International Journal of Innovative Research and Scientific Studies, 8(6) 2025, pages: 544-560

IJIRSS
International Journal of Innovative Research & Scientific Studies

ISSN: 2617-6548

URL: www.ijirss.com

Ethical stance in sustainable tourism: A DEMATEL and AHP-based analysis of the Göbeklitepe case

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Abstract

Ethical considerations have increasingly become central components in sustainable tourism development, particularly in culturally sensitive heritage destinations. This study aims to define and prioritize ethical sustainability criteria within the framework of sustainable tourism by employing a hybrid multi-criteria decision-making approach (DEMATEL-AHP). Göbeklitepe, a UNESCO World Heritage site in Türkiye, is selected as a case study due to its symbolic, archaeological, and tourism significance. Based on expert evaluations (n=14), nine core ethical criteria categorized under environmental, social, and economic dimensions were analyzed for their interrelations and importance weights. DEMATEL results highlight *Human Rights Sensitivity*, *Ethical Marketing*, and *Local Production* as the most influential (causal) criteria. AHP analysis further identifies *Digital-Ethical Tourism Management Strategy* as the most suitable and comprehensive strategy, particularly effective in achieving balance across environmental, social, and economic domains. Additionally, the study aligns identified criteria with Forsyth's Ethics Position Questionnaire (EPQ), integrating ethical ideology with quantitative decision-making. This interdisciplinary framework enhances theoretical understanding and provides actionable insights for policymakers and tourism planners. Findings emphasize that ethical stance is not merely a normative guideline but a measurable and strategic necessity in sustainable tourism planning, especially in high-value heritage contexts.

Keywords: AHP, DEMATEL, EPQ, Ethical stance, Göbeklitepe, Heritage management, Sustainable tourism, Tourism strategy.

DOI: 10.53894/ijirss.v8i6.9643
Funding: This study received no specific financial support.
History: Received: 16 July 2025 / **Revised:** 18 August 2025 / **Accepted:** 21 August 2025 / **Published:** 3 September 2025

Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.
Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.
Publisher: Innovative Research Publishing

1. Introduction

The effectiveness of humanity's relationship with nature is key to a sustainable future. The transition to sustainability requires holistic and mutually reinforcing changes in behavioral, cultural, material, and governance systems [1]. The spread of human activities on a global scale has become one of the main problems that threatens the protection of biocultural heritage by putting pressure on natural habitats [2, 3]. The Sustainable Development Goals (SDGs), developed in this direction, emphasize that action in one area will affect results in other areas and that development should balance social, economic, and environmental sustainability [4]. It is directly related to tourism in many integrated areas, especially responsible consumption, reduced inequalities, peace, justice, strong institutions, and sustainable cities [5]. In this context, the "Türkiye Sustainable Tourism Industry Criteria (TR-I)" was created to develop a common understanding to increase the awareness of Turkish society, visitors, the sector, and tourism investors about sustainable tourism principles and practices [6]. Increasing environmental degradation, failure to protect cultural heritage, and deepening social inequalities have transformed the concept of sustainability from a voluntary approach into a mandatory framework at national and international policy and management levels [7, 8].

Sustainable tourism is considered a multidimensional approach that is not limited to environmental protection but also includes social components such as ethical responsibility, cultural sensitivity, and social participation [9, 10]. Particularly, the new generation tourist profile exhibits a consumption approach that respects the living conditions of the local people, understands, appreciates, and tolerates cultural differences, is sensitive to the protection of cultural heritage, and attaches importance to ethical principles [11-13]. This value-based approach directs the tourism sector towards more inclusive, transparent, and sustainable practices [5].

While traditionally, tourist satisfaction has been explained by factors such as price, service quality, accessibility, and comfort, today, value-based factors such as sustainability practices, level of interaction with local communities, and ethical marketing strategies are also included in this satisfaction structure [14, 15]. Sustainability principles, primarily environmental responsibility, respect for cultural authenticity, and social justice, have an impact on tourist perception and can direct destination preferences [16-18]. However, empirical research on structural, causal, and multi-criteria analyses of this multi-dimensional relationship is still limited in the literature [19].

The protection of cultural heritage sites of destinations is seen as an ethical responsibility not only for the preservation of physical structures but also for the transfer of historical, cultural, and social values of these areas to future generations [20]. This ethical stance includes fundamental principles such as respecting the rights of local communities in the destination, adopting sustainable management practices, and preserving cultural diversity [21]. Göbeklitepe was included in the World Heritage List by UNESCO in 2018 due to its archaeological value and the unique and transformative perspective it offers on human history [22]. This monumental structure, dating back to 9600 BC, stands out as a cultural heritage element that compels us to reconsider what has been known so far about the transition to settled life and belief systems [23, 24]. The cultural and symbolic value of Göbeklitepe makes it not only a tourist attraction [25] but also a sensitive heritage site that requires multi-dimensional management where sustainable tourism principles can be applied [26]. The increasing visitor density, limited infrastructure capacity, and the need to manage relations with the local community in a sustainable manner, which was visited by 709,643 people in 2024, have made Göbeklitepe an example where holistic tourism policies are tested [27]. In terms of both the protection of cultural heritage and the observance of ethical sensitivities, Göbeklitepe functions as a unique laboratory that embodies the application potential of sustainable tourism [28]. Under UNESCO World Heritage status, planning efforts to protect Göbeklitepe are shaped by integrated strategies that include sustainable and ethical principles such as risk management, local community participation, and controlled visitor policies [29].

In this context, the primary objective of this study is to prioritize the criteria guiding sustainable tourism strategies and to reveal their levels of interaction. The combined and comparative application of DEMATEL (Decision-Making Trial and Evaluation Laboratory) and AHP (Analytic Hierarchy Process) methods demonstrates its methodological originality. By systematically revealing the complex interactions between sustainability and ethical dimensions, this approach contributes to the theoretical framework. It offers practical guidance for policy and strategy development in the tourism sector. Thus, the study provides an innovative and comprehensive perspective on decision-making processes in the field of sustainable tourism.

2. Literature Review

The basic principles of sustainable tourism are environmental sustainability, economic viability, and social equity [30, 31]. These principles are implemented in various ways at cultural heritage sites. Environmental sustainability encompasses practices such as preventing some risks posed by climate change [32], preventing physical carrying capacity from being exceeded [33], using resources efficiently, and installing renewable energy systems that complement the heritage site's appearance [34]. Economic sustainability involves using financial mechanisms to preserve the cultural heritage site and improve the well-being of the local community. Tourism revenues are used to meet the needs of the heritage site [35] and are achieved through the involvement of residents in these processes [36]. Furthermore, local services and products are promoted to contribute to the economy, thus increasing product diversity and strengthening the local economy [37].

Social sustainability strengthens social justice by ensuring the participation of disadvantaged people in economic and cultural processes at cultural heritage sites [38]. Community-based governance and participatory decision-making processes encourage local people to embrace and contribute to the preservation of heritage [39]. These approaches ensure that heritage sites are not only protected but also become tools that promote social cohesion and equality [40]. The application of sustainability principles at cultural heritage sites, when integrated with an “ethical stance,” has the potential to create truly lasting and positive impacts [41]. An ethical stance is an operational framework through which theoretical

ethical principles are translated into concrete actions and practices [42]. This concept is an approach that requires not only knowing the distinction between right and wrong but also reflecting this knowledge in daily practices, policies, and behaviors [43].

As the tourism sector faces challenges related to overconsumption, cultural insensitivity, and environmental degradation, an ethical stance is becoming increasingly important [44, 45]. The primary goal of an ethical stance is to ensure that individuals and organizations make informed and responsible decisions, considering their far-reaching impacts [46]. This ethical framework can transform sustainable tourism from a mere instrument of economic benefit to one that incorporates principles of environmental responsibility, cultural respect, and social justice [47, 48]. This means not only knowing what sustainability is but also reflecting this knowledge in daily operations, policies, and tourist behavior [49].

Ethical stance is critical in areas such as environmental responsibility, social justice, and economic equity [50]. For example, in sustainable tourism, an ethical stance can be based on the principles of minimizing the environmental footprint, respecting local cultures, and equitably distributing economic benefits [51]. This approach, beyond simply complying with legal regulations, aims to ensure long-term sustainability by placing moral responsibility at the center and can strengthen values such as trust, reputation, and participatory governance across different sectors [52]. An ethical stance is critical for many disciplines. Examining how this concept is addressed across disciplines highlights the importance of an interdisciplinary approach in sustainable tourism research. Each discipline has addressed an ethical stance within its own methodological and theoretical framework, which can offer unique contributions to sustainable tourism practices.

Environmental sciences have addressed ethical stances within the framework of natural resource conservation and ecosystem sustainability [53]. Considering the impact of tourism development on environmental sustainability, the need to balance destination interests and environmental concerns emerges. This necessity emphasizes the moderating role of policymakers and destination organizations [54]. Certain practices can be implemented to ensure an ethical stance regarding environmental sustainability in destinations: measures taken to prevent visitors from harming the area [55], waste management, practices aimed at preventing damage to nature [56], reducing carbon footprint [57] and using renewable [58]."

The discipline of sociology shapes ethical stances with fundamental principles such as social inclusion, empowerment of disadvantaged groups, and respect for cultural diversity [59]. Within this framework, the active participation of local people in decision-making processes in tourism destinations is crucial for ensuring social justice [60]. In community-based tourism and cultural heritage conservation, the implementation of participatory models can strengthen social cohesion and increase the sustainability of the destination [61]. Ensuring that local people have a vote in tourism decisions, host cultural events, and participate in local guidance services [62] support women and young entrepreneurs [63] and ensure that visitors respect the cultural diversity of the destination [64] can both support social equality and ensure the demonstration of a socially ethical stance.

The discipline of economics and business addresses an ethical stance not only with a profit-focused approach but also with an understanding that prioritizes public benefit, transparency, and local participation [65]. In this framework, employing local guides, supporting small entrepreneurs, and collaborating with local tradespeople all bring economic benefits to the region and strengthen social justice. Fair trade practices increase the income of local producers while also contributing to ethical consumption and supporting sustainable development [66]. Ethical marketing, on the other hand, aims to avoid misleading narratives by promoting destinations in a way that is compatible with cultural and environmental values [67]. Realistic promotions can increase visitor trust and satisfaction, while also creating long-term loyalty. Encouraging domestic production is also an extension of the discipline of economics because elements such as local handicrafts and gastronomy preserve the identity of the destination and ensure that tourism income remains in the region [68].

The ethical stance within the sustainable tourism approach offers a comprehensive framework that requires the development of a sense of moral and social responsibility beyond technical and managerial tools. Hughes [69] states that sustainable tourism strategies must win hearts and minds, not just minds. He also emphasizes that these strategies are an essential way to establish cultural identity and that they are moral issues beyond physical and scientific matters. In this context, organizations striving for sustainability must develop a holistic ethical understanding, not merely comply with the law [70].

Table 1.
Ethical stance criteria related to sustainability in the context of cultural heritage.

Sustainability dimension	Criterion	Application in cultural heritage areas
Environmental	Environmental protection	Measures taken to prevent visitors from damaging the area, including a ban on construction.
	Carbon footprint	Environmental sensitivity in renewable energy use, transportation, and waste management
Social	Social inclusiveness	Supporting women and young entrepreneurs
	Participatory governance	Joint tourism planning with the administration and local people
	Cultural sensitivity	Ensuring that visitors respect the cultural diversity of the destination
	Human rights awareness	Inclusion of disadvantaged groups in heritage activities
Economic	Economic participation	Employing local guides, supporting small entrepreneurs, and collaborating with local tradesmen.
	Ethical marketing	Avoid exaggeration and misleading information in promotion.
	Domestic production	Prioritizing and supporting elements such as local handicrafts and gastronomy that reflect the identity of the destination.

While each of the elements in Table 1 presents significant ethical implications on its own; a truly holistic "ethical stance" emerges only when implemented in an integrated and coordinated manner [49]. Otherwise, fragmented or symbolic practices run the risk of "ethical window-dressing" [71]. Ethical window dressing is a concept explored within sustainable investment instruments. It refers to the practice of manipulating environmental, social, and institutional characteristics of a destination to make them appear better than they are [72]. This can lead to sustainability discourse remaining merely cosmetic, fostering distrust among local communities, and damaging the destination's reputation in the long run [73]. In this context, several psychometric tools have been developed in the literature to more systematically measure ethical stance and objectively assess differences in individuals' moral decision-making structures. One of the most widespread and valid of these is the Ethics Position Questionnaire (EPQ) developed by Forsyth [74].

Table 2.
Relationship between ethical stance criteria in cultural heritage areas and EPQ scale items.

Sustainability dimension	Relationship with EPQ items	Explanation
Environmental protection	Articles 1, 2, 3, 4, 5, 6, 8	It is directly related to the idealism of not harming others. Harming the environment is also considered ethically harmful to others.
Carbon footprint	Articles 1, 3, 6, 8	Indirect harms (such as climate change) are unacceptable to idealistic individuals; these articles ethically support sustainable energy use.
Social inclusion, human rights	Articles 5, 8, 9, 15, 16	Respect for disadvantaged members of society and the universality of individual ethical codes can be explained by the idealism and relativism in the EPQ.
Participatory governance	Articles 13, 17, 18, 20	It is associated with the relativist approach, which argues that ethical decisions should be contextual.
Cultural sensitivity	Articles 12, 13, 14, 15, 19, 20	It is compatible with the relativist approach, which argues that ethical norms vary according to culture.
Economic participation, domestic production, ethical marketing	Articles 5, 9, 10, 13, 18	Practices such as protecting local people and promoting non-manipulatively approaches can be associated with both idealistic and contextual ethical norms.

There is a significant overlap between the Ethics Position Questionnaire (EPQ), developed by Forsyth [74] and the ethical stance criteria defined in this study (Table 2). The EPQ's ethical positions, shaped by idealism and relativism, are consistent with the environmental, social, and economic ethical criteria for sustainability in cultural heritage areas. For example, the idealistic statements in the EPQ, such as "no harm should be done to others," are directly aligned with the environmental ethical criteria of this study, such as environmental protection and carbon footprint reduction. Similarly, the statements in the relativism dimension, such as "ethical principles can vary depending on the situation and culture," overlap with social criteria such as cultural sensitivity and participatory governance. In this context, the EPQ's ethical ideology taxonomy (situationism, absolutism, subjectivism, exceptionism) provides both theoretical and psychometric support for the ethical stance structure in this study. Therefore, the consistency of the criteria constructed with the DEMATEL-AHP method used in the study, with ethical measurement models that have been proven valid in the literature, can increase the academic reliability of the study and demonstrate the usability of the ethical stance in sustainable tourism planning.

In this context, the study's unique contribution lies in its treatment of ethical stance not merely as an abstract principle but as a measurable, strategic, and applicable construct for sustainability in cultural heritage sites. This study addresses the gap in the literature by clearly defining the criteria that constitute an ethical stance and making them analyzable using DEMATEL-AHP methods. This methodological approach can contribute not only to theory but also to applied tourism planning by integrating ethical concepts into practical decision-support models. This analytical approach not only determines the order of importance of ethical criteria but also enables a holistic assessment of their impact on each other and their strategic applicability. In the literature, the integration of DEMATEL and AHP has been effectively used to identify priority areas for intervention in multidimensional problems, strengthen decision-support systems, and simplify complex interactions [75, 76].

Drawing on the theoretical and ethical frameworks in the literature, three unique strategies were identified to strengthen sustainable tourism practices and solidify ethical stances. These strategies were developed considering the multidimensional nature of sustainable tourism, encompassing social, economic, and environmental dimensions. Within the scope of the study's methodology, strategies that directly address core sustainability criteria were selected, guided primarily by expert opinions and findings from the literature. This approach ensures that the strategies align with the theoretical foundations of sustainable tourism while also providing concrete applicability to ethical principles.

The “local participation-oriented sustainability strategy” ensures that local communities receive a share of tourism revenue with a focus on economic sustainability. Furthermore, it supports domestic production and aims to strengthen local entrepreneurship. This strategy not only creates economic benefits but also ensures social inclusion, ensuring that women and youth take an active role in tourism [77, 78]. The “cultural heritage and nature conservation priority management strategy” prioritizes environmental sustainability along with the protection of cultural values. This approach aims at construction restrictions, transportation policies that reduce the carbon footprint, visitor control systems, and the protection of natural areas. It also includes practices that ensure the transmission of tangible and intangible cultural heritage to future generations [79]. A "digital-ethical tourism management strategy" combines the opportunities offered by digitalization with an environmentally friendly and ethically based approach to tourism. Digital solutions ensure the security of visitor data while simultaneously reducing carbon emissions and promoting ethical promotion through virtual tours, intelligent navigation systems, and digital marketing [80]. This strategy prioritizes businesses adhering to ethical marketing principles, producing digital content with cultural sensitivity, and processing user data transparently [67].

Similarly, this study aims to help managers address not only the question "what's important," but also "where to start" and "which strategy to pursue" to restructure sustainable tourism policies along ethical lines. For example, a criterion such as "Ethical Marketing" may only have high ethical value; however, if it has low causal impact in a DEMATEL analysis and limited compatibility with strategies in an AHP, it can be incorporated into medium-term planning rather than short-term investment priority. Thus, this methodological framework helps decision-makers make data-based, reasoned, and strategic decisions, rather than relying on intuition. Therefore, this study may be the first multi-criteria decision support model to holistically analyze ethical stance within the framework of sustainability in cultural heritage areas.

3. Method

The aim of the research is to determine the importance levels of the criteria that constitute the ethical stance in sustainable tourism practices and to analyze the impact of these criteria on each other. The study was conducted specifically in Şanlıurfa-Göbeklitepe, one of Türkiye's major cultural destinations. Multi-criteria decision-making methods were used in the research. First, DEMATEL was used to analyze the cause-and-effect relationships among the identified criteria, and then the AHP method was used to determine the relative priorities of alternative strategies [81].

Data were collected from 14 participants who are experts in the field of tourism. Eight of these participants were managers working in the tourism sector and holding decision-making positions in the destination. Six of the participants were academics who completed their doctorates in tourism and specialized in tourism planning, sustainability, and ethics. The fact that these academics worked in Şanlıurfa was an essential criterion in their selection as participants. In this regard, purposive sampling was used in the study. Purposive sampling is a sampling method that selects participants who meet the criteria determined in line with the purpose of the study [82]. Data were collected between May 20, 2025, and May 30, 2025.

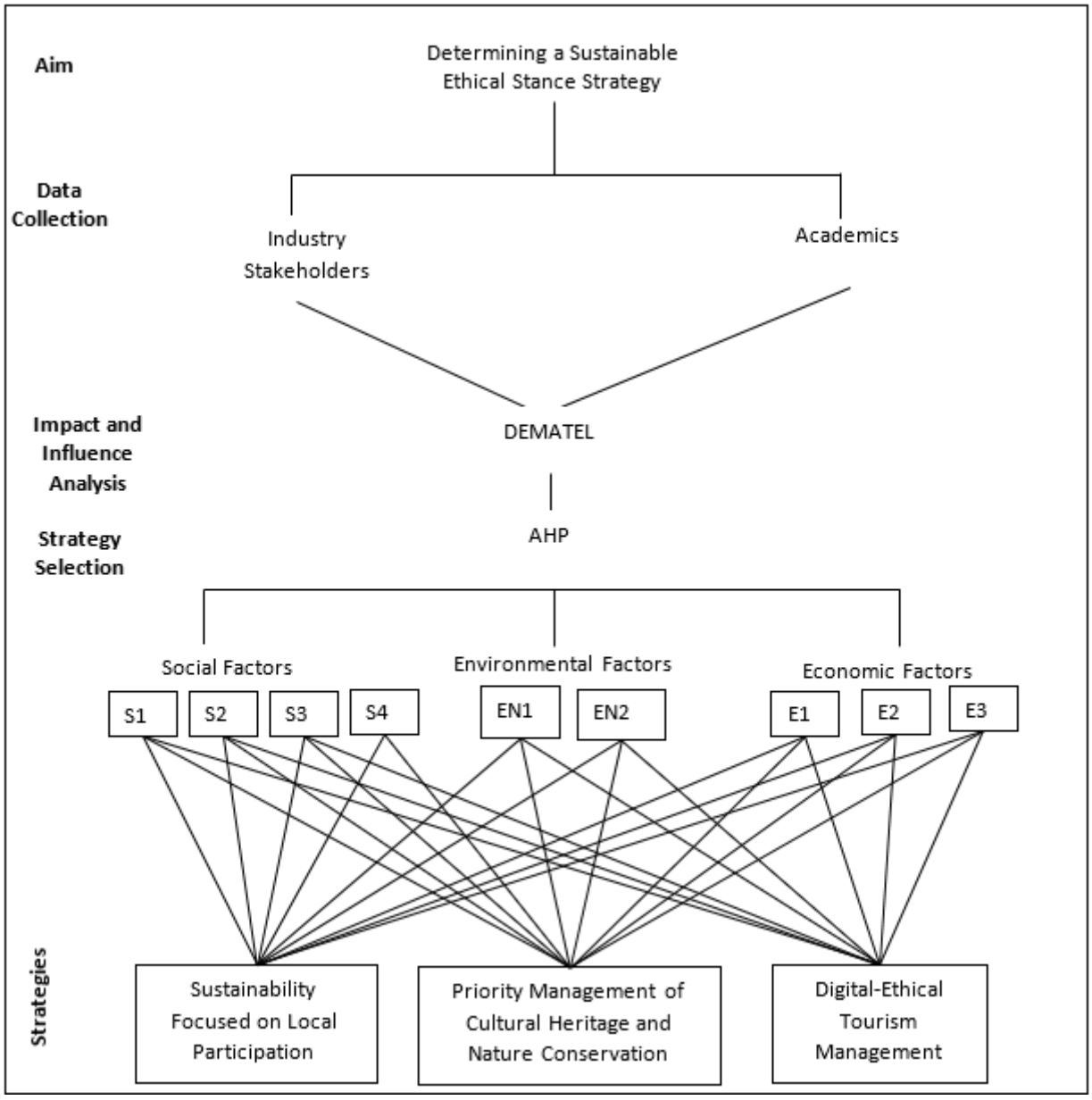

Figure 1.
Research Model.

3.1. Dematel Application Steps

Step 1: First, experts are asked to make pairwise comparisons to determine the impacts between the criteria. A scale of 0-4 (0: no impact, 1: low impact, 2: moderate impact, 3: high impact, and 4: very high impact) is used for the comparisons. These comparisons determine the extent to which the criteria influence each other [83]. This matrix is in the form a=[Aij] n×n, where Aij represents the impact of the ith criterion on the jth criterion. The matrix is square and has the dimension n×n.

$$A = \begin{bmatrix} 0 & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{n1} & \cdots & 0 \end{bmatrix}$$

Step 2: In this step, the direct correlation matrix is normalized. The direct correlation matrix A, which represents the relationships between the criteria, is normalized using Equation 1. The normalization process ensures that all elements of the matrix are reduced to a specific scale. The λ value used in this process is calculated using Equation 2.

$$X = \lambda . A \quad (1)$$

$$\lambda = min \left\{ \frac{1}{\max \sum_{j=1}^{n} |a_{ij}|}, \frac{1}{\max \sum_{j=1}^{n} |a_{ij}|} \right\} \quad (2)$$

Step 3: Next, the total correlation matrix is constructed. The total correlation matrix $T = [t_{ij}]_{nxn}$ is obtained using Equation 3 given below:

$$T = X(I-X)^{-1} \quad I: \text{Unit Matrix} \quad (3)$$

Step 4: Finally, the level of the influencing and affected criteria is determined. Using the total relationship matrix $T = [t_{ij}]_{nxn}$, the role of each criterion within the system is determined:

- D_i is the sum of the ith row and shows the amount of direct and indirect influence this criterion has on other criteria. In other words, it is the influencing criterion.
- R_j is the jth column total and expresses the extent to which this criterion is directly and indirectly affected by other criteria. In other words, it is the affected criterion [84, 85].

Using these vectors:

- D_i+R_i represents the total interaction strength (prominence/intensity level) of the criterion within the system.
- D_i-R_i indicates the role of the criterion in the system: if positive, it indicates that it is the "cause" (influencer), and if negative, it indicates that it is the "result" (influenced) criterion [85].

This analysis contributes to understanding the structural position of the criteria within the system and the cause-and-effect relationship between them.

3.2. AHP Implementation Steps

Step 1: First, the problem is presented in a hierarchical structure. This is included in the research model. The goal is to select the best alternative using the criteria.

Step 2: Pairwise comparison matrices are created. These matrices are based on the judgments of the experts selected for the study. Participants make their decisions based on a 1-9 scale developed by Saaty [86] (1: equal importance, 2: weak importance, 3: moderate importance, 4: slightly above moderate importance, 5: strong importance, 6: slightly above strong importance, 7: extreme importance, 8: very strong importance, 9: absolute importance).

Step 3: After collecting data from experts, the process of calculating the priority values of the pairwise comparison matrices begins. To calculate the priority values of the matrices, the first step is normalization. Normalization is performed by dividing each value in the direct correlation matrix by the sum of its column (4). Thus, the priority values are obtained by averaging each row of the normalized values [86, 87]. The formulas used in this step are given below.

$$C_{ij} = \frac{a_{ij}}{\sum_{i=1}^{n} a_{ij}} \tag{4}$$

$$C = \begin{bmatrix} c_{11} & c_{12} & \dots & c_{1n} \\ c_{21} & c_{22} & \dots & c_{2n} \\ \cdot & & & \cdot \\ \cdot & & & \cdot \\ \cdot & & & \cdot \\ c_{n1} & c_{n2} & \dots & c_{nn} \end{bmatrix} \text{ (Normalized pairwise comparisons matrix)}$$

Using the normalized pairwise comparison matrix, the row components in matrix C are averaged to obtain the relative importance values of the factors. This is done using Equation 5. Thus, the importance value of each criterion in the pairwise comparison matrix is calculated. The priority vector W, which represents the importance value of the criteria, is a column vector and is given below.

$$w_i = \frac{\sum_{j=1}^{n} c_{ij}}{n} \tag{5}$$

$$W = \begin{bmatrix} w_1 \\ w_2 \\ \cdot \\ \cdot \\ \cdot \\ w_n \end{bmatrix} \text{ (Priority Vector)}$$

Step 4: The consistency ratio is calculated. The resulting Consistency Ratio (CR) allows the consistency of the resulting priority vector to be tested. Therefore, the degree of consistency in one-to-one comparisons between factors can be assessed using this ratio. AHP bases the CR calculation on comparing the number of factors with a coefficient called the Base Value (λ). To calculate λ, the column vector D is obtained by multiplying the comparison matrix A by the priority vector W.

$$D = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{bmatrix} x \begin{bmatrix} w_1 \\ w_2 \\ . \\ . \\ . \\ w_n \end{bmatrix}$$

As defined in formula (6), the fundamental value (E) for each evaluation factor is obtained by dividing the corresponding elements of the column vector D and the column vector W. The arithmetic average of these values in formula (7) yields the fundamental value (λ) for the comparison.

$$E_i = \frac{d_i}{w_i} \quad (i = 1,2,...,n) \tag{6}$$

$$\lambda = \frac{\sum_{i=1}^{n} E_i}{n} \tag{7}$$

After it is calculated, the Consistency Indicator (CI) can be calculated using formula (8).

$$CI = \frac{\lambda - n}{n-1} \tag{8}$$

In the final stage, CR is obtained by dividing the CI by the standard correction value (9), called the Random Indicator (RI), shown in Table 3. The value corresponding to the number of factors is selected from Table 3.

Table 3.
Random Index Values.

N	2	3	4	5	6	7	8	9	10
RI	0.0	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49

$$CR = \frac{CI}{RI} \tag{9}$$

In order for the decision matrix to be considered consistent, the CR value must be less than 0.10 or at most equal to 0.10 [88].

Step 5: Finally, the final priority calculation is performed. In this step, the final priority value for each alternative is calculated by multiplying the criteria weights by the priority values of the alternatives based on these criteria. This process determines the relative importance of each decision alternative within the overall system. The resulting final values are ranked from largest to smallest, and the most suitable alternative is selected. The alternative with the highest score is considered the most rational option within the context of the decision problem.

4. Findings

Experts were asked to conduct pairwise comparisons to determine the impact of the criteria. Table 4 presents the averages of expert assessments regarding the impact of each criterion on other criteria. An examination of the table reveals that criteria C3 (Social Inclusion), C6 (Human Rights Sensitivity), and C9 (Domestic Production) generally have higher values than the other criteria. This finding suggests that decision-makers perceive these criteria as more influential and guiding.

Table 4.
Decision Maker Averages.

Criteria	C1	C2	C3	C4	C5	C6	C7	C8	C9
C1: Environmental protection	0.00	3.71	2.21	2.64	2.86	2.21	2.36	2.71	2.50
C2: Carbon footprint	3.64	0.00	2.00	1.86	2.57	2.21	2.50	2.29	2.00
C3: Social inclusiveness	*2.21*	*2.00*	*0.00*	*2.93*	*3.36*	*3.21*	*3.36*	*2.50*	*3.29*
C4: Participatory governance	2.43	2.00	3.50	0.00	2.79	3.07	2.57	2.64	2.71
C5: Cultural sensitivity	2.64	2.43	3.21	2.57	0.00	2.93	2.29	3.07	2.50
C6: Human rights awareness	*2.36*	*2.71*	*3.64*	*3.29*	*3.07*	*0.00*	*2.71*	*2.50*	*2.79*
C7: Economic participation	2.21	2.00	3.29	3.07	2.36	2.57	0.00	3.00	3.14
C8: Ethical marketing	2.71	2.50	2.93	2.86	3.14	3.00	2.64	0.00	2.79
C9: Domestic production	*2.43*	*2.36*	*3.64*	*3.00*	*2.50*	*2.64*	*3.50*	*2.79*	*0.00*

Table 5 is a normalized direct relationship matrix, showing the extent to which each criterion influences other criteria, scaled from 0 to 1. This table also shows that criteria C3 (Social Inclusion), C6 (Human Rights Sensitivity), and C9 (Domestic Production) have high impacts on many criteria. This suggests that these criteria continue to exert a dominant influence on the system and is consistent with previous analyses.

Table 5.
Normalized Direct Relationship Matrix.

Criteria	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8	C_9
C1: Environmental protection	0.000	0.161	0.096	0.115	0.124	0.096	0.102	0.118	0.108
C2: Carbon footprint	0.158	0.000	0.087	0.080	0.111	0.096	0.108	0.099	0.087
C3: Social inclusiveness	0.096	0.087	0.000	0.127	0.146	0.139	0.146	0.108	0.142
C4: Participatory governance	0.105	0.087	0.152	0.000	0.121	0.133	0.111	0.115	0.118
C5: Cultural sensitivity	0.115	0.105	0.139	0.111	0.000	0.127	0.099	0.133	0.108
C6: Human rights awareness	0.102	0.118	0.158	0.142	0.133	0.000	0.118	0.108	0.121
C7: Economic participation	0.096	0.087	0.142	0.133	0.102	0.111	0.000	0.130	0.136
C8: Ethical marketing	0.118	0.108	0.127	0.124	0.136	0.130	0.115	0.000	0.121
C9: Domestic production	0.107	0.102	0.158	0.130	0.108	0.115	0.152	0.121	0.000

Table 6 presents the total relationship matrix obtained using the DEMATEL method. This matrix illustrates the total relationship of each criterion with other criteria and reveals the level of interaction within the system. Criterion C6 (Human rights sensitivity) (19.47) stands out as the criterion with the most significant impact on the system. This is followed by criteria C3 (Social inclusion) (19.37) and C9 (Domestic production) (19.33). This finding indicates that these criteria are highly correlated with other factors in the system and, therefore, can play a triggering or guiding role in the system's functioning.

Table 6.
Total Relationship Matrix.

Criteria	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8	C_9	TOTAL-D
C1: Environmental protection	1.79	1.86	2.19	2.03	2.07	1.99	2.00	1.97	1.99	17.90
C2: Carbon footprint	1.77	1.57	2.00	1.83	1.89	1.82	1.83	1.79	1.81	16.31
C3: Social inclusiveness	2.02	1.94	2.28	2.20	2.25	2.19	2.19	2.12	2.18	**19.37**
C4: Participatory governance	1.94	1.86	2.31	2.00	2.14	2.09	2.07	2.04	2.07	18.51
C5: Cultural sensitivity	1.94	1.86	2.29	2.09	2.02	2.07	2.05	2.04	2.05	18.40
C6: Human rights awareness	2.04	1.97	2.43	2.22	2.25	2.07	2.18	2.13	2.17	**19.47**
C7: Economic participation	1.93	1.85	2.30	2.11	2.12	2.07	1.97	2.04	2.07	18.46
C8: Ethical marketing	2.01	1.93	2.36	2.17	2.21	2.15	2.14	1.99	2.13	19.09
C9: Domestic production	2.03	1.95	2.41	2.20	2.22	2.16	2.19	2.13	2.05	**19.33**
Total-R	17.48	16.78	**20.55**	18.86	**19.16**	18.61	**18.63**	18.26	18.50	

On the other hand, C2 (Carbon Footprint) (16.31) is the criterion with the lowest overall relationship value. This suggests that C2's interaction with the overall system is more limited and that it occupies a relatively marginal or dependent

position. Furthermore, C3 (Social Inclusion) criterion (20.55) is the most affected criterion within the system. This indicates that C3 is influenced by many criteria in the system and, therefore, can be considered a conclusive criterion. Consequently, criteria with a high overall interaction level assume a more interactive and multidimensional role in the system, while criteria with a low interaction level are more isolated or dependent.

Table 7.
Criteria's Affect and Degree of Affect.

Criteria	**D+R**	**D-R**
C1: Environmental protection	35.38	0.42
C2: Carbon footprint	33.08	-0.47
C3: Social inclusiveness	39.92	-1.18
C4: Participatory governance	37.37	-0.35
C5: Cultural sensitivity	37.56	-0.76
C6: Human rights awareness	38.08	0.85
C7: Economic participation	37.09	-0.18
C8: Ethical marketing	37.35	0.83
C9: Domestic production	37.84	0.83
Role	**Criteria**	
Cause (Effect)	C1. C6. C8. C9	
Result (Affected)	C2. C3. C4. C5. C7	

Table 7 contains the D+R and D–R values, which are the basic outputs of the DEMATEL method:

- The D+R (impact + influence) value represents the total interaction strength (intensity level) of each criterion in the system. This value indicates the centrality of the criterion within the system.
- The D–R (impact–influence) value indicates the role of the criterion in the system (direction of causality) [89]:
  Positive D–R: Influencing (cause) criterion
  Negative D–R: Influenced (consequence) criterion

When evaluated within this framework, the highest D+R value belongs to the criterion C3 (Social Inclusion, 39.92). This indicates that C3 interacts intensively with all criteria within the system. However, the D–R value is negative at -1.18, suggesting that C3 is a more affected criterion. In other words, it plays a central but responsive (consequential) role in the system.

The strongest influencing (cause) criterion is C6: Human Rights Sensitivity. It acts as a driving force in the system, with both a high total correlation (D+R = 38.08) and a D–R = +0.85 value. C9 follows this criterion: Domestic Production (+0.83), C8: Ethical Marketing (+0.83), and C1: Environmental Protection (+0.42). These criteria are the initiators of the cause-and-effect chain in the system.

On the other hand, criteria C2 (Carbon Footprint, –0.47), C4 (Participatory Governance, –0.35), C5 (Cultural Sensitivity, –0.76), and C7 (Economic Participation, –0.18) are also affected (outcome). These criteria are vulnerable to the influence of other components in the system and are more affected by changes. They represent the outputs of the system. The effects of improvements made in other criteria can be observed more clearly in these criteria. Especially in monitoring and evaluation processes, C3, C5, and C2 should be taken as reference points for output-oriented criteria.

This analysis represents the initial refinement of the cause criteria (C6, C9, C8) in the strategy-making process, in other words, the starting point for strategy development. This results in more effective outcomes in the overall performance of the system, while the result criteria (C3, C5, C2) are important indicators for monitoring outputs. In this context, AHP analysis was used to prioritize strategies and criteria. Following the AHP analysis, Table 8 shows the integrated weights and priority rankings of the sub-criteria under the social, environmental, and economic dimensions.

The table shows that the criterion with the highest importance is "Environmental Protection" (0.736). This finding reveals that environmental impacts play a central role in participants' understanding of sustainability. It is followed by "Domestic Production" and "Social Inclusion." This demonstrates the importance placed on supporting the local economy and ethical sensitivities. The prominence of these three criteria demonstrates that participants are sensitive to both the protection of the natural environment and the well-being and participation of local people. Thus, the environmental, economic, and social aspects of sustainability are balanced.

Table 8.
Integrated Importance Values and Order of Dimensions and Their Sub-Criteria.

Dimensions	Weighted Averages	N	Sub-Criteria		Weighted Averages Within the Factor Group	Weighting Order of the Factor Within the Group
Social Dimension	0.372	1	S1	Social inclusiveness	***0.335***	1
			S2	Participatory governance	0.226	3
			S3	Cultural sensitivity	0.238	2
			S4	Human rights awareness	0.201	4
Economic Dimension	0.269	3	E1	Economic participation	0.330	2
			E2	Ethical marketing	0.264	3
			E3	Domestic production	***0.406***	1
Environmental Dimension	0.359	2	EN1	Environmental protection	***0.736***	1
			EN2	Carbon footprint	0.264	2

The significant consideration of criteria such as "Social Inclusion" and "Cultural Sensitivity" under the social dimension emphasizes that sustainability is not only linked to nature conservation but also to cultural and social harmony. It also demonstrates that social inclusion, the participation of disadvantaged groups, and egalitarian policies are perceived as the most important social elements in sustainable tourism.

The economic dimension (0.269) had a relatively lower weight and was considered secondary by participants. This suggests that participants prioritized environmental and social sustainability over short-term economic returns, and expectations for economic outcomes were relatively subordinate.

Table 9 shows the distribution and priority level of each sub-criterion across three alternative strategies (Local Participation-Oriented, Cultural Heritage and Nature Conservation, and Digital-Ethical Tourism Management). The table is crucial for revealing the relative performance of the strategies against different sub-criteria.

Table 9.
Combination of Alternative Strategies with Sub-Criteria.

	Social inclusiveness	Participatory governance	Cultural sensitivity	Human rights awareness	Final Priority Values for Alternatives
S1. S2. S3. S4 Weight	**0.335**	**0.226**	**0.201**	**0.238**	
Local Participation	0.377	0.348	0.320	0.208	0.318
Cultural Heritage	0.264	0.299	0.282	0.420	0.313
Digital-Ethics	0.359	0.353	0.398	0.372	*0.369*
	Economic participation	Ethical marketing	Domestic production		Final Priority Values for Alternatives
E1. E2. E3 Weight	**0.330**	**0.264**	**0.406**		
Local Participation	0.363	0.306	0.336		0.337
Cultural Heritage	0.272	0.283	0.305		0.288
Digital Ethics	0.365	0.411	0.359		*0.375*
	Environmental protection		Carbon footprint		Final Priority Values for Alternatives
EN1. EN2 Weight	**0.736**		**0.264**		
Local Participation	0.168		0.171		0.169
Cultural Heritage	0.435		0.399		0.425
Digital Ethics	0.397		0.430		*0.406*

An examination of Table 9 reveals that the Digital-Ethical Tourism Management Strategy (0.369) stands out as the strategy with the highest priority in the social dimension. This result demonstrates that digital applications sensitive to ethical norms contribute to values such as social inclusion, cultural sensitivity, and human rights. The Local Participation-Focused Sustainability Strategy (0.318) comes second, particularly noting criteria such as social inclusion and participatory governance. Despite receiving the highest score in the "Human rights sensitivity" criterion, the Cultural Heritage and Nature Conservation Priority Management Strategy (0.313) fell into third place due to its relatively low contribution to other social criteria.

The Digital-Ethical Tourism Management Strategy (0.375) stands out in the economic dimension. Its exceptionally high performance in the "Ethical Marketing" criterion is noteworthy. The Local Participation-Focused Sustainability Strategy (0.337) is strong in the "Economic Participation" and "Local Production" criteria, ranking second with its structure prioritizing the inclusion of local people in the economic process. The Cultural Heritage and Nature Conservation Priority Management Strategy (0.288) falls further behind in this dimension because it does not directly establish a power base in the economic criteria.

In the environmental dimension, the Cultural Heritage and Nature Conservation Priority Management Strategy (0.425) has the highest priority value. This result demonstrates that this strategy can directly impact areas such as environmental protection and carbon footprint reduction. The Digital-Ethical Tourism Management Strategy (0.406) comes in second place and is observed to make a substantial contribution to reducing the carbon footprint. The Local Participation-Focused Sustainability Strategy (0.169) received very low scores in the environmental criteria, indicating that this strategy contributes more to the social and economic dimensions.

Table 10.
Final Priority Values and Ranking of Strategies.

Alternative Strategies	Social 0.372	Economic 0.269	Environmental 0.359	Final Priority Values for Alternative Strategies	N
Local participation	0.318	0.337	0.169	0.270	3
Cultural Heritage	0.313	0.288	0.425	0.347	2
Digital-Ethics	0.369	0.375	0.406	0.384	1

Table 10 generated in the final stage of the AHP analysis, the text shows the overall priority ranking of three strategic alternatives: Local Participation-Focused Sustainability Strategy, Cultural Heritage and Nature Conservation Priority Management Strategy, and Digital-Ethical Tourism Management Strategy, with weighted impacts across social, economic, and environmental dimensions. The strategy with the highest final priority value was Digital-Ethical Tourism Management (0.384). This strategy was particularly prominent in the environmental contribution dimension (0.406) and was also supported in the economic (0.375) and social (0.369) dimensions. Thus, it was prioritized by receiving balanced and high contributions across all dimensions.

The Cultural Heritage and Nature Conservation Priority Management Strategy (0.347) ranked second, driven by powerful contributions from the environmental (0.425) and social (0.313) dimensions. The Local Participation-Focused Sustainability Strategy (0.270), ranked third, received more support from the economic (0.337) perspective, but its lower environmental contribution (0.169) influenced its ranking. Consequently, decision-makers placed a higher priority on environmental sustainability and prioritized strategies integrated with technological advancements.

5. Conclusion

5.1. Theory-Oriented Outputs

This research focuses on sustainable tourism in cultural heritage areas and analyzes how ethically based strategies can guide activities. The primary objective of the research is to reveal the structural relationship between the social, environmental, and economic dimensions of sustainable tourism and the ethical principles integrated into these dimensions. The concepts of ethics and sustainability, often considered independently in the literature, are evaluated holistically in this research using the DEMATEL and AHP methods, which are multi-criteria decision-making approaches. The integration of DEMATEL and AHP methods elevates the ethical stance beyond a normative concept to a quantitatively assessable and systematically comparable decision component, thus providing the field with theoretical depth and the opportunity for multidimensional analysis.

According to the DEMATEL analysis, the most influential criteria within the system include human rights awareness, ethical marketing, and domestic production. This result demonstrates that ethical principles function not only as normative principles in sustainable tourism strategies but also as drivers of decision-making processes within the system. Human rights awareness supports social justice, ethical marketing fosters reliable and non-manipulative promotional processes, and domestic production fosters economic sustainability by preserving cultural identity [68]. Therefore, it is possible to argue that these criteria are not complementary to sustainable tourism strategies but rather fundamental levers.

Based on the data obtained from the DEMATEL analysis, social inclusion, cultural sensitivity, and carbon footprint criteria stand out as criteria affected by the system, that is, as outcome criteria. This finding suggests that these three criteria are not directly guiding but rather are output indicators that are shaped by the influence of other factors in the system and reflect the results of intervention strategies. Social inclusion, in particular, is a decisive indicator for measuring the performance of social equity-based policies, such as supporting women and youth entrepreneurs [90-92]. Cultural sensitivity, by reflecting visitors' respect for cultural diversity in a destination, can help evaluate strategies from a socio-

cultural perspective [79]. Carbon footprints, on the other hand, enable objective monitoring of the outcomes of environmental sensitivity in renewable energy use, transportation, and waste management [56, 58]. In this respect, it can be stated that defining such affected criteria as dependent variables in future theoretical models will make significant contributions to the literature.

According to the AHP analysis, the strategy with the highest priority is digital-ethical tourism management. This finding demonstrates that digital solutions based on ethical principles create a strong integration in sustainable tourism planning [42]. It can be argued that this finding suggests a new theoretical approach that integrates ethics and technology, concepts that are often discussed independently in the literature. Furthermore, the AHP analysis highlights specific criteria for cultural heritage protection and local participation strategies. For example, it is observed that cultural heritage has the potential to create a substantial impact on environmental sustainability. In contrast, local participation has the potential to create a substantial impact on economic sustainability. Based on these results, it can be stated that strategies are not absolute but rather contextually optimal solution tools, and that the impact of each strategy may vary depending on the selected criteria.

This research offers a theoretical innovation to the literature by positioning ethical sensitivity as a structural component of decision-making processes in sustainable tourism practices, beyond addressing it as a foundation of social responsibility. The integrated application of DEMATEL and AHP methods in this research provides a holistic perspective by enabling both prioritization and the identification of causal relationships among criteria. Therefore, it can be said that this study makes an original contribution to the field from both theoretical and methodological perspectives.

The theoretical contribution of this research is strengthened by structurally mapping the ethical stance to Forsyth [74] EPQ (Ethics Position Questionnaire) model. The EPQ assesses ethical decision-making processes along two fundamental dimensions: idealism and relativism. These two dimensions of the EPQ are consistent with the ethical stance criteria defined for sustainable tourism in this study. For example, the idealism of "doing no harm to others" in the EPQ is directly related to environmental ethical criteria such as environmental protection and carbon footprint reduction. Furthermore, the relativism dimension, which suggests that ethical principles can vary depending on the situation and culture, overlaps with social ethical criteria such as cultural sensitivity and participatory governance [74]. The EPQ's taxonomy of ethical ideologies (situationism, absolutism, subjectivism, exceptionism) provides both theoretical and psychometric support for the ethical criterion structure constructed using the DEMATEL-AHP method in this study.

5.2. Implementation-Oriented Outputs

In the research, DEMATEL analysis identified human rights awareness, ethical marketing, domestic production, and environmental protection as the most influential factors in the system. This finding suggests that tourism sustainability should be structured based on moral values and addressed from a social perspective, as well as from an economic and environmental perspective. Therefore, it can be stated that decision-makers and tourism authorities should consider these four elements as strategic intervention points. Within the scope of human rights awareness, protecting the rights of disadvantaged groups, creating fair employment conditions, and involving local people in decision-making processes in tourism planning are important [66]. In line with ethical marketing principles, it is important to promote destinations in a manner compatible with cultural and environmental values, sharing accurate content that protects cultural values, avoids manipulation, and promotes them. Encouraging tourism businesses to focus on local products and services and to choose local suppliers within the scope of local production can strengthen the economic returns of tourism at the local level [93]. Within the scope of environmental protection, practices such as the use of renewable energy, sensitivity in transportation and waste management, prohibition of construction, and taking measures to prevent visitors from harming the tourist destination can be published [56, 58].

The AHP analysis revealed that a digital-ethical tourism management strategy is the top priority across all dimensions, including social, environmental, and economic, demonstrating the need for integrated sustainability solutions based on digital transformation and ethical principles. This finding suggests that destination promotional content should be created that adheres to ethical advertising principles, is useful, non-deceptive, and non-discriminatory [94, 95]. It is crucial that user data collection and sharing processes are transparent and consent-based, and that strong policies are developed to ensure the security and privacy of existing user data [80]. It is also possible to argue that practices such as creating virtual tours that consider cultural sensitivity [96] and digital marketing of local products should be increased.

When the findings from the AHP and DEMATEL analyses applied in the study are evaluated together, it becomes clear that a single strategy cannot simultaneously and equally meet all ethical criteria in sustainable tourism. For example, while a digital-ethical tourism management strategy is prominent for ethical marketing and human rights sensitivity criteria, the preservation of cultural heritage is a more effective strategy for cultural sensitivity criteria. Therefore, it is reasonable to argue that practitioners should develop flexible, criterion-based multi-strategy sets rather than a holistic strategy. This way, highly influential cause criteria can create leverage, and sustainable outcomes can be monitored through effect criteria.

5.3. Suggestions for Future Research

In the study, AHP and DEMATEL analyses were conducted using data obtained from 14 expert participants, including 8 managers and 6 academics. However, this approach reflects more institutional and academic perspectives, which can be considered a limitation of the study. Therefore, it is recommended that future research be conducted with the participation of diverse stakeholder groups, such as residents, tourists, NGO representatives, and tourism investors. This would increase the legitimacy and depth of decision-making processes, and thus, ethical strategies would be more closely aligned with real needs.

This research is structured interdisciplinarily, examining tourism, ethics, and sustainability literature. It is safe to say that future research conducted across disciplines such as environmental engineering, public administration, sociology, and cultural heritage conservation will enable decision models to become more comprehensive and functional, and more effective solutions to be developed for implementation.

The integrated application of DEMATEL and AHP analyses in this study enabled both prioritization and the identification of causal relationships among criteria, providing a holistic perspective. However, future research could explore a more in-depth analysis of inter-criteria dependencies using network-based methods such as ANP. Furthermore, the integration of fuzzy or Pythagorean approaches could be recommended for more realistic modeling of uncertainties. It can also be argued that systematically analyzing the strengths and weaknesses of the integration is crucial for transparency.

This study evaluated the relationship between ethical criteria and sustainable tourism within the context of a general destination. Tourism activities can have different impacts depending on the nature and scale of the destination, and the type of tourism undertaken [97]. Therefore, future research could conduct similar analyses on specific tourism types such as rural, cultural, gastronomic, health, or festival tourism. Such practices would allow for the reassessment of strategic priorities based on different destination dynamics.

The outcome criteria identified through DEMATEL analysis in this study can be used as a criterion for monitoring the impact of sustainable tourism strategies and evaluating their performance in future research. Furthermore, outcome criteria can be investigated through long-term observational studies using field data. This will enable the implementation-outcome cycle of the proposed strategies to be tested.

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