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Internal Innovation versus External Coordination in Sustainable Tourism: Managerial Perspectives from Indonesia

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Abstract. This study examines how circular economy capability contributes to sustainable tourism performance through green process innovation and green supply chain management from the perspective of tourism managers in Indonesia. A quantitative exploratory approach was employed using survey data collected from 118 tourism managers and destination operators representing tourism destinations across Indonesia. Data were analysed using partial least squares structural equation modelling (PLS-SEM). The findings reveal that circular economy capability positively influences green process innovation, green supply chain management, and sustainable tourism performance. Green process innovation is significantly enhanced by circular economy capability; however, it does not significantly influence sustainable tourism performance and does not mediate the relationship between circular economy capability and sustainable tourism performance. In contrast, green supply chain management significantly improves sustainable tourism performance and serves as a significant mediating mechanism through which circular economy capability enhances sustainability outcomes. These findings suggest that sustainable tourism transformation depends not only on the development of internal sustainability capabilities but also on the effective coordination of environmentally responsible practices across tourism stakeholder networks. The study highlights the critical role of green supply chain management in translating circular economy capability into sustainability performance within emerging tourism destinations. This study contributes to the sustainable tourism literature by extending circular economy and sustainability research into the tourism service sector and provides managerial insights for tourism organisations seeking to strengthen sustainability-oriented operational practices.

Keywords: circular economy capability, green process innovation, green supply chain management, sustainable tourism performance, tourism sustainability

1. Introduction

Tourism has become one of the most important sectors contributing to economic growth (Primayesa et al., 2023), employment creation (Jeyacheya & Hampton, 2020), and regional development across emerging economies (Sadigov, 2026), including Indonesia (Eijgelaar & Peeters, 2014; Yuliawati et al., 2016). At the same time, the rapid expansion of tourism activities has intensified environmental pressures through increasing waste generation (Garcés-Ordóñez et al., 2020), energy consumption and resource exploitation in tourism destinations (Umarella et al., 2021). Sustainable tourism has therefore gained growing attention among policymakers and destination managers (Haid et al., 2023; Wagenseil et al., 2024) seeking to balance economic development with environmental and social preservation (Strasdas, 2011). In this context, tourism organisations are increasingly encouraged to adopt sustainability-oriented operational practices that strengthen long-term destination competitiveness while reducing ecological degradation (Aransyah et al., 2025; Stoddard et al., 2012).

The circular economy has emerged as a strategic approach for supporting sustainable transformation by promoting resource efficiency, waste reduction and regenerative business practices (Gupta & Verma, 2025; Rautrao et al., 2025). Previous studies suggest that circular economy capability can strengthen organisational sustainability through green innovation (Bui et al., 2026; Duong, 2026) and environmentally oriented operational systems (Alateeg & Alayed, 2025). Similarly, green process innovation and green supply chain management have been recognised as important mechanisms for improving sustainability performance across industries (Elzek et al., 2021; T. T. H. Nguyen et al., 2020). In tourism settings, these approaches are becoming increasingly relevant because destination sustainability depends heavily on coordination between operational efficiency, environmental protection and stakeholder collaboration (Roxas et al., 2020).

Although previous studies have linked circular economy practices, green innovation and sustainability performance, most empirical evidence remains concentrated within manufacturing and industrial sectors (Nasir et al., 2017). Existing studies frequently assume that green supply chain coordination and environmental innovation operate similarly across sectors despite the distinctive characteristics of tourism ecosystems (Sunarya et al., 2023), which involve fragmented stakeholders (Baggio, 2020), service-based interactions and destination-level governance complexity (Akbari et al., 2025; Burki, 2018). Prior tourism research has also largely focused on sustainability outcomes rather than examining how internal innovation mechanisms (Abu Seman et al., 2019; Elzek et al., 2021) and external coordination practices differently shape sustainable tourism transformation (Arya et al., 2024). Nevertheless, limited attention has been given to understanding whether green process innovation and green supply chain management contribute equally to sustainability performance in emerging tourism destinations (Cherrafi et al., 2018).

Furthermore, prior sustainability studies often portray green supply chain management as a universally effective sustainability mechanism despite inconsistent implementation outcomes across developing economies and tourism-oriented service ecosystems (Liu et al., 2026). In practice, tourism destinations frequently face institutional fragmentation, uneven stakeholder commitment and operational limitations that weaken sustainability coordination across supply chains (Shah et al., 2023; Tronnebati et al., 2025). However, empirical evidence explaining why internal green innovation may outperform external coordination practices in sustainable tourism transformation remains relatively underexplored, particularly in the Indonesian tourism context.

This study examines how circular economy capability influences sustainable tourism performance through green process innovation and green supply chain management from the perspective of tourism managers in Indonesia. To address this issue, the study adopts an exploratory quantitative approach using survey data collected from tourism managers and destination operators in several Indonesian tourism destinations. The study employs partial least squares structural equation modelling (PLS-SEM) to analyse the direct and mediating relationships between circular economy capability, green process

innovation, green supply chain management and sustainable tourism performance. The managerial perspective is emphasised because tourism managers are directly involved in sustainability-oriented operational decision-making and destination management practices.

This study contributes to the sustainable tourism literature in three ways. First, it extends circular economy and green innovation discussions into the tourism service sector, which remains less explored than manufacturing contexts. Second, the study highlights the differing roles of internal innovation mechanisms and external coordination practices in sustainable tourism transformation. Third, the findings provide managerial insights for tourism stakeholders in emerging destinations by demonstrating that sustainability performance is more strongly driven by green supply chain management than by green process innovation.

2. Literature Review

2.1. Circular economy capability in tourism organisations

The growing sustainability agenda has encouraged tourism organisations to reconsider how resources are managed within destination ecosystems (Singh et al., 2023). Circular economy capability refers to an organisation's ability to implement resource efficiency, waste reduction (Sharma et al., 2025) and regenerative operational practices that support long-term sustainability objectives (Alverti et al., 2026). In tourism settings, circular capability is increasingly important because tourism activities are closely connected to environmental quality, local resources and community wellbeing (Al-Romeedy & Tyagi, 2024; Leandro et al., 2024; Singh et al., 2023). Previous studies suggest that organisations with stronger circular economy capabilities are more likely to adopt environmentally oriented operational systems and sustainability-focused innovations (Singh et al., 2023). Unlike manufacturing industries, tourism destinations rely heavily on service interactions and multi-stakeholder coordination, making sustainability transformation more operationally complex (Shah et al., 2023; Tronnebati et al., 2025). Tourism organisations therefore require internal capabilities that enable them to balance environmental responsibility with operational competitiveness (McDougall et al., 2022). Circular economy capability may support this process by encouraging resource optimisation, waste minimisation and environmentally responsible service operations (Sharma et al., 2025; Strippoli et al., 2024).

2.2. Green process innovation and sustainable tourism performance

Green process innovation has become an important mechanism through which organisations translate sustainability intentions into operational practices (Jiang et al., 2025). Green innovation commonly involves environmentally friendly technologies, energy efficiency systems and operational improvements designed to reduce ecological impacts while maintaining organisational performance (Alnafrah, 2025; Bhatia, 2021; Esmaeilpour Moghadam & Karami, 2024). In tourism contexts, process innovation may include waste reduction systems (Prakash & Sharma, 2024), renewable energy utilisation (Hoque & Talukder, 2025) and environmentally responsible service operations (Farinha et al., 2026) that strengthen destination sustainability (Elzek et al., 2021). Previous studies indicate that organisations with stronger environmental capabilities are more likely to implement green innovation practices (Bhatia, 2021; Bhatti et al., 2023). Circular economy capability may therefore provide the operational foundation necessary for tourism organisations to develop sustainability-oriented innovation processes (Ferdowsi & Rashidi, 2026; Repáraz & Pérez, 2024). Moreover, green process innovation may strengthen sustainable tourism performance by improving operational efficiency, destination image and environmental outcomes simultaneously (Elzek et al., 2021; Herzallah et al., 2025; T. Q. Nguyen et al., 2025).

H1. Circular economy capability positively influences green process innovation.

H2. Green process innovation positively influences sustainable tourism performance.

H3. Green process innovation mediates the relationship between circular economy capability and sustainable tourism performance.

2.3. Green supply chain coordination in tourism ecosystems

Sustainable tourism transformation also depends on coordination across tourism supply chains involving local suppliers, communities, destination operators and public institutions (Beritelli et al., 2015). Green supply chain management refers to the integration of environmental considerations into procurement, logistics, operational coordination and stakeholder collaboration activities (T. T. H. Nguyen et al., 2020; Tran et al., 2020; Ahmed, 2023). In tourism ecosystems, green coordination is expected to support sustainability performance through environmentally responsible partnerships and resource management practices (Nabilla et al., 2025). However, tourism supply chains are often fragmented and characterised by uneven sustainability capabilities among stakeholders (Adriana, 2009; Karsokiene et al., 2026; Ahmed, 2023). Unlike manufacturing systems with more formalised operational structures, tourism destinations frequently involve informal business actors and complex governance arrangements that may weaken sustainability coordination (Tronnebati et al., 2025). As a result, the effectiveness of green supply chain management in improving sustainable tourism performance remains uncertain, particularly within emerging tourism economies (T. T. H. Nguyen et al., 2020). Previous studies have suggested that circular economy capability can encourage sustainability-oriented supply chain coordination by promoting environmentally responsible operational systems (Aslan, 2026). Nevertheless, limited research has examined whether such coordination mechanisms effectively translate into sustainability outcomes within tourism destinations.

H4. Circular economy capability positively influences green supply chain management.

H5. Green supply chain management positively influences sustainable tourism performance.

H6. Green supply chain management mediates the relationship between circular economy capability and sustainable tourism performance.

2.4. Sustainable tourism performance

Sustainable tourism performance reflects the ability of tourism organisations and destinations to balance environmental (Pan et al., 2018), social (Myers et al., 2011), and economic objectives (Chakraborty et al., 2025) within long-term destination development (Csiszárik-Kocsir & Varga, 2025). Sustainable performance in tourism extends beyond financial outcomes by incorporating environmental protection, community wellbeing and destination resilience (Halpern & Mwesiumo, 2025). Tourism organisations are therefore increasingly expected to adopt sustainability-oriented operational practices that enhance both competitiveness and environmental responsibility (Poljašević et al., 2026). In emerging tourism destinations, sustainability performance is strongly influenced by organisational capabilities and innovation practices that support adaptive and environmentally responsible operations (Arya et al., 2024). This perspective suggests that sustainable tourism transformation depends not only on external stakeholder coordination but also on the organisation's internal ability to implement operational innovation and resource-efficient practices. The research framework in Figure 1.

H7. Circular economy capability positively influences sustainable tourism performance

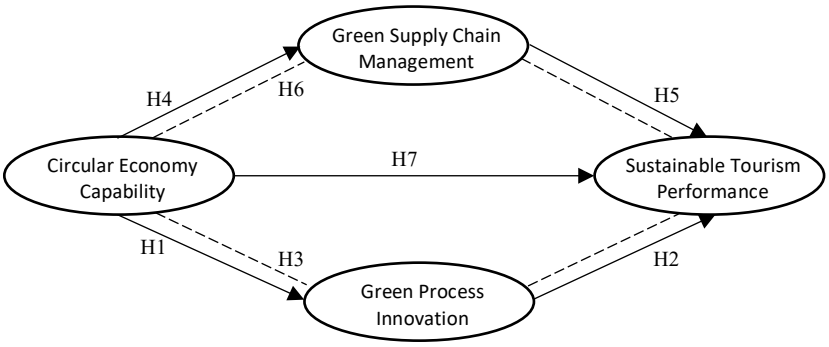


Fig. 1: Research framework

3. Research Method

3.1. Research design

This study adopted an exploratory quantitative research design to examine how circular economy capability contributes to sustainable tourism performance through green process innovation and green supply chain management. An exploratory approach was considered appropriate because empirical evidence examining the interaction between circular economy capability, green innovation and sustainability coordination in tourism settings remains relatively limited, particularly within emerging tourism destinations. The study focused on managerial perspectives because tourism managers and destination operators are directly involved in sustainability-oriented operational and strategic decision-making processes. The study employed partial least squares structural equation modelling (PLS-SEM) to analyse the proposed relationships. PLS-SEM was selected because it is suitable for exploratory research, prediction-oriented models and studies with relatively small sample sizes (Hair & Alamer, 2022). The method also enables simultaneous examination of direct and mediating relationships among latent constructs associated with sustainability-oriented organisational capabilities.

3.2. Sample and data collection

Data were collected from tourism managers, destination operators and sustainability-related personnel working within Indonesian tourism organisations. Respondents were selected using purposive sampling based on the following criteria: (1) the respondent served as a representative of the tourism destination with direct knowledge of its operational and sustainability practices; (2) the respondent had been working at the destination for a minimum of one year, ensuring sufficient familiarity with its day-to-day operations and sustainability-related decision-making; (3) the respondent held a managerial position or was otherwise directly involved in sustainability- or environment-related decision-making at the destination; (4) the destination had been operating actively on a commercial basis, excluding newly established or pilot-stage destinations; and (5) the destination had implemented at least one sustainability or green practice at the time of data collection. A total of 142 questionnaires were completed; after screening against these criteria, 118 valid responses representing 118 tourism destinations across Indonesia were retained for analysis. The sampling approach was intended to ensure that respondents possessed sufficient organisational knowledge regarding sustainability practices, innovation activities and operational coordination.

3.3. Measurement development

The measurement items were adapted from previously validated scales and modified to fit the context of sustainable tourism organizations. Circular Economy Capability (CEC) was measured using seven items adapted from Geissdoerfer et al. (2017) and Vargas-Sánchez (2018), capturing organizational

capabilities related to resource efficiency, waste reduction, recycling practices, and environmentally responsible operations. An example item is: "Our destination implements strategies to reduce plastic waste." Green Supply Chain Management (GSCM) was assessed using five items adapted from Sirmon et al. (2011) and Wang et al. (2020), reflecting sustainability-oriented coordination and collaboration among tourism stakeholders. An example item is: "We maintain effective coordination with government agencies, local communities, and tourism businesses."

Green Process Innovation (GPI) was measured using six items adapted from sustainability and environmental innovation literature, capturing the extent to which tourism organizations implement environmentally oriented operational improvements and innovative practices. An example item is: "Our organization continuously introduces environmentally friendly operational improvements." Sustainable Tourism Performance (STP) was measured using five items adapted from Bramwell and Lane (2011) and Font et al. (2019), covering environmental, social, and operational sustainability outcomes. An example item is: "Our destination has a positive reputation as a sustainable tourism destination." All constructs were measured using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Prior to the main survey, the questionnaire was reviewed by academic experts and tourism practitioners to ensure clarity, contextual relevance, and content validity.

3.4. Data analysis

Data analysis was conducted using SmartPLS software. The analysis involved two stages consisting of measurement model assessment and structural model assessment. The measurement model evaluation examined indicator reliability, internal consistency reliability, convergent validity and discriminant validity using factor loadings, composite reliability, average variance extracted (AVE) and heterotrai-monotrait ratio (HTMT) criteria. The structural model assessment examined path relationships, mediating effects and predictive relevance using bootstrapping procedures. Coefficient of determination (R^2), effect size (f^2) and predictive relevance (Q^2) were also assessed to evaluate the explanatory and predictive capability of the proposed model. This analytical approach enabled the study to examine how internal innovation mechanisms and external sustainability coordination practices contribute to sustainable tourism performance from a managerial perspective.

4. Finding

The findings in this study are described as follows

Table 1. Characteristic Respondents

Characteristic	Category	Frequency	Percentage (%)
Tourism Type	Nature tourism	37	31.36
	Educational tourism	24	20.34
	Cultural tourism	18	15.25
	Tourism village	14	11.86
	Man-made tourism	13	11.02
	Other tourism types	12	10.17
Management Status	Multi-stakeholder management	30	25.42
	Private management	23	19.49
	Community management	21	17.8
	Village management	21	17.8
	Government management	20	16.95
	Other management forms	3	2.55

Operational Scale	National	35	29.66
	Regional	34	28.81
	Local	27	22.88
	International	22	18.64
Monthly Visitors	100 - 500 visitors	38	32.2
	501 - 1,000 visitors	38	32.2
	More than 1,000 visitors	23	19.49
	Fewer than 100 visitors	19	16.1
Management Team Size	11 - 20 members	51	43.22
	6 - 10 members	30	25.42
	More than 20 members	25	21.19
	1 - 5 members	12	10.17

Note: Other tourism types include beach/marine tourism, family tourism, religious tourism, historical tourism, entertainment tourism, and mixed tourism categories. Other management forms include management initiated by the Tourism Awareness Group (Pokdarwis) chairperson, Village-Owned Enterprises (BUMDes), and agro-tourism organizations.
Source: Authors' own work (2026).

Table 1 presents the characteristics of the sampled tourism destinations. The results indicate that the sample was dominated by nature tourism destinations (31.36%), followed by educational and cultural tourism, highlighting the prominence of resource- and knowledge-based attractions. In terms of governance, multi-stakeholder management was the most prevalent arrangement, although private, community-, village-, and government-managed destinations were also substantially represented, reflecting a diverse management landscape. The destinations operated across different market scales, with national and regional orientations accounting for the largest shares. Furthermore, visitor volumes were primarily concentrated between 100 and 1,000 visitors per month, while most destinations were supported by management teams comprising 11 - 20 members.

Table 2. Validity and reliability all construct

Items	**Loadings**	**AVE**	**CR**	**Cronbach's Alpha**
Circular economy capability		0.570	0.882	0.873
CEC1	0.758			
CEC2	0.674			
CEC3	0.709			
CEC4	0.766			
CEC5	0.831			
CEC6	0.770			
CEC7	0.765			
Green supply chain management		0.707	0.900	0.896
GSCM1	0.837			
GSCM2	0.820			
GSCM3	0.848			
GSCM4	0.872			
GSCM5	0.826			
Green process innovation		0.611	0.874	0.872
GPI1	0.781			
GPI2	0.778			
GPI3	0.764			
GPI4	0.840			
GPI5	0.803			
GPI6	0.720			
Sustainable tourism performance		0.583	0.839	0.824
STP1	0.760			
STP2	0.707			
STP3	0.780			

STP4	0.782
STP5	0.785

Source: Authors' own work (2026).

Table 2 reports the validity and reliability assessment of the measurement model. All indicator loadings exceeded the recommended threshold, ranging from 0.674 to 0.872. In addition, the AVE values (0.570-0.707) were above the minimum criterion of 0.50, confirming convergent validity. The constructs also demonstrated strong internal consistency, as evidenced by CR values ranging from 0.839 to 0.900 and Cronbach's alpha values ranging from 0.824 to 0.896.

Table 3. Fornell-Larcker (HTMT) Criterion

	CEC	**GPI**	**GSCM**	**STP**
CEC	0.755			
GPI	0.301(0.338)	0.782		
GSCM	0.604(0.672)	0.542(0.612)	0.841	
STP	0.364(0.420)	0.264(0.293)	0.380(0.425)	0.764

Source: Authors' own work (2026).

Table 3 presents the assessment of discriminant validity using the Fornell-Larcker criterion and the Heterotrait-Monotrait ratio (HTMT). The square roots of the AVE values (diagonal elements) for CEC (0.755), GPI (0.782), GSCM (0.841), and STP (0.764) were greater than their corresponding inter-construct correlations, satisfying the Fornell-Larcker criterion. In addition, all HTMT values (reported in parentheses) ranged from 0.293 to 0.672, remaining well below the recommended threshold of 0.85. These findings indicate that each construct is empirically distinct from the others, thereby confirming adequate discriminant validity of the measurement model.

Table 4. Effect of Endogenous Variables

Hypothesis	**Variables**	**Beta**	**SE**	**t-statistics**	**p-value**	**Decision**
H1	CEC → GPI	0.301	0.092	3.263	0.001	Supported
H2	GPI → STP	0.083	0.117	0.706	0.480	Not Supported
H4	CEC → GSCM	0.604	0.058	10.322	0.000	Supported
H5	GSCM → STP	0.335	0.119	2.820	0.005	Supported
H7	CEC → STP	0.227	0.059	3.849	0.000	Supported

Note: CEC = Circular Economy Capability; GPI = Green Process Innovation; GSCM = Green Supply Chain Management; STP = Sustainable Tourism Performance; β = standardized path coefficient; SE = standard error.
Source: Authors' own work (2026).

Table 4 reports the direct effects among the study constructs. The results indicate that CEC significantly influenced GPI, GSCM, and STP, with the strongest effect observed on GSCM ($\beta = 0.604$, $p < 0.001$). In addition, GSCM had a significant positive effect on STP ($\beta = 0.335$, $p = 0.005$). However, the relationship between GPI and STP was not significant ($p = 0.480$). Consequently, four of the five direct hypotheses were supported, underscoring the importance of circular economy capability and green supply chain management in driving sustainable tourism performance.

Table 5. Effect of Exogenous Variables

Hypothesis	**Variables**	**Beta**	**SE**	**t-statistics**	**p-value**	**Decision**
H3	CEC → GPI → STP	0.025	0.045	0.555	0.579	Not supported
H6	CEC → GSCM → STP	0.202	0.080	2.533	0.011	Supported

Note: CEC = Circular Economy Capability; GPI = Green Process Innovation; GSCM = Green Supply Chain Management; STP = Sustainable Tourism Performance; β = standardized path coefficient; SE = standard error.
Source: Authors' own work (2026).

Table 5 reports the indirect effects among the study constructs. The mediating role of GPI in the relationship between CEC and STP was not supported ($p = 0.579$), whereas GSCM significantly mediated the effect of CEC on STP ($\beta = 0.202$, $p = 0.011$). Thus, only H6 was supported, indicating

that GSCM serves as a significant mechanism through which circular economy capability enhances sustainable tourism performance.

Table 6 Coefficient of Determination (R^2)

Endogenous Variable	R^2	R^2 Adjusted
GPI	0.091	0.083
GSCM	0.364	0.359
STP	0.149	0.134

Note: GPI = Green Process Innovation; GSCM = Green Supply Chain Management; STP = Sustainable Tourism Performance.
Source: Authors' own work (2026).

Table 6 presents the coefficient of determination (R^2) for the three endogenous constructs. CEC explained 36.4% of the variance in GSCM, reflecting a moderate explanatory power and underscoring the central role of circular economy capability in shaping organisations' green supply chain practices. In contrast, CEC explained only 9.1% of the variance in GPI, indicating that internal innovation processes are influenced by factors beyond circular economy capability alone. For STP, the combined effects of CEC, GPI, and GSCM explained 14.9% of the variance, a relatively modest level of explanatory power that suggests sustainable tourism performance is shaped by a broader set of determinants not captured within the present model.

Table 7 Effect Size (f^2)

Path	f^2	Effect Size
CEC → GPI	0.100	Small
CEC → GSCM	0.573	Large
GPI → STP	0.006	None
GSCM → STP	0.093	Small

Note: Effect size interpreted following Cohen's (1988) thresholds: ≥ 0.02 = small, ≥ 0.15 = medium, ≥ 0.35 = large.
Source: Authors' own work (2026).

Table 7 reports the effect sizes (f^2) for each structural path. The path from CEC to GSCM produced a large effect size ($f^2 = 0.573$), confirming that circular economy capability is a substantial driver of green supply chain management and reinforcing its position as the strongest relationship within the model. The path from CEC to GPI yielded a small effect size ($f^2 = 0.100$), while GSCM's effect on STP was likewise small ($f^2 = 0.093$), though still meaningful given its statistically significant path coefficient. By contrast, the effect of GPI on STP was negligible ($f^2 = 0.006$), corroborating the non-significant path coefficient reported in Table 4 and indicating that green process innovation contributes minimally to explaining variance in sustainable tourism performance once the other constructs are accounted for.

Table 8 Predictive Relevance (Q^2predict)

Endogenous Variable	Q^2predict	RMSE	MAE
GPI	0.058	0.984	0.829
GSCM	0.344	0.824	0.663
STP	0.104	0.960	0.795

Note: Q^2predict values were obtained using the PLSpredict procedure with 10-fold cross-validation.
Source: Authors' own work (2026).

Table 8 presents the predictive relevance of the model, assessed using the PLSpredict procedure. All three endogenous constructs returned Q^2predict values greater than zero (GPI = 0.058, GSCM = 0.344, STP = 0.104), indicating that the model possesses predictive relevance for each construct beyond what would be expected by chance. Consistent with the R^2 and f^2 results, GSCM exhibited the highest predictive relevance, followed by STP and GPI, confirming that the model is most effective at predicting

green supply chain management outcomes and comparatively weaker, albeit still adequate, at predicting green process innovation and sustainable tourism performance.

Taken together, the R^2, f^2, and Q^2predict results indicate that the structural model demonstrates adequate explanatory and predictive capability, with circular economy capability's influence on green supply chain management emerging as the most robust relationship across all three criteria, while its influence on green process innovation and the subsequent path to sustainable tourism performance remain comparatively weaker.

5. Discussion

The findings indicate that circular economy capability plays a significant role in advancing sustainable tourism transformation within Indonesian tourism organisations. Tourism organisations with stronger circular economy capabilities exhibited higher levels of green process innovation, green supply chain management, and sustainable tourism performance, highlighting the strategic importance of resource efficiency and sustainability-oriented operational practices in driving organisational sustainability outcomes (Cecilio, 2023; Erdiaw-Kwasie et al., 2023). This result supports the view that sustainability transformation is increasingly shaped by internal organisational capabilities that enable firms to integrate environmental considerations into their operational and strategic activities (Da Giau et al., 2020). In emerging tourism destinations, circular economy capability appears to provide a foundation for balancing competitiveness and environmental responsibility through more adaptive and resource-conscious management approaches (Basrowi et al., 2026; Panackal et al., 2026).

The study also confirms that circular economy capability significantly enhances green process innovation, suggesting that organisations with stronger sustainability-oriented capabilities are more likely to introduce environmentally friendly operational improvements (Pace, 2016). This finding is consistent with previous studies indicating that environmental capabilities encourage the development of green innovation practices and sustainability-oriented operational systems (Bhatia, 2021; Bhatti et al., 2023; Ferdowsi & Rashidi, 2026; Repáraz & Pérez, 2024). However, contrary to expectations, green process innovation did not significantly influence sustainable tourism performance and failed to mediate the relationship between circular economy capability and sustainability outcomes. This finding suggests that although tourism organisations may adopt environmentally oriented process improvements, such initiatives may not immediately translate into broader sustainability outcomes at the destination level (Wedari & Alfian, 2024). One possible explanation is that process innovations primarily focus on internal operational efficiency, whereas sustainable tourism performance reflects wider economic, environmental, and social outcomes that require collective participation from multiple stakeholders (Jacob et al., 2010; Arya et al., 2024). Consequently, the benefits of green process innovation may remain limited when sustainability initiatives are not accompanied by stronger coordination across the tourism ecosystem.

In contrast, green supply chain management was found to exert a significant positive effect on sustainable tourism performance and significantly mediate the relationship between circular economy capability and sustainability outcomes. This finding highlights the importance of sustainability integration across tourism value chains and stakeholder networks, extending beyond internal organisational practices alone (Marchi et al., 2026; Palazzo et al., 2021; Wang et al., 2020). Tourism organisations that collaborate with suppliers, local communities, and service partners in implementing environmentally responsible practices are more likely to achieve broader sustainability outcomes that contribute directly to destination performance (Dibra et al., 2026; Kumar et al., 2025; Özdemir-Güzel & İzdeş-Terkoğlu, 2025; Tehseen et al., 2024). Similar conclusions were reported by Ahmed (2023), who found that the successful implementation of green supply chain management depends on coordinated sustainability practices among organisational stakeholders. Likewise, Lyu et al. (2025) demonstrated that collaborative supply chain mechanisms strengthen performance outcomes through enhanced integration and coordination across network partners. These findings reinforce the argument

that sustainability performance in tourism is more likely to emerge when environmental initiatives are embedded within broader stakeholder relationships rather than confined to internal organisational processes.

The significant mediating role of green supply chain management further suggests that circular economy capabilities generate greater sustainability benefits when translated into coordinated sustainability practices across the wider tourism ecosystem (Sunarya et al., 2023; Tran et al., 2020; Lyu et al., 2025). This finding supports the view that circular economy principles become more effective when organisations extend sustainability efforts beyond their internal boundaries and engage suppliers, communities, and institutional actors in achieving common environmental objectives (Liu et al., 2026). The result is also in line with Wang et al. (2020), who emphasised the importance of inter-organisational coordination mechanisms in transforming sustainability-oriented capabilities into tangible performance outcomes. Therefore, the contribution of circular economy capability to sustainable tourism performance appears to be realised primarily through collaborative sustainability practices rather than through internal innovation efforts alone.

Additional evidence from the structural model assessment supports these findings. Circular economy capability demonstrated stronger explanatory and predictive relevance for green supply chain management than for green process innovation, further confirming that sustainability-oriented coordination represents the primary pathway through which circular economy capability contributes to tourism sustainability. Collectively, the findings suggest that sustainable tourism transformation depends not only on the development of internal sustainability capabilities but also on the ability of tourism organisations to coordinate environmentally responsible practices across stakeholder networks.

Overall, the study demonstrates that while internal green innovation remains an important component of sustainability strategies, sustainable tourism performance is more strongly influenced by collaborative sustainability efforts involving suppliers, local communities, government institutions, and tourism partners. For tourism managers, these findings highlight the importance of combining circular economy initiatives with stronger stakeholder collaboration to maximise sustainability outcomes across tourism destinations.

6. Conclusion

This study examined the relationships among circular economy capability, green process innovation, green supply chain management, and sustainable tourism performance in Indonesian tourism organizations. The findings demonstrate that circular economy capability serves as a key driver of sustainable tourism performance, both directly and indirectly through green supply chain management. In addition, circular economy capability was found to positively influence green process innovation and green supply chain management. However, while green process innovation was enhanced by circular economy capability, it did not significantly contribute to sustainable tourism performance or mediate the relationship between circular economy capability and sustainability outcomes. By contrast, green supply chain management significantly improved sustainable tourism performance and acted as a significant mediating mechanism, highlighting the importance of stakeholder collaboration and sustainability integration across tourism value chains.

These findings contribute to the sustainable tourism literature by demonstrating that the effectiveness of circular economy initiatives depends not only on internal organizational capabilities but also on their translation into coordinated sustainability practices across tourism networks. From a practical perspective, tourism managers should prioritize the development of circular economy capabilities alongside stronger supply chain collaboration to maximize sustainability outcomes. Nevertheless, this study is limited by its cross-sectional design and focus on tourism organizations within a single national context, which may constrain the generalizability of the findings. Future studies are encouraged to employ longitudinal designs, comparative cross-country analyses, or additional

contextual variables to further examine the mechanisms through which circular economy practices contribute to sustainable tourism performance under different institutional and destination settings.

Declaration of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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