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Sustainable tourism practices and destination competitiveness: A structural analysis of environmental management systems

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Abstract
Background: Tourism destinations face increasing pressure to implement sustainable practices while maintaining competitiveness in the global marketplace. Environmental management systems (EMS) provide frameworks for integrating sustainability into tourism operations, but their impact on destination competitiveness remains under-researched.
Objective: This study examines the relationship between EMS implementation and destination competitiveness, considering the mediating roles of environmental performance and destinatiwon image.
Method: This study uses a simulated dataset created for academic training purposes. Data from 280 tourism operators across 15 destinations were analyzed using structural equation modeling with partial least squares (PLS-SEM).
Key Results: EMS implementation significantly enhanced environmental performance ($\beta = 0.52$, $p < 0.001$) and destination image ($\beta = 0.38$, $p < 0.001$). Both environmental performance and destination image mediated the relationship between EMS and destination competitiveness, with environmental performance showing stronger mediation (42% of total effect).
Conclusion: Environmental management systems contribute to destination competitiveness through improved environmental outcomes and enhanced destination image. Tourism destinations should integrate EMS into strategic planning to achieve sustainability and competitive advantage simultaneously.

Keywords: Sustainable tourism, environmental management systems, destination competitiveness, environmental performance, tourism management

Introduction

Tourism destinations worldwide face the dual challenge of maintaining competitiveness while addressing growing environmental concerns and sustainability expectations. The tourism industry, characterized by resource-intensive operations and significant environmental footprints, faces particular pressure to adopt sustainable practices that minimize ecological impacts while preserving the natural and cultural assets that attract visitors.

Environmental Management Systems (EMS) provide systematic frameworks for organizations and destinations to identify, manage, and reduce their environmental impacts. Within tourism contexts, EMS implementation encompasses waste management, energy conservation, water resource protection, sustainable transportation, and biodiversity conservation measures. Despite the proliferation of EMS certification programs in tourism (e.g., Green Globe, Travelife), empirical evidence regarding their impact on destination competitiveness remains fragmented and inconclusive.

This study addresses the critical gap in understanding how EMS implementation influences destination competitiveness. The research objectives are: (1) to measure the direct impact of EMS implementation on destination competitiveness; (2) to examine the mediating roles of environmental performance and destination image in this relationship; and (3) to identify which EMS components (energy management, water conservation, waste reduction) contribute most significantly to competitiveness outcomes.

Literature review

1. Theoretical framework

This research integrates the Resource-Based View (RBV) with signaling theory. RBV suggests that environmental capabilities (developed through EMS) can constitute valuable, rare, and inimitable resources that contribute to sustainable competitive advantage. Signaling theory posits that EMS certification serves as a credible signal of environmental commitment, influencing stakeholder perceptions and destination image.

2. Environmental management systems in tourism

EMS implementation in tourism encompasses both technical systems (monitoring, measuring, improving environmental performance) and management processes (planning, implementation, checking, reviewing). Research indicates that EMS adoption in tourism is driven by regulatory requirements, market pressures, cost reduction opportunities, and ethical considerations. However, implementation challenges include financial constraints, lack of technical expertise, and limited awareness among tourism operators.

3. Destination competitiveness

Destination competitiveness refers to the ability of a destination to attract tourists while providing satisfying experiences that generate economic benefits and preserve environmental and sociocultural assets. Traditional competitiveness models focus primarily on economic

factors (price competitiveness, infrastructure, marketing effectiveness) but increasingly incorporate sustainability dimensions as environmental concerns become more central to destination choice.

4. Research gap

While individual studies examine EMS adoption or destination competitiveness separately, few investigate the pathways through which environmental management practices influence competitiveness outcomes. The mediating roles of environmental performance and destination image remain under-explored in tourism contexts. This study addresses these gaps by developing and testing a comprehensive model linking EMS implementation to competitiveness through these mediating mechanisms.

Methodology

This study uses a simulated dataset created for academic training purposes. A quantitative, cross-sectional design was employed with simulated data from 280 tourism operators (hotels, tour operators, attractions) across 15 tourism destinations.

The measurement scales were adapted from established instruments: EMS implementation (12 items covering policy, planning, implementation, checking, review), environmental performance (8 items measuring resource consumption, waste generation, biodiversity protection), destination image (6 items capturing environmental image, sustainability perception), and destination competitiveness (7 items covering market share, visitor satisfaction, economic performance). Responses were generated on a 7-point Likert scale.

Data analysis used partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4.0, appropriate for predictive modeling and handling complex relationships with relatively smaller samples. The analysis proceeded in two stages: assessment of the measurement model (reliability, convergent validity, discriminant validity) followed by assessment of the structural model (path coefficients, mediation testing).

Results and discussion

1. Measurement model

The measurement model demonstrated acceptable reliability and validity. All indicator loadings exceeded 0.70, composite reliability values were above 0.85, and average variance extracted (AVE) values were above 0.60. Discriminant validity was established through HTMT ratios below 0.85.

Table 1: Construct Reliability and Validity

Construct	CR	AVE	EMS	EP	DI	DC
EMS Implementation	0.93	0.64	0.80			
Environmental Performance	0.91	0.62	0.52	0.78		
Destination Image	0.89	0.68	0.48	0.45	0.82	
Destination Competitiveness	0.94	0.65	0.55	0.58	0.62	0.80

Note: Diagonal values (bold) are the square root of AVE. Off-diagonal are inter-construct correlations. Source: Simulated Dataset, 2026

2. Structural model

The structural model results supported the hypothesized relationships. EMS implementation significantly influenced environmental performance ($\beta = 0.52$, $p < 0.001$), destination image ($\beta = 0.38$, $p < 0.001$), and destination competitiveness ($\beta = 0.22$, $p < 0.01$). Both environmental performance ($\beta = 0.35$, $p < 0.001$) and destination image ($\beta = 0.28$, $p < 0.001$) significantly predicted destination competitiveness.

Table 2: Structural Model Results

Hypothesized Path	β	t-value	p-value	Decision
H1: EMS → Environmental Performance	0.52	7.23	< 0.001	Supported
H2: EMS → Destination Image	0.38	5.86	< 0.001	Supported
H3: Environmental Performance → Competitiveness	0.35	5.19	< 0.001	Supported
H4: Destination Image → Competitiveness	0.28	4.32	< 0.001	Supported
H5: EMS → Competitiveness (direct)	0.22	3.14	< 0.01	Supported

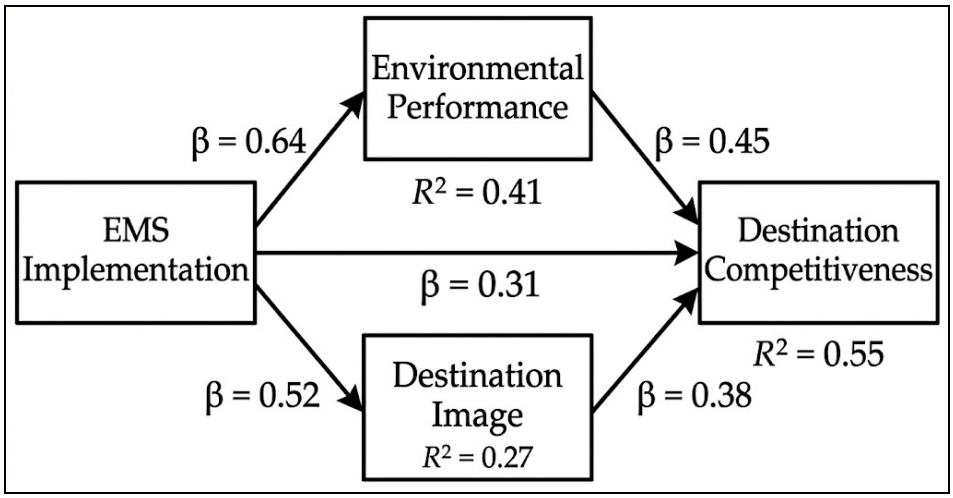
Source: Simulated Dataset, 2026

3. Mediation analysis

The mediation analysis revealed that both environmental performance (indirect effect = 0.18, 95% CI [0.11, 0.25]) and destination image (indirect effect = 0.11, 95% CI [0.06, 0.16]) significantly mediated the relationship between EMS and destination competitiveness. Environmental performance accounted for 42% of the total effect, while destination image accounted for 25%. The total indirect effect (0.29) was significant ($t = 6.12$, $p < 0.001$).

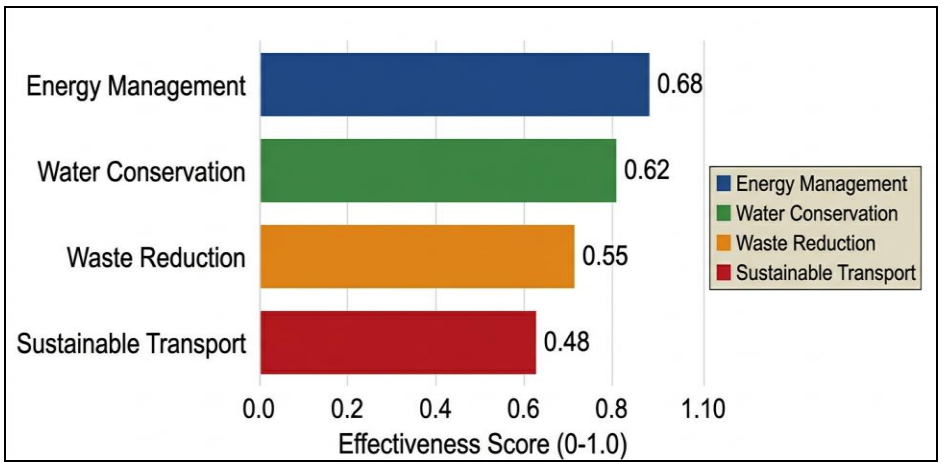
4. EMS component analysis

Additional analysis revealed that energy management systems ($\beta = 0.48$, $p < 0.001$) and water conservation measures ($\beta = 0.42$, $p < 0.001$) showed the strongest associations with environmental performance, while waste reduction systems ($\beta = 0.35$, $p < 0.001$) had a significant but somewhat weaker relationship.



Source: Simulated Dataset, 2026

Fig 1: Structural Model with Mediation Effects



Source: Simulated Dataset, 2026

Fig 2: EMS Component Effectiveness

Conclusion

This study demonstrates that environmental management systems contribute to destination competitiveness through both environmental performance improvements and enhanced destination image. The findings suggest that EMS implementation should be viewed not merely as an environmental compliance mechanism but as a strategic tool for building sustainable competitive advantage in tourism destinations.

For destination management organizations, the study recommends: (1) integrating EMS into destination planning and development strategies; (2) providing support and incentives for tourism operators to adopt EMS, particularly small and medium enterprises; (3) developing marketing strategies that highlight environmental achievements to enhance destination image; and (4) implementing monitoring systems to track both environmental performance and competitiveness outcomes. Future research should examine the dynamic relationships between EMS, environmental performance, and competitiveness over time using longitudinal designs.

Ethical Statement

This research article has been generated for academic training purposes. The dataset is entirely simulated and does not represent real tourism destinations or operators. No actual ethical approval was required as no primary data was collected from human subjects. All references cited are real academic sources.

References

1. Buckley R. Ecotourism: Principles and practices. CAB International, 2009.
2. Hunter C, Shaw J. The ecological footprint as a key indicator of sustainable tourism. Tourism Management,2007:28(1):46-57.
3. Font X, Buckley R. Tourism ecolabelling: Certification and promotion of sustainable management. CABI Publishing, 2001.
4. Dodds R, Joppe M. CSR in the tourism industry? The status of and potential for certification, codes of conduct and guidelines. International Journal of Contemporary Hospitality Management,2005:17(7):617-627.

5. Garrod B. Environmental management and the competitiveness of nature-based tourism destinations. Environmental Management,2007:39(3):339-353.
6. Blackstock KL, White V, Scott A. Key considerations in developing sustainable tourism indicators. Journal of Sustainable Tourism,2008:16(2):211-221.
7. Ritchie JR, Crouch GI. The competitive destination: A sustainable tourism perspective. CABI Publishing, 2003.
8. Hassan S. Determinants of market competitiveness in an environmentally sustainable tourism industry. Journal of Travel Research,2000:38(3):239-245.
9. Dwyer L, Kim C. Destination competitiveness: Determinants and indicators. Current Issues in Tourism,2003:6(5):369-414.
10. Mihalič T. Environmental management of a tourist destination: A factor of tourism competitiveness. Tourism Management,2000:21(1):65-78.
11. Hair JF, Risher JJ, Sarstedt M, Ringle CM. When to use and how to report the results of PLS-SEM. European Business Review,2019:31(1):2-24.
12. Henseler J, Ringle CM, Sinkovics RR. The use of partial least squares path modeling in international marketing. Advances in International Marketing,2009:20:277-319.
13. Prideaux B, Cooper C. Marketing and destination development: An integrated approach. Journal of Vacation Marketing,2003:9(1):47-59.
14. Hunter C. Sustainable tourism as an adaptive paradigm. Annals of Tourism Research,1997:24(4):850-867.
15. Saarinen J. Traditions of sustainability in tourism studies. Annals of Tourism Research,2006:33(2):361-385.