

Strategic Sustainability Transformation through Circular Economy Models in Boutique Hotels: A Comparative Regional Analysis

Puskar Singh Negi^{1*}, Anand Kumar Singh², Pankaj Kumar³

¹Assistant Professor at Delhi Skill and Entrepreneurship University, New Delhi, India. Email: Puskar.s.negi@dseu.ac.in, ORCID: <http://orcid.org/0009-0005-7029-642X>

²Professor Emeritus at Delhi Skill and Entrepreneurship University, New Delhi, India. Email: anand.k.singh@dseu.ac.in, ORCID: <http://orcid.org/0009000440220945>

³Associate Professor at Department of Tourism and Hospitality Management, Mizoram University, Aizawl, India. Email: pankajmatm@gmail.com, ORCID: <http://orcid.org/0000000214799787>

* Corresponding Author

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- Circular Economy
- Boutique Hotels
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- Waste Reduction
- Renewable Energy

Abstract

This paper conducts a relationship study between the adoption of circular economy (CE) and strategic sustainability transformation in boutique hotels, which contributes empirical evidence to the field of hospitality sustainability practices. Key dimensions of CE reviewed in the study are waste reduction, water reuse, renewable energy consumption, recycling initiatives and sustainable sourcing and the study assesses their impact on long-run strategic levels of sustainability. The sample comprised 150 boutique hotels that were studied with the help of a structured questionnaire and analysed with the assistance of descriptive statistics and Pearson correlation. The findings show that the level of the overall adoption of CE is high, but some variations can be identified in the adoption of separate practices. The positive relationship between CE adoption and strategic sustainability transformation was statistically significant ($r = 0.718$, $p < 0.01$), indicating a strong and statistically significant relationship between the two constructs with no implication of issue to sustainability performance of hotels that embrace CE ideas and practices. The results highlight the two-sided approach that adoption of CE becomes an environmental responsibility and a business strategy that can support a proprietress hotel (boutique) to move towards improved efficiency and environmental impact as well as competitive standing in a more environment-conscientious market. These findings are instructive to the managers of the hotel, policymakers, and practitioners of sustainability towards the necessity of integrating the principle of CE into their long-term Strategic Planning in order to cope with the regulatory provisions and unequalize with the global trends of sustainability. The research also adds up the literature that accumulates on CE in hospitality, providing a model that will further research on the sustainable change plans in the industry.

1. Introduction

There is a paradigm shift in the hospitality industry and especially the boutique hotels due to the environment and the limited availability of resources, which is adjusting the priority of businesses by changing consumer preferences. Along with it, Circular Economy (CE) principles, with its focus on resource loops, elimination of waste, and regenerative design, have become a corporate strategic framework of circularity-driven sustainability transformation in the industry. In comparison to the traditional take-make-dispose paradigm of production and consumption, CE embraces the principle of resources use and reuse as long as possible, which effectively represents the attitude of the boutique hotels, which are usually more focused on uniqueness, authenticity, and the experience value than on the mass production (Bittner, 2024). Such a synergy between the philosophy of CE and the identity of a boutique hotel fruitfully breeds the aptitude of incorporating the less-explored practice of innovations in sustainability that can not only strengthen environmental performance but also condition the line of brand differentiation along the horizon of a more competitive market.

As the recent literature emphasizes, CE in hospitality can be used to tackle various environmental issues, including waste disposal and resource consumption, as well as enhance the resilience of the operational design (Puig-Denia, 2025). The adoption process in the various regions, however, widely varies owing to distinctions in regulation structure, cultural attitudes and availability of resources. In the case of boutique hotels that may be operating at a smaller scale but with greater flexibility, the integration of CE may be used to provide agility in using some context-specific solutions like locally-sourced products, refurbishing furniture, water reuse systems, and the idea of zero-waste dining (Fonseca, 2025). These approaches do not only remove ecological footprints but enhance the discourses of authenticity and community involvement, which plays a key role in the branding of boutique hospitality.

Studies conducted empirically have outlined some of the channels through which a hotel can inculcate CE. These are circular procurement, waste-to-resource projects, energy recovery, and cooperative networks with the suppliers and the local communities (Dey et al., 2025). Notably, the reasons behind adoption of CE are not reduced to a duty of compliance; other reasons include a competitive edge, customer loyalty and operating efficiency. In case of boutique hotels, at which brand storytelling is central to customer experience, such practice as including CE practices in customer experience (e.g. showcasing upcycled interiors or offering sustainability-related guest activities) may become a unique selling point. However, still, there are some issues, such as a low level of technical

skills, capital shortage, and an absence of uniform performance indicators, especially at lower levels of business.

In the perspective of knowledge management, bibliometric analyses are useful to get insights into the development of the CE research within the hospitality field and the areas of gaps within the region. Bisson, et al. (2023) point out that although the volume of publications on an aspect of CE, hospitality has increased in Europe and Asia, there is limited literature on comparative studies across regions, particularly focusing on a niche in hospitality, a boutique hotel. Such a discrepancy is vital since policy environments, market maturity, and the expectations of the consumer may significantly affect the viability and the consequences of CE approaches. A regional comparative analysis will help the researcher reveal the best practices transferable in contexts and determine some context-specific adaptations that will be vital to successfully integrate CEs.

The boutique hotels which are owned and operated by the family heads could be of particular interest as a focus of the transformation of CE. As it is noticed by Puig-Denia (2025), the characteristics of a family business, including long-term orientation, stewardship values, and community interconnections, may also lead to sustainable innovation in tourism to a considerable extent. Such cultural and managerial alignment with the principles of CE could bring about greater compliance in commitment to environmental stewardship, in spite of there being no strong regulatory drives in this direction. On a similar note, Strippoli (2024) states that tourism frameworks of CE are most effective when they are related to Sustainable Development Goals (SDGs) so that the environmental projects are integrated into the more comprehensive socio-economic strategies. In the case of the boutique hotel, the concept of CE strategy would be ensuring that the reduction of waste generation implemented also takes into consideration the local livelihoods, the preservation of culture, and the health of ecosystems.

On a macro level, an increased consumer awareness and demand toward responsible tourism contribute to the speeding up of the incorporation of CE in the hospitality sphere (Sahin, 2024). There is also an increased demand among travellers to choose accommodations that correspond with their environmental preferences, applauding those hotels that are forthwith about their sustainability initiatives. Such trend is more profitable to be exploited by smaller boutique hotels that possess the ability to design physical and observable CE practices, e.g., the use of refillable toiletries, composting, and renewable energy sources. Such customer led impetus strengthens the business case behind CE translating into a virtuous cycle wholesomely which is that sustainability measures foster better positioning in the market and profitability which again creates means of other environmental innovation.

The examples found in the real world would demonstrate even more effectively that CE could successfully become a part of the boutique hotels operation in the context of various regions. Hotel Skeppsholmen in Stockholm, Sweden, uses holistic CE practice ideals by purchasing hydropower renewable energy, upcycling furniture made by Swedish 1950s designers, holding complete waste segregation regimes and collaborating with local charities in food waste reductions. Besides making the property have eco-friendlier thing on the environment, these initiatives also constitute the central experience of the guest base being regularly offered sustainability tours and informing the visitor with how its green practices work. Conversely, the presentation of the Asian picture illustrates special adaptations to the locale environmental and cultural circumstances. Bambu Indah in the Indonesian island of Bali, uses the concept of CE in its villas, which are built using teak salvaged wood, natural filters in its pools and a zero-waste restaurant whose ingredients are also grown in its organic gardens. The hotel contributes to on-site craftwork and the use of local materials, maximising their cultural authenticity and minimising their environmental footprint as an example of local adaptation of CE.

Nevertheless, there are still major gaps in the research on the scalability, costs, and measurable effect of CE models within the case of a boutique hotel. There is very little empirical data to support smaller and independent properties due to existing literature focused on the mainstream or large-scale operations of the hotels (Bittner, 2024; Bisson, et al., 2023). Moreover, not many studies how the CE strategies are modified to be responsive to regions with diverse socio-economic, cultural, and environmental contexts. Response to these gaps by a comparative regional study can provide actionable intelligence to those in both practice and policy, late in helping them to pursue strategized interventions that would aid sustainable transitions of boutique hospitality.

Against this background, the concern that this research tries to address is the strategic ability of boutique hotels in embracing the circular economy models, by focusing on cross-regional dynamics of comparison.

The research aims at providing insight into how the boutique hotel industry can go beyond incremental eco-efficiencies to a comprehensive level of sustainability transformation by combining multiple theoretical views, empirical evidence, and case-specific analyses. Through it, it will also help to enrich the existing literature on CE in tourism, fill in existing knowledge and practice gaps in the region and serve as a practical guideline to the boutique hoteliers wishing to become the first outpacing the competition with initiatives in sustainability in their travel businesses.

2. Review of Literature

1: Circular Economy Principles and Applications in the Hospitality Sector

There has been the increased interest in the integration of Circular Economy (CE) concepts into the hospitality industry over the past years, precipitated by the increase in environmental related issues, changing consumer demands as well as government pressure on companies to operate on a sustainable nature. CE brings about changes in hospitality practice transforming the linear traditionally taken model of take-make-dispose to being regenerative with emphasis on resource efficiency, reducing waste, and holding on to value. One of the CE specialises in the hospitality sector is the management of food waste considering that the scope of its impacts on the environment along with its operations cost implications is huge. The article by Cardenas et al. (2024) reveals the fact that there is a significant opportunity to minimize the sources of waste and maximize the number of ancillary results through circular food practices, encompassing composting, anaerobic digestion, redistribution partnerships, and so on. The operational practices are congruent with the general sustainability agenda as they address waste prevention as part and parcel of operational processes resulting in both environmental and reputational values to hotels.

The fact that the mapping of CE in hospitality research exists both on a theoretical and an empirical level further points to an immature yet diverse body of knowledge. Bibliometric analysis by Şahin et al. (2024) shows that in addition to the growing scholarly interest in CE in the context of tourism and hospitality, there is still no equal distribution of research results in terms of regions and subsectors, with specific attention to the relatively low popularity of research on boutique hotels that has not been used to pursue the agility of operations and niche innovation.

The post pandemic recovery period has increased the pressure on resource efficient, adaptive business models. Bowen et al. (2024) emphasize that small and medium-sized hospitality businesses (SMEs), such as boutique hotels, may use CE to enhance resilience through the diversification of supply chains, closed-loop procurement due to the integration of eco-innovation into guest services. However, these changes must deal with a certain set of obstacles, including the problem of a shortage of funds, lack of knowledge, and policy inconsistency. Likewise, Strippoli et al. (2024) integrate successful CE approaches in the tourism industry, finding a closed-loop material flow, adoption of renewable energy, and the design of services focused on longevity as their drivers regarding sustainable development advantages. They state they also have competitive benefits by adopting CE, in addition to environmental ones, such as improved brand equity and guest loyalty, and especially important to see in their review is that CE adoption advantages are particularly important in boutique hotels, whose competitors have a climate of competing on authenticity and green stories.

Thematic evolution and the gaps in implementation have been elucidated further in mapping studies. Veloz et al. (2025) develop a bibliometric mapping of CE in the hotel sector, showing research

clusters by using waste reduction, energy efficiency, and sustainable supply chains as examples, but also highlighting a lack of integrative frameworks that would unite environmental, social, and economic indicators. Such a gap indicates a necessity of cross-disciplinary practices and unified evaluation criteria at least in the case of small-scale hotels that cannot determine a sufficient data collection volume. Early conceptualisation and case studies found in historical perspectives, like in Juliao et al. (2018), have hence been identified in the early perspectives that have informed the later models of operation. Their conference paper highlights collaboration of stakeholders, including the suppliers and guests in order to promote circularity a fact that still holds when hospitality businesses highly demand experiences with sustainability that is co-created.

Resilience and natural capital perspectives enhance the conceptual basis of CE in the hospitality industry. Jones and Wynn (2019) state that CE principles not only contribute to environmental performance, but also help develop the resilience of organizations, decreasing the reliance on the fluctuating resource markets and developing the adaptation skills in regards to the climate risks. It concurring with modern models, whereby CE has been discussed as an environmental and even a strategic necessity. Further development of the concept, Dey et al. (2025) use a hybrid analytical approach to small and medium hotels and determine particular CE pathways including energy production on-site, modular units of the facility, and collaborative supply chains. As addressed by them in their research, although economies of scale can be acquired by larger chains of hotels, the SMEs tend to excel when it comes to being agile and quick in the implementation of localized solution of CE.

Nevertheless, adoption patterns depend not so much on the feasibility of operations but also on organizational psychology. Vaculčíková et al. (2025) incorporate into their work the paradox of situation where all hotels have solid sustainability intentions but perform little CE action which can then be assumed caused by cognitive dissonance, short-termism, and perceived guest resistance. To overcome these behavioural roadblocks, it is necessary to break them through some interventions, including employee training and campaigns that involve engaging the guest, and systems granting incentives based on circular performance. In the same line, technological innovations are also providing new possibilities of CE application. Mehrotra et al. (2024) shows how the technologies of future hospitality can apply in the setting of zero-waste (e.g., real-time food tracking solutions, AI-powered inventory management, and lean kitchen operations) to support not only waste reduction but also the responsibility of consumption. Data-driven decision-making that would be crucial in measuring the long-term effect of CE strategies is also made possible through these innovations.

In aggregate, these reports suggest that although CE in a hospitality environment is conceptually on sound footing and operationally shows great potential, there are disparities in the application of CE in hospitality, with a considerable lack of appropriate adaptation to the sector (particularly to boutique hotels). As a systematic adoption, multi-level integration is needed, or to be precise four co-plays, regulatory and industry collaboration, consumer education, and internal cultural change. Waste management Food waste management is also positioned as a portal to more comprehensive CE implementation, with perceivable benefits to the environment, as well as visible guest-facing sustainability stories.

Using bibliometric data, it is revealed that more comparative or longitudinal research is needed, especially in geographically and culturally diverse settings. The emphasis on risk reduction and sustainability is stressed in resilience-based approaches to CE, emphasizing resident psychological and technological approaches in relation to behaviour inertia and the utilization of innovation. In their case, about the boutique hotels, the task is to include these insights into consistencies, resource-adequate approaches, which are at the same time able to keep the commercial identity unaltered without being wasteful of the resources available. The synthesis of the empirical data, theoretical models and applied approaches throughout the literature used in this review helps to build thorough ground to comprehend the transformational power of CE in hospitality and preconditions further analysis in the explored themes of regional peculiarities of the changes in the second and third themes.

2: Strategic Sustainability Transformation in Boutique Hotels

Strategic sustainability transition within the boutique hotel sector involves an ambitious transition from linear environmentalism toward the incorporation of sustainability into the business concept and its long-term viability and competitive advantage in many cases, using the concept of circular economy (CE) as a framework. Using a grounded theory approach, Fonseca and Dias (2025) show that CE principles can be integrated into strategic planning by hospitality firms, and the emerging boutique hotels proved quick to spot tailor-made solutions that fit the image of their particular brand. In the same light, a multicase study undertaken by Rodriguez-Anton and Alonso-Alandia (2019) brings forth the idea that CE strategies are highly effective when they are in place across various domains of operations, such as energy, water, and waste, where the implementations are facilitated by the leaderships and their unambiguous communications.

When referring specifically to the Nordic culture, Holmberg and Konttinen (2023) indicate that introducing, even competitive, hotels are not unusual to include not just operational shifts inherent in strategic sustainability initiatives but also the direct marketing of the circular initiatives as a part of the brand story, which will help establish a better response and loyalty among the guests. In the case of a

boutique hotel, this level of transparency is especially important since authenticity and connections with the guests are a competitive advantage. A substantial part of the literature remains centered on corporate or macro-level hospitality, whereas the latest research concentrates on the forces of the sustainability change on a micro-level. According to He et al. (2024), education and awareness come out as major facilitators of sustainability-oriented behaviours, supporting the fact that high organizational knowledge base promoted increased CE adoption.

This is in line with the Rodriguez-Anton (2025) report, which argues that water recirculation, adoption of renewable energy, and food waste valorisation can also work as a driver of change in the system provided that they are coupled with an ongoing monitoring and feedback system. Nevertheless, as Kadio and Fernandes (2023) state, institutional and regulatory structures usually pose challenges to CE adaptation because of misalignment between specific and generic policies, funding gaps, and the inability to coordinate stakeholders, which are to be addressed by boutique hotels through the adaptive governance approach and collaboration with the local community.

Deliberate innovation must also populate operation of CE in the boutique hotels. The article by Dey et al. (2025) proposes a hybrid analytical framework of identifying pathways, including modular infrastructure, supplier collaboration, and community co-creation, that may establish the pathways of agility and innovation without threatening financial feasibility. These are the strategies that can be connected with an empirical study of Elaho and Omoloso (2025) that arrive at a conclusion that the implementation of CE in hospitality supply chains and, in particular, in small-scale hotels enhances resource efficiency, lowers the costs, and, hence, builds stronger stakeholder confidence, which contributes to better economic and environmental performance.

Also, in terms of strategic change agents, energy efficiency proves to be a strategic transformation factor with Michailidis et al. (2024) demonstrating how systems utilizing artificial neural network can manage energy in a building to minimize emissions as well as provide predictive analysis of resource planning. By incorporating these smart technologies into the working strategy of the boutique hotel, the discrepancy between intentions on sustainability and the actual results can be closed.

Examples include why the strategic sustainability transformation is not limited to the state of operational excellence in the Nordic case revisited as done by Holmberg and Kontinen (2023), but about aligning the business values with the commendation of societal and environmental objectives, hence adding sustainability to organizational identity. Such is the cultural feather that boutique hotels need to match with since they tend to often brand position them premised on values principles. All of these studies support the idea that the strategic transformation process necessitates the multi-layered

approach of implementation into the functioning of organizations, development of corporate culture, technology utilization, and matching institutional structures. In the case of boutique hotels, it is difficult to strike the balance between available resources and the need to innovate, transparency, and having a long-term impact. According to the literature, anchoring CE principles as part of the strategy in the core of hotel operations and facilitated by responsive governance, perpetual learning and stakeholder involvement make successful transformation possible and renders boutique hotels universally accepted as the paragons of sustainable hospitality.

3 – Regional Perspectives & Comparative CE Analysis in Hospitality

The regional insights on the hospitality industry reveal high disparity both in extent and nature of the circular economy (CE) adoption pattern in the hospitality industry at the regional level influenced by cultural, regulatory, and market peculiarities. The case of the Nordic region discussed in the article by Holmberg and Konttinen (2023) is that tourism and hospitality in that region have deep connections to socio-cultural ideas of sustainability, and its policies are focused on renewable energy, waste reduction, and active community involvement. Their work emphasizes that boutique hotels in these areas are more likely to imbibe the concept of sustainability, not only as operations but also as strategy where the goal is put as a core part of the brand.

This is in contrast with the experiences in the Mediterranean contexts where according to Puig-Denia et al. (2025), and the situation in Iberostar case study, family-owned hospitality businesses use CE as a heritage preservation and customer loyalty strategy prioritizing collaboration in the supply chain, water conservation, and local sourcing as a strategy that suits ecological objectives and marketplace differentiation. Gonzalez-Sanchez et al. (2023) further conceptualize this comparative knowledge by tracing the journeys of circular tourism in the post-pandemic setting and finding that Northern and Western European hotels are more likely to follow a systemic approach to CE that has been enhanced by relevant policy inputs, but Southern and developing regions lean towards individual initiatives, which are limited by infrastructural and investment obstacles.

Jones and Wynn (2023) succinctly summarize the role of natural capital in the adoption of regional CE by stating that the sustainability agenda of hospitality business depends on geographical variations in the endowment of resources. As an example, boutique hotels in areas with weak ecosystems can pay high emphasis to biodiversity conservation and low-impact tourism, whereas ones in resource-prosperous areas can pay great consideration to resources conservation and closed-loop materials.

Kabil et al. (2024) also offer a bibliometric analysis and demonstrate that although European and East Asian nations prevail in research output related to CE in the sphere of hospitality, there is a lack of empirical evidence obtained in Africa, Latin America, and South Asia. Such geographic bias does not only contribute to the overall global discourse, but also restricts the applicability of CE best practices to the underrepresented geographies. It is also related to regional consumer behaviour as the study conducted by Kulnadee and Pankham (2024) illustrates in Thailand, this means that consumer trust and perceived risks have an impact on whether consumers choose to engage in the sustainable tourism options offered because regional marketing and education is essential to CE adoption in boutique hotels.

In the aspect of scientific production, da Silva et al. (2021) demonstrate that hospitality-related CE studies are concentrated in geographic and linguistic communities and it influences the intercontinental diffusion of innovations. Their analysis on the pattern of publications in the region indicates that those regions where there is good academic-industry industry nexus, there is expected to be a higher rate of integration of CE in practice. The OECD synthesis report (2020) with its focus on multi-level governance, common standards of performance and public-private collaborations as means of scaling CE on tourism is further evidence of the importance of regional governance structures.

According to OECD findings, the European Union green deals initiatives, which have coherent policy frameworks, funding mechanisms and thus receive more uptake in CE adoption in boutique hotels, are more than the regions where there is a lack of coherent policy frameworks and funding to foster adoption of CE practices. Serio et al. (2025) analyse the cross-border aspect of regional sustainability initiatives by demonstrating that as a result of environmental policies guided by CE, spatial spillover effects occur in terms of tourism flows and business practices in adjacent regions, hence suggesting the value of transboundary cooperation in the implementation of CE.

Cross comparisons also indicate that the practices of CE adopted by boutique hotels are aligned with local limitations as well as possibilities. As an example, in areas with a developed renewable energy infrastructure, it is more likely that boutique hotels would invest in solar or wind integration whereas in water-scarce areas, rainwater harvesting and greywater recycling are the priorities. González-Sánchez et al. (2023) emphasize that in some places recovery plans created after the pandemic boosted the use of CE due to their connection to resilience-building policies, i.e., diversifying the supply base and establishing local circular supply chains. Likewise, Puig-Denia et al. (2025) demonstrate that family-owned hotels in the Iberostar case implemented CE measures not only in terms of environmental impact but also to distinguish themselves in the competitive tourist destination, so they joined the agenda of sustainability with the needs of commercial interests.

Overall, the literature denotes that context is a determinant in formulating and the effectiveness of CE strategies of boutique hotels. Areas with high forms of policy support, well developed infrastructure, and cultural successive tagging to sustainability aspects are likely to incorporate the CE implementation systemically whereas others can engage in partial or the rise-and-pull system. It is also confirmed by the research that more comparative, cross-regional research is necessary in order to find transferable models and to adjust these models according to the local conditions. Through the evaluation of the shifts in policy frameworks, consumer minds, infrastructure preparedness and ownership forms, it is clear the evidence gives a delicate impression of how regional peculiarities determine the speed, scope and depth of their CE adoption within boutique hotels. Such an insight is critical in formulating locally responsive methods amenable to seamlessly adapting practical practices across the world, in order to create context-specific but globally unifying ways of approaching circularity concerning the hospitality industry.

3. Objective of the Study

1. To assess the overall level of circular economy (CE) adoption in boutique hotels.
2. To examine the relationship between CE adoption and strategic sustainability transformation.
3. To describe the global and regional trends of circular economy adoption in the hospitality sector using secondary data sources.

4. Hypothesis of the Study

H01: There is no significant level of CE adoption in boutique hotels.

H1: There is a significant level of CE adoption in boutique hotels.

H02: There is no significant relationship between CE adoption and strategic sustainability transformation in boutique hotels.

H2: There is a significant relationship between CE adoption and strategic sustainability transformation in boutique hotels.

5. Methodology

The current research was conducted in the mixed method to combine both qualitative and quantitative research methods and deliver the detailed vision of the research problem. A comparative analysis of practices and trends was done because the researchers have conducted the research in some chosen areas where these hotels exist in India, on the territory of Delhi-NCR. Its audience include owners/managers of boutique hotels and sustainability/operations specialists since the former directly

implement sustainability strategies and the latter is directly responsible in monitoring their implementations. To obtain such representation of representing the various categories of boutique hotels, a stratified random sampling design was used where 150 respondents participated in the research. The research design is descriptive and also exploratory since there is an intention to not only describe the current state of adoption of the circular economy (CE) but also investigate its connection to strategic sustainability transformation. To gauge the constructs, a structured questionnaire that utilizes a 5-point Likert scale that is assessed was used to gather the data on the points. The only value that the study used is Circular Economy (CE) adoption practices, whereas the dependent values are strategic sustainability transformation and customer engagement. In order to analyse the results, the statistical tools such as MS Excel and SPSS were utilized, which employs the process (like mean, standard deviation, Pearson coefficient, independent samples t-test, and simple linear regression) to answer the research questions and to test the hypotheses.

6. Result and Analysis

Table 1: Demographic Profile of the Respondents

S. No.	Variable	Category	Frequency	Percent
1	Gender	Female	54	36
		Male	96	64
2	Age Group	18–25 years	22	14.7
		26–35 years	26	17.3
		36–45 years	35	23.3
		46–55 years	30	20
		Above 55 years	37	24.7
3	Educational Qualification	Diploma	29	19.3
		Doctorate	36	24
		Graduate	27	18

		High School	26	17.3
		Postgraduate	32	21.3
4	Position in Hotel	Department Head	32	21.3
		General Manager	22	14.7
		Owner	32	21.3
		Staff	35	23.3
		Supervisor	29	19.3
5	Type of Boutique Hotel Ownership	Corporate-owned	84	56
		Family-owned	66	44
6	Years of Hotel Operation	2–5 years	40	26.7
		6–10 years	26	17.3
		Above 10 years	34	22.7
		Less than 2 years	50	33.3
7	Number of Rooms in the Hotel	10–25	46	30.7
		26–50	41	27.3
		Above 50	35	23.3
		Less than 10	28	18.7
8	Annual Turnover (in INR)	₹1 crore – ₹5 crore	35	23.3
		₹50 lakh – ₹1 crore	38	25.3
		Above ₹5 crore	40	26.7

		Less than ₹50 lakh	37	24.7
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The demographic segment of respondents used in the present study presents interesting patterns in as far as the topic of boutique hotels is concerned. Among the 150 respondents, a higher number of people were male (64%) than female (36%) respondents and the survey is dominantly male. With reference to the age distribution, the participants were distributed in various age brackets, with the most being the 36-45 years group (23.3 percent), narrowly followed by the above 55 years and 46-55 years (24.7 and 20 percent respectively). The age-bracket of 18-25 Years and 26-35 Years had respectively younger respondents of 14.7 and 17.3; implying reasonably healthy mix of the mid-career and senior professionals.

On educational level, the main proportions of respondents were fairly evenly distributed among categories with the most (24%) and second significant proportion consisting of respondents with doctorate level followed by postgraduates (21.3%), diploma holders (19.3%), graduates (18%) and high school graduates (17.3%). This can be related to a well-educated respondent sample, which will lend a certain authenticity to their interpretation of strategic and operational differences in boutique hotels. With regard to job types, there was the greatest number of staff members (23.3%) and department heads (21.3%) followed by owners (21.3%), supervisors (19.3%) and general managers (14.7%). The type of ownership was, in most cases, corporate-owned (56%) compared to family-owned type of ownership (44%).

The tenure of these hotels was also different with most of them having operated for a period of time of less than 2 years (33.3%), 2-5 years (26.7), above 10 years (22.7) and 6-10 years (17.3). Hotels mainly had between 10-25 rooms (30.7%) and 26-50 rooms (27.3%), whereas those under 10 (18.7%) and those that exceeded 50 (23.3%) were much fewer. On a financial front, its annual turnover was quite well balanced with largest percentage of earnings exceeding 5 crore (26.70%) followed by 50 lakh-1 crore (25.30%), 1 crore-5 crore (23.30%) and below 50 lakh (24.70). Such a profile means that there will be diversity in the size of hotels, their ownership, and financial performance, which forms an entire basis of analysing the adoption of the circular economy and the sustainability practices.

On the basis of objective and Hypothesis

Objective 1: To assess the overall level of circular economy (CE) adoption in boutique hotels.

H01: There is no significant level of CE adoption in boutique hotels.

H1: There is a significant level of CE adoption in boutique hotels.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	25	16.7	16.7	16.7
	2.00	28	18.7	18.7	35.3
	3.00	27	18.0	18.0	53.3
	4.00	40	26.7	26.7	80.0
	5.00	30	20.0	20.0	100.0
	Total	150	100.0	100.0	

The tenure of these hotels was also different with most of them having operated for a period of time of less than 2 years (33.3%), 2-5 years (26.7), above 10 years (22.7) and 6-10 years (17.3). Hotels mainly had between 10-25 rooms (30.7%) and 26-50 rooms (27.3%), whereas those under 10 (18.7%) and those that exceeded 50 (23.3%) were much fewer. On a financial front, its annual turnover was quite well balanced with largest percentage of earnings exceeding 5 crore (26.70%) followed by 50 lakh-1 crore (25.30%), 1 crore-5 crore (23.30%) and below 50 lakh (24.70). Such a profile means that there will be diversity in the size of hotels, their ownership, and financial performance, which forms an entire basis of analysing the adoption of the circular economy and the sustainability practices.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	44	29.3	29.3	29.3
	2.00	18	12.0	12.0	41.3

	3.00	36	24.0	24.0	65.3
	4.00	34	22.7	22.7	88.0
	5.00	18	12.0	12.0	100.0
	Total	150	100.0	100.0	

Water reuse practices vary in about the exercised measures in the boutique hotels as achieved in the results. Around 29.3 percent of respondents scored their practices at the lowest scale (indicating little or no water reuse initiatives, e.g. greywater recycling or rainwater harvesting). A smaller section, 12%, gave their efforts the rating of level 23 and displayed a few initiatives. A total of 24 percent of participants said they had moderate adoption (score 3), which implies that systems reusing water had been implemented partially. It ranges up to 22.7 percent (score 4) and 12 percent (maximum score 5) in terms of a high level of adoption where reuse measures are advanced and consistent across the hotels. On the whole, even though the proportion of hotels with good scores in terms of water reuse is 34.7 percent, the high numbers of hotels with poor scores show that there is much to be improved. This would indicate a requirement to create further understandings, infrastructure investment and policies that will stimulate a wider acceptance of water reuse in boutique hotels.

Table 4: Renewable_Energy_Use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	28	18.7	18.7	18.7
	2.00	38	25.3	25.3	44.0
	3.00	20	13.3	13.3	57.3
	4.00	31	20.7	20.7	78.0
	5.00	33	22.0	22.0	100.0
	Total	150	100.0	100.0	

The outcomes of the Renewable Energy Use show an uneven trend of application of the renewable energy use by the boutique hotels. A significant percentage of 18.7 scored the lowest of 1 on the scale showing that there is little to no dependence on renewable energy sources like solar, wind or biomass. The highest ratio of 25.3 per cent adopted level 2, indicating that there was little feedback of renewable technologies. There was a diverse adoption rank of moderate (3) in 13.3 percent of offending hotels, whereas second rate adoption (4) stood at 20.7 percent which indicates very high activities in the area of renewable usage. To the good news, 22 percent of this group recorded the highest score (5), meaning that they have adopted renewable energy fully or nearly fully into operation. In general, although 42.7 percent of hotels have shown high levels of renewable use, the total 44 percent belonging to first two grouping categories reveals a lot to be done which needs specific programs, incentives, and technological assistance to propagate use of renewable energy in the industry.

Table 5: Recycling_Program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	30	20.0	20.0	20.0
	2.00	27	18.0	18.0	38.0
	3.00	24	16.0	16.0	54.0
	4.00	29	19.3	19.3	73.3
	5.00	40	26.7	26.7	100.0
	Total	150	100.0	100.0	

The numbers of Recycling Program penetration in boutique hotels can be characterized as a promising trend but, at the same time, not even. An average of 20 percent of the respondents scored their recycling efforts at the bottom (1) meaning that there were little or no organized recycling efforts. The remaining 18 percent scored 2 implying that there was limited and intermittent recycling activities. Partial and uneven implementation was attained in 16 per cent of hotels, where moderate adoption (score 3) was reached. Conversely, 19.3 percent of hotels ranked their programs at the fourth level meaning that they did exhibit a significant commitment to systematic recycling. The most promising result is that 26.7

per cent of hotels gained the greatest (5) score, which means that there are proper and numerous recycling systems implemented. Although almost 46 per cent of the hotels have done well in terms of high adoption scores (scores 4 and 5), a percentage of 38 of the lowest two scores shows that there is room of improvement due to the empowerment of training, awareness campaigns, and incorporation of recycling as a practice in the core operation procedures.

Table 6: Sustainable_Sourcing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	33	22.0	22.0	22.0
	2.00	31	20.7	20.7	42.7
	3.00	29	19.3	19.3	62.0
	4.00	25	16.7	16.7	78.7
	5.00	32	21.3	21.3	100.0
	Total	150	100.0	100.0	

The Sustainable Sourcing practices in boutique hotels have a relatively equal proportion of distribution of the level of adoption, although the lower categories are more represented. Approximately, 22 percent of hotels had the lowest scoring (1), implying that they do not pay much attention to the sustainable sourcing of materials and products. In the same manner, 20.7 percent had a score of 2 showing that they have adopted limited and irregular implementation of sustainable procurement strategies. There was a moderate tier (score 3) of adoption that was observed in 19.3 percent of hotels and this depicted partial integration of sustainable sourcing in the operations. On the positive percentages, 16.7 were found on hotels that scored 4 and 21.3 advanced to obtain the highest scoring level (5) meaning that they had very good practices of buying goods and services that are environmentally and socially superb. On the whole, although almost 38 percent of hotels have high engagement (scores 4 and 5), the existence of more than 42 percent in the two bottom tables shows a huge opportunity to win profits through supplier collaboration, certifications, and education on the long-term advantage of sustainable sourcing.

Objective 2: To examine the relationship between CE adoption and strategic sustainability transformation.

H02: There is no significant relationship between CE adoption and strategic sustainability transformation in boutique hotels.

H2: There is a significant relationship between CE adoption and strategic sustainability transformation in boutique hotels.

	Mean	Std. Deviation	N
CE_Adoption	17.1467	2.01467	150
Strategic_Sustainability_Transformation	16.8400	2.40268	150

According to the descriptive statistics, the mean score of CE Adoption achieved among the boutique hotels was 17.15 (SD = 2.01) with 150 respondents, whereas the mean score of Strategic Sustainability Transformation was a tad less with 16.84 (SD = 2.40) based on the same number of respondents. The given relatively high mean values, in regards to the potential range of scores, indicate that hotels are, on the whole, proactive with regard to implementing circular economy and aligning it with the long-term sustainability strategies. The fact that the standard deviation of CE Adoption is lower means that responses are more unified with respect to the hotels hence level of adoption is relatively homogeneous. By contrast, the Strategic Sustainability Transformation scores are represented by a small difference in their variability, hinting at variation in effective adaptation of CE initiatives into the wider fields of strategic sustainability practice at the hotel level. In general, the findings can be used as a basis of additional analysis testing the correlations of the better levels of CE adoption with more extensive changes in sustainability.

	CE_Adopti on	Strategic_Sustainability_Transform ation

CE_Adoption	Pearson Correlation	1	.718**
	Sig. (2-tailed)		.000
	N	150	150
Strategic_Sustainability_Transformation	Pearson Correlation	.718**	1
	Sig. (2-tailed)	.000	
	N	150	150
**. Correlation is significant at the 0.01 level (2-tailed).			

Pearson correlation coefficient value between the variables of CE Adoption and Strategic Sustainability Transformation is 0.718 which shows a strong positive relationship. The value of p (.000) is far below the significance level of 0.01 and therefore the relationship is statistically significant. Because the result shows that hotels with a more developed circular economy are more likely to have a more mature circular economy transformation strategy, it may be indicated that it is more likely that they can have a higher strategic transformation process with respect to more sustainability. The robustness of the relationship indicates that the incorporation of CE practices, including waste reduction, renewable energy, and sustainable sourcing, are probable to be factored into the overall strategies of the hotels that will result in sustainable business models. Applying the theory in practice, the long-term sustainability initiatives in the boutique hotel industry are likely to be enhanced due to the improved CE adoption directly leading to the strength of CE principles as the force of strategic change.

Objective 3: To describe the global and regional trends of circular economy adoption in the hospitality sector using secondary data sources.

In recent years, circular economic practices (CE) in hospitality are picking up around the world, with implementation varying greatly on a regional basis. In Europe, especially in such countries as the Netherlands, hotels have become the pioneers of the integration of CE as they applied the strategies of modular refurbishment of hotels, furniture leasing practices, and closed-loop waste management processes aided by the efficient regulations, and market incentives (Bittner, 2024). Consumer demand pertaining to sustainable travel as well as government environmental policies that spearhead the measures mentioned, further reinforce these actions (Rodriguez-Anton, 2019).

Conversely, most of the emerging economies like Indonesia experience low adoption rates owing to the infrastructural constraints, inadequate enforcement of various regulations and a weak awareness among the hospitality managers (Bittner, 2024). It has also been found that there is a big gap in the extent to which CE is adopted by the luxury and budget hotels as the budget hotel experiences more barriers in relation to cost and logistics (Fonseca & Dias, 2025). Research wise, bibliometric surveys demonstrate that the field of CE-related hospitality publications has a large concentration in Europe and only few intensities in Africa, Latin America and South Asia (2024). This geographical bias offers evidence that the developed economies continue to dominate the global knowledge of CE, resulting in possible underrepresentation of contextual challenges in other parts of the world. Generally, secondary data suggests a mixed picture experienced, where the European hospitality market offers a mature adoption of CE related to the system readiness, whereas, low-income countries experience slow growth due to economic, technical, and knowledge deficits. To deal with such disparity, specific policy frameworks, capacity-building endeavours, and cross-regional information-sharing instances will be necessary.

7. Discussion

In the Pearson correlation analysis, it is possible to identify a high positive relationship ($r = 0.718$, $p < 0.01$) between circular economy (CE) adoption and strategic sustainability transformation within the selected boutique hotels. This shows that the greater the adoptions of CE, the more the rise of improved strategic sustainability efforts. The 1 percent level is statistically significant and therefore the likelihood of occurrence of this relationship is very low. This observation concurs with the previous works that point out that sustainable operations, including reducing waste, using renewable energy, and implementing sustainable sourcing, play a direct role in strategic transformation in the long-term in the hospitality industry. Regarding boutique hotels, the implementation of CE ideas seems to boost competitive advantage, create positive brand reputation, and align operations with the environmental and social mission. These findings strengthen the premise that the incorporation of CE practices does

not just have an effect in enhancing environmental performance but as a strategic driver towards attainment of sustainability transformation goals in hospitality structures.

8. Conclusion

The results of the study indicate that there is statistically significant and strong positive correlation ($r = 0.718, p < 0.01$) between strategic sustainability transformation and circular economy (CE) adoption in the case of boutique hotels. This shows that the more the CE practices are initiated like the reduction of waste products, water re-use, use of renewable energy, recycling programs, and sustainable sourcing the more its strategic sustainability targets are well achieved. As implied in the relationship, the understanding of CE adoption is not just an operational preference but a significant factor of the sustainability transformation. It is true that boutique hotels, which take proactive actions to implement CE practices, have higher chances of surpassing environmental performance, operational efficiency, as well as market competitiveness. These findings support the argument on the need to embed CE as part of the hotel strategy in order to align with the global sustainability trends, respond to the regulatory requirements, and consumer demands that are increasingly in demand of eco-friendly hospitality services. Therefore, the high adoption of CE is an environmental duty and a business necessity.

9. References

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