

Digital Transformation and Sustainable Tourism Performance: A Multi-Dimensional Analysis of Regional Development Dynamics

Shuk Ying Lam¹ and Azadeh Parsa²

¹Edith Cowan University, Australia

²Victoria University, Australia

¹u.gretzel@uq.edu.au, ²azadeh.parsa@vu.edu.au

Abstract

This study examines the relationship between digital transformation and the advancement of sustainable tourism performance across regional economies. Moving beyond conventional growth-oriented approaches, the research conceptualises tourism development as a multidimensional construct encompassing innovation capacity, environmental sustainability, socio-economic inclusivity, and institutional effectiveness. Using panel data spanning 2014–2021, the study employs a composite index framework alongside machine learning techniques to identify the principal drivers of tourism performance in a digitally evolving context. The findings indicate that digital transformation consistently and significantly influences sustainable tourism outcomes. In particular, digital infrastructure, industrial restructuring, ecological conditions, and real-sector integration emerge as critical determinants. The analysis further reveals that the impact of digitalisation is not uniform but mediated by regional characteristics and institutional capacity. The study contributes to the growing body of literature on digital economies by offering a more nuanced understanding of how digital ecosystems interact with tourism systems. Policy implications centre on strengthening digital infrastructure, fostering innovation ecosystems, and promoting cross-sector integration to enhance resilience and long-term sustainability in tourism development.

Keywords: Digital transformation, Sustainable tourism, Regional development, Digital infrastructure, Innovation systems

1. Introduction

The tourism sector is being reshaped by two concurrent pressures: the accelerating diffusion of digital technologies and the growing expectation that destination development should be economically resilient, socially inclusive, and environmentally responsible. In this context, tourism performance cannot be assessed solely by visitor volumes or revenue growth. Increasingly, scholars and policy bodies argue that the more meaningful question concerns the quality of tourism development, including whether tourism systems support innovation, strengthen regional capacity, improve visitor experiences, and reduce ecological strain [1][2]. Recent work on digital tourism similarly suggests that digitalisation is no longer peripheral to tourism activity; rather, it now functions as a core enabling condition for service innovation, destination governance, and industrial upgrading.

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Digital transformation has altered the operational logic of tourism by embedding data, connectivity, and platform-based coordination into the production and consumption of travel services. Technologies such as mobile applications, artificial intelligence, digital payment systems, online booking platforms, and immersive interfaces are changing how destinations are managed and how visitors engage with tourism products [1][3][4]. Beyond convenience and market reach, these technologies can improve information flows, reduce transaction frictions, support more targeted resource allocation, and facilitate new forms of value co-creation between firms, governments, and travellers [1][5]. Empirical studies published in 2024 and 2025 further indicate that digital transformation is associated with stronger business model innovation, more adaptive tourism organisations, and, under certain institutional conditions, more sustainable destination outcomes [3][6][7].

At the same time, the relationship between digitalisation and tourism development is not straightforward. Digital tools may enhance efficiency and expand participation. Still, their developmental effects are mediated by infrastructure quality, institutional capability, environmental regulation, and the degree to which digital systems are embedded in the wider regional economy [5][8]. Recent evidence shows that the benefits of digitalisation are often uneven across territories, with stronger gains observed where digital infrastructure, complementary investment, and governance arrangements are already relatively mature [8]. This suggests that digital transformation should not be treated as an automatic driver of tourism advancement; rather, it operates through contingent mechanisms that determine whether digital change translates into more sustainable, higher-quality tourism performance.

A further limitation in the existing literature is that many studies still adopt a relatively narrow view of tourism outcomes. Some emphasise tourism growth, firm performance, or destination branding, while others focus on specific technologies or isolated cases [3][4][6]. Although these studies have generated useful insights, they often stop short of examining tourism development as a multidimensional process involving innovation, coordination, ecological stewardship, openness, and social sharing. Recent reviews of digital tourism and smart ecotourism have called for more integrated frameworks that link technological change with broader sustainability and development objectives [1][4]. Likewise, hospitality and destination studies now point to the need for stronger empirical work on how digital transformation interacts with environmental performance, institutional adaptation, and sustainable business model innovation [2][9].

This study responds to that gap by examining how digital transformation contributes to sustainable tourism performance through a multidimensional regional lens. Rather than reducing tourism development to a single economic indicator, the study conceptualises it as a composite process involving innovation capacity, structural coordination, environmental quality, openness, and shared socio-economic benefit. This framing is consistent with the broader shift in tourism policy towards evidence-based, sustainability-oriented measurement systems [10]. In methodological terms, the study combines index-based measurement with explanatory modelling and feature-importance analysis to investigate not only whether digital transformation matters, but also which dimensions of the digital economy matter most. In doing so, it offers a more nuanced account of how digital infrastructure, ecological conditions, industrial restructuring, and real-economy integration jointly shape tourism development outcomes.

The study's contribution is threefold. First, it reframes tourism development as a quality-oriented and system-based phenomenon rather than a purely growth-driven one. Second, it extends current tourism digitalisation research by identifying the relative importance of different digital-economy components, rather than treating digital transformation as a

monolithic construct. Third, it generates policy-relevant insights for regions seeking to align digital transition strategies with longer-term sustainability and competitiveness objectives. On this basis, the study asks two guiding questions: (1) Does digital transformation significantly enhance sustainable tourism performance at the regional level? and (2) Which dimensions of the digital economy exert the strongest influence on that relationship? These questions position the study within current debates on digital transition, regional resilience, and the sustainable future of tourism [1][3][5][7].

2. Literature review and hypothesis development

2.1. Digital transformation as a structural driver of tourism development

The rapid expansion of digital technologies has fundamentally altered the structure and dynamics of the tourism sector. Rather than functioning merely as an operational support tool, digital transformation is increasingly recognised as a systemic force that reshapes value creation, coordination mechanisms, and competitive positioning within tourism ecosystems. Contemporary studies emphasise that digital platforms, data analytics, and artificial intelligence contribute to more efficient market matching, improved service personalisation, and enhanced destination management capabilities [11][12].

Recent empirical research further suggests that digital transformation supports tourism upgrading by enabling firms to adopt more flexible and adaptive business models. For instance, innovation-driven digital ecosystems facilitate real-time decision-making, improve demand forecasting, and reduce transaction costs across tourism value chains [13]. At the destination level, smart tourism initiatives—integrating Internet of Things (IoT) infrastructure, mobile technologies, and digital governance systems—have been shown to enhance both operational efficiency and visitor satisfaction [14][15].

However, while the positive association between digitalisation and tourism performance is widely acknowledged, the literature also indicates that such benefits are contingent upon broader structural conditions. Regions with more advanced digital infrastructure, higher human capital, and stronger institutional frameworks tend to capture greater gains from digital transformation [16]. This suggests that digitalisation operates not as an isolated input but as part of a broader socio-technical system that influences tourism development trajectories.

2.2. Multidimensional conceptualizations of sustainable tourism performance

Parallel to the rise of digital transformation, there has been a conceptual shift in how tourism development is defined and evaluated. Traditional metrics focused predominantly on growth indicators—such as tourist arrivals and revenue—are increasingly viewed as insufficient for capturing the complexity of contemporary tourism systems. Instead, a multidimensional perspective has emerged, incorporating economic vitality, environmental sustainability, social inclusiveness, and governance quality [17][18].

Recent contributions highlight that sustainable tourism performance should be understood as a balance between economic efficiency and ecological preservation, alongside equitable distribution of tourism benefits [19]. This perspective aligns with global policy frameworks advocating for responsible tourism development and resilience-oriented planning. Empirical studies have also demonstrated that innovation capacity and institutional coordination play critical roles in shaping long-term tourism outcomes, particularly in regions undergoing structural transition [20].

Despite these advances, there remains a lack of consensus regarding how to operationalise and measure such multidimensional constructs. Many studies rely on partial indicators or single-dimensional proxies, limiting their ability to capture the systemic nature of tourism development. Consequently, there is a growing call for integrated evaluation frameworks that reflect the interconnected dimensions of sustainability and performance [18][21].

2.3. Mechanisms linking digital transformation and sustainable tourism

The relationship between digital transformation and sustainable tourism performance is mediated through several interrelated mechanisms. First, digital infrastructure enhances connectivity and accessibility, enabling more efficient resource allocation and facilitating the integration of tourism markets [11][22]. High-quality digital infrastructure also supports the development of smart tourism platforms, thereby improving information transparency and reducing coordination costs among stakeholders.

Second, digital transformation influences industrial structure by promoting innovation and enabling the emergence of new business models. The integration of digital technologies into tourism services allows firms to diversify offerings, personalise experiences, and engage in platform-based competition, thereby increasing both productivity and value creation [13][26]. This structural upgrading is particularly relevant for regions seeking to transition from low-value to high-value tourism.

Third, digital ecosystems contribute to environmental and social outcomes by supporting data-driven governance and resource management. For example, digital monitoring systems can optimise visitor flows, reduce environmental pressure on sensitive destinations, and support evidence-based policymaking [24]. Additionally, digital financial inclusion and platform economies can expand participation in tourism-related economic activities, thereby enhancing social inclusiveness [25].

Nevertheless, recent studies caution that these mechanisms are not universally beneficial. The environmental footprint of digital infrastructure, the risk of digital exclusion, and uneven access to technological capabilities may offset some of the positive effects of digitalisation [19][26]. These findings reinforce the need to examine digital transformation within a broader systemic and contextual framework.

2.4. Research gaps

Although the existing literature provides valuable insights into the role of digital transformation in tourism, several limitations remain.

First, many studies treat digital transformation as a homogeneous construct, failing to distinguish its underlying dimensions, such as infrastructure, industrial integration, ecological interaction, and economic restructuring. This limits the ability to identify which components of the digital economy are most influential in driving tourism outcomes.

Second, there is a tendency to analyse tourism performance using narrow, single-dimensional indicators that do not adequately capture the complexity of sustainable tourism development. As a result, the interaction between digital transformation and multidimensional tourism performance remains underexplored.

Third, empirical approaches often rely on traditional econometric methods without incorporating complementary analytical techniques that can capture nonlinear relationships and variable importance. Recent methodological advances suggest that integrating machine learning with econometric analysis can yield deeper insights into the relative importance of different drivers [27].

Finally, there is limited research examining how digital transformation interacts with environmental and institutional factors simultaneously, particularly in a regional context. This gap is significant given that complex interdependencies between technological, economic, and ecological systems shape tourism development outcomes.

2.5. Hypothesis development

Building on the above discussion, this study advances a multidimensional and system-oriented perspective on the relationship between digital transformation and tourism development.

Given the theoretical and empirical evidence suggesting that digital transformation enhances efficiency, innovation, and coordination within tourism systems, it is reasonable to expect a positive association between digital transformation and sustainable tourism performance.

H1: Digital transformation has a positive and significant effect on sustainable tourism performance.

Furthermore, the literature indicates that the impact of digital transformation is not uniform but operates through multiple structural dimensions, including infrastructure development, industrial restructuring, ecological conditions, and real-economy integration. These dimensions collectively shape how digital technologies translate into tourism outcomes.

H2: The effect of digital transformation on sustainable tourism performance is mediated by multiple dimensions, particularly digital infrastructure, economic structure, ecological environment, and real-economy integration.

In addition, given regional heterogeneity, it is important to consider that the relative importance of these dimensions may vary across contexts. This motivates the use of analytical approaches capable of identifying the relative contribution of different factors.

To synthesise the theoretical arguments and hypotheses developed above, this study proposes a multidimensional conceptual framework linking digital transformation to sustainable tourism performance. The framework captures both the direct effects of digital transformation and the differentiated contributions of its core structural dimensions. It also situates these relationships within a broader regional context, accounting for relevant control factors. The proposed relationships are illustrated in Figure 1.

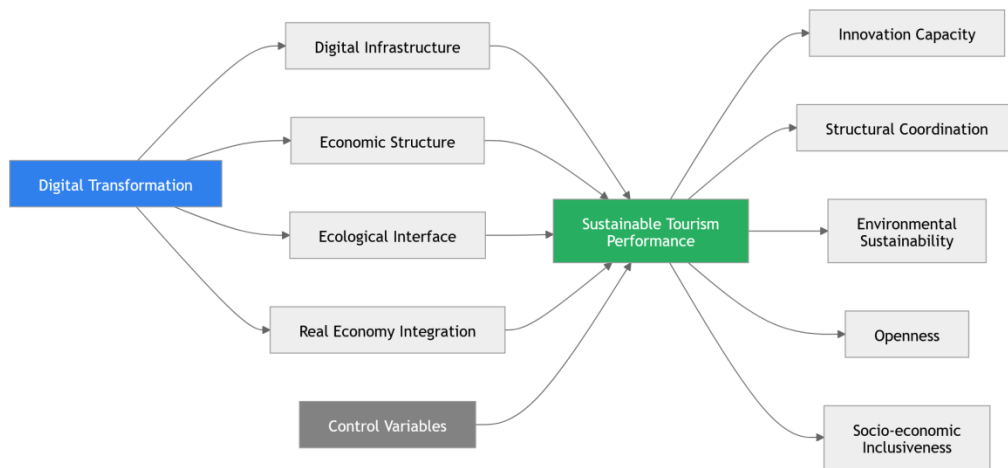


Figure 1. Conceptual framework of digital transformation and sustainable tourism performance

The model conceptualises digital transformation as a multidimensional construct comprising digital infrastructure, economic structure, ecological interface, and real-economy integration, influencing tourism outcomes across innovation, sustainability, and socio-economic dimensions.

3. Methodology

3.1. Research design and analytical strategy

This study adopts a quantitative, panel-data research design to examine the relationship between digital transformation and sustainable tourism performance across regions. The empirical strategy is explicitly informed by the conceptual framework, which models digital transformation as a multidimensional construct influencing tourism outcomes through several structural pathways.

To capture both aggregate effects and dimension-specific contributions, the analysis combines two complementary approaches. First, a composite index method is used to operationalise the multidimensional constructs of digital transformation and sustainable tourism performance. Second, econometric modelling is employed to estimate causal relationships, followed by a machine-learning-based feature-importance analysis to identify the relative contributions of different dimensions.

This mixed analytical strategy is consistent with recent methodological developments that advocate integrating traditional econometrics with data-driven approaches to better capture complex, nonlinear, and multidimensional relationships in regional development studies.

3.2. Data and sample

The study utilises a balanced panel dataset covering multiple regions over the period 2014–2021. The unit of analysis is the regional administrative level, allowing for the examination of spatial heterogeneity in both digital transformation and tourism performance.

Data are compiled from multiple authoritative sources, including national statistical yearbooks, sectoral databases, and official economic reports. To ensure consistency and comparability, all monetary variables are adjusted for inflation where applicable. Missing observations are addressed using linear interpolation, a commonly adopted approach in panel data studies where gaps are limited and randomly distributed.

This temporal and spatial coverage enables the study to capture both longitudinal dynamics and cross-sectional variation, which are essential for evaluating the systemic effects proposed in the conceptual framework.

3.3. Variable operationalization

3.3.1. Dependent variable: sustainable tourism performance

Consistent with the conceptual framework, sustainable tourism performance is operationalised as a multidimensional composite index reflecting the quality rather than the scale of tourism development. The index captures five key dimensions:

- Innovation capacity
- Structural coordination
- Environmental sustainability
- Openness and external engagement

- Socio-economic inclusiveness

These dimensions are selected to reflect contemporary sustainability-oriented tourism frameworks and to ensure alignment with the study's theoretical positioning. Each dimension is measured using multiple indicators, standardised, and aggregated to construct an overall index.

3.3.2. Independent variable: digital transformation

Digital transformation is conceptualised as a higher-order construct comprising four interrelated dimensions:

- Digital Infrastructure (e.g., connectivity, internet penetration)
- Economic Structure (e.g., industrial upgrading, digital integration)
- Ecological Interface (e.g., digital-enabled environmental management)
- Real-Economy Integration (e.g., adoption of digital technologies in firms)

Each dimension is measured using proxy indicators that capture both technological capacity and structural transformation. These indicators are normalised and aggregated to construct a composite index of digital transformation.

This multidimensional operationalisation allows the empirical analysis to test not only the overall effect (H1) but also the differentiated contributions of each dimension (H2).

3.3.3. Control variables

To isolate the effect of digital transformation, the model incorporates a set of control variables reflecting regional socio-economic and environmental conditions:

- Population density
- Per capita income
- Tourism infrastructure capacity
- Natural resource endowment
- Environmental pressure indicators

These variables are included to account for confounding factors that may influence tourism performance independently of digital transformation.

3.4. Measurement model: composite index construction

To construct the composite indices for both digital transformation and sustainable tourism performance, this study employs the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS).

The selection of TOPSIS is justified on several grounds:

1. It allows integrating multiple indicators into a single composite score while preserving relative distances between observations.
2. It avoids excessive subjectivity by relying on data-driven normalisation and weighting procedures.
3. It is particularly suitable for evaluating multidimensional development phenomena, where trade-offs between dimensions are expected.

All indicators are first normalised to ensure comparability. Positive and negative ideal solutions are then identified, and each observation is evaluated based on its relative distance to these benchmarks. The resulting scores provide a continuous measure of both digital transformation and tourism performance.

3.5. Econometric model specification

To test the hypotheses derived from the conceptual framework, the study estimates the following baseline panel regression model:

$$tourism_{it} = \alpha + \beta Digital_{it} + \gamma X_{it} + \mu_i + \lambda_t + \epsilon_{it}$$

Where:

- $tourism_{it}$ represents sustainable tourism performance in region i at time t
- $\beta Digital_{it}$ denotes the level of digital transformation
- X_{it} is a vector of control variables
- μ_i captures region-specific fixed effects
- λ_t captures time-specific effects
- ϵ_{it} is the error term

The coefficient β tests H1, indicating whether digital transformation has a significant effect on tourism performance.

To further examine H2, the composite digital transformation index is decomposed into its four constituent dimensions, which are entered separately into the regression model. This enables the identification of dimension-specific effects.

Clustered robust standard errors are used to account for potential heteroskedasticity and within-region correlation.

3.6. Addressing endogeneity

Given the potential for reverse causality—where regions with stronger tourism performance may also attract greater digital investment—the study employs two strategies to mitigate endogeneity concerns:

(1) Instrumental Variable Approach

An instrumental variable reflecting historical communication infrastructure is used as a proxy for exogenous variation in digital transformation. This approach leverages the path-dependent nature of technological development while satisfying relevance and exogeneity conditions.

(2) Lagged Variable Approach

Lagged values of digital transformation are introduced into the regression model to reduce simultaneity bias and capture delayed effects.

These approaches enhance the robustness of causal inference and align with best practices in empirical regional analysis.

3.7. Machine learning-based feature importance analysis

To complement the econometric analysis and provide deeper insights into H2, the study employs a Random Forest model to assess the relative importance of different dimensions of digital transformation.

The use of Random Forest is motivated by its ability to:

- Capture nonlinear relationships
- Handle multicollinearity among predictors
- Provide robust measures of variable importance

Feature importance is evaluated using metrics such as the increase in mean squared error (IncMSE) and node purity. This analysis allows the study to identify which dimensions of digital transformation contribute most significantly to tourism performance.

3.8. Methodological alignment with the conceptual framework

The empirical design directly reflects the conceptual framework in Figure X:

- The composite index construction operationalises multidimensional constructs
- The regression model tests the direct relationship (H1)
- The dimension-level analysis and Random Forest model capture structural pathways (H2)
- The control variables represent contextual influences

This integrated approach ensures consistency between theoretical propositions and empirical testing, thereby strengthening the study's overall validity.

4. Results and discussion

4.1. Baseline effects of digital transformation on tourism performance

Table 1 presents the baseline regression results examining the relationship between digital transformation and sustainable tourism performance. Across all model specifications, the coefficient for digital transformation remains positive and statistically significant, providing strong support for H1.

Table 1. Baseline regression results

Variables	(1) Basic Model	(2) With Fixed Effects	(3) Full Model
Digital Transformation	0.4387** (0.2801)	1.2931*** (0.2609)	1.2675*** (0.2487)
Population Density	—	—	-0.1732 (0.2108)
Income Level	—	—	-0.3706 (1.0114)
Infrastructure	—	—	-0.4276* (0.2471)
Tourism Facilities	—	—	0.1689 (0.1037)
Natural Resources	—	—	0.0304 (0.0354)
Environmental Pressure	—	—	-0.1664 (0.1329)
Constant	2.0153	1.0417	0.9982
Year Fixed Effects	No	Yes	Yes
Regional Fixed Effects	No	Yes	Yes
Observations	248	248	248
Adjusted R ²	0.6789	0.9596	0.9647

*Notes: Robust standard errors in parentheses. *, **, *** denote significance at 10%, 5%, and 1% levels.

From a conceptual framework perspective, the results in Table 1 confirm that digital transformation serves as a system-level enabler, enhancing tourism performance by improving coordination, innovation capacity, and service efficiency. The stability of coefficients across models indicates that this relationship is structurally embedded rather than context-specific.

4.2. Multidimensional effects of digital transformation

To examine H2, Table 2 decomposes digital transformation into its four core dimensions.

Table 2. Dimension-Level Regression Results

Variables	Model (1)
Digital Infrastructure	0.8421*** (0.2103)
Economic Structure	1.1256*** (0.2984)
Ecological Interface	0.5632** (0.2457)
Real-Economy Integration	1.2843*** (0.2671)
Control Variables	Yes
Fixed Effects	Yes
Observations	248
Adjusted R ²	0.9712

The results in Table 2 reveal that digital transformation operates through heterogeneous pathways, rather than as a uniform driver.

- Real-economy integration exhibits the strongest effect, highlighting the importance of firm-level adoption and operational transformation.
- The economic structure also plays a central role, underscoring the importance of industrial upgrading.
- Digital infrastructure serves as a foundational enabler
- Ecological interface shows a weaker but still significant effect, suggesting a conditional influence

These findings reinforce the framework’s assumption that different dimensions contribute unevenly, with structural and firm-level mechanisms being the most impactful.

4.3. Endogeneity and ROBUSTNESS ANALYSIS

To address potential endogeneity, Table 3 presents results from instrumental variable (IV) and lagged-variable approaches.

Table 3. Endogeneity Test Results

Variables	IV Model	Lagged Model
Digital Transformation	1.1552** (0.5446)	—
Lagged Digital Transformation	—	1.0742*** (0.2230)
Controls	Yes	Yes
Fixed Effects	Yes	Yes
Observations	248	217
Adjusted R ²	0.9568	0.9660

The persistence of positive and significant coefficients across both models confirms that the relationship is robust and not driven by reverse causality. This strengthens the interpretation of digital transformation as a causal driver, consistent with the conceptual framework.

4.4. Robustness checks

Additional robustness checks are presented in Table 4.

Table 4. Robustness Test Results

Variables	Excluding Policy Effects	Alternative DV	Alternative IV
Digital Transformation	0.3506*** (0.1027)	0.6071*** (0.1784)	0.1084*** (0.0305)
Controls	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes
Observations	186	248	248
Adjusted R ²	0.9321	0.9598	0.9243

The results remain consistent across alternative specifications, indicating that the findings are not sensitive to model assumptions or measurement choices.

4.5. Feature Importance Analysis (Random Forest Results)

To further interpret H2, Table 5 presents the results of the Random Forest feature importance analysis.

Table 5. Feature importance ranking

Rank	Variable	IncMSE (%)	Interpretation
1	Real-Economy Integration	32.5	Strongest driver of tourism performance
2	Economic Structure	28.7	Key for industrial upgrading
3	Digital Infrastructure	21.3	Foundational enabling factor
4	Ecological Interface	17.5	Context-dependent sustainability factor

The results in Table 7 highlight a hierarchy of influence among digital transformation dimensions. Structural and firm-level transformations dominate, while infrastructure and ecological factors play enabling and moderating roles.

This finding deepens the interpretation of the regression results by revealing nonlinear and interaction effects, which are central to understanding complex tourism systems.

5. Conclusion

This study examined how digital transformation shapes sustainable tourism performance within a multidimensional, system-oriented framework. Moving beyond conventional growth-centric perspectives, it conceptualised tourism development as a composite process encompassing innovation, structural coordination, environmental sustainability, and socio-economic inclusiveness. The empirical findings provide consistent evidence that digital transformation functions as a structural enabler of higher-quality tourism development, while also revealing that its effects are differentiated across underlying dimensions.

A key contribution of the study lies in demonstrating that digital transformation is not a monolithic driver but operates through distinct yet interrelated pathways. In particular, the results highlight the dominant roles of real-economy integration and economic restructuring, underscoring the importance of embedding digital technologies within production systems and service delivery processes. Digital infrastructure, while essential, primarily acts as an enabling condition, whereas the ecological interface plays a more context-dependent role, contingent on governance quality and institutional alignment. This nuanced understanding advances the literature by shifting the focus from whether digitalisation matters to how and through which mechanisms it exerts influence.

Methodologically, the study contributes by integrating composite index construction, panel econometric modelling, and machine learning-based feature analysis within a unified framework. This approach allows for both causal inference and the identification of variable

importance, offering a more comprehensive analytical lens for examining complex development phenomena. In doing so, the study responds to recent calls for more sophisticated methodological designs capable of capturing the multidimensional and nonlinear nature of digital transformation processes.

From a policy perspective, the findings suggest that strategies to enhance tourism performance should adopt a system-wide orientation. Investments in digital infrastructure remain necessary but are insufficient in isolation. Greater emphasis should be placed on fostering digital adoption at the firm level, promoting innovation-driven industrial upgrading, and strengthening the institutional conditions that enable digital technologies to contribute to environmental and social objectives. This implies a coordinated policy approach that aligns technological development with broader sustainability goals, rather than treating digitalisation as a purely technical intervention.

Notwithstanding its contributions, the study is subject to several limitations. The reliance on regional-level panel data, while appropriate for capturing macro-level dynamics, may obscure micro-level behavioural and organisational processes. In addition, measuring multidimensional constructs through composite indices, although methodologically justified, inevitably involves simplification and potential information loss. Future research could extend this work by incorporating firm-level or destination-level data, exploring causal mechanisms through quasi-experimental designs, and examining the role of institutional and cultural factors in moderating the effects of digital transformation.

In conclusion, this study reinforces the view that digital transformation is a critical but context-dependent driver of sustainable tourism development. Its impact is neither automatic nor uniform; rather, it emerges from the interaction between technological capabilities, economic structures, and institutional environments. By providing a multidimensional and empirically grounded analysis, the study offers a more refined understanding of how digitalisation can support the transition towards more resilient, inclusive, and sustainable tourism systems.

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