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The Role of Digital Eco-Consciousness in Achieving Regenerative Outcomes: Evidence from Tamil Nadu Ecotourism

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ABSTRACT

The growing integration of digital technologies in tourism has created new opportunities to promote sustainable and environmentally responsible travel behaviour. In ecotourism, digital platforms, smart technologies, and online engagement tools play a crucial role in enhancing tourists' environmental awareness and encouraging sustainable tourism practices. This study aims to examine the influence of tourist perceived digital sustainability on tourist-driven regenerative outcomes through the mediating role of digital eco-consciousness. The study conceptualizes digital sustainability through three dimensions: perceived environmental technology, perceived eco-friendly platforms, and perceived engagement tools. Digital eco-consciousness is represented by eco-awareness via digital media, digital usability perception, and intended green behaviour, while regenerative outcomes are measured through behavioural environmental impact, social contribution perception, and economic support intention. Primary data were collected from 250 tourists using a structured questionnaire. Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) using LISREL were employed to test the measurement and

structural models. The CFA results indicate that all constructs exhibit acceptable factor loadings above 0.70, confirming convergent validity and reliability of the measurement model. The model fit indices demonstrate a good model fit (χ^2 = 688.90, df = 573, χ^2/df = 1.20, RMSEA = 0.029). The SEM results reveal that perceived digital sustainability significantly influences tourists' digital eco-consciousness, which subsequently has a positive effect on behavioural environmental impact, social contribution perception, and economic support intention. The findings highlight that digital technologies and eco-friendly digital platforms play an important role in enhancing tourists' environmental awareness and responsible behaviour, thereby contributing to regenerative tourism outcomes. This study contributes to the emerging literature on digital sustainability and regenerative tourism by providing empirical evidence on how technology-driven tourism practices can support sustainable ecotourism development. The results offer valuable insights for tourism policymakers, destination managers, and digital platform developers in designing technology-based strategies that promote environmentally responsible and regenerative tourism practices.

INTRODUCTION:

Tourism stands as a cornerstone of the global economy, serving as a primary driver for employment, cultural exchange, and regional development. According to the World Tourism Organization (UNWTO), the sector accounts for a significant portion of global GDP and is instrumental in advancing sustainable development goals. However, this rapid expansion has introduced a "double-edged sword" effect; while economically beneficial, it has precipitated environmental degradation, biodiversity loss, and unsustainable pressure on natural resources. In response, ecotourism has emerged as a transformative paradigm defined by Ceballos-Lascurain as environmentally responsible travel to natural areas that promotes conservation and sustains the well-being of local populations. Honey further emphasizes that true ecotourism must integrate sustainable resource management with tangible economic opportunities for host communities.

Despite these foundational principles, ecotourism destinations frequently grapple with the gap between sustainable intent and actual tourist behaviour. Recently, the "twin transitions"—green and digital—have

begun to converge. The integration of smart tourism systems, mobile applications, and real-time data platforms has redefined the traveller's journey. This evolution has birthed the concept of digital sustainability, which refers to the strategic deployment of digital assets to achieve environmental and social outcomes.

Research by Gretzel et al. (2015) suggests that digital tools and social media engagement can significantly pivot tourist attitudes toward eco-friendly behaviours. Furthermore, Xiang and Gretzel highlight that information technology is no longer just a booking tool but a primary architect of the tourist decision-making process, capable of nudging travellers toward conservation-oriented activities.

However, as the climate crisis intensifies, the industry is moving beyond "sustainability" (doing less harm) toward regenerative tourism. As noted by Pollock, regenerative tourism seeks to actively restore ecosystems and enhance community resilience, creating a net-positive impact. While the potential for digital platforms to act as catalysts for this restoration is high, empirical evidence remains scarce. There is a critical knowledge gap regarding how Tourist-Perceived Digital Sustainability Practices (TPDSP) influence Digital Eco-Consciousness and, ultimately, lead to Regenerative Outcomes.

This study addresses this gap by employing Structural Equation Modelling (SEM) to analyse ecotourism in Tamil Nadu. By examining the nexus between digital engagement and environmental restoration, this research seeks to provide a roadmap for policymakers and destination managers to leverage technology not just for efficiency, but for the active healing of ecotourism landscapes.

LITERATURE REVIEW:

The increasing environmental pressures associated with tourism development have prompted a shift from traditional sustainable tourism approaches toward more transformative models such as regenerative tourism. While sustainable tourism primarily focuses on minimizing negative impacts, regenerative tourism emphasizes restoring ecosystems, strengthening local communities, and creating positive environmental and social outcomes. The integration of digital technologies in tourism has further accelerated this transition by enabling innovative tools for environmental monitoring, information dissemination, and stakeholder engagement. This section reviews the literature on tourist-perceived digital sustainability, digital eco-consciousness, and regenerative outcomes in ecotourism.

Tourist-Perceived Digital Sustainability (TPDS)

Digital sustainability refers to the use of information and communication technologies (ICT) to support sustainable development while maintaining ecological balance and social well-being. In the tourism sector, digital technologies enable efficient resource management, improve environmental monitoring, and facilitate communication between tourists and destination managers (Gretzel et al., 2015). The concept of tourist-perceived digital sustainability reflects how tourists perceive the role of digital tools in promoting environmentally responsible tourism practices.

Perceived Environmental Technology (PET)

Perceived environmental technology refers to the adoption of smart technologies that support environmental conservation and sustainable destination management. Technologies such as smart sensors, environmental monitoring systems, and data analytics tools help track resource consumption, biodiversity conditions, and environmental impacts within tourism destinations. According to Gretzel et al. (2015), smart tourism technologies enable destinations to monitor environmental performance and reduce the ecological footprint of tourism activities. Similarly, Xiang and Fesenmaier (2017) highlight that digital technologies can improve environmental management by providing real-time information and supporting evidence-based decision-making in tourism planning.

H1: Perceived environmental technology positively influences eco-awareness via digital.
H2: Perceived environmental technology positively influences digital usability perception.
H3: Perceived environmental technology positively influences intended green behaviour.

Perceived Eco-Friendly Platforms (PEE)

Eco-friendly digital platforms include online booking systems, tourism websites, and digital travel platforms that promote sustainable tourism practices. These platforms provide tourists with information about environmentally responsible destinations, eco-friendly accommodations, and conservation initiatives. Research suggests that digital platforms significantly influence tourists' travel decisions by highlighting sustainability practices and environmental certifications (Buhalis & Amaranggana, 2015). As a result, tourists are more likely to select tourism services that align with sustainable values when digital platforms emphasize environmental responsibility.

H4: Perceived eco-friendly platforms positively influence eco-awareness via digital.
H5: Perceived eco-friendly platforms positively influence digital usability perception.
H6: Perceived eco-friendly platforms positively influence intended green behaviour.

Perceived Engagement Tools (PEO)

Digital engagement tools such as mobile applications, social media campaigns, and interactive tourism platforms encourage tourists to actively participate in sustainability initiatives. These tools enhance tourists' understanding of conservation efforts and facilitate communication between tourists and local stakeholders. Social media and mobile technologies also provide opportunities for experiential learning and environmental education, which can influence tourists' attitudes toward sustainable tourism practices (Gretzel et al., 2015). Consequently, digital engagement tools play a crucial role in fostering environmentally responsible tourism behaviour.

H7: Perceived engagement tools positively influence eco-awareness via digital.
H8: Perceived engagement tools positively influence digital usability perception.
H9: Perceived engagement tools positively influence intended green behaviour.

Digital Eco-Consciousness as a Mediator

Digital eco-consciousness refers to the level of environmental awareness and behavioural intention developed through digital interactions and information exposure. It acts as a mediating mechanism that translates digital sustainability initiatives into actual behavioural outcomes among tourists.

Eco-Awareness via Digital (EAD)

Digital media platforms, online campaigns, and tourism websites are powerful channels for increasing environmental awareness among tourists. These platforms provide educational content about biodiversity conservation, sustainable travel practices, and environmental protection. Studies indicate that digital communication tools significantly influence tourists' environmental awareness and attitudes toward sustainability (Xiang & Gretzel, 2010). As tourists gain access to sustainability-related information through digital media, their understanding of environmental issues and responsible tourism practices improves.

Digital Usability Perception (DUP)

The effectiveness of digital sustainability initiatives largely depends on the usability and accessibility of digital tools. Tourists are more likely to engage with sustainable tourism practices when digital platforms are easy to use and provide clear, relevant information. According to Buhalis and Law (2008), user-friendly digital systems enhance tourists' travel experiences by providing convenient access to information and services. Therefore, the perception of digital usability plays a critical role in determining whether tourists adopt sustainable tourism practices.

Intended Green Behaviour (IGB)

Environmental awareness generated through digital platforms can lead to the development of pro-environmental behavioural intentions among tourists. Intended green behaviour refers to tourists' willingness to adopt environmentally responsible practices, such as minimizing environmental damage, supporting conservation initiatives, and choosing eco-friendly tourism destinations. Research indicates that environmental awareness and attitudes significantly influence tourists' behavioural intentions toward sustainable tourism (Han et al., 2010). Consequently, digital eco-consciousness can act as a key mediator linking digital sustainability initiatives with sustainable tourism behaviour.

H10: Eco-awareness via digital positively influences behavioural environmental impact.
H11: Digital usability perception positively influences social contribution perception.
H12: Intended green behaviour positively influences economic support intention.

Regenerative Outcomes in Ecotourism

Regenerative Outcomes in Ecotourism

Regenerative tourism represents a progressive approach that focuses not only on reducing negative impacts but also on actively improving environmental and social conditions in tourism destinations. Unlike traditional sustainability models, regenerative tourism aims to restore ecosystems, enhance community well-being, and support local economic development.

Behavioural Environmental Impact (BEI)

Behavioural environmental impact refers to the actions taken by tourists that contribute to environmental conservation. These behaviours include reducing waste, following environmental guidelines, and

supporting conservation activities within ecotourism destinations. According to Honey (2008), responsible tourist behaviour plays a crucial role in preserving biodiversity and maintaining ecological balance in protected areas. When tourists adopt environmentally responsible practices, they contribute directly to the protection of natural ecosystems.

Social Contribution Perception (SCP)

Social contribution perception reflects tourists' recognition that tourism activities should benefit local communities and respect cultural traditions. Community participation is a key component of sustainable tourism development, as it ensures that tourism generates social benefits for local residents. Studies indicate that tourists increasingly value tourism experiences that support community welfare and cultural preservation (Scheyvens, 1999). Therefore, tourists' perception of social contribution is an important indicator of regenerative tourism outcomes.

Economic Support Intention (ESI)

Economic support intention refers to tourists' willingness to contribute to local economies by purchasing local products, supporting community-based tourism businesses, and paying a premium for sustainable tourism services. Sustainable tourism can enhance local economic development by creating employment opportunities and supporting small businesses within tourism destinations. According to Goodwin (2011), tourists who value sustainability are often willing to pay higher prices for eco-friendly services and products, thereby contributing to the economic sustainability of tourism destinations.

RESEARCH GAP

Although previous studies have extensively examined sustainable tourism and the role of digital technologies in tourism development, several important gaps remain in the existing literature. First, many studies have focused on sustainable tourism practices and environmental management**,** but limited research has explored the concept of digital sustainability in ecotourism, particularly from the perspective of tourists' perceptions of digital tools and platforms. While digital technologies such as smart tourism systems, mobile applications, and online booking platforms have been widely adopted in the tourism industry, their role in promoting environmentally responsible tourist behaviour remains underexplored.

Second, existing literature largely examines digital technologies and sustainable tourism independently**,** with insufficient attention given to how digital tools influence tourists' environmental awareness and

behavioural intentions. Although studies highlight the importance of environmental awareness in shaping sustainable tourism behaviour, the mediating role of digital eco-consciousness, which includes eco-awareness through digital platforms, usability perceptions, and intended green behaviour, has received limited empirical investigation.

Third, most tourism research focuses on sustainable tourism outcomes, which primarily emphasize minimizing environmental damage. However, the emerging concept of regenerative tourism, which aims to create positive environmental, social, and economic impacts, has not been sufficiently integrated into empirical tourism research. In particular, there is a lack of studies examining how tourists contribute to regenerative outcomes such as environmental conservation, community well-being, and local economic support.

Finally, there is limited empirical research integrating digital sustainability, digital eco-consciousness, and regenerative tourism outcomes within a single conceptual framework. Existing studies often examine these concepts separately, resulting in a fragmented understanding of how digital technologies influence responsible tourist behaviour and sustainable tourism development.

Therefore, this study addresses these gaps by developing an integrated framework that examines the relationship between tourist-perceived digital sustainability, digital eco-consciousness, and tourist-driven regenerative outcomes in ecotourism destinations. By employing Structural Equation Modelling (SEM), this research provides empirical evidence on how digital technologies influence tourists' environmental awareness and behavioural intentions, ultimately contributing to regenerative tourism practices. The findings of this study contribute to the growing body of knowledge on digital sustainability and regenerative tourism, offering valuable insights for policymakers, tourism destination managers, and digital platform developers.

CONCEPTUAL FRAMEWORK:

DATA ANALYSIS AND INTERPRETATION:

Research Design

This study adopts a quantitative research design to investigate the relationship between tourist-perceived digital sustainability, digital eco-consciousness, and tourist-driven regenerative outcomes in ecotourism destinations. The research design focuses on examining how digital technologies and platforms influence tourists' environmental awareness and behavioural intentions, which subsequently contribute to positive environmental, social, and economic outcomes in tourism destinations.

A survey-based approach was used to collect primary data from tourists. The quantitative approach was considered appropriate for this study as it allows the testing of hypothesized relationships among multiple constructs using statistical techniques. To analyse the relationships between the variables and validate the proposed conceptual framework, Structural Equation Modelling (SEM) was employed. SEM is widely used in tourism and sustainability research because it enables researchers to analyse complex relationships between latent variables while simultaneously evaluating both measurement and structural models.

Population and Sampling

The target population for this study consists of tourists who have visited ecotourism destinations and have experience using digital platforms such as tourism websites, mobile applications, or online booking systems for travel planning. These tourists are considered suitable respondents because they are more likely to interact with digital technologies related to tourism and sustainability information.

A non-probability convenience sampling technique was used for selecting respondents. Convenience sampling allows researchers to collect data from participants who are easily accessible and willing to participate in the study. This method is widely used in tourism research where the target population is diverse and difficult to access through probability sampling techniques.

A total of 250 valid responses were collected for this study. The sample size is considered adequate for Structural Equation Modelling analysis. Previous methodological studies suggest that a sample size of at least 200 respondents is sufficient for SEM analysis to obtain reliable and stable estimates. Therefore, the sample size used in this study meets the recommended criteria for statistical analysis and model testing.

Primary data were collected using a structured questionnaire survey. The questionnaire was distributed to tourists who had experience visiting ecotourism destinations and interacting with digital tourism platforms. Respondents were informed about the purpose of the research before participating in the survey.

The survey instrument was designed based on previous studies related to digital tourism technologies, sustainable tourism behaviour, and regenerative tourism outcomes. The questionnaire was prepared in a simple and clear format to ensure that respondents could easily understand and answer the questions. The collected responses were screened for completeness and consistency before conducting statistical analysis.

RESULTS AND DISCUSSION:

Reliability Analysis

Reliability analysis was conducted to examine the internal consistency of the measurement scale used in this study. Cronbach's Alpha was employed to evaluate the reliability of the questionnaire items measuring tourist perceived digital sustainability, digital eco-consciousness, and regenerative tourism outcomes.

TABLE 01: Reability Analysis

Case Processing Summary			
		N	%
Cases	Valid	250	100.0
	Excluded[a]	0	.0
	Total	250	100.0

Reliability Statistics	
Cronbach's Alpha	N of Items
.976	36

Source: SPSS

The results show that the Cronbach's Alpha value for the 36 measurement items is 0.976, which is significantly higher than the recommended threshold value of 0.70. This indicates excellent internal consistency and reliability of the measurement scale.

The case processing summary shows that all 250 responses were valid, with no excluded cases, confirming that the dataset is complete and suitable for further statistical analysis. The high reliability

coefficient demonstrates that the measurement items consistently capture the underlying constructs of tourist perceived digital sustainability, digital eco-consciousness, and regenerative tourism outcomes.

Descriptive Statistics

Descriptive statistics were conducted to summarize the demographic characteristics of the respondents and to understand the distribution of the study variables. A total of 250 valid responses were included in the analysis, with no missing or excluded cases.

TABLE 2: Descriptive statistics

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Gender	250	1	2	1.47	.500
Age	250	1	5	2.76	1.160
Education	250	1	5	3.08	1.366
Occupation	250	1	5	3.04	1.414
Income	250	1	5	2.93	1.437
Residence	250	1	3	1.67	.774
Eco Visits	250	1	4	2.21	1.085
PET_TOTAL	250	4.00	20.00	12.0600	4.40432
PEE_TOTAL	250	4.00	20.00	11.9200	4.41538
PEO_TOTAL	250	4.00	20.00	11.9760	4.12936
EAD_TOTAL	250	4.00	20.00	12.0320	4.33893
DUP_TOTAL	250	4.00	20.00	12.0520	4.41080
IGB_TOTAL	250	4.00	20.00	11.9920	4.31025
BEI_TOTAL	250	4.00	20.00	12.0440	4.29463
SCP_TOTAL	250	4.00	20.00	12.0040	4.29485
ESI_TOTAL	250	4.00	20.00	12.0400	4.29514

Valid N (listwise)	250				

Source: SPSS

The descriptive statistics indicate that the mean value for gender is 1.47**,** suggesting a relatively balanced distribution of male and female respondents. The average age value is 2.76**,** indicating that most respondents belong to the young and middle-aged categories**,** particularly between 21 and 40 years. The mean value for education is 3.08**,** suggesting that the majority of respondents possess undergraduate or postgraduate qualifications**,** reflecting a relatively educated sample.

Similarly, the mean values for occupation and income are 3.04 and 2.93**,** respectively, indicating that respondents belong to diverse occupational and income groups. The mean value for place of residence is 1.67, suggesting that most respondents reside in urban or semi-urban areas**.** The average number of ecotourism visits in the past two years is 2.21**,** indicating moderate engagement with ecotourism destinations.

The descriptive statistics of the study constructs show that the mean values range from 11.92 to 12.06, indicating that respondents generally expressed moderate to high agreement with the statements related to digital sustainability practices, digital eco-consciousness, and regenerative tourism outcomes.

Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) was conducted using AMOS to evaluate the measurement model and to assess the construct validity of the study variables. The CFA model includes nine latent constructs: Perceived Environmental Technology (PET), Perceived Eco-Friendly Platforms (PEE), Perceived Engagement Tools (PEO), Eco Awareness via Digital (EAD), Digital Usability Perception (DUP), Intended Green Behaviour (IGB), Behavioural Environmental Impact (BEI), Social Contribution Perception (SCP), and Economic Support Intention (ESI). Each construct was measured using four observed indicators, resulting in a total of 36 measurement items.

TABLE: 3 MODEL FIT INDICES:

Chi-square test			
Model	X^2	df	p

Chi-square test			
Model	X^2	df	p
Baseline model	11,720.299	630	
Factor model	607.558	556	.064

Source: JASP

TABLE 04: Model fit of CFA

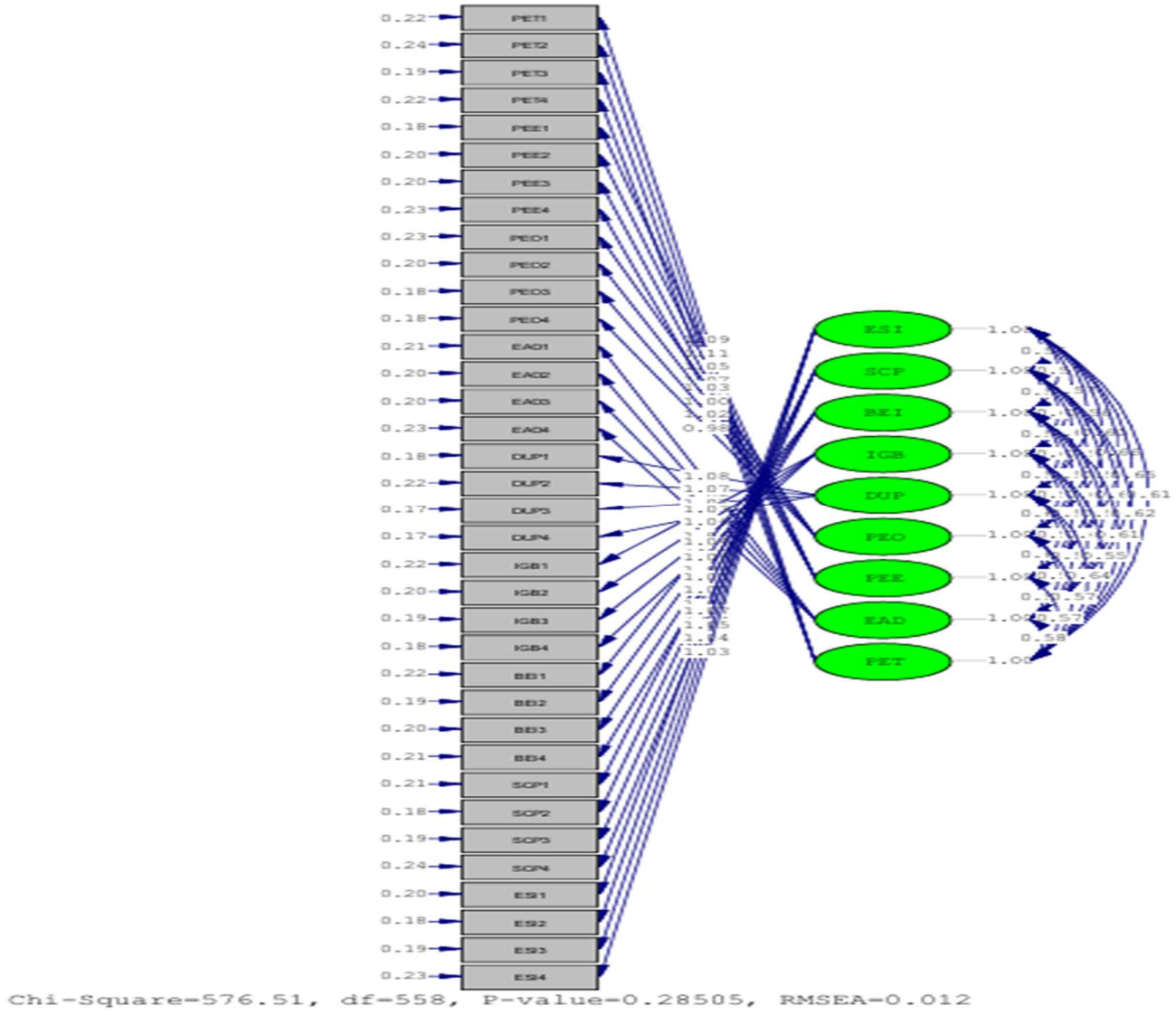
Construct	Indicator	Estimate	Std. Error	z-value	p-value
PET	PET1	1.000	0.000	–	–
	PET2	0.973	0.040	24.108	< .001
	PET3	1.010	0.039	25.992	< .001
	PET4	0.952	0.039	24.455	< .001
PEE	PEE1	1.000	0.000	–	–
	PEE2	0.949	0.036	26.509	< .001
	PEE3	0.961	0.036	26.937	< .001
	PEE4	0.988	0.038	26.243	< .001
PEO	PEO1	1.000	0.000	–	–
	PEO2	0.975	0.041	23.509	< .001
	PEO3	0.989	0.041	24.251	< .001
	PEO4	0.952	0.040	23.854	< .001
EAD	EAD1	1.000	0.000	–	–

Source: JASP

The standardized factor loadings obtained from the CFA model indicate that all measurement items load significantly onto their respective constructs. The factor loading values range approximately between 0.62 and 0.71, which exceed the minimum acceptable threshold of 0.50, indicating adequate indicator reliability. These results confirm that the observed variables are strong representatives of their underlying latent constructs.

In addition, the covariance relationships among the constructs indicate positive associations between the variables included in the conceptual framework. For instance, strong correlations are observed between the digital sustainability constructs (PET, PEE, and PEO), suggesting that different digital sustainability initiatives are closely interconnected in influencing tourists' perceptions of sustainable tourism practices.

Chart 02: CFA MODEL DIAGRAM:



The CFA results also demonstrate satisfactory measurement model fit. The model fit indices indicate that the measurement model adequately represents the observed data, confirming the convergent validity and construct reliability of the measurement scales used in the study.

Furthermore, the measurement model shows that the constructs associated with digital eco-consciousness (EAD, DUP, and IGB) are strongly linked with the constructs representing regenerative tourism outcomes (BEI, SCP, and ESI). This relationship suggests that increased environmental awareness and usability of digital sustainability tools can enhance tourists' environmentally responsible behaviour and support for sustainable tourism initiatives.

Overall, the CFA results confirm that the measurement model is statistically valid and reliable, providing a strong foundation for testing the structural relationships among the constructs through Structural Equation Modelling (SEM).

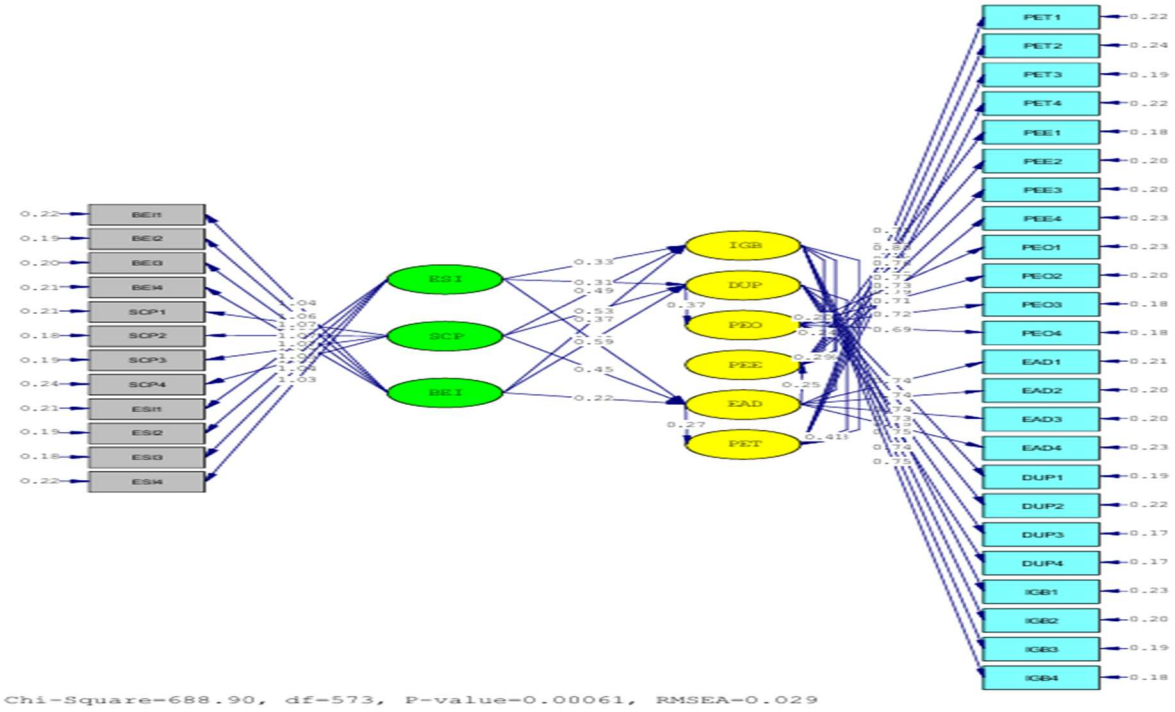
Structural Equation Modelling (SEM)

The Structural Equation Model was estimated to examine the relationships between digital sustainability constructs, digital eco-consciousness, and regenerative tourism outcomes.

TABLE 05: Structural Equation Model Fit Indices

Fit Index	**Recommended Value**	**Obtained Value**	**Interpretation**
Chi-square (χ^2)	—	688.90	Acceptable
Degrees of Freedom (df)	—	573	—
χ^2/df	< 3	1.20	Good Fit
RMSEA	< 0.08	0.029	Excellent Fit
p-value	> 0.05 desirable	0.00061	Acceptable

CHART 03: STURUCTURAL EQUATION MODELLING



The Structural Equation Model was estimated to examine the relationships between digital sustainability constructs, digital eco-consciousness, and regenerative tourism outcomes. The results indicate that perceived environmental technology positively influences eco-awareness via digital (β = 0.29), digital usability perception (β = 0.16), and intended green behaviour (β = 0.25). Similarly, perceived eco-friendly platforms significantly influence eco-awareness (β = 0.24), digital usability perception (β = 0.11), and intended green behaviour (β = 0.28). Perceived engagement tools also demonstrate positive effects on eco-awareness (β = 0.24), digital usability perception (β = 0.07), and intended green behaviour (β = 0.12). Furthermore, digital eco-consciousness constructs significantly contribute to regenerative tourism outcomes, where eco-awareness via digital influences behavioural environmental impact (β = 0.08), digital usability perception affects social contribution perception (β = 0.21), and intended green behaviour influences economic support intention (β = 0.07).

FINDINGS OF THE STUDY:

1. The descriptive statistics indicate that the respondents demonstrate moderate to high perceptions of digital sustainability and eco-conscious tourism behaviour, suggesting that tourists are increasingly aware of sustainability initiatives supported by digital technologies.

2. The reliability analysis results show that the measurement scale used in this study is highly reliable, with a Cronbach's Alpha value of 0.976, which exceeds the recommended threshold of 0.70. This confirms strong internal consistency among the questionnaire items.

3. The Confirmatory Factor Analysis (CFA) results confirm that all measurement items have acceptable factor loadings, indicating that the observed indicators adequately represent their respective latent constructs.

4. The CFA model fit indices demonstrate that the measurement model provides a good fit with the observed data, confirming the validity and reliability of the constructs used in the study.

5. The Structural Equation Modelling (SEM) results indicate that perceived environmental technology positively influences eco-awareness via digital, suggesting that digital environmental technologies play an important role in enhancing tourists' environmental awareness.

6. The results further reveal that perceived eco-friendly platforms significantly influence digital eco-consciousness, indicating that digital tourism platforms that promote sustainability can encourage tourists to adopt environmentally responsible attitudes.

7. The findings show that perceived engagement tools positively influence intended green behaviour, suggesting that digital engagement mechanisms such as mobile applications and online campaigns motivate tourists to participate in sustainable tourism activities.

8. The results demonstrate that digital eco-consciousness significantly contributes to regenerative tourism outcomes, including behavioural environmental impact, social contribution perception, and economic support intention.

9. The relationship between digital usability perception and social contribution perception indicates that tourists who find digital sustainability platforms easy to use are more likely to support community-oriented tourism initiatives.

10. The study also reveals that intended green behaviour positively influences economic support intention, indicating that environmentally conscious tourists are more willing to support local businesses and sustainable tourism services.

11. Overall, the findings highlight that digital sustainability initiatives play a crucial role in promoting regenerative tourism outcomes by enhancing tourists' environmental awareness, responsible behaviour, and support for local communities and economies.

CONCLUSION:

This study examined the relationship between tourist perceived digital sustainability, digital eco-consciousness, and tourist-driven regenerative outcomes in ecotourism destinations using Structural Equation Modelling (SEM). The findings demonstrate that digital technologies play a significant role in promoting sustainable and regenerative tourism practices. The results indicate that tourists' perceptions of digital sustainability—represented by perceived environmental technology, eco-friendly platforms, and engagement tools—positively influence digital eco-consciousness, including eco-awareness via digital media, digital usability perception, and intended green behaviour. These digital sustainability mechanisms help tourists better understand environmental issues and encourage them to adopt responsible tourism behaviour.

Furthermore, the study reveals that digital eco-consciousness significantly contributes to regenerative tourism outcomes, including behavioural environmental impact, social contribution perception, and economic support intention. Tourists who develop higher levels of environmental awareness and green behavioural intentions are more likely to engage in environmentally responsible practices, support local communities, and contribute economically to sustainable tourism businesses. The findings highlight that digital technologies can act as effective tools for increasing tourists' environmental awareness and encouraging sustainable tourism behaviour.

Overall, this research contributes to the growing body of literature on digital sustainability and regenerative tourism by integrating technological, behavioural, and sustainability perspectives within a unified conceptual framework. The study also provides practical insights for tourism destination managers, policymakers, and digital platform developers to design technology-driven strategies that enhance tourists' environmental awareness and support regenerative tourism initiatives.

SCOPE OF FUTURE STUDY:

Although this study provides valuable insights into the role of digital sustainability in promoting regenerative tourism outcomes, several opportunities exist for future research. First, future studies may consider expanding the geographical scope of the research by examining different ecotourism

destinations across various regions or countries to enhance the generalizability of the findings. Second, future research could explore additional factors such as tourists' environmental attitudes, perceived value of sustainable tourism, or technological readiness, which may influence digital eco-consciousness and sustainable tourism behaviour.

Third, researchers may employ longitudinal research designs to better understand how tourists' perceptions of digital sustainability evolve over time and how digital technologies influence long-term sustainable tourism behaviour. Fourth, future studies could examine the role of emerging digital technologies such as artificial intelligence, smart tourism systems, and virtual reality in promoting sustainable and regenerative tourism practices. Finally, future research may integrate stakeholder perspectives such as local communities, tourism operators, and policymakers to provide a more comprehensive understanding of how digital sustainability initiatives contribute to the development of regenerative tourism destinations. Such studies would help develop more effective strategies for achieving long-term environmental, social, and economic sustainability in the tourism sector.

REFERENCES:

- Karim, R., Goh, G. G. G., Lee, Y. L.-E., & Zeb, A. (2025). To be digital is to be sustainable—tourist perceptions and tourism development foster environmental sustainability. Sustainability, 17(3), 1053. https://doi.org/10.3390/su17031053
- Sudarmini, N. M., Damayanti, I. A. K. W., Muliati, N. K., & Dewi, P. E. N. (2026). Smart–green tourism: The role of digital technologies in strengthening sustainable practices at destination Bali. Journal of Tourism Economics and Policy, 6(1).
- Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015). Smart tourism: Foundations and developments. Electronic Markets, 25(3), 179–188. https://doi.org/10.1007/s12525-015-0196-8
- Subadra, I. N. (2024). The integration of physical and digital experiences in ecotourism. Research in Hospitality Management, 15(3), 215–221. https://doi.org/10.1080/22243534.2025.2517269
- Karim, R., et al. (2025). Digital pathways to sustainability: Eco-travel apps and Gen Z's eco-friendly travel behaviors. Sustainability, 6(5), 247. https://doi.org/10.3390/su17031053

- Bellato, L., & Pollock, A. (2023). The incorporation of circular economy principles into regenerative tourism frameworks. Journal of Sustainable Tourism.
- Jain, V., et al. (2024). Applying circular economy to regenerative tourism on island: Insights from field research. International Journal of Qualitative Research, 18(2).
- Schmidt Rojas, S., & Corral-Gonzalez, A. (2024). Regenerative tourism: Moving beyond preservation to active restoration of social and natural systems. Tourism Transformations.
- Singh, S., & Bhardwaj, R. (2025). A structural equation modeling (SEM) approach to analyze pilgrims' satisfaction and behavioral intentions at Mahakumbh in Prayagraj. Asian Journal of Management, 16(4), 299–305. https://doi.org/10.52711/2321-5763.2025.00045
- Government of India. (2022). Report on National Digital Tourism Mission. New Delhi: Ministry of Tourism.
- Bansal, N., & Choudhary, H. (2024). Fostering digital equity: Evaluating impact of digital literacy training on internet outcomes in rural marginalized communities in India. International Journal of Lifelong Education, 43(5), 473–493.