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Research Article

Enhancing Sustainable Performance in Hotel Industry: Supplier Innovativeness and Supply Chain Integration

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ABSTRACT

The hotel industry relies on supply chain to deliver value added products and services, therefore selecting suppliers significantly affects the company's competitiveness in the market to improve sustainability performance. This research is important to determine how supplier innovativeness can improve sustainable performance. It provides a new contribution in assessing the influence of supplier innovativeness and supply chain integration on sustainable performance in the hotel industry, however their combined impact remains underexplored. The study examines the effect of supplier innovativeness on sustainable performance by focusing on the mediating role of supply chain integration in the hotel industry. The study employed a non-probability sampling method using a purposive sampling technique. The sample was selected based on the criterion that respondents held managerial or equivalent positions, as they were responsible for decision-making in hotel operations. A total of 111 respondents participated in the study and the hypotheses were analysed using SmartPLS software. Supplier innovativeness has a significant effect on supply chain integration and also contributes significantly to the improvement of sustainable performance. Indirectly, supplier innovativeness also significantly impacts sustainable performance through supply chain integration. Supply chain integration partially mediates the relationship between supplier innovativeness and sustainable performance. Emphasizing these factors can help hotels to achieve their sustainability goals, offering valuable insighs for managers and policymakers. Hotel managers should actively engage in partnerships with innovative suppliers and invest in strengthening integration across their supply chains. This research contributes to the growing body of literature on sustainable supply chain management, particularly within the hospitality industry.

Keywords: supplier innovativeness, sustainable performance, supply chain integration, hotel industry

INTRODUCTION

In recent years, the global hospitality industry has come under mounting pressure to align its operations with the principles of sustainable development, spurred by escalating environmental concerns, regulatory demands, and evolving stakeholder expectations. As one of the most resource-intensive and environmentally impactful sectors, hospitality—particularly the hotel segment—occupies a pivotal position in advancing sustainability within the broader tourism ecosystem. Hotels consume vast amounts of energy and water, generate significant waste, and contribute to carbon emissions, making them both a challenge and an opportunity in the global sustainability

agenda. Consequently, the industry is increasingly viewed not only as a driver of economic growth but also as a key actor in environmental stewardship and social responsibility.

The rapid growth of hotels in Indonesia exemplifies this global trend, largely fueled by the continued rise in tourist arrivals. By the end of December 2023, tourist visits to Indonesia reached 11.68 million, marking a 20% increase from 2022 [1]. During the same period, the number of registered hotels in Indonesia stood at 29,005 [1]. While this rapid hotel development has contributed positively to economic growth by supporting the tourism sector, it has also posed environmental challenges [2], such as increased pollution, higher waste production, biodiversity disruption, declining environmental quality, and the overexploitation of water and other natural resources [3].

The growth of hotels, which indirectly affects environmental conditions, has prompted stakeholders to demand that hotels pay greater attention to environmental issues. To assess whether hotels contribute positively to the environment rather than focusing solely on profit, it is essential to evaluate their overall performance—encompassing environmental, social, and economic dimensions—commonly referred to as sustainable performance [4]. Achieving sustainable performance requires innovation in fulfilling hotel operational needs, particularly through sustainable practices by suppliers and the provision of excellent service to consumers. Excellent service and innovation in hotel management are key strategic factors that determine a hotel's competitiveness in a dynamic market. These elements not only enhance operational efficiency but also create added value for customers, which, in turn, positively impacts overall company performance [5], [6], [7]. Additionally, when suppliers offer innovative services, it is crucial to assess whether supply chain integration encourages more innovative supplier practices and strengthens buyer-supplier relationships [8].

Previous studies have demonstrated that supplier innovation plays a critical role in supply chain integration, particularly in adapting to market changes and enhancing the efficiency of business processes [9]. Effective integration between hotels and their suppliers through innovative approaches has been demonstrated to support organisational performance and enhance competitive positioning within the hospitality industry [10]. Accordingly, this study considers supply chain integration in the hotel–supplier relationship as a key factor influencing suppliers' propensity to innovate, thereby enhancing a hotel's ability to achieve sustainable performance [11]. This research determines how supplier innovativeness can improve sustainable performance. Many hotels also choose to outsource certain service activities. Examining the impact of supplier innovation on the hotel sector is also relevant to customers [12]. This study explores the relationship between supply chain dynamics and supplier innovativeness, aiming to uncover prevailing perceptions and address a gap in the existing literature regarding the integration of sustainable performance within the hotel industry. Despite its significance, research in this domain remains limited. Notably, Palang and Tippayawong [13] offer a compelling assertion that underscores the importance of considering multiple dimensions of performance. Their perspective highlights the need to enhance the supply chain's capabilities and competitiveness to effectively support sustainable initiatives.

Sustainable Performance

Sustainable performance refers to an organization's ability to conduct its operations in a manner that not only enhances shareholder value but also integrates social, economic, and environmental responsibilities [14], [15], 16]. This multidimensional concept is typically assessed through three key performance areas. Economic performance evaluates a company's financial health, profitability, and overall economic impact [17]. Environmental performance reflects how effectively a company manages resources, energy consumption, and waste [18]. Meanwhile, social performance encompasses the organization's approach to social issues, including labor practices, community engagement, supply chain ethics, and the protection of human rights [19].

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By adopting a sustainability-oriented performance framework, companies can critically assess their operations and implement improvements that extend across the supply chain—enhancing both social and environmental outcomes while continuing to deliver value to shareholders [4]. Achieving this balance, however, requires more than just evaluation; it demands innovation and the development of sustainable strategies that align with stakeholder expectations. In this context, the role of supply management becomes particularly significant. Innovation often originates from suppliers, making the supply chain a vital source of new ideas and sustainable practices [20]. Therefore, supply chain strategies must be thoughtfully designed and executed—not only to improve sustainability performance but also to establish a lasting competitive advantage.

Supplier Innovativeness

Supplier innovativeness refers to a supplier's ability to be innovative, thereby expanding the possibilities for idea generation and opportunity exploration [21]. This innovation is achieved by making investments in new technology or procedures to enhance responsiveness in meeting the rapidly evolving needs of the market and customers [5], [21], [22], [23]. Supplier innovativeness enables manufacturers to access higher-quality components at lower costs, thereby improving overall product performance [24]. Moreover, supplier innovativeness fosters collaboration between companies and their suppliers, strengthening buyer-supplier relationships. It facilitates faster resolution of issues and improves partnership quality by enhancing information exchange and trust [21], [25]. While companies may focus on encouraging suppliers to adopt innovative practices, the effectiveness of these efforts depends on the follow-up actions of other key supply chain partners to ensure proper coordination, synchronization, and integration [25].

Supplier innovativeness influences hotels' implementation of internal innovations, which in turn impact hotel sales and profits—key indicators of the economic dimension of sustainable performance [26], [27]. Increased sales driven by innovation contribute to greater sustainable performance, as they enable hotels to allocate more resources toward sustainability initiatives and offer services that address ethical and social concerns [5].

Based on the above literature, the following hypothesis is proposed:

H1: *Supplier innovativeness has a significant effect on sustainable performance.*

Supply Chain Integration

Supplier innovation not only enhances process and product innovation but also creates greater opportunities for interaction between suppliers and buyers within the supply chain. Seo et al. [28] state that innovation tends to increase knowledge sharing across the company and its supply chain partners. A company's ability to innovate facilitates internal integration and collaboration with supply chain partners in managing technology and operations [9], thereby promoting closer integration [5]. Such closely integrated supply chain partners are described as exhibiting supply chain integration (SCI). SCI refers to a company's capability to effectively coordinate and manage relationships between the organization, its suppliers, and its customers [29], [30], [31], [32].

Customer integration fosters long-term relationships and enhances overall customer satisfaction. It involves aligning a company's supply chain with its key customers through established networks and communication channels [33]. Companies that actively involve customers in their operations and supply chain management are more likely to achieve higher profitability by delivering quality products and services while also addressing social and environmental sustainability concerns [34]. Integration with downstream partners not only enhances product quality but also keeps companies informed and knowledgeable by allowing them to gather insights into customer needs and preferences [35]. The information collected from customers becomes valuable knowledge for companies, providing insights into market conditions and customer needs [36]. Moreover, customer-driven pressure can

influence supply chain practices that enhance sustainable performance [37]. According to Kang et al. [38], supplier integration can be achieved through long-term strategic relationships that involve information sharing, collaborative planning, and joint service development, all of which support the implementation of sustainability practices. Consequently, supplier integration contributes to improved sustainable performance. As noted by [39], achieving sustainable performance requires companies to depend on the contributions of all supply chain members.

The findings of Fantazy, Kumar and Kumar [40] suggest that supply chain practices related to strategic purchasing and supplier integration can enhance hotel performance, particularly in terms of customer satisfaction and financial outcomes, thereby contributing to both the economic and social dimensions of sustainability. The positive impact on a hotel's economic performance may also stem from its business relationships with other firms, such as suppliers [41]. In this context, supply chain integration has been shown to positively influence sustainable performance [38]. Empirical studies have demonstrated a strong positive correlation between supply chain integration and improved organizational performance [38], [42], [43]. Therefore, considering the literature and previous research, we propose the following hypotheses:

H2: *Supplier innovativeness has a significant effect on supply chain integration*
H3: *Supply chain integration has a significant effect on sustainable performance*

Supply chain integration is widely recognized as a critical enabler of supplier innovation. While supplier innovativeness contributes significantly to sustainable performance, its impact may be limited when operating in isolation. To translate innovation into tangible outcomes, it must be supported by practical supply chain activities, shared knowledge, and coordinated practices among stakeholders [28]. The effectiveness of supplier innovativeness is amplified in environments where strong internal and external integration exists across all supply chain members. In such contexts, higher levels of supplier innovativeness are often accompanied by greater supply chain integration, which in turn fosters improved sustainable performance. Empirical studies have demonstrated that innovativeness influences supply chain performance indirectly through the mediating role of supply chain integration [5], [28]. This suggests that integration not only facilitates the flow of innovation but also strengthens its contribution to sustainability outcomes.

Based on this rationale, the following hypothesis is proposed:

H4: *Supply chain integration mediates the relationship between supplier innovativeness and sustainable performance.*

METHODS

The population in this study consisted of hotel managers, assistant managers, or equivalent positions from 122 hotels in Padang City, comprising both starred and non-starred hotels [44]. However, the exact number of managers or

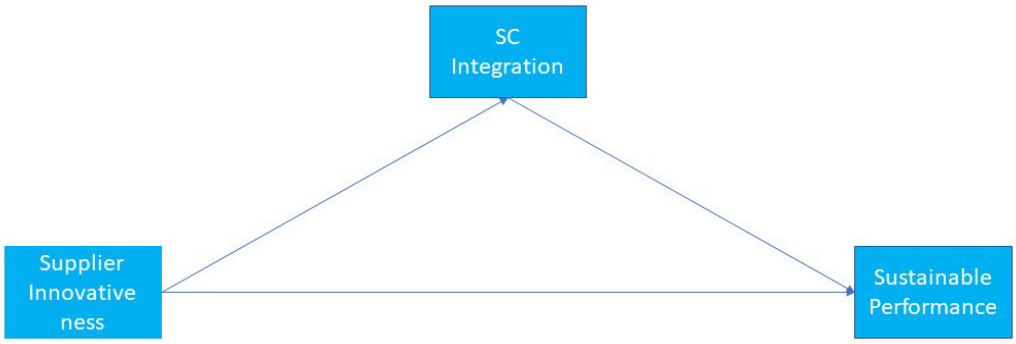

Figure 1. Conceptual Framework

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equivalent personnel per hotel is unknown, making it impossible to determine the total population size. Consequently, the study employed a non-probability sampling method using a purposive sampling technique. The sample was selected based on the criterion that respondents held managerial or equivalent positions, as they were responsible for decision-making in hotel operations. A total of 111 respondents participated in the study. Data were collected through a survey using a structured questionnaire. The measurement items were adopted in their entirety from previous studies (Table 1). Supplier innovativeness was measured using eight items, and supply chain integration was measured using thirteen items, both adapted from [5]. Sustainable performance was measured using

Tabel 1. Measurement Items

Item Number	Item description
Supply Chain Integration (SCI) [5]	
SCI1	We maintain cooperative relationships with our outsourcing suppliers.
SCI2	We help our outsourcing suppliers to improve their quality.
SCI3	We maintain close communication with outsourcing suppliers about quality considerations and design changes.
SCI4	Our outsourcing suppliers are actively involved in our new product and development process.
SCI5	Our key outsourcing suppliers provide input into our product development projects.
SCI6	We strive to establish long-term relationships with outsourcing suppliers.
SCI7	We actively engage outsourcing suppliers in our quality improvement efforts.
SCI8	We are frequently in close contact with our customers.
SCI9	Our customers give us feedback on our quality.
SCI10	Our customers are actively involved in our product design process.
SCI11	We work as a partner with our customers.
SCI12	We strive to be highly responsive to our customers' needs.
SCI13	We regularly survey our customers' needs.
Supplier Innovativeness (SI) [5]	
SI1	In new product and service introductions, our service providers are often first-to-market.
SI2	In comparison with their competitors, the outsourcing suppliers have introduced more creative and useful products and services in the past three years.
SI3	The external providers aggressively market their product innovativeness.
SI4	In new product and service introduction, the service providers are at the leading edge of technology.
SI5	The external providers are constantly improving their manufacturing processes.
SI6	The external providers change production methods at a great speed in comparison with their competitors.
SI7	During the past three years, the external providers have developed many new management approaches.
SI8	When the external providers cannot solve a problem using conventional methods, they improvise with new methods.
Sustainable Performance (SP) [45]	
SP1	Compared to the last three years, there has been an increase in sales.
SP2	Compared to the last three years, there has been a decrease in energy consumption costs.
SP3	Compared to the last three years, there has been a reduction in costs for waste handling.
SP4	Compared to the last three years, there has been a reduction in air/wastewater/solid waste emissions.
SP5	Compared to the last three years, there has been a reduction in air/wastewater/solid waste emissions.
SP6	Compared to the last three years, there has been an increase in compliance with environmental standards.

six items adopted from [45]. Based on the literature, the initial questionnaire was created in English and then translated into Indonesian. To ensure that every item accurately conveyed the intended concept, management and operations management specialists reviewed the translated version.

Partial Least Squares Structural Equation Modelling (PLS-SEM) is used in this work. Due to its powerful prediction capabilities for data analysis and hypothesis testing within suggested models, PLS-SEM has gained academic relevance, particularly in the domains of operations management [46]. Due to its reliability in managing data, the ability to assume data distributions that do not have to be normal, and adaptability in evaluating complex reflective models, PLS-SEM was chosen for this study. Furthermore, since PLS-SEM is predictive, this method is particularly suitable and adequate for investigating causal relationships between components [47]. SmartPLS was used to assess both the measurement model and the structural model. The validity and reliability of the research tools are evaluated using the measurement model in PLS-SEM. Cronbach's alpha and composite reliability are frequently used to quantify reliability, which refers to the internal consistency of the construct's components. The capacity to create composite constructs is a key advantage of partial least squares structural equation modelling (PLS-SEM) over other covariance-based structural equation modelling (CB-SEM) tools, which may omit pertinent indicator variables and thereby diminish construct validity. Additionally, as a contemporary and reliable criterion for evaluating discriminant validity, PLS-SEM uses the heterotrait-monotrait (HTMT) ratio of correlations [48].

RESULT AND DISCUSSION

The research data analysis used Structural Equation Modelling (SEM) with SmartPLS software to evaluate the relationship between multi-item constructs [49]. PLS-SEM is also a flexible approach used for exploratory, confirmatory, and predictive models [50]. The first part of the research analysis tests validity and reliability (measurement model), while the second part presents the results of hypothesis testing (structural model).

Measurement Model

The initial evaluation of the measurement model aimed at assessing convergent and discriminant validity. Convergent validity was examined using outer loading values, construct reliability-CR, and Average Variance Extracted-AVE. According to established criteria, convergent validity is considered acceptable when outer loading values exceed 0.6, CR values are greater than 0.7, and AVE values surpass 0.5 [51].

In the preliminary analysis, several indicators were identified with outer loading values below the recommended threshold of 0.6 and were excluded from further analysis. The removed items included SI2, SI3, SI8, SCI3, SCI5, SCI7, SCI9, SCI11, SCI13, and SP1. All of the remaining items' outer loading values improved after these low-loading indications were eliminated, with all values above the 0.6 criterion, thereby improving the measurement quality overall. The results of the convergent validity assessment, as shown in Table 2, indicate that all item loadings are above 0.6. Furthermore, AVE values ranged from 0.523 to 0.696, and CR values fell between 0.845 and 0.902, implying strong internal consistency and adequate convergent validity across the constructs.

The Fornell and Larcker criterion was used to evaluate discriminant validity, as convergent validity was already satisfied. With this approach, the correlations between each construct and every other construct in the model are compared with the square root of the Average Variance Extracted (AVE) for each construct. When each construct is empirically different from the others and the square root of the AVE is more than the corresponding inter-construct correlations, discriminant validity is deemed sufficient.

Table 3 demonstrates that the correlation coefficients (diagonal values) are less than the square root values of the AVE for each component. This result indicates that each construct is sufficiently different from the others, confirming

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Table 2. Convergent Validity

Construct	Items	Loading	CR	AVE
Supply Chain Integration	SCI1	0.724	0.887	0.530
	SCI10	0.707		
	SCI12	0.769		
	SCI2	0.817		
	SCI4	0.661		
	SCI6	0.701		
	SCI8	0.708		
Supplier Innovativeness	SI1	0.742	0.845	0.523
	SI4	0.680		
	SI5	0.793		
	SI6	0.676		
	SI7	0.719		
Sustainable Performance	SP2	0.816	0.902	0.696
	SP3	0.831		
	SP4	0.856		
	SP5	0.835		

Table 3. Discriminant validity (Fornell–Larcker criterion)

	SC Integration	Supplier Innovativeness	Sustainable Performance
SC Integration	**0.728**		
Supplier Innovativeness	0.567	**0.723**	
Sustainable Performance	0.519	0.609	**0.835**

Table 4. Discriminant validity (Heterotrait-Monotrait Ratio -HTMT)

	SC Integration	Supplier Innovativeness	Sustainable Performance
SC Integration			
Supplier Innovativeness	0.617		
Sustainable Performance	0.531	0.733	

Table 5. R Square

	R Square	R Square Adjusted
SC Integration	0.321	0.315
Sustainable Performance	0.415	0.405

that the discriminant validity requirements have been satisfied. In addition to meeting the discriminant validity criteria based on the Fornell and Larcker approach, this study also fulfills the Heterotrait-Monotrait Ratio (HTMT) criterion. Based on Table 4, All HTMT values are ≤ 0.85, indicating a strong level of discriminant validity [52]. This suggests that the constructs are clearly distinct and there are no issues of conceptual overlap between them.

Structural Model

Having confirmed the reliability and validity of the construct measures, the next step involved assessing the structural model by evaluating its explanatory and predictive power. The coefficient of determination (R^2) was examined to assess the explanatory power of the proposed model, as illustrated in Figure 1. The R^2, a measure of the

Tabel 6. F Square

	SC Integration	Supplier Innovativeness	Sustainable Performance
SC Integration			0.076
Supplier Innovativeness	0.474		0.250
Sustainable Performance			

model's predictive accuracy, is a key indicator of the proportion of variance in the endogenous variables that can be attributed to the exogenous variables. As shown in Table 5, the structural model accounts for 32.1% of the variance in supply chain integration and 41.5% of the variance in sustainable performance. These figures underscore the model's predictive power, reinforcing the importance of the findings for supply chain ontegration and sustainable performance.

According to [53], R^2 values above 0.67, 0.33, and 0.19 are generally interpreted as indicating "substantial," "moderate," and "weak" explanatory power, respectively. Based on these thresholds, the R^2 values reported in Table 5 suggest a moderate level of explanatory power in predicting supply chain integration and sustainable performance. Additionally, the F^2 effect size can be used to assess the contribution of exogenous variables to the prediction of endogenous variables. Commonly accepted benchmarks classify F^2 values of 0.02, 0.15, and 0.35 as representing small, medium, and large effects, respectively.

As shown in Table 6, supplier innovativeness has a large impact on supply chain integration ($f^2 = 0.474$) and a medium effect on sustainable performance ($f^2 = 0.250$). These results not only confirm the substantial influence of supplier innovativeness on both constructs within the research model but also underscore the comprehensive and thorough nature of our research. Such values reinforce the structural robustness of the model and provide a strong basis for concluding that the relationships among the variables contribute meaningfully to the overall framework. In addition, supply chain integration has a negligible effect on sustainable performance ($f^2 = 0.076$), indicating a modest but still relevant contribution.

Before proceeding with hypothesis testing, it is essential to ensure that the structural model meets the criteria for an adequate model fit. To assess model fit, the Goodness-of-Fit (GoF) index proposed by [48] is utilized. The GoF value ranges from 0 to 1, with thresholds of 0.10 (small), 0.25 (medium), and 0.36 (large). The research GoF value is 0.4631, which is higher than the threshold for a big effect size. This result supports the notion that the research model aligns with the data, Fulfils the evaluation requirements, and confirms the feasibility of continuing hypothesis testing. Table 7 displays the specific results of the hypothesis testing.

The results of the direct effect analysis among the research constructs indicate positive and statistically significant relationships. Hypothesis 1 (H1) confirms that supplier innovativeness has a significant influence on sustainable performance, with the effect being statistically significant at the 95% confidence level ($p = 0.000 < 0.05$). This finding underscores the crucial role of supplier innovativeness in driving sustainable performance. Hypothesis 2 (H2) also

Table 7. Hypothesis Test (Direct Effect)

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Result
Supplier Innovativeness -> SC Integration	0.567	10.222	0.000	Supported
Supplier Innovativeness -> Sustainable Performance	0.464	4.346	0.000	Supported
SC Integration -> Sustainable Performance	0.255	2.378	0.018	Supported
AVE x R^2	0.2145			
GOF = $\sqrt{\text{AVE x } R^2}$	0.4631			

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Table 8. Hypothesis Test (Indirect Effect)

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Result
Supplier Innovativeness -> SC Integration -> Sustainable Performance	0.145	2.210	0.028	Supported

demonstrates a positive and significant effect of supplier innovativeness on supply chain integration ($p = 0.000 < 0.05$), indicating that higher levels of supplier innovativeness are associated with improved sustainable performance in hotels. Hypothesis 3 (H3) reveals a significant positive impact of supply chain integration on sustainable performance ($p = 0.018 < 0.05$). These findings suggest that organisations that emphasise supply chain integration are more likely to develop adaptable and responsive supply chains, thereby facilitating the achievement of sustainable performance objectives.

Research on the indirect effects mediated by supply chain (SC) integration also reveals a positive and significant relationship (Table 8). Mediation occurs when a third variable—referred to as a mediator—facilitates or explains the relationship between an independent variable and a dependent variable. In this context, SC integration acts as the mediator, influencing how supplier innovativeness translates into sustainable performance. In this context, the mediator variable, SC integration, intervenes between supplier innovativeness and sustainable performance constructs. On the other hand, the results of the indirect analysis revealed that the mediator supply chain integration performs a statistically significant role in explaining the relationship between supplier innovativeness and sustainable performance at a significance of <0.05 with a p-value of 0.028 and a t-statistic of 2.210, which means H4 is accepted. In this study, supply chain integration functions as a partial mediation by producing better sustainable performance because, even directly, supplier innovativeness also has a significant effect on sustainable performance. The complete visual of the model can be seen in Figure 2.

Discussion

The study's results revealed a direct influence of supplier innovativeness on the sustainable performance of hotels in Padang City. This finding suggests that supplier innovativeness reflects suppliers' openness to new ideas and their ongoing efforts to enhance processes and services. Supplier innovation plays an important role in achieving sustainable performance because this innovation supports hotels in adopting environmentally friendly practices,

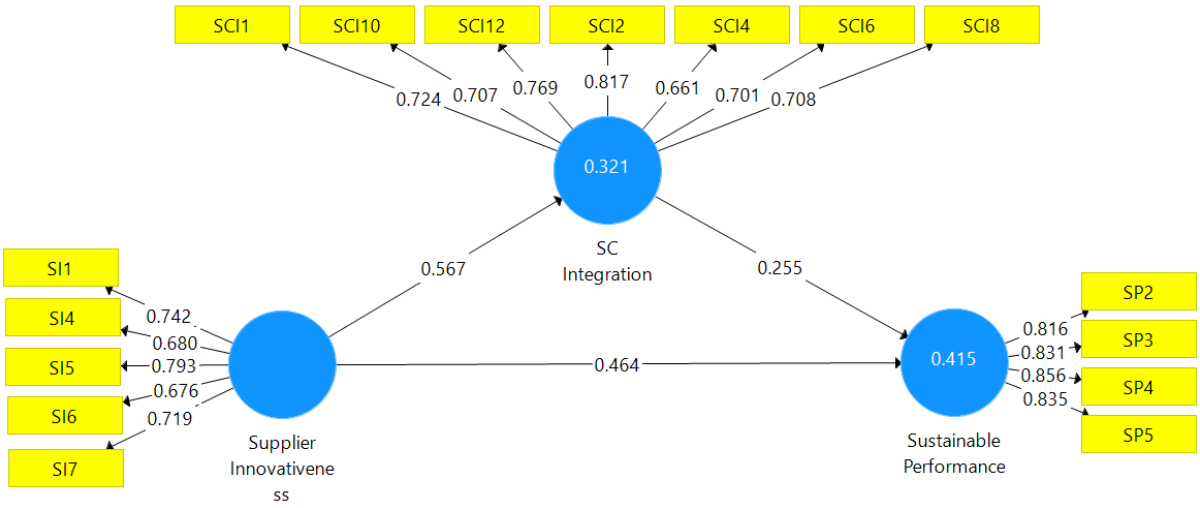

Figure 2. Research Model

increasing the efficiency of resource use, and developing products or services that are in accordance with the concept of sustainability. Supplier innovation can help hotels excel and become competitive in the market. This is reinforced by studies such as [5], which found that supplier innovativeness directly influences sustainable performance in the hotel sector and that this effect can be enhanced through supply chain integration. Similarly, supplier flexibility and ethical practices have been shown to improve procurement strategies and supply chain efficiency in hotels, thus enhancing sustainability efforts [54].

Through supplier innovativeness, energy-efficient technologies, sustainable raw materials, and technology-based operations, these benefits will become accessible. Supplier Innovativeness will help hotels reduce their environmental impact while enhancing their economic value. The result is relevant to the findings of [26], stating that supplier innovation encourages hotels to innovate internally, leading to improved economic performance. Furthermore, innovation will stimulate increased sales and operational efficiency, further supporting the social and environmental aspects of sustainable performance, as hotels are well-equipped to meet customers' social and environmental needs [5]. These results are supported by Aboelmaged [55], who found that eco-innovation and supplier collaboration positively influence hotel performance when aligned with environmental orientation.

Moreover, the use of green supply chain practices, including green purchasing and cooperation with suppliers, has been shown to significantly improve organizational performance in hotels [56]. Such practices not only reduce environmental harm but also increase operational efficiency and customer satisfaction, further supporting sustainability goals [57]. Therefore, supplier innovativeness can fortify a hotel's position as an organization committed to long-term sustainability.

This study's result justifies what is suggested by [58] [59], where sustainability and innovation are closely related. Additionally, the discoveries of this study are associated with the former study, where increased innovation will improve a company's sustainability performance [5], [9], [20]. This aligns with findings from Espino-Rodríguez and Taha [5], who demonstrated that supplier innovativeness directly contributes to sustainable performance, particularly when supported by trust and supply chain integration. Similarly, studies show that innovation and sustainability are interdependent, with innovation acting as a key driver for achieving sustainable outcomes in the hospitality industry [55] [60].

Additionally, the findings show that supplier innovativeness contributes to supply chain integration. Suppliers' innovativeness is more open to collaboration, information sharing, and the adoption of new technologies, all of which provide efficient improvements in the supply chain function. Suppliers and hotels can collaborate on various operational activities, which allows them to better predict and react to competitive threats [21], [61]. This is consistent with research highlighting that innovative suppliers enhance the reliability, flexibility, and responsiveness of supply chains, improving the overall agility and performance of hotels [54], [62].

It has been previously found that supplier innovativeness significantly increases the integration of the supply chain [5], [10], [28]. The innovation enhances information flow and cross-unit coordination, thereby strengthening cohesion and alignment throughout the entire supply chain. Research confirms that supply chain integration is improved through the use of sustainable and technologically advanced procurement practices, which also drive strategic alignment across hotel operations [56].

Additionally, supply chain integration is a crucial element in enhancing a company's sustainable performance. By fostering close collaboration between partners in the supply chain, including both suppliers (upstream) and customers (downstream), companies can create synergies in planning, decision-making, and implementing more efficient and environmentally friendly operational processes. Integration with customers and suppliers is a proven method to enhance performance [63], [64]. This is supported by Espino-Rodríguez and Taha [5], who found that

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customer and internal integration serve as key mediators in the link between supplier innovativeness and sustainability, emphasizing the role of trust and cross-functional coordination in enhancing performance.

Through integration, companies can share information in real-time, align sustainability goals, and collaborate on the development of environmentally and socially responsible products or services. This approach enables companies to reduce waste, a key responsibility in sustainability, increase energy efficiency, and accelerate the adoption of environmentally friendly practices throughout the supply chain process. Supporting this, Chamanthi et al. [56] confirmed that green supply chain management, which emphasizes collaboration and eco-design, enhances operational performance in hotels by reducing resource waste and promoting sustainable practices.

The empirical findings of this study support the assumption that establishing integrated relationships with external partners is a fundamental factor in enhancing performance, particularly in responding to uncertainties related to competitor actions and market demand. These findings are consistent with the research conducted by [5], [38], [42]. Tajpour et al. [62] similarly emphasized that integration across strategic partners enhances organizational agility and alignment with sustainability priorities, especially in family-owned hotel enterprises.

Furthermore, the results of this study indicate that supply chain integration serves as a partial mediator in the relationship between supplier innovativeness and hotel sustainable performance. This finding supports the argument that supplier-driven innovation requires collaboration and integration with other supply chain partners to be effectively implemented in a company's operational processes. In this context, Supply Chain Integration (SCI) serves as a critical enabler, facilitating the flow of information, coordination of activities, and alignment of strategic objectives among supply chain stakeholders. As highlighted by Aboelmaged [55], while direct effects of supplier collaboration on hotel performance may not always be evident, the indirect role through eco-innovation and internal integration is substantial.

Effective supply chain integration supports companies to adopt and internalize innovation from suppliers efficiently, such as implementing energy-efficient technologies, reducing waste, and developing environmentally friendly products or services. The Research finding of [28] is relevant to this study, as it identifies that supply chain integration mediates the relationship between supplier innovativeness and supply chain performance. In the hospitality industry, both customer integration and supplier integration emerge as salient mediators of sustainable performance, distinguishing this sector from others [5]. Customers actively participate in the hotel supply chain by offering crucial recommendations for the service delivery procedure, suggesting that customer integration may be more important than supplier integration in moderating the link between sustainable performance and supplier innovation. This is echoed by Fantazy et al. [65], who found that customer satisfaction and service quality are positively linked to strong supplier relationships and communication in hospitality supply chains. As a result, companies aiming to achieve sustainability should enhance their internal capabilities, in addition to leveraging external advancements from suppliers, to achieve comprehensive integration across all supply chain dimensions.

CONCLUSION

This study examined the impact of supplier innovativeness on sustainable performance in the hotel industry in Padang City, highlighting the mediating role of supply chain integration. The findings confirm that supplier innovativeness significantly enhances sustainable performance, and this effect is amplified when supported by integrated supply chain practices. Innovation alone is insufficient; its benefits are best realized through coordinated collaboration across supply chain partners. Hotels that actively engage with innovative suppliers and invest in integration mechanisms are better positioned to improve resource efficiency and reduce environmental impacts, reinforcing the importance of a holistic approach to sustainability.

Beyond its practical implications, this research contributes to the growing literature on sustainable supply chain management in hospitality by providing empirical evidence that integration strengthens the link between innovation and sustainability. Given the unique nature of hotel supply chains—encompassing both goods and services—tailored strategies are essential for effective implementation. However, the study's scope is limited to a single city with a relatively small sample, which may affect generalizability. Future research should expand to broader geographic areas and explore additional variables such as customer integration, digital technologies, and regulatory influences to deepen understanding of the mechanisms driving sustainable performance.

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DECLARATION OF AI TOOL USAGE

During the preparation of this manuscript, the author utilised Grammarly to generate text from selected paragraphs, enhancing the academic tone and clarity. All output generated by Grammarly was critically reviewed and thoroughly edited by the author to ensure clarity of expression and adherence to academic standards. The author takes full responsibility for the integrity and content of this manuscript.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this manuscript.

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