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Research Paper

How to measure tourism sustainability? Proposal of a tourism sustainability index for Portugal

Sandra Bailoa*

Pedro Cravo**

ABSTRACT

The purpose of this paper is to analyse the evolution of sustainability indicators, present in the various national tourism plans in Portugal, and, subsequently, to propose the creation of a tourism sustainability index that can provide a perspective on the level of sustainable development. To achieve this, a qualitative methodology was used, which consisted of document analysis of the main national tourism plans identifying the indicators used to measure sustainability over time and identifying the different possible methodologies for the implementation of a tourism sustainability index. As a result, it was possible to determine the methodology that seems more suited to implement a tourism sustainability index for Portugal, taking in consideration the different indicators analysed and made available by the Portuguese Tourism Board. As for limitations, this paper only proposes a methodology for the calculation of the sustainability index but does not calculate the index itself. This is subject of future work, which will also make it possible to verify the quality of the index itself and to adjust the methodology, if needed. The implementation of this methodology may be an important contribution to facilitate a practical analysis and comparison of sustainable development among different cities, regions or even countries. Although there have been authors that have proposed sustainability indices for other areas of activity, there has never been a tourism sustainability index proposal for Portugal.

Keywords: Indicators, National Strategic Plans, Portugal, Sustainability Index, Tourism

* Polytechnic Institute of Beja, CiTUR (IPBeja), CEOS.PP (ISCAP), Portugal. E-Mail: sandra.bailoa@ipbeja.pt
****** Polytechnic Institute of Beja, Portugal. E-Mail: pedro.cravo@ipbeja.pt

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1. INTRODUCTION

The development of tourism in Portugal has been the subject of concern among policymakers, which is why several strategic tourism development plans have been drawn up at national level. In these documents, sustainability has gained more and more importance over time not always accompanied by ways of measuring it.

In the latest major tourism development strategy for Portugal (ET27) there is finally a set of indicators associated with objectives that prioritize sustainability. Although several indicators are currently monitored for the three areas of sustainability in Portugal and, several composite sustainability indexes already exist at an international level, there are still no known attempts to calculate it in the country. The creation of a composite index could provide a more immediate perspective on the level of sustainable tourism development of the country or the regions and, also enable to monitor the three dimensions of sustainability and therefore to analyse the performance evolution of each dimension. These data could provide relevant information to public decision-makers and also contributing to overcome the gap in the literature.

The objective of this paper is, firstly, to analyse the evolution of sustainability indicators present in the various national tourism plans in Portugal and, subsequently, seeking to overcome the difficulty of individual analysis of the 28 indicators used by the Portuguese Tourism Board, to propose the creation of a tourism sustainability index that can provide a more immediate perspective on the level of sustainable development of the country or the Portuguese regions. This research involved a qualitative methodology of documentary analysis of the main national tourism plans, with the objective of identifying the indicators that were considered to measure the different dimensions of sustainability over time. Also, the methodologies that have been used by various authors in defining sustainability indices were then identified seeking the most appropriate for defining the index.

This work is structured into five sections. The next section presents a brief literature review. The third section describes the methodology. The fourth section presents the results of the analysis. The last section presents the conclusions.

2. LITERATURE REVIEW

The concept of sustainable development became popular following the publication of the United Nations report known as the "Brundtland Report - our common future" (UN, 1987). In addition to this milestone, several events and documents published by the United Nations contributed to its popularization, like the 2030 Agenda (UN, 2020), which includes a set of 17 Sustainable Development Goals (SDG). It was at one of these events, namely the 'Earth Summit II', that took place in New York in 1997, that tourism was recognized as an economic sector that needs to develop in a sustainable way, to allow the attempt to reconcile the maximization of income from this activity with the minimization of its negative effects (Holden, 2008).

According to the UNEP/WTO (2005), the principles of sustainability refer to the environmental, economic and socio-cultural aspects of tourism development, and an appropriate balance must be established between these three dimensions to guarantee its long-term sustainability. Several authors agree that the sustainability of the activity should be based on the compatibility of these three dimensions (Pato & Duque, 2023; Almeida & Abranja, 2009; Santos, 2014). Although there is widespread recognition among academics, politicians, and society in general about the need for tourism to develop following the principles of sustainability, according to Sharpley (2021), its practical implementation has made little progress. Part of the difficulties in implementing sustainable results from the fact that tourism policies mostly follow a model of economic quantitative growth of tourists and revenues (Sharpley, 2021; Gössling et al., 2020; Torkington et al., 2020; Higgins-Desbiolles et al., 2019; Butcher, 2021). This merely quantitative and economic point of view ends up seeming inappropriate when facing crisis situations, such as the last financial crisis, climate change, the Covid-19 pandemic and wars. Recent research points out, as a way to better face the various crises, the need for tourism to develop in a sustainable way, more aligned with the SDG (Gössling et al., 2020; Palacios-Florencio et al., 2021; Sharpley, 2021; Butcher, 2021; Pereira et al. 2022).

Another relevant aspect relates to how to measure the different aspects of sustainability. For some time, policymakers had a limited set of statistical data at their disposal to monitor tourism, which were not sufficient to visualize all the impacts that the activity could have. On the other hand, this limited number of tools did not help local destination decision-makers to make informed decisions to improve tourism in their destination (European Commission, 2016). At an international level, two important entities have produced indicators for sustainability related to tourism, the United

Nations World Tourism Organization (UNWTO) and the Global Sustainable Tourism Council (GSTC) and, at European level stands out the European Commission.

The UNWTO encourages the use of sustainable tourism indicators since the early 1990's and has pioneered it's development and application providing actually a set of 145 key tourism statistics that are internationally-comparable series and indicators on: 1. Inbound tourism; 2. Domestic tourism; 3. Outbound tourism; 4. Tourism industries; 5. Employment; and 6. Complementary (macroeconomic) indicators (UNWTO, 2025).

The Global Sustainable Tourism Council (GSTC) constituted in 2010 and establishes and manages the GSTC Criteria, a set of criteria and indicators that correspond to global standards for sustainable travel and tourism grouped in four sets: Destination Criteria for public policy-makers and destination managers, Industry Criteria for hotels and tour operators, MICE Criteria for Venues, Event Organizers, and Events & Exhibitions and Attraction Criteria for tourist attractions such as theme parks, museums, and national parks; and they are arranged in four pillars: Sustainable management; Socioeconomic impacts; Cultural impacts, Environmental impacts (GSTC, 2025).

The European Commission launched the European Tourism Indicator System (ETIS) in 2013, with the aim of helping destinations to monitor and measure their sustainable tourism performance, using a common, comparable approach based on 27 main indicators and 40 optional indicators, subdivided into four categories: 1. destination management, 2. social and cultural impact, 3. economic value, 4. environmental impact (European Commission, 2016).

The instruments of UNWTO, GSTC and ETIS are important references at international level to measure the several dimensions of sustainability that provide information and guidance for implementing measures, facilitating analysis, assessment and decision-making. However, and despite their relevance, they do not provide a single (unique) measure, that is, a composite or aggregated measure for sustainability. Individual indicators provide data in specific areas, but they do not give an aggregate measure of a country's tourism performance. On the other hand, composite indices allow us to synthesize complex information and can help to analyse the sustainable tourism performance of a country/region, despite their limitations. These metrics can be combined with other instruments to increase accountability and guide policymaking.

According to Sachs et al. (2024) a combination of composite metrics is needed at the global, regional, and subnational levels to inform policies towards achieving complex goals. In this regard,

the Economist Intelligence Unit (2017) calculates a Sustainable Tourism Index for 10 countries and De Marchi et al. (2022) proposes a Tourism Sustainability Index measured according the ETIS criteria. Another example of measure initiative is the Global Destination Sustainability Index (GDS-Index) that focuses on sustainability at the destination level and uses 76 indicators that evaluate destinations´ sustainability performance across four key areas: Destination Management, Supplier, Social, and Environmental (GDS-Movement, 2025).

An additional example is the Travel & Tourism Competitiveness Index (TTCI) that was created by the World Economic Forum to measure tourism competitiveness at country level which was, in the 2019 version, comprised of four subindexes or dimensions (Enabling Environment, Policy and Enabling Conditions, Infrastructure, Natural and Cultural Resources), 14 pillars and 90 individual indicators, distributed among the different pillars (WEF, 2019). Later the index passes to comprise of five dimensions (the new one was Sustainability) and the index became known as Travel & Tourism Development Index (TTDI) which was, in 2024 version, comprised of 17 pillars and 102 individual indicators, distributed among the different pillars (WEF, 2024). Giambona et al. (2024) propose a composite indicator for assessing tourism sustainability in European Union countries based on the TTDI combined with the Multi-Directional Benefit of the Doubt (MD-BoD) model which allowed to identify weak and strong dimensions of tourism sustainability before and after the Covid-19.

In Portugal, several sustainability indicators are published by the Portuguese tourism board, but a composite index that demonstrates the country's performance on a global basis is not calculated. In any case, one can cite the study of Pimentel de Oliveira and Pitarch-Garrido (2022) presents a synthetic indicator (SI) developed to measure the sustainability of tourist destinations according to four dimensions of sustainable development: social, economic, environmental and political and based on a system of indicators that was applied in the Algarve region (Portugal).

The development of various methodologies over time shows the need for an effective measurement for the sustainability of tourism that consists of a tool for measuring or monitoring the degree of implementation of its principles and that can guide the design of appropriate policies for its implementation. However, the variability of methodologies, sources of information and results also make it difficult to choose a tool that can be a universally accepted reference and that consists of a set of indicators that are internationally comparable. Therefore, it is expected that new methodologies and measurement attempts will be developed.

3. METHODOLOGY

Carrying out this work implied the definition of two objectives. The first was to analyse the evolution of sustainability indicators present in the tourism plans that were implemented in Portugal over the last couple of decades. To achieve this objective, a qualitative methodology was used through a document analysis of the main strategic plans that have guided the development of the tourism sector in Portugal, namely: the National Strategic Plan for Tourism (PENT), version 2007 and version 2013; the 2015 plan Tourism 2020; the Tourism Strategy 2027 (ET27), from 2017; and the +Sustainable Tourism Plan 20-23, from 2021. The document analysis involved reading and analysing the plans to identify their main strategic objectives/goals and the indicators used to measure the different dimensions of sustainability over time.

Firstly, the main strategic objectives of each plan were identified. From the identification of the objectives, it was possible to recognise the corresponding indicators, that is, the metrics used to guide the achievement of the objectives. Thus, it was considered that an indicator is a measuring instrument that allows the interpretation of the reality or the evaluation of certain characteristics, and that makes it possible, through comparative analysis, to measure objectives and draw conclusions for the definition of future intervention policies. The information was collected in table 1. To analyse and evaluate the perspective of sustainability inherent to the objectives and indicators contained in the plans, the concept of UNEP/WTO (2005) which understands that the principles of sustainability refer to the environmental, economic, and sociocultural aspects of tourism development was the one taken in consideration.

The second objective was to propose the creation of a tourism sustainability index for Portugal which implied the analyses and identification of different possible methodologies for that implementation. Based on the literature review and document analysis, the methodology that seems more suited to implement a tourism sustainability index was selected. It is intended to follow the works of Lafortune et al. (2018) and Sachs et al. (2024), that are responsible for producing the UN SDG Index, Lafortune et al. (2024), that calculated the SDG Index for the European Union, The Economist Intelligence Unit (2017), that estimate a Sustainable Tourism Index for 10 countries (not including Portugal), and Abreu et al. (2023), that produced the Municipal Sustainability Index for Portugal. These works follow very similar methodologies to estimate the

sustainability indices and are internationally recognised. It was also necessary to identify the indicators that would be part of the index and the database that could be used. For that, the use of the indicators (table 2) and data made available by the Portuguese Tourism Board since 2017 is suggested.

In future work it will be possible to expand on the methodology used, namely, to use questionnaires, surveys or other quantitative methods, to validate the current findings through empirical work and/or identify adjustments that may be required to obtain a more reliable index. This was not done yet because this research is still in an initial stage but will be considered for the next stages.

4. RESULTS AND DISCUSSION

4.1 Analysis of Strategic Plans for Tourism and Sustainability Indicators

In the period from 2006 to 2017, the sustainability of tourism that was present in the different plans (PENT – National Strategic Tourism Plan, versions of 2007 and 2013, and Tourism 2020 – 5 Principles for an Ambition) was mainly associated with the growth in volume of the activity in which the plans presented mainly quantitative objectives of growth in the number of tourists and receipts (Table 1).

Therefore, the indicators used were, above all, associated with the economic dimension, evaluating the quantitative increase in different aspects of tourism. Until then, the issue of sustainability was seen more as a marketing operation, with weak operationalization in practice. The period after 2017 starts with the publication of ET27 – Tourism Strategy 2027, the first plan to address sustainability in accordance with the concept defined by UNEP/WTO (2005). In this plan, sustainability is seen as a priority, with specific goals being defined for the three inherent aspects: economic, environmental, and social (table 1). With the ET27, indicators are now effectively used to measure the dimensions of sustainability, even more evidently after the pandemic, with the publication of the +Sustainable Tourism Plan 20-23 (table 1).

Table 1. Comparison of the different plans and respective indicators

Plans	Objectives/Goals	Indicators
PENT 2007	➢ Annual growth in the number of international tourists above 5% and of receipts above 9%; ➢ Lisbon, Algarve and Porto and North regions with the greatest absolute contribution to growth;	• Number of international tourists • Tourism receipts

	➢ Annual growth in national tourism of around 2.5%, enhancing the sustained development of regions and hubs and combating seasonality; ➢ Increase in the sector's contribution to the economy, becoming one of the main drivers of growth in the Portuguese economy.	• Number of foreigners overnight stays by region • Number of national tourists • Number of national overnight stays • Weight of tourism receipts in GDP • Weight of tourism on Employment
PENT 2013	➢ In terms of overnight stays, to grow at an annual average of 3.1% in the period 2012-2015; ➢ In terms of receipts, to grow 6.3% per year in same period; ➢ The outcome of the tourism balance will evolve at an annual average growth rate of 9.5% until 2015.	• Number of overnight stays • Tourism receipts • Outcome of the tourism balance
Tourism 2020	➢ To create conditions so that receipts of tourism's private sector grow above the average of competitors and appear in the top-10 of the most competitive destinations worldwide.	• Tourism receipts
Tourism Strategy 2027	➢ Economic sustainability goals: ▪ To increase demand throughout the territory: 80 million overnight stays; ▪ To grow in value: 26 billion euros in receipts; ➢ Social sustainability goals: ▪ To expand tourist activity throughout the year, reaching the lowest seasonality index ever in 2027; ▪ To double the level of secondary and post-secondary education qualifications in tourism (from 30% to 60%); ▪ To ensure that tourism generates a positive impact on residents' populations; ➢ Environmental sustainability goals: ▪ To ensure that more than 90% of tourism companies adopt measures to efficiently use energy and water and develop environmental waste management actions.	• Number of overnight stays • Tourism receipts • Level of qualifications in tourism • Seasonality index • Residents' level of satisfaction with the tourism development process • Percentage of companies that adopt efficient water, energy, and waste management measures
+Sustainable Tourism Plan 20-23	Goals until 2023: ➢ 75% of accommodation companies with energy, water and waste management systems; ➢ 75% of accommodation companies that do not use Single-Use Plastics; ➢ 25,000 adherents to the Clean & Safe Seal; 30,000 professionals trained and 1000 audited; ➢ 50,000 professionals trained in the areas of sustainability; ➢ 200 international references to Portugal associated with sustainability.	• Number of accommodation companies with good energy, water and waste management practices implemented • Number of accommodation companies that do not use Single-Use Plastics in their operations

		• Number of adherents, trained professionals and audits carried out • Number of participants in training/qualification actions • Number of articles published in the media

4.2 Proposal of a Tourism Sustainability Index for Portugal

Considering that the most recent plans propose a wide mix of indicators to assess the sustainability of tourism, it may be difficult to analyse tens of different indicators to get a quick perspective of the sustainability level of the Portuguese tourism. It is, then, proposed the creation of a composite index that can provide a more immediate perspective on the level of sustainable tourism development of the country or the regions. The data source for the index is based on the Sustainable Tourism Indicator System (SITS), developed by Turismo de Portugal (table 2). As this system is already being used by the national tourism board it was considered unnecessary to develop a different one.

The SITS[1] consists of a set of indicators that have been implemented since 2017 to monitor the three dimensions of sustainability, defined according to the recommendations from international organizations (WTO, Eurostat), framed by the ET27 and following the focus of the UN SDG.

Table 2. Sustainable Tourism Indicator System (SITS)

Environmental	Economical	Social
▪ Bathing waters considered good and excellent ▪ Environmental expenses per 1000 inhabitants ▪ Energy consumption and CO_2 emissions from tourism ▪ Accommodation establishments with an environmental certification ▪ Accommodation establishments that optimize water consumption ▪ Accommodation establishments that optimize energy consumption ▪ Accommodation establishments that separate waste ▪ Urban solid waste attributed to tourism ▪ Seaside area with Blue Flag	▪ Tourism employment by work duration and professional situation ▪ Accommodation establishments open all year round ▪ Average length of stay ▪ Overnight stays ▪ Tourism receipts ▪ Average spending by tourist ▪ Number of tourists ▪ Average revenue by overnight stay ▪ Tourist receipts as percentage of GDP ▪ Occupancy rates ▪ Seasonality rate	▪ Accommodation establishments accessible for guests with special needs ▪ Tourism density ▪ Tourism intensity ▪ Number of beds available per 1000 residents ▪ Tourism employment by gender, age group, and education

[1] On the TravelBI website, managed by the Portuguese Tourism Board, it is possible to have access to the detailed information on each indicator defined in the SITS.

▪ CO_2 emissions on air transport ▪ Dependence of long-haul markets	▪ Dependence on the 3 main markets	

Source: Turismo de Portugal, 2024

To build the Index the methodologies of Lafortune et al. (2018), Sachs et al. (2024), Lafortune et al. (2024), The Economist Intelligence Unit (2017), and Abreu et al. (2023) were a reference. These are remarkably similar methodologies to estimate sustainability indices.

To calculate the proposed Index several procedures were adopted, following a method that comprises the following steps:

Step 1: Select indicators associated with goals (ET27 or others)

Step 2: Replace missing values with the indicator from the nearest year

Step 3: Normalize the indicators to an interval $0 < x < 1$

Step 3.1: Objective of growth – simply calculate the proportion of objective accomplishment:

$$x = \frac{Indicator}{Objetive}$$

Step 3.2: Objective of reduction – Application of the formula:

$$x = 1 - \frac{|Indicator - Objetive|}{Indicator + Objetive}$$

Step 4: Calculation of the simple arithmetic mean for each of the three dimensions of sustainability and global mean.

Table 3. Selected indicators from Sustainable Tourism Indicator System (SITS)

Environmental	Economical	Social
▪ Bathing waters considered good and excellent ▪ Accommodation establishments with an environmental certification ▪ Accommodation establishments that optimize water consumption ▪ Accommodation establishments that optimize energy consumption ▪ Accommodation establishments that separate waste	▪ Accommodation establishments open all year round ▪ Overnight stays ▪ Tourism receipts ▪ Occupancy rates ▪ Seasonality rate*	▪ Accommodation establishments accessible for guests with special needs ▪ Tourism employment by (…) education

*classified as social indicator on ET27

Source: Turismo de Portugal, 2024

Looking at each step in detail, step 1 consists of the selection of indicators associated with goals on the ET27 or other sources. From all the indicators identified in table 2, the ones shown on table 3 were selected because of data availability.

It was necessary to find the objectives on the documents of the ET27 (or others) associated to each indicator. The objectives identified for each corresponding indicators are presented on table 4.

Table 4. Indicators and objectives

Dimension	Indicator	Objective
Environmental	Bathing waters considered good and excellent	100%
	Accommodation establishments with an environmental certification	100%
	Accommodation establishments that optimize water consumption	90%
	Accommodation establishments that optimize energy consumption	90%
	Accommodation establishments that separate waste	90%
Economical	Accommodation establishments open all year round	100%
	Overnight stays	80,000,000 overnight stays
	Tourism receipts	26,000,000,000 €
	Occupancy rates	100%
Social	Seasonality rate*	33.5%
	Accommodation establishments accessible for guests with special needs	100%
	Tourism employment by education	60%

*classified as social indicator on the ET27

Source: Turismo de Portugal, 2017, 2024

Step 2 consisted of replacing missing values with the indicator from the nearest year, because not all values were available for some years. Some of them depended on surveys that are not conducted every year.

Step 3 consists of the normalization of indicators. Each indicator has its own unit of measurement, and it is necessary to rescale the data to ensure comparability across indicators. Before they can be aggregated, all indicators must be standardized, which means that they are all converted on a scale from 0 to 1 ($0 < x < 1$), with 0 denoting worst performance and 1 describing the optimum.

As some indicators are associated with objectives of growth while others are associated with objectives of reduction, the following method of normalization was adopted for each case:

- Objective of growth – Calculation of the proportion of objective accomplishment

$$x = \frac{Indicator}{Objetive}$$

- Objective of reduction – Application of the formula

$$x = 1 - \frac{|Indicator - Objetive|}{Indicator + Objetive}$$

x is the normalized value after rescaling. The equations ensures that all variables are expressed as ascending variables, which means that higher values indicate a better performance. Thus, the data that will be obtained after rescaling becomes easy to interpret and compare.

Step 4 consists of calculation of the simple arithmetic mean for each of the three dimensions of sustainability and global mean. This phase is completed through the aggregation of the rescaled indicators. For that the methodology of the SDG Index. Lafortune et al. (2018), Sachs et al. (2024) and WEF (2024) will also be followed. These authors argue that there is little consensus across different epistemic communities on assigning higher weights to some SDGs over others and opted to assign an equal weight to every SDG, to reflect policymakers' commitment to treat all SDGs equally. Also, the WEF (2024) does not use different weights in its TTDI index for similar reasons. Following that, equal weights will be used for aggregating indicators' scores into the sustainable dimensions' scores, and for aggregating dimensions' scores into the overall index score. This means that it is assumed that all goals and dimensions have a similar significance and are important to assure tourism sustainability. Thus, and following Sachs et al. (2024), the simple arithmetic mean of indicators will be used to obtain each dimension's score, and dimension scores will then be averaged to obtain the final Index score.

The Index aims to represent a value that shows the country's position between the worst (0) and the best (1) regarding sustainable tourism development. For example, a value of 0.5 means that, on average, 50% of the path to sustainable tourism development will be completed. As a score is calculated for each dimension, the performance evolution of each dimension can also be analysed. The index could also be generalised to the NUTS II and III regions or even the local or municipal level.

4.3 Discussion

Looking at the results obtained so far, it is possible to say that the proposed methodology has several positive aspects, but also some limitations.

Starting with the negative aspects, or limitations of the methodology, there is some difficulty in identifying objectives for all indicators mentioned in the plans. Also, considering the different types of objectives, it is difficult to construct an easily interpretable index when there is an

objective of reducing the value of the indicator; it is not possible to calculate the proportion of achievement if the starting point (maximum) may vary significantly; when considering a minimum of 0, this makes the calculations easier.

Other limitations are related to the calculations of indicators for different places or different periods of time, as the indicators used depend on the stability of the objectives, and these may be different in different countries/regions or time periods; also, this leads to a loss of comparability. As it was already mentioned, there is some unavailability of data for some years, as some of the indicators used depend on research and data collection that does not occur every year. Besides these data availability issues, the indicator selection in specific regions with particular characteristics may also pose a problem and raise the need for the use of a slightly adapted indicators list. This may be particularly important to minimize the risk of oversimplification associated to this kind of synthetic indicator.

Finally, there is a notable absence of indicators for the cultural area and a reduced quantity for the social area. This results from the public policies that were implemented in those times, that prioritized the economic growth of the activity particularly in terms of receipts and overnight stays. That growth raised other concerns, namely on the sociocultural and environmental aspect of tourism, that led to a shift in the public policies adopted by the recent governments, once there is a greater awareness on the part of the society, about the negative effects of mass tourism.

On the other hand, the proposed methodology has multiple positive aspects. Firstly, the proposed index varies between 0 and 1, being simple to calculate and adaptable to different situations; this makes the computed values comparable for situations/periods with the same objective; because of this, the index can be generalized to NUTS II and III regions or even to the local or municipal level (as long as the objectives are the same for each indicator).

The proposed calculation formula for the indicators with reduction objectives is applicable to both reduction targets and growth targets, although it is not directly proportional to the achievement of the target; this is why the same formula was not used for the objectives of growth, also, as its interpretation becomes a little less obvious. Finally, the alignment of the methodology with the work developed by entities producing national, European, and international statistics, allows the standardization of processes and criteria and leads to a greater degree of comparability.

Considering all the above, it is proposed that policymakers define equal objectives at European, national and regional level, with a view to comparability; instead of using figures that can vary

according to the scale of the region being analysed (e.g. number of tourists, average spendings, or income), the objectives should be set in a relative manner (proportion of tourists against the local population, proportion of spendings against average salary, or proportion of income compared to the GDP).

It is also suggested that a better alignment should be found by policymakers between the objectives of the strategic plans for the tourism sector and the indicators defined for their monitoring. Regarding the SITS indicator matrix used by the Portuguese Tourism Board, it should be improved by introducing new indicators in the sociocultural dimension and, particularly, adding some for cultural aspects.

5. CONCLUSION

This study aimed to analyse the evolution of means of measuring sustainability in tourism in Portugal and propose an index to measure the level of sustainable tourism development of the country or the regions. Regarding the first objective, the analysis carried out allowed us to identify the year 2017 as the turning point. This was when the ET27 was published, the first strategy to address sustainability as a priority and that defined a set of indicators to measure it. Although the SITS considers a broad set of indicators, the social dimension presents itself as the one with the lowest quantity and the cultural aspects are not considered at all. Because of this, it is suggested to improve the SITS indicator matrix by introducing new indicators in the sociocultural dimension, and, particularly, adding some for the cultural aspects. A better alignment between the objectives of the strategic plans for the tourism sector and the indicators defined for their monitoring is also suggest.

In relation to the second objective, the research conducted revealed the non-existence of a tourism sustainability index in Portugal. The index proposed is the result of our research in the area, a work in progress. Although the empirical validation has not been completed, at this time, after the testing and adjustments that the index may still need, its practical application will make it possible for stakeholders and policymakers to have an instrument that will help on decision making. The use of the dimensions index will allow stakeholders to identify what action to prioritize in order to obtain a better overall sustainable development of tourism.

As it was already mentioned, the methodology followed has some limitations, like data availability and the fact that it assigns the same weight to all indicators and dimensions, something that is also

recognized by the authors of the SDG Index. The calculation of the averages of all indicators for a sustainability dimension might hide areas of policy concern if a country performs well on most indicators but faces serious shortfalls on one or two metrics within the same dimension. However, as in the case of SDG Index, it is an option that can be followed and that allows for equal priority and importance to be given to all areas of sustainability.

On the other hand, the alignment of the methodology with the work developed by national, European, and international statistics publishing entities, allows for the standardization of processes and criteria and leads to a greater degree of comparability. A uniformized scoring system can allow the comparison of levels of sustainability and the monitoring of the evolution of tourism developments towards the sustainability principles and its contribution to the SDGs. Therefore, it is suggested, as future work, to verify the quality of the index and to carry out an empirical study that allows the calculation of the tourism sustainability index, analysing its evolution, as well as for each dimension, allowing to assess the compliance with the sustainability goals.

This, however, will raise some challenges, namely the need for the national tourism board of Portugal to adopt and integrate the index in the SITS methodology. The usage of the index in the reports published by the Turismo de Portugal will facilitate the integration of the index in other levels of decision-making and facilitate comparability across regions, and the adoption by policymakers.

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