation of the required indicators (Lozano-Oyola et al., 2019; Torres-Delgado & Palomeque, 2014) and hence supported the preferable use of official data. The substantial statistical development of Andalusia, with a capacity for creating its own

statistics for both the tourism and other economic sectors, has played in favour of the feasibility and continuity of the system. The lack of available data is one of the main identified problems for the implementation of system of indicators (Interreg Mediterranean MITOMED+, 2019; Tudorache et al., 2017), but the availability of data for tourism and other sectors has allowed the SISTA WG to integrate a broad definition of sustainability which requires the combination of very diverse information.

In addition, the preferable use of official data played also in favor of budgetary constraints, that concerned policy actors. Practical implementation constraints were present throughout the whole process. Budgetary restrictions were discussed from the beginning with awareness that collecting data can be expensive, not only for the first exercise of definition and calculation of the SISTA, but also with respect to its survival through the planning process and over the time. The cost-effectiveness and the capacity for repeated measurement are included by Hezri (2004) within the longevity criteria affecting the tools assessing sustainability and developing indicators.

During the design process, together with budgetary restriction, human resources capacity is also identified as a technical issue within the implementation constraints for sustainability measurement (Kitchin, Lauriault & McArdle, 2015; Hezri, 2004). For the case of the working team of the SISTA, the human resources capacity was, for its initial definition, one of its main strengths, however, meeting the needs for monitoring planning requires officials to achieve a balance between fulfilling immediate administrative tasks and the demand for more 'research-oriented' or long term planning. While capacity existed, officials were often fully engaged with more 'on-the-ground' practical obligations (Hezri, 2004). The unbalanced dimension of human resources capacity hindered the medium and long term correct updating and maintenance of the SISTA.

Human resources were also required for the need of annual updates by the policy actors, in order to monitor the progress towards sustainability. Despite this limitation, the production of timely information, produced regularly and reported with minimal delay is a common requirement for drawing insights that can be utilized to change present practices to ensure future desired outcomes (Kitchin, Lauriault & McArdle, 2015). In addition, when the context is dynamic, it is more difficult to identify a correlation between past and future results. For that reason, the more the context is dynamic, the more crucial it becomes for the information to be timeliness (Shankaranarayan et al., 2003). Therefore, policy actors should ensure that they provide for balanced budgetary and personal resources in order to develop and maintain tools to measure sustainability.

Another key finding of the SISTA came from the requirement of the policy actors for an uncomplicated interpretation of the information provided but without limiting the

number of areas, themes and indicators for measuring sustainability. Hence, in **Comunicate phase,** the SISTA WG identified two solutions: 1. The model was simplified for the adaptation to the policy formulation approach that demanded a condensation of the initially available data and the WG opted for the use of composite indicators and 2. The adaptation of the System to the end users with a user friendly and intuitive interface for the presentation of results.

Composite indicators are useful when the quantity of information collected by the indicator system can become an obstacle to the use of this information as a decision-making tool, and it is necessary to present the data in a concise and holistic way to support decision making (Gallego & Font, 2019). Composite indicators are recognised as a standard policy-maker approach that may help to support political decisions and that can be simplified for public understanding (Tanguay, Rajaonson & Therrien, 2013).

The choice of the aggregation method used must be determined by the practical application and the desired utility of the composite indicator (Lozano-Oyola et al., 2019). In the SISTA case, the objective was not only to design a composite indicator that facilitates communication and interpretation by any user, but also to allow policy actors to work with different scenarios, from the weak sustainability (accepting that poor results in one sustainability dimension can be compensated with better results in different dimensions), to strong sustainability that prevents compensation between the indicators of the dimensions evaluated, always taking the worst possible value. Between both extreme scenarios, the user can choose mixed scenarios with different degrees of compensation. This was the preferred solution applauded for policy actors as it allows a more flexible tool to simulate different tourism policy alternatives. This approach led the group to a multi-criteria, double-point method. This method has been applied globally to measure sustainability (Cabello, et al., 2014, 2018), in tourism it has been used to measure sustainable limits to growth in tourist destinations (Jurado et al., 2012) and to the analysis of tourism vulnerability of destinations for commercial decisions of airlines (Gallego & Font, 2019).

Most of the examples using composite indicators for measuring tourism sustainability have opted for the Equal Weight method (Blancas et al., 2010; Castellani & Sala, 2012; Torres-Delgado & Palomeque, 2018; Twining-Ward & Butler, 2002) mainly due to the lack of previous experience or consensus on what factors make tourist destinations more or less sustainable. In this sense, the case of the SISTA presents a contribution in this respect proposing a weighting system based on the three levels in which the system is structured: the weight of each individual indicators in the key theme in which they are integrated, the weight of each key theme within each key area and finally, the weight of each key area in the global composite sustainability indicator.

There are different stages in the elaboration of composite indicators (OECD, 2008; Nardo et al., 2005). The weighting assignment was a relevant one with active participation of different stakeholders. The 348 individual indicators were weighted by officials, members of the SISTA WG, that actually did the calculations based on the suitability and availability of information for the correct measurement of the final concept, on the direct or indirect measurement, or on the partial or complete measurement. In some cases, indicators are indirect in nature because the underlying phenomenon of interest is intangible or not directly observable (Kitchin, Lauriault & McArdle, 2015). For example, the number of second houses can be used as a proxy for rented private accommodation. In other cases, the cost of generating new data is too high, so the decision was to include surrogate variables from pre-existing data sets. For example, many indicators were calculated using hotel surveys while the indicator related to the whole accommodation sector. Depending on the degree of approximation to the final concept, each indicator was given a weight (Likert scale applied: 1 = indirect and partial indicator; 2 = direct but partial indicator or indirect but complete indicator; 3 = direct and complete indicator).

The key themes were weighted by 90 tourism experts, not belonging to the SISTA WG, with knowledge of Andalusia as a tourist destination, using an online survey. These experts were asked to value each key theme with respect to its importance in the valuation of each key area for Andalucía (Likert scale applied: 0 = No impact; 1 = Very small relevance; 2 = Small relevance; 3 = Relevant; 4 = Very relevant; 5 = Fully relevant). It was not a conceptual valuation fitting any destination, but an applied one for the specific case of Andalusia. Finally, the assignment of the weights for the key areas were carried out by the policy actors, in order to incorporate their policy decisions depending on the relevance of each area for their idea of Tourism policy and the future planning process (Likert scale applied: 1 = Low relevance; 2 = Medium relevance; 3 = High relevance).

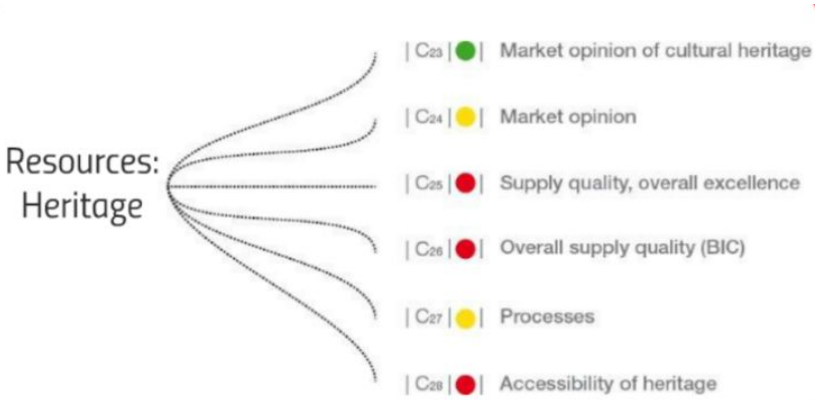
Finally, the policy actors exercised a key role identifying the relative importance of the various indicators in order to construct the final composite index (Freudenberg, 2003; OECD, 2008).

Another important contribution of the SISTA WG in this phase was to adapt a complex information to a lay audience, using a universal colour code based on the traffic light system of alert. The green colour shows when the aspect measured is evolving towards sustainability, yellow if it is stable (moving in a range of +-1%) and red if it is evolving away from sustainability.

The ‘usability profile’ should be subject to collective and conscious steering (Bauler, 2012). For our model, the usability profile was carefully and consciously designed by the

graphic designer from SISTA WG. In figure 2 we include an example of the SISTA visualization for a specific key topic. It favours an easy and quick interpretation of the situation.

Figure 2. Example of visualization for the key theme "Resources Heritage" within the key area "Quality" of SISTA.



Source: Authors, based on Junta de Andalucía (2016b).

The above described use of composite indicators, and the focus on the target audience with a user-friendly interface design with elements easy to interpret and understand by the end users are important contributions of the SISTA as a performance tool. The ability to provide an overall assessment of developments in the subject at hand, in a way that can be easily interpreted and communicated to the intended target audience are key components of a performance tool (Miola & Schiltz, 2019).

Lastly, in the **Test phase** we discovered that the feasibility of the calculation of the indicators was very high. The high statistical development of the Region of Andalusia allowed the calculation of 79% of the 348 indicators using freely available official sources. The lack of information for specific indicators was because they were still new areas (such as mobile technologies), because not enough attention was paid (such accessibility issues) or because of lack of collaboration of the necessary stakeholders (governance area).

The time unit for the calculation of the indicators is the year, but the time frame for the benchmarking period is identified with planning periods (4 years), starting in 2012 as the first year after the previous planning period. The reference point of each indicator, for most of the cases, was the average value calculated for the period 2008-2011, as the baseline situation when the planning process started.

The members of the SISTA WG calculating the indicators were feeding the system whenever the required statistical information was available, which did not always correspond with the natural year. Therefore, when the policy actors needed the annual update, what they got was a snap-shot of the results with the available information at that time.

Policy actors identified two types of analysis when they made use of the SISTA: 1. Strategic evaluation in order to design departure and arrival scenarios that accurately portray the situation of the tourist destination before and after planning and 2. Continuous evaluation that serves as a warning system for deviations in results or significant changes to the environment, with the aim of correcting them in time and avoiding imbalance in the sustainable tourism development model.

In order to maximise this analytical capacity, one of the responses of the SISTA WG to those requirements was to impose relative targets systems that assess progress towards greater sustainability using simple indicators as a way to measure progress and using dynamic composite indicators as a system of alerts (Lozano-Oyola et al., 2019). This method allows to analyse the evolution recorded by the destination from a period taken as a reference to the measurement period. The SISTA presents the evolution of indicators throughout the planning 4 years interval, but no comparisons are made of the indicator values against absolute thresholds or benchmarks. Therefore the SISTA cannot offer absolute measurement, i.e. it is not possible to determine if the destination is sustainable or not, but it is possible to understand how the destination is progressing.

4. DISCUSSION AND CONCLUSIONS.

This paper presents a case study where policy actors were fully embedded in the design and development of the system of indicators in monitoring its results. This research responds to solve the discrepancy between the abundance of research, and its uncritical character towards the soundness of proposed solutions that can lead to insufficiently informed policy recommendations (Budeanu et al., 2016). We identify how policy actors influenced the success of the design and implementation of a system of indicators for managing the sustainability of tourism: the SISTA. This is one of the main contributions of this paper, which can serve as a reference to any tourist destination that seeks the creation and development of a usable measurement system with a practical vocation and as a reference to research initiatives finding a better adaptation between academic proposals of measurement tools and their applicability.

Although the end goal of the explained process in this paper is to have a system for measuring sustainability of tourism, however this was not the only benefit obtained. The

development process itself implied many other secondary benefits of great interest. These benefits have been reported for similar experiences: in some countries the process of implementing the Sustainable Development Goals (Eurostat, 2018) framework could be more important than the final result in terms of performance (Miola & Schiltz, 2019).

On the one hand, a series of intangible benefits are obtained (Gahin et al., 2003) such as building networks between academic and policy stakeholders that offer mutual learning opportunities (Becker, 2005) not only in relation to sustainability measurement, but also related with statistics, sources of information, governance and beyond. On the other hand, the development of a system of indicators for policy purposes allows the identification of those aspects that are relevant policy areas, but that the statistical system cannot provide enough insight. The SISTA WG found that some policy objectives that are relevant for tourism are not integrated yet in the priorities of producers of official statistics. The cooperation with producers of statistics helps to include some issues at the top of the political agenda for tourism (such as sustainability, accessibility and quality of jobs) as official statistics priorities.

The SISTA experience was a process of continuous improvement, where advances in definitions, methodologies or statistical and / or documentary tools were continuously integrated. It might be seen as this policy learning process constitutes only a first order change according to Hall (2011), as is primarily focussed on the setting of policy instruments and/or indicators. However, this author also acknowledges that the introduction of new policy indicators may potentially represent a second order change in policy learning, as the selection of policy indicators can reflect a change of policy paradigms within which they are selected. Indeed, the definition of sustainability in the "General Plan for Sustainable Tourism of Andalusia, Horizon 2020" (Junta de Andalucía, 2016a) expands the traditional one that only integrates the economic, environmental and social dimensions.

Although there is agreement with respect to basic dimensions to be included in the concept of sustainability, there is no yet a clear consensus on a universally accepted framework for measuring tourism sustainability (Asmelash & Kumar, 2019; Torres-Delgado & Saarinen, 2014; Cernat & Gourdon, 2012). The implication of this lack of consensus is that there is not a list of common and agreed indicators and this directly affects tourist destinations' possibility of implementing benchmarking exercises. Most of the experiences are based on developing new sets of indicators adapted to case studies, as the SISTA in Andalusia. However, the destination-specific approach should not be incompatible with having a set of core indicators integrating basic aspects of sustainability on a more holistic or global scale (Roberts y Tribe, 2008). Proposals must strike a balance between their contextual specificity and their global relevance (Torres-

Delgado & Saarinen, 2014). The approach of basic standard core indicators improves the possibility of benchmarking between tourist destinations and setting feasible targets by observing values obtained by other similar tourist destinations, offering new possibilities of analysis often nonexistent in current systems.

The authors of this paper, seeking to advance in the search of a benchmarking framework, and as part of their tasks at the Andalusian Regional Tourism Government, also participated in two European experiences:

1. The European Tourism Indicators System (ETIS) launched by the European Commission in 2013 is a unitary system of indicators for sustainable management of tourist destinations (European Commission, 2016). The Tourism Regional Government of Andalusia participated in the first pilot phase of implementing the ETIS and was one of 10 international destinations selected to demonstrate pioneering initiatives, and progress in sustainable management.

2. MITOMED+ Models of Integrated Tourism in the MEDiterranean Plus is a Interreg MED funded project that supports involved regions in developing a responsible and sustainable maritime and coastal tourism (Interreg Mediterranean MITOMED+, 2019), where the Regional Government of Andalusia participated as a partner. This project revised the ETIS for its application to coastal and maritime destinations and was implemented in three Andalusian pilot destinations.

From the authors´ experiences in the SISTA and in the two above mentioned initiatives, two aspect can be highlighted:

1. The importance of the territorial unit and the level of government: SISTA has a regional orientation, while ETIS and MITOMED+ have a local orientation. Local destination experiences sometimes do not cover the complexity of wider destinations (regions or countries), arising conflicts between the public policy governance and the notion of subsidiarity (Hall, 2011) and the appropriateness of smaller territorial units for identifying sustainability concerns.

2. The importance of the statistical development of the institutions in each territory: the correct assessment of sustainability and, hence its final usefulness for local policy making, involves the calculation of certain indicators that without advanced statistical development would hardly be possible to calculate (Brščić et al., 2020) . The statistical development itself should not condition the System and the indicators to include but the information contained should be aligned with the destination's (level of Government) delegated powers in terms of tourism sustainability, with the cost that its calculation may entail and with the

feasibility of maintaining the system over the time by the destinations, because otherwise they would become theoretical models of difficult application.

Authors acknowledge the benefits of the implication of official statistics bodies is the process to achieve the comparison between destinations that will undoubtedly favour the availability of basic variables in order to build homogeneous indicators and comparable systems. Although there are already some advances such as the work done by EUROSTAT making information available at the regional level (NUTS-2), there is still a way to go, especially at the local level, as just 30% to 40% of the requirements of ETIS could be met with official statistical data (Font, 2019).

Another important aspect related to measurement systems linked to sustainability public policies is that Governments have traditionally been identified as guided by short term electoral goals and as lacking strategic vision (Go, Milne & Whittles, 1992; Vogev & Swanson, 1988). Sustainability problems may also pose additional temporality and uncertainty challenges than other policy problems. Temporality challenges are related to the short time scales determining political and policy cycles and uncertainty challenges are related to the difficulty of judging the efficacy of policy measures (Hall, 2011). The process of developing the SISTA created awareness among policy actors towards a longer term strategic use of data to support policy decisions, advancing from being a simple support for political discourses. The uncertainty challenges usually imply the reluctance of policy actors to make public negative indicators, trying to prevent public opinion and potential voters from identifying some poor results as direct responsibility of their management. Therefore, a real integration of a long term sustainability requires a transformative change in governments.

Transformative changes in dynamic systems such as tourism depend also on the adaptability of the actors involved (Budeanu et al., 2016). The survival and continuation of these changes and their benefits to policy-making can only happen when indicator systems are maintained, tested and adjusted over time, allowing institutions to change and adapt accordingly (Hezri, 2004). Every performance measurement system, in order to meet the organizational targets, needs to be constantly maintained and − possibly − improved (Francheschini, 2007). The SISTA was conceived as a long term tool, however, the practical application along the years has been partial, either as a development of an isolated key theme of the SISTA (tourism employment), or as a catalogue of feasible indicators for specific planning objectives. This was the case of the indicator system for the Plan against seasonality 2016-2018 (Junta de Andalucía, 2016c) or the Tourism Marketing Plan of the Regional Government, Horizon 2020 (Junta de Andalucía , 2016d).

The excessive number of indicators (348 simple indicators) also played against its survival, as it was conceived, throughout the years and favoured its partial application.

The continuous requirement of updating periodically the information from very diverse sources and the incorporation of improvements that the evolution of the SISTA demanded needed at least the dedication of one full-time and one part-time officer. Staff resources were not fully adapted to this need and officers currently combine their usual tasks with the partial maintenance of the SISTA, which allows them to meet specific requests within a reasonable period of time, but in no case the maintenance of the full system within SISTA.

In conclusion, a system of indicators that measures sustainable development must be, by coherence, sustainable itself. The system should not be endangered by budgetary fluctuations, changes in the macroeconomic environment, or political changes. In many organizations, leadership commitment to the development and use of performance measures is a critical element in the success of the performance measurement system. (Franceschini et al, 2007). The SISTA evolved in its goals and structure but was not immune to political environment changes, however, the policy learning process left many lessons learned inside the organisation which benefited from them along the years.

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