

Integrated Model for Monitoring and Regulation of the Sustainable Tourism Development on the Bulgarian Black Sea Coast

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Abstract. *Sustainable tourism development is the core of modern destination management and it is a concept of particular importance in both tourism practice and academic researches. It is increasingly seen as a key approach to deal with economic, social and environmental challenges. This paper strives to fill this gap by proposing and validating an integrated model for monitoring and governing sustainable tourism development along the Bulgarian Black Sea coast. The research is design-oriented, with a structured synthesis of sustainability indicators and a governance-oriented conceptual framework. The model incorporates environmental, socio-economic, tourism and governance dimensions into a coherent monitoring cycle to support strategic planning and adaptive decision making. Its practical relevance is checked by expert validation with representatives of the key stakeholder groups, including civil society, the tourism business sector and local authorities. The results of expert validation show that the proposed model is perceived as highly relevant, applicable and supportive of decision-making. At the same time the findings emphasise the importance of institutional capacity, coordination and availability of data for the successful implementation of integrated monitoring systems. The model presents a good degree of conceptual coherence and transferability to other coastal destinations with similar sustainability challenges, although its use is still subject to context-specific institutional conditions. This work contributes to the literature on sustainable tourism governance by overcoming reporting-oriented monitoring approaches and proposing a governance-oriented model explicitly connecting sustainability indicators with management and policy processes. Despite the limitations related to the qualitative nature of the validation and to the specific national context, the proposed model offers a solid basis for the development of integrated monitoring systems and future empirical research in coastal tourism destinations.*

Keywords: Sustainable tourism development; Integrated monitoring model; Coastal destination governance; Sustainability indicators; Bulgarian Black Sea coast; Evidence-based decision-making.

Introduction

The core of contemporary destination management is the development of sustainable tourism, increasingly seen as a major way to address economic, social and environmental problems of different kinds and degrees. Sustainable tourism is a concept of special significance in both tourism practice and academic research. This means that the tourism system should develop in a way that, at the same time, satisfies the needs of tourists and host communities, while strategically considering the needs of future generations. Thus, sustainable tourism is a response to environmental pressures, economic dependency and social tensions arising from the interplay of competing interests and/or poorly defined and ineffective policy frameworks. Here, sustainability can only be achieved if tourism is understood and managed as a complex and integrated socio-ecological system, which requires careful consideration of the specific characteristics of tourist destinations. This, in turn, assumes the adoption

of data-driven approaches to governance, where tourism-related decisions are based on observed trends and not intuition or fragmented statistical information.

One of the pillars of the European blue economy is coastal and maritime tourism that makes a major contribution to economic growth, employment and regional development. On the other hand, increasing studies show that the rapid development of coastal tourism increases the spatial clustering of tourism activities and exacerbates the conflict between economic benefits and protection of coastal and marine ecosystems. The effective and efficient management of sustainable tourism in areas such as the Black Sea coast, and especially the Bulgarian part, characterised by marked seasonality, spatial dispersion of tourism activities and climate change vulnerability, relies on the existence of policy frameworks able to address the intensification of tourism development and structural challenges such as coastal overdevelopment, institutional fragmentation and limited coordination across governance mechanisms.

This is a topic well covered by both academic literature and policy practice, and there is a substantial body of research on sustainable tourism and the sustainable management of coastal destinations. However, existing approaches are largely sectoral and poorly coordinated, focusing on specific dimensions rather than integrated perspectives in most cases. Moreover, many existing indicator frameworks and strategic instruments have not been translated into operational tools at the local level, and are often limited to reporting purposes and do not support strategic decision-making. In many coastal areas data on tourism sustainability are collected by different institutions. They are not spatially and temporally coordinated which limits their comparability and practical usability. Many times, there is no institutionalised mechanism to integrate the different data on governance and to ensure continuous monitoring. As a result, the literature shows a critical shortage of management-oriented models that are conceptually based, compatible with international frameworks, and assessed or validated by tourism practitioners. This gap is especially salient in coastal destinations where cumulative tourism pressures and unique seasonality require adaptive, evidence-based governance responses. Such expressions of fragmented governance and limited integration are most visible in the Bulgarian Black Sea coast where different strategic documents and statistics in the field of tourism are available but no mechanism exists to incorporate them into a coherent management framework. Thus, the governance of sustainable development along the Bulgarian Black Sea coast is institutionally fragmented with a low level of coordination and exchange of data. The aim of the study is to develop and validate an integrated governance-oriented model for monitoring sustainable tourism development in coastal destinations, with a special focus on the Bulgarian Black Sea coast. The paper adds to the literature on sustainable tourism governance by proposing an integrated monitoring model that explicitly connects sustainability indicators to governance and decision-making processes. The focus on institutional anchoring and managerial relevance moves the model beyond reporting-oriented approaches and fosters adaptive governance in coastal tourism destinations.

In light of this, the current study is guided by the following research questions:

RQ1: How to design an integrated model for sustainable tourism development monitoring and management ensuring compatibility with internationally accepted frameworks and applicability in coastal tourism destinations?

RQ2: What are the main indicator groups and governance-related dimensions necessary to holistically cover the environmental, socio-economic and institutional aspects of sustainable tourism development?

RQ3: How do tourism practitioners perceive the relevance, applicability and decision-support value of the proposed integrated model in the context of the Bulgarian Black Sea coast?

The objective of this study is to develop and validate an integrated model for monitoring and managing sustainable tourism development along the Bulgarian Black Sea coast, designed to support the establishment and operation of a Sustainable Tourism Observatory in line with internationally recognized standards for sustainable tourism monitoring.

Review of the literature

Sustainable tourism and coastal destination management (STCDM)

Sustainable tourism is not a temporary state but rather a long-term process that is rooted in achieving a balance between environmental, social and economic objectives (Dewi et al., 2025). This is broadly acknowledged in the academic literature. According to UN Tourism (2025), sustainable tourism is “*tourism that fully respects its present and future economic, social and environmental impacts, contributing to the satisfaction of the needs of visitors, the industry, the environment and host communities*”. This understanding is a complete reflection of the basic definition of sustainability introduced in the Brundtland Report of 1987. Since then, the notion has changed significantly, especially in the context of the global COVID-19 pandemic, where sustainability has been increasingly associated with survival (Romagosa, 2020, p. 692). In the literature there is a variety of interpretations, but there is a wide consensus that sustainable tourism should be considered at the same time as a strategic objective and as a governance paradigm (Sadat et al., 2025).

While the term “sustainable tourism” is widely used in economic, political and academic discourse, many scholars agree that its practical application is limited and inconsistent (Butler, 2018; Niewiadomski & Brouder, 2024). This is particularly the case in coastal destinations, where sustainable management relates to the ability to adapt and recover from natural hazards and climate-related impacts, and where human activities and their interdependencies with natural ecosystems at the land-sea interface affect tourism development (Singgalen, 2024; Coccossis & Koutsopoulou, 2020). In this sense, sustainability in the coastal context encompasses both external factors, mainly beyond the direct control of the destination, and internal quantitative and qualitative characteristics of tourist places, many of which are amenable to management and targeted intervention. These characteristics make coastal destinations economically attractive yet environmentally vulnerable, with sustainability challenges tightly linked with processes and dynamics such as seasonality, high concentrations of tourism activities, ecosystem pressures, competition for space and pursuit of economic growth (Abdulgani, 2019). This means in practice that coastal tourism exacerbates all the principal contradictions contained within the idea of sustainability.

There is a growing feeling that economic growth alone is not enough to measure success. Sustainability calls for a change in managerial thinking and the introduction of new forms of monitoring and governance instruments that can support the transition from a tourism mostly orientated to growth to a destination management orientated to sustainability. The latter stresses the management of tourism processes, the balance of impacts and the long-term sustainability of destinations (Bramwell & Lane, 2011). Although the aims and principles of sustainable development are frequently discussed in the specialised literature, the concrete governance mechanisms and management tools through which these principles can be put into practice are given considerably less attention. In this regard, the relationship between regional economic development, public authority and the sustainable performance of tourism destinations is still poorly understood (Handoyo, 2024). Consequently, the sustainability of tourism is usually approached in a sectoral manner, which creates an evident gap between declarative and operational

sustainability. Although sustainable tourism is a well-established concept and strategic objective, the management of coastal destinations still faces challenges in translating the principles of sustainability into coherent and integrated governance practices.

The transfer of the conceptual framework of sustainable tourism development to management practice implies the availability of reliable mechanisms for monitoring, assessment and interpretation of the development of the destination over time. Monitoring and the use of indicator-based systems are now well established as key tools for the operationalisation of sustainability principles and for decision-support at the destination level. For effective monitoring, indicator-based systems are used in many fields, including tourism, either at an organisational level or at the destination level. Due to the similar applicability of some indicators, some of them can be used simultaneously at both functional levels (Dyankov & Rakadzhyska, 2024, p. 8). Within the context of sustainable tourism, monitoring is a tool for the early risk identification and for the assessment of impacts and policies. Monitoring should thus be understood as a tool for the observation of trends and not just as a reporting device. At the destination level this implies that the monitoring process is a fundamental basis for evidence-based decision-making.

The indicator-based approach to monitoring dominates because of the possibility of comparability over time and most monitoring systems have indicators covering all three pillars of sustainable development – economic, social and environmental. In tourism, there are currently quite a few monitoring frameworks (Sustainable Development Goals (SDGs), European Tourism Indicator System (ETIS), QUALITEST system, Statistical Framework for Measuring the Sustainability of Tourism (SF-MST), EU Tourism Dashboard, Tourism Satellite Account (TSA), World Economic Forum Travel & Tourism Development Index). Though methodological differences exist, all these frameworks have a common strategic objective; to achieve international consensus on the collection and analysis of reliable data on tourism development and sustainability and to develop a common governance framework (UN Tourism, 2024).

However, the existence of multiple monitoring systems presents a number of challenges. Indicators are poorly integrated, do not sufficiently take into account the spatial specificity of regions and are mainly orientated to reporting purposes, which limits their applicability in managerial terms. Therefore, the need to create an institutional anchor is of critical importance for mass tourism development destinations such as the Black Sea coast. This implies that local monitoring systems and indicators for sustainable tourism development need to be formally and functionally embedded in the institutional architecture of governance. The sustainable management depends not only on the availability of data but also on their systematic interpretation, on the development of scenarios and the use of integrated management tools. In this context, the distinction between monitoring for reporting and monitoring for governance becomes evident. The former is primarily used for accountability purposes, whilst the latter is specifically aimed at supporting informed decision-making. This highlights the need for integrated and institutionally anchored monitoring models. Together this shows that the success of monitoring systems is related not only to the indicators and data quality themselves, but also to how those systems are institutionally organised, coordinated and used in governance processes. In this context, broader issues of governance, stakeholder engagement, and the creation of an institutional entity (organization) that can provide an institutional home for the monitoring system are highlighted.

Overall, the reviewed literature indicates a strong conceptual agreement on the importance of sustainability in tourism and the growing use of indicator-based monitoring frameworks. However, it also emphasises a continuing lack of integrated governance models that systematically

link sustainability indicators with decision-making processes and institutional coordination at the level of the destination, especially in coastal tourism contexts.

Methodology

This study uses a design-oriented research approach to develop and validate an integrated model for monitoring and managing sustainable tourism development in a coastal destination. The research methodology involves the analysis of existing frameworks, systematisation of indicators and expert validation. The emphasis is on offering a model by previous choice of indicators, organization of the core elements and identification of functional relations.

The idea for the development of the integrated model emerged within the framework of an initiative for the creation of a Sustainable Tourism Observatory along the Bulgarian Black Sea coast, which was to be integrated into the world global International Network of Sustainable Tourism Observatories (INSTO). The Observatory is not the object of the present research, but it provides the institutional and governance context within which the relevance and practical orientation of the proposed model can be demonstrated. The conceptual framework of the study is built upon the key features of sustainable tourism in this meaning, which are systematically explored, integrated and contextualised in relation to coastal tourism and, more specifically, to the specific conditions of the Bulgarian Black Sea coast. The model considers tourism as a socio-economic and environmental system and frames monitoring as a governance-oriented process. Importantly, the proposed model is not merely conceptual, as the research design involves validation by experts and practitioners.

The design principles of the model are indicative of the theoretical basis of sustainable tourism and the needs and objectives of INSTO regarding the effective monitoring and the creation of an institutional framework that can monitor sustainable tourism development. The principles are intended to make the model conceptually grounded, operationally applicable, and adaptable to different institutional and spatial contexts. Firstly, the model adheres to the integration principle, integrating the environmental, social, economic and governance aspects of sustainable tourism development. This integrated approach enables the simultaneous observation of different kinds of impacts and interdependencies which cannot be sufficiently captured by sectoral or isolated indicator systems. The second principle is the multifunctionality of the model, which means its applicability to different levels of governance and space, such as local, destination, regional and national levels. This is indicative of the particularity of coastal tourism governance, where decisions and effects are often realised across multiple levels and necessitate coordination among a broad array of institutions and actors. The third principle is temporal adaptability, i.e., the model is not a static framework but a dynamic monitoring and management tool. Regularly updated indicators, management interpretations and approaches allow for continuous learning and implementation of corrective actions. The fourth principle is concerned with compatibility with internationally established frameworks and standards. The model is conceptually similar to leading international initiatives and indicator systems, which would allow for data harmonisation, international comparability and potential integration into broader monitoring networks, while still allowing sufficient flexibility to reflect the local and regional specificities of coastal destinations. Finally, the model proposed is explicitly orientated toward management, not reporting, stressing its part in a broader and deeper governance process.

The integrated model comprises four functionally interdependent components corresponding to the governance process logic from data collection and integration to analysis,

decision-making and adaptive feedback. The model works because of the interplay of these elements and not because of how they work in isolation.

The first part of the model is the input layer of data and indicators. It aggregates multiple data sources relevant to sustainable tourism development. The indicator framework is derived from 11 mandatory issue areas defined by the International Network of Sustainable Tourism Observatories, which represent the minimum scope required for sustainability monitoring (INSTO, 2025). These issue areas are brought together for analytical and governance purposes into four broader indicator domains covering environmental, socio-economic, tourism-related and governance dimensions. This structure improves the strategic usability of indicators and keeps full compatibility with the INSTO framework.

The second component is the integration and structuring layer where the indicators are harmonised and spatiotemporally aligned. This enables comparability over time and between territorial levels and data aggregation according to specific governance needs. The component serves as a bridge between data collection and analytical interpretation.

Block C is the analytical and interpretive part of the model, in which the structured indicators are used for analyses, identification of trends, risk assessment and development of alternative development scenarios. At this stage, the analysis is context-oriented and considers the specific characteristics of coastal tourism, such as seasonality, pressures on ecosystems and interactions between different economic activities.

The fourth component is the governance and decision support layer that connects analytical results to strategic planning, policy development, and stakeholder coordination. The monitoring results are used to support decision-making and dialogue between public authorities, businesses and local communities, presenting the model as a governance tool instead of a reporting mechanism.

The interaction between the components is closed by a feedback mechanism, which closes the monitoring cycle. Governance decisions and policies that are implemented have an impact on subsequent data collection and interpretation, meaning that indicators, analytical approaches and monitoring priorities can be revised. The model thus depicts a continuous and adaptive cycle of governance between monitoring, analysis and decision-making (Figure 1).

The practical applicability and governance relevance of the proposed model were assessed in an expert-based validation with representatives of the main stakeholder groups in the tourism system. The validation was performed by three experts with practical experience in tourism and profound knowledge of the characteristics and specificities of the Bulgarian Black Sea coast: a representative of a non-governmental organization in the tourism sector, a representative of the tourism business sector (hotel industry) and a representative of local government. This choice demonstrates the need to integrate different perspectives of governance and operations in the model assessment. This validation is not aimed at statistical generalisation but at the evaluation of the conceptual coherence, the managerial relevance and the practical applicability of the proposed model.

The expert validation was performed through a structured discussion based on the visual presentation of the model. Participants were provided with information on the conceptual logic of the model and the interrelations between its components. The evaluation was carried out using the following set of criteria:

- (1) the applicability of the model to real governance challenges in coastal tourism destinations, in particular, the Bulgarian Black Sea coast;
- (2) the clarity and logical coherence of the model structure;

- (3) the applicability of the model under current policy and governance conditions;
- (4) the potential to support decision making, including its possible use for strategic planning and governance in other coastal destinations;
- (5) flexibility and adaptability of the model to changing conditions, policy priorities and data availability.

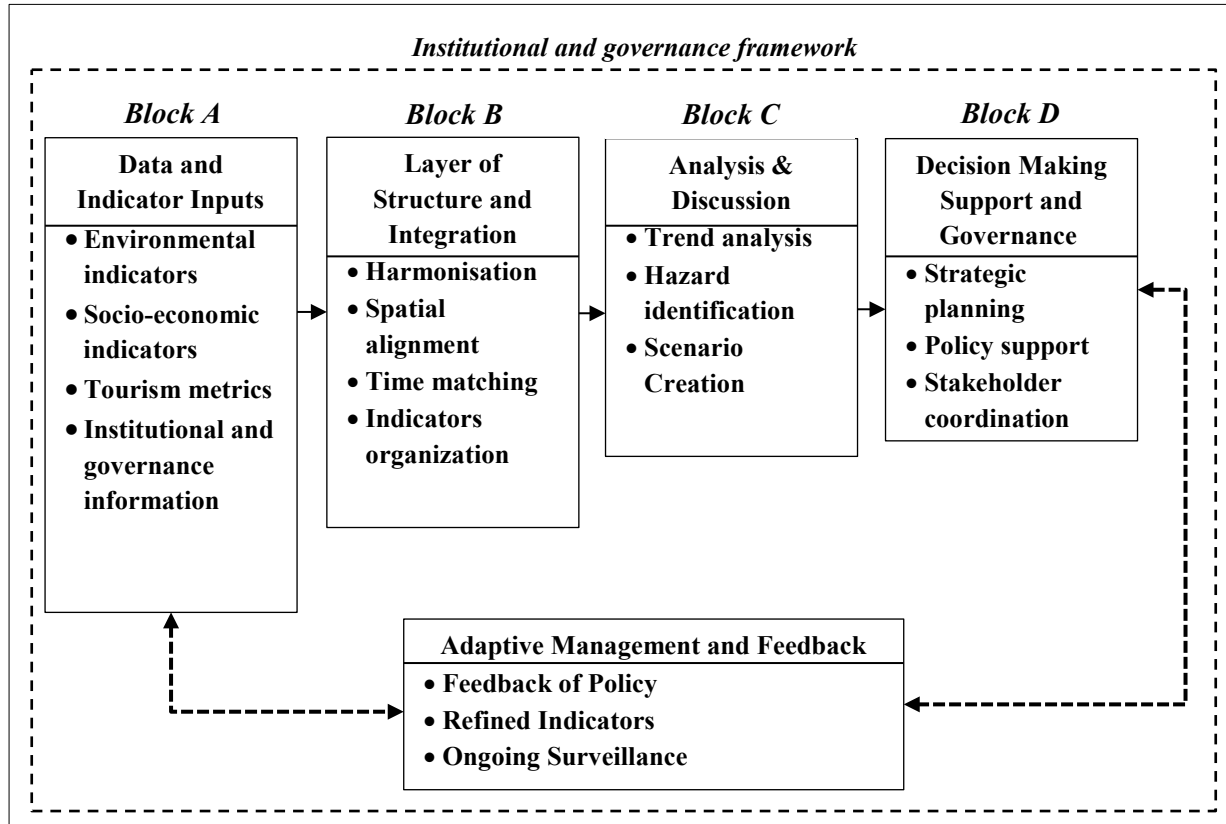


Figure 1. A comprehensive model for sustainable tourism development monitoring and management

Source: Authors' own elaboration.

Each criterion was rated by the three experts on a five-point scale, with 1 indicating the lowest and 5 the highest evaluation. In this way, expert judgements are systematised and can be compared as to different aspects of the model, without statistical generalisation. For each criterion the average was calculated as an indicative measure of the level of expert agreement on the qualities of the model.

The expert validation results were used to improve the conceptual design of the model and to confirm its governance-oriented nature. Therefore, the purpose of the validation is not to provide statistical generalisations, but rather to assess the model qualitatively as a tool for monitoring and managing sustainable tourism development.

Results and discussion

Table 1 presents the results of the expert validation of the integrated model for monitoring the sustainable development of tourism along the Bulgarian Black Sea coast. Instead of testing the performance of the proposed model through quantitative implementation or statistical

generalisation, the paper focuses on assessing the conceptual coherence, managerial relevance and practical applicability of the proposed model.

Table 1. Expert evaluation of the integrated monitoring model

Assessment criteria	Representative of NGO	Business Representative	Representative of Local Authority	Average score
Importance/relevance	5	5	5	5.00
Clarity of structure	4	5	3	4.00
Application/applicability	5	5	5	5.00
Decision support possibilities	5	4	5	4.66
Flexibility, adaptability	3	4	3	3.33

Source: Authors' own research.

The evaluation was carried out based on the five pre-defined criteria as described in methodology section. Each criterion was rated on five-point scale and the arithmetic mean was calculated for each criterion. The results allow assessing the extent to which the proposed model is capable of answering the research questions formulated in this study. Overall, the results suggest fairly high mean scores for most of the criteria evaluated.

The results of RQ1, which aims to investigate the possibility of designing an integrated model that is compatible with international frameworks and applicable to coastal tourism destinations, show a very high level of expert agreement. The mean scores for relevance and applicability of the criteria were both the maximum (5.00). This indicates that the model is considered an appropriate tool to tackle real-world governance problems and is applicable within existing institutional and policy contexts. This confirms that practitioners recognise the holistic design of the model and its compatibility with the INSTO framework as major strengths.

The results also give empirical support for RQ2 related to the inclusion of key indicator groups and governance-related dimensions in the model. The high scores in relevance and applicability, and in decision-support potential (mean score 4.66) indicate that the integration of environmental, socio-economic, tourism-related and governance indicators is perceived as appropriate and sufficiently comprehensive. This confirms that the clustering of the mandatory INSTO issue areas into broader analytical dimensions allows the use of these areas for governance purposes without losing the conceptual coherence of the framework.

For RQ3, evaluating the model's applicability and value for supporting decisions by the practitioners, the results show a positive evaluation overall. Meanwhile, the average value of the structural clarity (4.00) indicates that the model is generally understandable. However, the difference in individual assessment by experts shows different professional views on the complexity of integrated governance instruments. Flexibility and adaptability were the lowest scored (3.33), suggesting that the model is conceptually sound but may need further institutional and procedural adjustments for long-term application.

The relative lower evaluation of adaptability can be considered as a weakness of the model and not as an expression of the challenges related to the implementation of integrated governance-oriented models in practice. Experts expressed concern about the ability of current institutional frameworks to ensure consistent data collection, integration and use, especially in contexts with weak coordination across sectors and frequent changes in governance priorities. The model is conceptually transferable to other coastal destinations experiencing similar sustainability pressures. However, its effective implementation is mainly a function of institutional capacity, stakeholder commitment and the gradual strengthening of governance arrangements rather than geographical

specificity alone. The empirical validation is based on the case of the Bulgarian Black Sea coast, but the model is conceptually transferable to other coastal destinations facing similar sustainability pressures, governance challenges and coordination needs.

Expert discussions showed a common understanding at the same time that the presented model is characterised by a high level of conceptual universality and can be used for a wide range of coastal and marine tourism destinations, regardless of their specific institutional or economic conditions. The model was regarded to be a satisfactory framework for monitoring and managing sustainable tourism development in coastal areas where mass tourism creates considerable environmental, economic and socio-cultural pressures. Experts, however, stressed that its application in the Bulgarian Black Sea context is closely linked to the existence of a stable institutional environment, effective coordination between the competent public authorities and reliable mechanisms for data collection and use. There was some concern about whether existing institutional structures were ready to undertake the long-term implementation of such an integrated model. Experts said the model needs further efforts, institutional capacity-building and phased implementation to work effectively and sustainably in the Bulgarian governance context. This suggests that the model's relevance is less about geographic particularity and more about institutional capacity and governance arrangements in coastal tourism destinations.

Conclusion

This study develops and validates an integrated model for monitoring sustainable development of a coastal destination, with a focus on the Bulgarian Black Sea coast. The model is founded on the understanding of tourism as a complex socio-ecological and economic system, and suggests a structured framework that incorporates various dimensions of sustainability into a unified governance process that is orientated toward long-term sustainability and informed strategic planning.

The main scientific contribution of the research is the construction of a model with a conceptual and governance-oriented focus, which is in line with internationally recognised frameworks, such as the mandatory issue areas of the International Network of Sustainable Tourism Observatories, but can also incorporate the specific attributes of coastal tourism destinations and adjust to particular regional circumstances. The model is presented as a tool for strategic planning and informed governance decision-making in sustainable tourism, by combining functional blocks and analytical layers, in contrast to the traditional monitoring methods that are overwhelmingly reporting-oriented.

The expert validation results confirm the relevance, applicability and governance potential of the proposed model as well as its conceptual universality and suitability for application across different marine and coastal destinations. At the same time, the expert assessments note the importance of the institutional context as a key factor for the effective functioning of such integrated models. The clear distinction between the qualities of the model itself and the conditions required for its implementation highlights the need for a stable institutional framework, coordination among stakeholders, and phased implementation in governance practice.

These considerations allow us to conclude that the present study contributes to the theoretical debate on sustainable tourism governance, as well as to the practical application, providing a basis for the development of integrated monitoring systems, also in the context of sustainable tourism observatories. Further research may concentrate on the empirical application and long-term testing of the model in real governance settings, and on the analysis of its adaptation in different institutional and territorial contexts. This way the model could be further improved and

contribute to a more effective and sustainable management of tourism destinations facing increasing environmental and social pressure.

Despite its contributions, this study has some limitations that should be noted. Expert validation is limited to a small number of practitioners and takes place within a particular institutional and policy context, which limits the possibilities for empirical generalisation. The model is also not yet tested for long-term implementation or quantitative performance assessment. Future research could explore the empirical application of the model in different coastal destinations and also investigate the model's flexibility in different governance and institutional contexts. Such studies would contribute to further refinement of integrated monitoring models and strengthening their role in evidence-based governance of sustainable tourism development.

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