engineering proceedings

MDPI

Proceeding Paper

Toward Sustainability: Interventions for Implementing Energy-Efficient Systems into Hotel Buildings †

Alok Bihari Singh [1,*], Yogesh Mishra [2] and Surjeet Yadav [3]

[1] Department of Management Studies, Vivekananda Global University, Jaipur 303012, Rajasthan, India
[2] Department of Business Administration, School of Business and Commerce, Manipal University Jaipur, Jaipur 303007, Rajasthan, India; yogesh.mishra@jaipur.manipal.edu
[3] Department of Mechanical Engineering, Vivekananda Global University, Jaipur 303012, Rajasthan, India; surjeet_yadav@vgu.ac.in
* Correspondence: meabsingh@gmail.com
† Presented at the 3rd International Electronic Conference on Processes—Green and Sustainable Process Engineering and Process Systems Engineering (ECP 2024), 29–31 May 2024; Available online: https://sciforum.net/event/ECP2024.

Abstract: The hospitality industry, particularly hotels, is increasingly emphasizing the dual goals of sustainability and cost optimization to align with global environmental objectives and enhance operational efficiency. The current study comprehensively explores sustainable energy solutions tailored for hotel buildings, utilizing insights drawn from a review of the relevant literature, analysis of industry data, and an examination of real-world case studies. The study begins by assessing the energy consumption patterns of hotels and the environmental implications of reliance on conventional energy sources. It then delves into various sustainable energy systems designed to mitigate these impacts, including solar photovoltaic panels, geothermal heating and cooling technologies, energy-efficient lighting solutions, and advanced smart building management systems. These interventions demonstrate significant potential to reduce energy expenses and carbon emissions while simultaneously enhancing guest satisfaction through improved comfort and environmentally friendly practices. Furthermore, the research highlights critical factors that facilitate the adoption of sustainable energy systems in the hotel industry. These include active stakeholder participation, adherence to regulatory frameworks, and the availability of financial incentives, such as subsidies or tax benefits. This study also identifies substantial barriers to implementation, such as the high initial investment costs, technological challenges in retrofitting existing infrastructures, and cultural resistance to adopting new practices within organizations. The findings underscore the importance of a holistic approach to energy sustainability in hotels, advocating for a collaborative effort among industry stakeholders, policymakers, and technology providers. By addressing these challenges and leveraging the identified opportunities, hotels can transition toward more energy-efficient operations, contributing meaningfully to environmental preservation and achieving long-term economic benefits.

Keywords: sustainability; sustainable energy; carbon footprints; sustainable energy adoption

check for updates

Citation: Singh, A.B.; Mishra, Y.; Yadav, S. Toward Sustainability: Interventions for Implementing Energy-Efficient Systems into Hotel Buildings. *Eng. Proc.* **2024**, *67*, 80. https://doi.org/10.3390/engproc2024067080

Academic Editor: Michael C. Georgiadis

Published: 29 November 2024

Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

1. Introduction

In the modern era, the hospitality industry is increasingly recognizing the critical importance of environmental responsibility alongside traditional goals of guest satisfaction and cost efficiency [1–3]. As global awareness of climate change and environmental degradation grows, hotels are under mounting pressure to adopt sustainable practices that mitigate their environmental impact [4]. Energy consumption is a significant aspect of a hotel's operational footprint, with substantial implications for both operational costs and environmental sustainability. Thus, the implementation of energy-efficient systems within hotel buildings has emerged as a pivotal area for intervention [5,6]. Table 1 shows the data of energy consumption, costs, and greenhouse gas emissions of hotel buildings

worldwide reported by different agencies and organizations, such as Greenview's "Global Hotel Energy Benchmarking Initiative" [7], the International Energy Agency (IEA) [8], the World Resources Institute (WRI) [9], the World Bank [10], and CBRE [11].

Table 1. Energy consumption, cost, and greenhouse gas emission data of hotel buildings [7–13].

Region	Average Energy Consumption (kWh/Room/Night)	Average Energy Cost (USD/Room/Night)	GHG Emissions (kg CO_2e/Room/Night)	Primary Energy Use
North America	30–45	4–6	15–25	Heating, cooling, lighting
Europe	25–40	3–5	12–20	Heating, cooling, lighting
Asia–Pacific	35–50	5–8	18–30	Cooling, lighting
Middle East and Africa	40–60	6–10	20–35	Cooling, water heating
South America	30–45	3–6	14–25	Cooling, lighting
Global Average	35–50	4–7	18–28	Heating, cooling, lighting, hot water

The hospitality sector's commitment to sustainability is not merely a trend but a necessity driven by both ethical imperatives and economic benefits [14]. Hotels, by their very nature, are energy-intensive, with substantial consumption required for heating, cooling, lighting, and various guest services [15]. Traditional energy sources, predominantly fossil fuels, contribute to high greenhouse gas emissions and environmental degradation [16]. Consequently, there is an urgent need to transition to sustainable energy systems that can provide reliable, efficient, and environmentally friendly alternatives [17].

The objective of this study is to explore the array of sustainable energy interventions suitable for hotel buildings, providing a comprehensive synthesis of the existing literature, industry reports, and practical case studies. This study presents the potential benefits of adopting energy-efficient technologies by examining the current energy consumption patterns and the associated environmental impacts of traditional energy sources in hotel operations, as shown in Table 1.

The key sustainable energy systems under consideration include solar photovoltaic panels, geothermal heating and cooling systems, energy-efficient lighting, and advanced smart building management systems [18–20]. These technologies not only offer the promise of reduced energy costs and lower carbon footprints but also enhance the overall guest experience through improved comfort and service efficiency [21].

This study also identifies crucial interventions and best practices for integrating these sustainable energy systems into hotel operations. Beyond technological upgrades, it emphasizes the significance of behavioral changes, such as conducting regular energy audits, implementing employee training programs, and engaging guests in sustainability initiatives [22–25]. Furthermore, the importance of stakeholder collaboration, regulatory compliance, and the availability of financial incentives are discussed as critical factors driving the adoption of these systems [14,26,27].

The transition to energy-efficient systems is not without its challenges. Hotels face barriers, such as high upfront costs, technical complexities, and cultural resistance to change [28]. This study discusses strategies to overcome these obstacles, including leveraging financing options, conducting feasibility studies, and fostering a culture of sustainability within hotel management and staff.

This study underscores the urgent need for sustainable energy interventions in hotel buildings to reduce environmental impacts, cut operating expenses, and enhance long-term competitiveness. By adopting energy-efficient systems and fostering a sustainability-oriented culture, hotels can achieve significant cost savings and contribute meaningfully to global sustainability efforts.

2. Research Background

The hospitality industry has long been recognized for its substantial energy consumption, driven by the need to provide continuous services and comfort to guests [29]. Traditionally, hotels rely heavily on conventional energy sources, escalating operational costs and contributing significantly to environmental degradation through high carbon emissions [30]. This backdrop necessitates a shift toward sustainable energy practices to mitigate environmental impacts and achieve long-term economic benefits.

2.1. Global Energy Consumption in the Hospitality Sector

Energy consumption in the hospitality sector varies significantly depending on the region, hotel size, and the range of services offered [31]. On average, hotels consume energy at a rate three to six times higher than other commercial buildings. Key energy-consuming activities include heating, ventilation, air conditioning (HVAC), lighting, laundry services, and food and beverage operations [20]. As per the International Energy Agency (IEA), the global hotel industry accounts for approximately 1% of total global energy consumption, highlighting the sector's significant energy footprint.

2.2. Environmental Impact and Sustainability Imperatives

The reliance on fossil fuels for energy needs in hotels leads to substantial greenhouse gas (GHG) emissions. According to the World Tourism Organization (UNWTO), the accommodation sector, including hotels, is responsible for about 21% of tourism's total carbon footprint [32]. This environmental impact, growing regulatory pressures, and consumer demand for sustainable practices have spurred the hospitality industry to seek greener alternatives [33].

The triple-bottom-line (TBL) concept of sustainability emphasizes the integration of environmental, economic, and social considerations, and its application can significantly benefit hotels [34]. By aligning TBL principles with energy-efficient processes and interventions, hotels can enhance their overall sustainability and operational effectiveness [25]. Energy-efficient practices, such as adopting renewable energy systems, LED lighting, and smart building management technologies, reduce a hotel's environmental impact by lowering greenhouse gas emissions and resource consumption [20,35,36]. These interventions help conserve energy and contribute to achieving global sustainability goals. Energy-efficient systems, though requiring upfront investment, result in substantial cost savings over time by reducing energy expenses and improving operational efficiency [37,38]. Additionally, hotels that demonstrate sustainability attract eco-conscious guests, increasing market competitiveness and revenue [39]. Programs like green certifications also enhance brand value and guest loyalty [40]. Sustainable energy interventions improve guest and employee satisfaction by fostering a healthier, more comfortable environment [41–43]. For example, smart HVAC systems can enhance indoor air quality while saving energy. Hotels can also strengthen community ties by sourcing energy locally, supporting clean energy projects, and engaging guests in sustainability programs [44].

By implementing energy-efficient interventions, hotels achieve TBL objectives of holistically minimizing environmental impacts, optimizing economic performance, and contributing to social well-being [45]. These efforts make hotels more resilient, competitive, and aligned with global sustainability priorities. Sustainability has evolved from a niche consideration to a central strategic priority within the hospitality industry [46]. Hotels are increasingly recognizing that adopting sustainable practices is not only ethically necessary but also economically advantageous [47]. Enhanced energy efficiency can lead to significant cost savings, improve brand reputation, and attract environmentally conscious customers [46].

2.3. Technological Advancements in Sustainable Energy Systems

Recent advancements in technology have made it feasible for hotels to integrate energy-efficient systems into their operations. Solar photovoltaic (PV) panels, geothermal heating and cooling systems, energy-efficient LED lighting, and smart building management systems represent some of the most promising technologies [48]. These systems offer substantial reductions in energy consumption and operational costs while minimizing environmental impact [17].

Solar PV panels, for instance, harness renewable solar energy to generate electricity, significantly reducing dependency on fossil fuels. Geothermal systems provide efficient heating and cooling by leveraging the earth's stable temperatures, offering a sustainable alternative to traditional HVAC systems. Energy-efficient lighting solutions, such as LED bulbs, consume less energy and have longer lifespans compared to conventional lighting. Smart building management systems optimize energy use by monitoring and controlling various building functions in real time, enhancing overall efficiency [49].

2.4. Case Studies and Industry Reports

Numerous case studies and industry reports provide evidence of successful implementations of sustainable energy systems in hotel properties [17,50]. These case studies highlight the potential of these technologies to reduce energy costs, lower carbon footprints, and improve guest satisfaction. For example, the Hotel Verde in South Africa, known as Africa's greenest hotel, has implemented a range of sustainable practices, including solar PV panels and energy-efficient lighting, achieving substantial energy savings and setting a benchmark for sustainability in the region [51].

2.5. Barriers and Challenges

Despite the clear benefits, adopting sustainable energy systems in the hospitality sector faces several challenges. High initial costs, technical complexities, and resistance to change among staff and management are significant barriers [52]. The perceived risks associated with new technologies and the lack of expertise in managing energy-efficient systems can hinder widespread implementation.

Financial constraints are particularly prominent, as the upfront investment required for installing advanced energy systems can be substantial [47]. The long-term cost savings and environmental benefits often justify the initial expenditure. Additionally, regulatory support, incentives, and financing options can play a crucial role in facilitating the adoption of these technologies.

2.6. The Need for a Holistic Approach

To overcome these barriers, a holistic approach is essential. This involves technological upgrades and fostering a culture of sustainability within the hotel industry. Energy audits, employee training programs, and guest engagement initiatives are critical components of this approach [23,24]. Furthermore, collaboration among stakeholders, including hotel owners, industry associations, governments, and financial institutions, is vital to drive the transition toward sustainable energy systems.

So, the transition to energy-efficient systems in hotel buildings is imperative for reducing environmental impacts, cutting operational costs, and enhancing competitiveness. This article provides comprehensive insights into effective strategies for implementing sustainable energy practices related to energy savings and related interventions for hotel buildings in the hospitality sector, contributing to the broader goal of global sustainability.

3. Methodology

As shown in Figure 1, this study employs a systematic literature review approach to identify and analyze critical interventions, technologies, and strategies for implementing energy-efficient systems into hotel buildings. The researchers focused on the literature published in the last fifteen years (2009–2024), utilizing keywords such as "sustainable energy",

"hotel buildings", "energy efficiency", "renewable energy systems", and "sustainability in hospitality". Reputable databases, including Scopus, Web of Science, and Google Scholar, were used to source relevant and recent publications. A total of 99 articles considering inclusion and exclusion criteria were finalized for the current review. By comprehensively analyzing the literature and incorporating practical insights, this research aims to provide a thorough understanding of the strategies for implementing energy-efficient systems into hotel buildings. The systematic approach ensures that the study captures the breadth and depth of the current knowledge, offering valuable recommendations for the hospitality industry's transition toward sustainability.

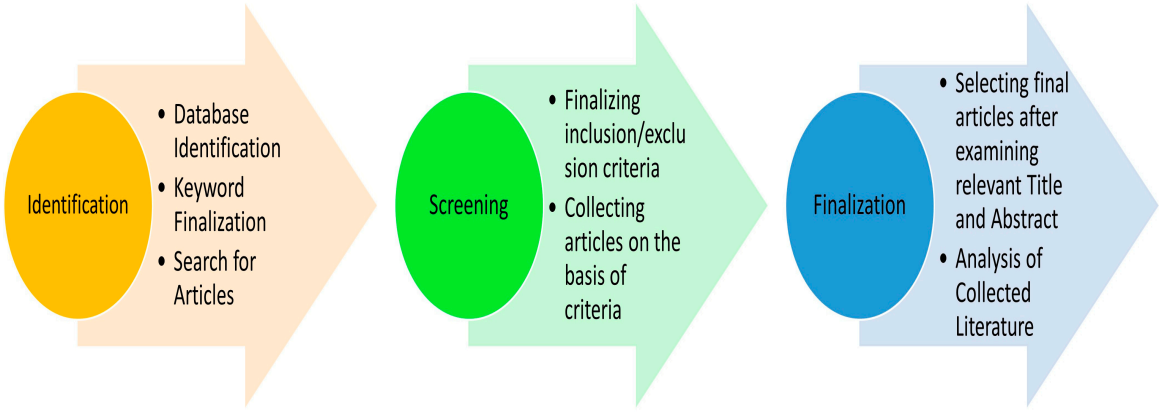


Figure 1. Research methodology.

Table 2 shows the selection, inclusion, and exclusion criteria for the article selection for the current study. The selection of the literature for the current article followed a rigorous and systematic process. The inclusion criteria ensured that only relevant studies were selected, focusing on topics such as sustainable energy systems, energy-efficient technologies, and energy management practices in hotel buildings. Priority was given to peer-reviewed journal articles, conference proceedings, case studies, and credible industry reports. Studies published within the last fifteen years were preferred to capture recent advancements, though foundational works were considered when necessary. Additionally, the selection emphasized global research with regional applicability and included only English-language publications for consistency. Articles reporting quantifiable data on energy consumption, cost savings, or greenhouse gas emissions were prioritized.

Table 2. Inclusion and exclusion criteria.

Criteria	Inclusion	Exclusion
Time Frame	Articles published within the last 15 years to ensure contemporary relevance.	Articles published over 15 years ago unless highly cited or foundational in the field.
Language	Articles published in English for accessibility and consistency.	Articles published in languages other than English.
Document Type	Peer-reviewed journal articles, conference papers, case studies, and industry reports.	Non-peer-reviewed content, blog posts, newsletters, or general media articles.
Geographical Scope	Global studies with a focus on sustainable energy systems applicable to hotels.	Studies focused solely on regions or sectors unrelated to hospitality or energy systems.
Sector	Studies specific to energy systems and sustainability in the hospitality or hotel sector.	Studies focusing on unrelated industries (e.g., manufacturing, residential housing, etc.).
Energy Systems	Studies addressing renewable energy, energy-efficient technologies, or smart energy management.	Studies unrelated to energy systems, focusing instead on non-energy-related hotel practices.

Table 2. *Cont.*

Criteria	Inclusion	Exclusion
Relevance	Articles discussing practical applications, barriers, and enablers of sustainable energy adoption.	Articles with theoretical discussions unrelated to sustainability practices or energy systems.
Methodology	Research employing quantitative, qualitative, or mixed methods with a clear focus on energy systems.	Articles with unclear or irrelevant methodologies.
Outcomes	Studies presenting measurable benefits, such as cost reduction, carbon footprint reduction, or guest satisfaction improvements.	Studies lacking practical insights, results, or actionable findings.
Time Frame	Articles published within the last 15 years to ensure contemporary relevance.	Articles published over 15 years ago unless highly cited or foundational in the field.

Conversely, the exclusion criteria filtered out studies that were irrelevant to the hospitality industry or not focused on energy-efficient practices. Outdated studies, those older than fifteen years and without significant foundational relevance, were excluded. Non-academic sources, such as blogs or opinion pieces lacking scientific rigor, were also disregarded. Articles without empirical data, clear methodologies, or with overlapping findings from other studies were excluded to avoid redundancy. This meticulous approach ensured the incorporation of high-quality and impactful literature, aligning with the study's objectives to analyze trends, barriers, and opportunities in energy-efficient interventions in hotel buildings.

4. Identification and Interventions for Implementing Energy-Efficient Systems in Hotel Buildings

4.1. Energy Consumption Patterns and Sustainable Interventions

Energy consumption patterns in hotel buildings are a critical focus area in sustainability discussions due to the sector's high reliance on energy-intensive operations. Hotels, by nature, require substantial energy for HVAC systems, lighting, water heating, and other guest services, often resulting in significant operational costs and environmental implications. These energy demands are largely met through conventional fossil fuel-based sources, which contribute heavily to greenhouse gas emissions and environmental degradation.

The environmental footprint of hotels is further amplified by inefficiencies in outdated infrastructure, commonly observed in older establishments. Such inefficiencies not only lead to resource wastage but also hinder the sector's ability to align with global sustainability goals. Addressing these challenges necessitates targeted interventions, including adopting energy-efficient technologies and transitioning to renewable energy sources. By analyzing the current consumption trends and their environmental impacts, the foundation is laid for implementing practical, sustainable solutions to mitigate the hospitality sector's carbon footprint.

4.2. Current Energy Consumption Patterns and Their Environmental Impact

The analysis of energy consumption patterns in hotel buildings indicates that HVAC systems (heating, ventilation, and air conditioning) are the most significant energy consumers, accounting for approximately 50–60% of a hotel's total energy usage [20]. Lighting and water heating are also prominent contributors, with traditional lighting systems consuming around 25% of energy, while water heating accounts for 15–20% depending on the hotel's size, climate, and guest services offered [7,8].

The reliance on conventional energy sources, particularly fossil fuels, exacerbates environmental impacts [53]. For example, a study by the International Tourism Partnership (ITP) showed that the average hotel emits between 15 and 35 kg of CO_2 per room night,

depending on regional energy grids and operational efficiency [54]. These emissions stem largely from inefficient energy systems, which are prevalent in older properties.

In addition, inefficient lighting, such as halogen or incandescent bulbs, uses 75% more energy compared to modern LED alternatives [20], further contributing to carbon emissions and energy wastage. Similarly, water heating systems relying on non-renewable energy sources are major contributors to greenhouse gas emissions [55]. Hotels in tropical and arid climates, with higher cooling demands, experience amplified environmental footprints due to extended HVAC operations [56].

This reliance on outdated and energy-intensive systems necessitates urgent interventions. By transitioning to energy-efficient alternatives, such as smart building management systems [36], energy-efficient HVAC, and renewable energy sources, hotels can significantly lower their carbon footprint and align with global sustainability objectives [57]. These findings highlight the critical need to re-evaluate current energy practices in the hospitality sector, focusing on modern, efficient, and sustainable technologies to mitigate their environmental impact [58].

4.3. Sustainable Energy Systems and Their Role in Hotels

Hotels worldwide are adopting various sustainable energy systems to mitigate the environmental impacts of conventional energy consumption while achieving economic and social benefits. These interventions focus on renewable energy sources, energy-efficient technologies, and smart management systems, enabling hotels to reduce their carbon footprint, lower operational costs, and enhance guest experiences.

4.3.1. Solar Photovoltaic (PV) Panels

Solar PV panels are increasingly recognized as a viable renewable energy solution for hotels, converting sunlight into electricity to reduce reliance on fossil fuels [59,60]. For instance, hotels implementing solar PV systems can generate up to 30–60% of their total energy needs, depending on geographic location and solar potential [8]. Case studies from hotels in Spain and the Maldives report energy cost savings of up to 40% annually while significantly lowering greenhouse gas emissions [57]. Additionally, government incentives and subsidies for solar energy adoption further encourage their implementation in the hospitality sector [60].

4.3.2. Geothermal Heating and Cooling Systems

Geothermal systems utilize the earth's consistent subterranean temperatures for heating and cooling, offering a highly efficient alternative to traditional HVAC systems [61]. Studies suggest that geothermal systems can reduce energy consumption by 50–70% compared to conventional systems [62]. For example, a luxury resort in Iceland reported savings of EUR 250,000 annually in energy costs after installing geothermal systems, along with an 80% reduction in carbon emissions [63]. These systems not only support sustainability but also enhance indoor thermal comfort, boosting guest satisfaction [19].

4.3.3. Energy-Efficient Lighting

Lighting accounts for a substantial portion of a hotel's energy use, with traditional incandescent bulbs consuming significantly more energy than modern alternatives [64]. Transitioning to LED lighting can reduce lighting energy consumption by 75–80%, with additional benefits of a longer lifespan and lower maintenance costs [65]. A case study in a U.S.-based hotel chain revealed annual savings of USD 60,000 in energy costs after switching to LEDs across multiple properties [66]. Guests also report improved satisfaction due to the enhanced quality of lighting provided by LEDs [67–70].

4.3.4. Smart Building Management Systems

Advanced smart BMS leverage sensors and automated controls to optimize energy consumption in real time. These systems monitor variables such as occupancy patterns,

ambient conditions, and peak energy demands to dynamically adjust HVAC, lighting, and other systems. For example, a case study from a hotel in Singapore demonstrated a 30% reduction in overall energy usage post-implementation of a smart BMS, translating to annual savings of USD 100,000 [71,72]. Additionally, these systems improve operational efficiency and sustainability while contributing to a modernized guest experience [36].

4.4. Factors Influencing the Adoption of Sustainable Energy Systems in Hotels

The adoption of sustainable energy systems in hotels is influenced by a combination of technological, financial, regulatory, and cultural factors. Understanding these dynamics is crucial for transitioning to energy-efficient operations.

4.4.1. Technological Upgrades and Best Practices

Implementing energy-efficient systems begins with regular energy audits, which are essential for identifying inefficiencies and opportunities for improvement [3]. For instance, energy audits conducted in a sample of U.S. hotels revealed potential energy savings of 20–30% through targeted interventions in HVAC systems and lighting technologies. Alongside audits, employee training programs ensure that staff are equipped to use and maintain these systems effectively. Hotels with robust training programs report improved energy management and stronger commitment to sustainability among employees. Engaging guests in sustainability initiatives, such as towel reuse programs or educating them about energy-saving practices, has proven to reduce energy consumption by up to 15% while enhancing guest satisfaction.

4.4.2. Stakeholder Collaboration and Regulatory Compliance

Collaboration among stakeholders—such as hotel owners, industry associations, policymakers, and financial institutions—is critical for scaling sustainable energy interventions. Regulatory frameworks like the EU Energy Efficiency Directive have successfully incentivized hotels to adopt renewable energy solutions, achieving an average of 25% reduction in energy consumption [32]. Financial incentives, including tax benefits, grants, and low-interest loans, further facilitate adoption by offsetting the substantial initial investment costs associated with sustainable technologies [26].

4.4.3. Financial Incentives and Funding Mechanisms

The availability of financial incentives significantly alleviates cost barriers. For example, government schemes in Germany offering subsidies for renewable energy installations led to a 40% increase in hotels adopting solar PV systems between 2020 and 2023 [73,74]. Similarly, green loans and carbon credits in the U.S. hospitality sector enabled mid-sized hotels to finance energy-efficient retrofitting projects, resulting in annual cost savings exceeding USD 50,000 per property [75].

4.5. Challenges and Barriers

Despite clear benefits, several challenges hinder the widespread adoption of sustainable energy systems, as follows:

4.5.1. High Upfront Costs

The initial capital required for installing systems like geothermal heating or smart management systems can range between USD 100,000 and 500,000, posing financial challenges for smaller establishments [74,76].

4.5.2. Technical Complexities

Retrofitting existing infrastructure with advanced technologies often requires specialized expertise, which may not be readily available. For instance, integrating geothermal systems in older buildings can face feasibility challenges due to structural limitations [77].

4.5.3. Cultural Resistance to Change

Organizational resistance, both from management and staff, can impede the transition to sustainable practices. Studies show that up to 30% of hotels delay sustainability initiatives due to insufficient buy-in from stakeholders [78,79].

4.6. Strategies for Overcoming Barriers

To address these challenges, hotels can leverage financing options, such as grants and green loans, which have been instrumental in supporting investments in solar and LED lighting projects [80]. Conducting feasibility studies ensures that interventions are tailored to the specific needs and limitations of individual properties, minimizing risks and inefficiencies [53]. Promoting a culture of sustainability through staff training, consistent communication, and recognition programs helps overcome resistance and aligns organizational goals with environmental objectives [81].

By combining these strategies with technological advancements, hotels can achieve significant reductions in energy costs, enhance their competitive advantage, and contribute to global sustainability efforts. The integration of financial incentives, regulatory support, and collaborative stakeholder efforts underscores the importance of a comprehensive approach to energy efficiency in the hospitality sector.

So, there is an urgent need for sustainable energy interventions in hotel buildings. By adopting energy-efficient systems and fostering a culture of sustainability, hotels can achieve significant cost savings, reduce their environmental impact, and enhance long-term competitiveness. The identified interventions, best practices, and strategies provide a comprehensive framework for hotels aiming to transition toward a more sustainable future.

5. Discussions and Future Scope

This study highlights the critical need for sustainable energy interventions in the hospitality industry, particularly within hotel buildings [82–84]. The findings demonstrate that energy-efficient systems, such as solar photovoltaic panels, geothermal heating and cooling systems, energy-efficient lighting, and smart building management systems, significantly reduce energy consumption and operational costs [6,19,25,85,86]. Additionally, this study underscores the importance of complementary measures, including energy audits, employee training, and guest engagement initiatives, in enhancing the effectiveness of these technological upgrades [23,25,81].

The implications of these findings are profound for the hospitality industry. By adopting sustainable energy practices, especially in hotel building interventions related to sustainability, hotels can not only lower their carbon footprints and contribute to environmental conservation but also realize substantial cost savings [87–89]. These savings can be redirected toward improving guest services, thereby enhancing overall guest satisfaction and loyalty [90–92]. Embracing sustainability can bolster a hotel's brand image, attracting environmentally conscious travelers who prioritize eco-friendly accommodations [93–95].

Despite the clear benefits, this review identifies several barriers to the widespread implementation of energy-efficient systems in hotels. High upfront costs remain a significant challenge, especially for smaller hotels with limited financial resources [96]. Technical complexities and the need for specialized knowledge also pose hurdles, as does cultural resistance to change within hotel management and staff [97]. Addressing these challenges requires a multi-faceted approach, including leveraging financial incentives, conducting feasibility studies, and fostering a culture of sustainability [23,98].

The successful implementation of sustainable energy systems in hotels necessitates active collaboration among various stakeholders, including hotel owners, industry associations, governments, and financial institutions. Regulatory frameworks and financial incentives are crucial in facilitating the transition to energy-efficient systems. Governments can play a pivotal role by providing grants, tax incentives, and low-interest loans to support hotels in their sustainability efforts [35,99].

5.1. Limitations of the Study

This study has certain limitations that must be acknowledged. The reliance on published literature means that the most recent industry practices or unpublished innovations may not be fully captured. Additionally, the focus on English-language publications may exclude relevant research in other languages. Future studies should aim to address these limitations by incorporating a broader range of sources and perspectives.

5.2. Future Scope

Future research should explore the potential of emerging technologies, such as artificial intelligence (AI) and the Internet of Things (IoT), in enhancing energy efficiency in hotels. AI-powered energy management systems and IoT-enabled devices can provide real-time data and analytics, enabling hotels to optimize energy use more effectively. Investigating the integration of these advanced technologies with existing sustainable energy systems could yield valuable insights into achieving even greater energy efficiency.

Longitudinal studies that track the long-term outcomes of implementing energy-efficient systems in hotels are needed. Such studies can provide a deeper understanding of the sustained impact of these interventions on energy consumption, cost savings, and environmental performance. They can also shed light on the long-term challenges and successes, informing best practices for future implementations.

Comparative studies across different regions and hotel types can offer insights into how geographic and contextual factors influence the adoption and effectiveness of sustainable energy systems. Understanding these variations can help tailor interventions to specific contexts, ensuring more successful implementations globally.

Further research on guest behavior and engagement in sustainability initiatives can enhance the effectiveness of energy-efficient systems. Exploring how different engagement strategies influence guest participation and satisfaction can provide valuable guidance for hotels seeking to involve their guests in their sustainability efforts.

Examining the role of policy and regulatory frameworks in promoting sustainable energy practices in the hospitality industry is another important area for future research. Analyzing the impact of different regulatory approaches and financial incentives can help identify the most effective strategies for encouraging the adoption of energy-efficient systems.

Finally, integrating sustainability into hospitality education and training programs can ensure that future industry professionals are equipped with the knowledge and skills to implement and manage sustainable energy systems effectively. Research on the best approaches to incorporating sustainability into hospitality curricula can support this goal.

While significant progress has been made in understanding and implementing sustainable energy systems in hotel buildings, there remains ample scope for further research and innovation. By addressing the identified challenges and exploring new avenues for sustainability, the hospitality industry can continue to advance toward a more sustainable and energy-efficient future.

Author Contributions: A.B.S.: Conceptualization, methodology, writing—original draft preparation. Y.M.: Methodology, visualization, writing—reviewing and editing. S.Y.: Reviewing and editing. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data are contained within the article.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Pamfilie, R.; Firoiu, D.; Croitoru, A.-G.; Ionescu, G.H.I. Circular economy—A new direction for the sustainability of the hotel industry in romania? *Amfiteatru Econ.* **2018**, *20*, 388–404. [CrossRef]
2. Moise, M.S.; Gil-Saura, I.; Ruiz Molina, M.E. The importance of green practices for hotel guests: Does gender matter? *Econ. Res. Istraz.* **2021**, *34*, 3508–3529. [CrossRef]
3. Bihari Singh, A.; Gaurav, G.; Sarkar, P.; Sharan Dangayach, G.; Lal Meena, M. Current Understanding, Motivations, and Barriers Towards Implementing Sustainable Initiatives in the Hospitality Industry in the Age of Automation and Artificial Intelligence. *Recent Pat. Eng.* **2024**, *18*, 2–25. [CrossRef]
4. Sibian, A.-R.; Ispas, A. An Approach to Applying the Ability-Motivation-Opportunity Theory to Identify the Driving Factors of Green Employee Behavior in the Hotel Industry. *Sustainability* **2021**, *13*, 4659. [CrossRef]
5. Singh, A.B.; Khandelwal, C.; Sarkar, P.; Dangayach, G.S.; Meena, M.L. Theoretical and Methodological Contribution of Sustainable Practices to the Hospitality Industry. *Evergreen* **2023**, *10*, 2056–2073. [CrossRef]
6. Bohdanowicz, P.; Martinac, I. Attitudes towards sustainability in chain hotels—Results of a European survey. In Proceedings of the CIB International Conference on Smart and Sustainable Built Environment, Brisbane, Australia, 19–21 November 2003.
7. Greenview—Helping Hospitality and Tourism Navigate the Sustainability Landscape. Available online: https://greenview.sg/ (accessed on 18 November 2024).
8. IEA. International Energy Agency—IEA. Available online: https://www.iea.org/reports (accessed on 18 November 2024).
9. Homepage | GHG Protocol. Available online: https://ghgprotocol.org/ (accessed on 18 November 2024).
10. World Bank Open Data | Data. Available online: https://data.worldbank.org/ (accessed on 18 November 2024).
11. Global Commercial Real Estate Services | CBRE. Available online: https://www.cbre.com/ (accessed on 18 November 2024).
12. IEA—International Energy Agency. Available online: https://www.iea.org/ (accessed on 18 November 2024).
13. UN Tourism | Bringing the World Closer. Available online: https://www.unwto.org/ (accessed on 18 November 2024).
14. Spenceley, A. Sustainable tourism certification in the African hotel sector. *Tour. Rev.* **2019**, *74*, 179–193. [CrossRef]
15. Singh, A.B.; Singh, A.B.; Khandelwal, C.; Sarkar, P.; Dangayach, G.S.; Meena, M.L. Achieving Sustainable Development in the Hospitality Industry: An Evidence-Based Empirical Study Achieving Sustainable Development in the Hospitality Industry: An Evidence-Based Empirical Study. *Evergreen* **2023**, *10*, 1186–1198. [CrossRef]
16. Singh, A.B.; Khandelwal, C.; Sarkar, P.; Dangayach, G.S.; Meena, M.L. Recent Research Progress on Corporate Social Responsibility of Hotels. *Eng. Proc.* **2023**, *37*, 41. [CrossRef]
17. Mustapha, M.A.; Manan, Z.A.; Wan Alwi, S.R. Sustainable Green Management System (SGMS)—An integrated approach towards organisational sustainability. *J. Clean. Prod.* **2017**, *146*, 158–172. [CrossRef]
18. Zambrana-Vasquez, D.; Aranda-Usón, A.; Zabalza-Bribián, I.; Jañez, A.; Llera-Sastresa, E.; Hernandez, P.; Arrizabalaga, E. Environmental assessment of domestic solar hot water systems: A case study in residential and hotel buildings. *J. Clean. Prod.* **2015**, *88*, 29–42. [CrossRef]
19. Muslihudin, M.; Adawiyah, W.R.; Hendarto, E.; Megasari, R.D.; Ramadhan, M.F. Environmental constraints in building process a sustainable geothermal power plant on the slopes of slamet mount, central java, indonesia. *Evergreen* **2022**, *9*, 300–309. [CrossRef]
20. Chedwal, R.; Mathur, J.; Das Agarwal, G.; Dhaka, S. Energy saving potential through Energy Conservation Building Code and advance energy efficiency measures in hotel buildings of Jaipur City, India. *Energy Build.* **2015**, *92*, 282–295. [CrossRef]
21. Bhochhibhoya, S.; Pizzol, M.; Marinello, F.; Cavalli, R. Sustainability performance of hotel buildings in the Himalayan region. *J. Clean. Prod.* **2020**, *250*, 119538. [CrossRef]
22. Nisa, C.; Varum, C.; Botelho, A. Promoting Sustainable Hotel Guest Behavior: A Systematic Review and Meta-Analysis. *Cornell Hosp. Q.* **2017**, *58*, 354–363. [CrossRef]
23. Okado, J.; Ai, B.; Bashan, Y.; Sakurai, N.; Fujiwara, Y.; Hoshi, D. Covariance Structure Analysis of Health-Related Indicators in Elderly People Living at Home, Focusing on Subjective Health. *Tokyo Metrop. Univ. Urban Res. Center* **2003**, *81*, 19–30. Available online: https://tokyo-metro-u.repo.nii.ac.jp/records/5868 (accessed on 18 November 2024).
24. Prayag, G.; Hosany, S. Human resource development in the hotel industry of Mauritius: Myth or reality? *Curr. Issues Tour.* **2015**, *18*, 249–266. [CrossRef]
25. Verma, V.K.; Chandra, B. Hotel Guest's Perception and Choice Dynamics for Green Hotel Attribute: A Mix Method Approach. *Indian J. Sci. Technol.* **2016**, *9*, 1–9. [CrossRef]
26. Hu, X.; Lovelock, B.; Ying, T.; Mager, S. Stakeholder Collaboration on Policymaking for Sustainable Water Management in Singapore's Hotel Sector: A Network Analysis. *Sustainability* **2019**, *11*, 2360. [CrossRef]
27. Graci, S.; Dodds, R. Why go green? The business case for environmental commitment in the Canadian hotel industry. *Anatolia* **2008**, *19*, 251–270. [CrossRef]
28. Sardianou, E.; Kostakis, I. Perceived barriers to invest in renewable energy sources in the Cretan hotel industry. *Int. J. Sustain. Energy* **2020**, *39*, 240–249. [CrossRef]
29. Chang, H.S.; Huh, C.; Lee, M.J. Would an Energy Conservation Nudge in Hotels Encourage Hotel Guests to Conserve? *Cornell Hosp. Q.* **2016**, *57*, 172–183. [CrossRef]
30. Chen, L.-F. Research note: A sustainable hypothesis for tourist hotels: Evidence from international hotel chains. *Tour. Econ.* **2013**, *19*, 1449–1460. [CrossRef]

31. Singh, R.K.; Luthra, S.; Mangla, S.K.; Uniyal, S. Applications of information and communication technology for sustainable growth of SMEs in India food industry. *Resour. Conserv. Recycl.* **2019**, *147*, 10–18. [CrossRef]
32. UNWTO Elibrary. *Sustainable Tourism for Development Guidebook*; World Tourism Organization: Madrid, Spain, 2013.
33. Nam, H.V.; Lo, A.; Yeung, P.; Hatter, R. Hotel ICON: Towards a role-model hotel pioneering sustainable solutions. *Asia Pac. J. Tour. Res.* **2020**, *25*, 574–584. [CrossRef]
34. Stylos, N.; Vassiliadis, C. Differences in Sustainable Management Between Four- and Five-Star Hotels Regarding the Perceptions of Three-Pillar Sustainability. *J. Hosp. Mark. Manag.* **2015**, *24*, 791–825. [CrossRef]
35. Aragon-Correa, J.A.; Martin-Tapia, I.; de la Torre-Ruiz, J. Sustainability issues and hospitality and tourism firms' strategies Analytical review and future directions. *Int. J. Contemp. Hosp. Manag.* **2015**, *27*, 498–522. [CrossRef]
36. Stanojevic, S. Embracing sustainability in the drive from ordinary to outstanding: Case examples from Emirates, Jumeirah and Rotana. *Worldw. Hosp. Tour. Themes* **2020**, *12*, 575–586. [CrossRef]
37. Kularatne, T.; Wilson, C.; Mansson, J.; Hoang, V.; Lee, B. Do environmentally sustainable practices make hotels more efficient? A study of major hotels in Sri Lanka. *Tour. Manag.* **2019**, *71*, 213–225. [CrossRef]
38. Butler, J. The compelling "hard case" for "green" hotel development. *Cornell Hosp. Q.* **2008**, *49*, 234–244. [CrossRef]
39. Lee, J.-S.; Hsu, L.-T.; Han, H.; Kim, Y. Understanding how consumers view green hotels: How a hotel's green image can influence behavioural intentions. *J. Sustain. Tour.* **2010**, *18*, 901–914. [CrossRef]
40. Kapiki, S. Implementing sustainable practices in greek eco-friendly hotels. *J. Environ. Prot. Ecol.* **2012**, *13*, 1117–1123.
41. Bar, S. Impact of Technological Advancement in Rooms Division of Indian Hotel Industry. *Kim. Hosp. Res. J.* **2018**, *3*, 40–48.
42. Merli, R.; Preziosi, M.; Acampora, A.; Ali, F. Why should hotels go green? Insights from guests experience in green hotels. *Int. J. Hosp. Manag.* **2019**, *81*, 169–179. [CrossRef]
43. Alola, U.V.; Avci, T.; Ozturen, A. Organization sustainability through human resource capital: The impacts of supervisor incivility and self-efficacy. *Sustainability* **2018**, *10*, 2610. [CrossRef]
44. Martinez, P.; Herrero, A.; Gomez-Lopez, R. Corporate images and customer behavioral intentions in an environmentally certified context: Promoting environmental sustainability in the hospitality industry. *Corp. Soc. Responsib. Environ. Manag.* **2019**, *26*, 1382–1391. [CrossRef]
45. Assaf, A.G.; Josiassen, A.; Cvelbar, L.K. Does Triple Bottom Line reporting improve hotel performance? *Int. J. Hosp. Manag.* **2012**, *31*, 596–600. [CrossRef]
46. Dangelico, R.M.; Pujari, D. Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. *J. Bus. Ethics* **2010**, *95*, 471–486. [CrossRef]
47. Alonso-Almeida, M.d.M.; Fernández Robin, C.; Celemín Pedroche, M.S.; Astorga, P.S. Revisiting green practices in the hotel industry: A comparison between mature and emerging destinations. *J. Clean. Prod.* **2017**, *140*, 1415–1428. [CrossRef]
48. King, J.; Perry, C. *Smart Buildings: Using Smart Technology to Save Energy in Existing Buildings*; Amercian Council for an Energy-Efficient Economy: Washington, DC, USA, 2017.
49. Zhang, J.J.; Joglekar, N.; Verma, R. Pushing the frontier of sustainable service operations management Evidence from US hospitality industry. *J. Serv. Manag.* **2012**, *23*, 377–399. [CrossRef]
50. Yusof, Z.B.; Jamaludin, M. Green Approaches of Malaysian Green Hotels and Resorts. *Procedia-Soc. Behav. Sci.* **2013**, *85*, 421–431. [CrossRef]
51. Home—Hotel Verde Cape Town Airport. Available online: https://hotelverde.com/ (accessed on 19 November 2024).
52. Torres-Bagur, M.; Ribas, A.; Vila-Subirós, J. Incentives and barriers to water-saving measures in hotels in the Mediterranean: A case study of the Muga river basin (Girona, Spain). *Sustainability* **2019**, *11*, 3583. [CrossRef]
53. Singh, A.B.; Bhakar, V.; Gaurav, G.; Khandelwal, C.; Sarkar, P.; Singh, H.; Dangayach, G.S. Environmental sustainability of milk production: A comparative environmental impact analysis and sustainability evaluation. *Front. Sustain.* **2024**, *5*, 1352572. [CrossRef]
54. International Tourism Partnership [ITP] | Roundtable Human Rights in Tourism. Available online: https://www.humanrights-in-tourism.net/publication/international-tourism-partnership-itp (accessed on 22 November 2024).
55. Eskerod, P.; Hollensen, S.; Francisco Morales-Contreras, M.; Arteaga-Ortiz, J. Drivers for Pursuing Sustainability through IoT Technology within High-End Hotels-An Exploratory Study. *Sustainability* **2019**, *11*, 5372. [CrossRef]
56. Nkeleme, E.I.; Mbamali, I.; Okolie, K.C.; Ozoh, C.S. The maintenance and energy saving strategies for hvac installations in hotels in owerri, imo state. *Trop. Built Environ. J.* **2019**, *7*, 106–122.
57. World Green Building Council Annual Report 2021/22—World Green Building Council. Available online: https://worldgbc.org/article/annual-report-2022/ (accessed on 22 November 2024).
58. Chen, H.; Hsieh, T. An environmental performance assessment of the hotel industry using an ecological footprint. *J. Hosp. Manag. Tour.* **2011**, *2*, 1–11.
59. Galvao, J.R.; Leitao, S.A.; Silva, S.M.; Gaio, T.M. Cogeneration supply by bio-energy for a sustainable hotel building management system. *Fuel Process. Technol.* **2011**, *92*, 284–289. [CrossRef]
60. Navratil, J.; Picha, K.; Buchecker, M.; Martinat, S.; Svec, R.; Brezinova, M.; Knotek, J. Visitors' preferences of renewable energy options in "green" hotels. *Renew. Energy* **2019**, *138*, 1065–1077. [CrossRef]
61. Rosen, M.A.; Koohi-Fayegh, S. *Geothermal Energy: Sustainable Heating and Cooling Using the Ground*; John Wiley & Sons: Hoboken, NJ, USA, 2017.

62. IRENA. *Renewable Energy Statistic 2021*; IRENA: Masdar City, United Arab Emirates, 2021; Volume 56, pp. 1–460.
63. Welcome to Blue Lagoon Iceland Resort & Spa | Blue Lagoon Iceland. Available online: https://www.bluelagoon.com/ (accessed on 22 November 2024).
64. Sangwan, K.S.; Bhakar, V.; Naik, S.; Andrat, S.N. Life cycle assessment of incandescent, fluorescent, compact fluorescent and light emitting diode lamps in an Indian scenario. *Proc. Cirp.* **2014**, *15*, 467–472. [CrossRef]
65. U.S. Department of Energy Top Clean Energy Accomplishments in 2023 | Department of Energy. Available online: https://www.energy.gov/articles/us-department-energy-top-clean-energy-accomplishments-2023 (accessed on 22 November 2024).
66. Munjal, S.; Bhushan, S. *The Indian Hospitality Industry: Dynamics and Future Trends*; CRC Press: Boca Raton, FL, USA, 2017.
67. Mohandas, P.; Dhanaraj, J.S.A.; Gao, X.-Z. Artificial neural network based smart and energy efficient street lighting system: A case study for residential area in Hosur. *Sustain. Cities Soc.* **2019**, *48*, 101499. [CrossRef]
68. Berezan, O.; Raab, C.; Yoo, M.; Love, C. Sustainable hotel practices and nationality: The impact on guest satisfaction and guest intention to return. *Int. J. Hosp. Manag.* **2013**, *34*, 227–233. [CrossRef]
69. Mathur, S.; Khanna, K.; Saxena, S.K. Sustainability Practices in Hotel Industry: A Study on Guest Awareness and Satisfaction. *Indian J. Sustain. Dev.* **2017**, *3*, 55–66. [CrossRef]
70. Kyriakidou, O.; Gore, J. Learning by example. *Benchmarking Int. J.* **2005**, *12*, 192–206. [CrossRef]
71. Visvanathan, C.; Kumar, S. Issues for better implementation of cleaner production in Asian small and medium industries. *J. Clean. Prod.* **1999**, *7*, 127–134. [CrossRef]
72. Hafez, F.S.; Sa'di, B.; Safa-Gamal, M.; Taufiq-Yap, Y.H.; Alrifaey, M.; Seyedmahmoudian, M.; Stojcevski, A.; Horan, B.; Mekhilef, S. Energy efficiency in sustainable buildings: A systematic review with taxonomy, challenges, motivations, methodological aspects, recommendations, and pathways for future research. *Energy Strateg. Rev.* **2023**, *45*, 101013. [CrossRef]
73. Renewable Energy Statistics 2021. Available online: https://www.irena.org/publications/2021/Aug/Renewable-energy-statistics-2021 (accessed on 22 November 2024).
74. Persic-Zivadinov, I. The environmental and economic impact of sustainable hotels. *Econ. Res. Istraz.* **2009**, *22*, 98–110.
75. Li, Y. Environmental innovation practices and performance: Moderating effect of resource commitment. *J. Clean. Prod.* **2014**, *66*, 450–458. [CrossRef]
76. U.S. Department of Energy Releases 2023 Critical Materials Assessment to Evaluate Supply Chain Security for Clean Energy Technologies | Department of Energy. Available online: https://www.energy.gov/eere/articles/us-department-energy-releases-2023-critical-materials-assessment-evaluate-supply (accessed on 22 November 2024).
77. Melissen, F. Sustainable hospitality: A meaningful notion? *J. Sustain. Tour.* **2013**, *21*, 810–824. [CrossRef]
78. Calgaro, E.; Dominey-Howes, D.; Lloyd, K. Application of the Destination Sustainability Framework to explore the drivers of vulnerability and resilience in Thailand following the 2004 Indian Ocean Tsunami. *J. Sustain. Tour.* **2014**, *22*, 361–383. [CrossRef]
79. UNEP. *Making Tourism More Sustainable: A Guide for Policy Makers*; United Nations Environment Programme: Paris, France, 2005.
80. Buffa, F.; Franch, M.; Rizio, D. Environmental management practices for sustainable business models in small and medium sized hotel enterprises. *J. Clean. Prod.* **2018**, *194*, 656–664. [CrossRef]
81. Heimerl, P.; Haid, M.; Perkmann, U.; Rabensteiner, M. Job Satisfaction as a Driver for Sustainable Development in the Hospitality Industry? Evidence from the Alpine Region. *Sustainability* **2020**, *12*, 6754. [CrossRef]
82. Hall, C.M.; Dayal, N.; Majstorović, D.; Mills, H.; Paul-Andrews, L.; Wallace, C.; Truong, V.D. Accommodation consumers and providers' attitudes, behaviours and practices for sustainability: A systematic review. *Sustainability* **2016**, *8*, 625. [CrossRef]
83. Peng, N.; Chen, A. Luxury hotels going green—The antecedents and consequences of consumer hesitation. *J. Sustain. Tour.* **2019**, *27*, 1374–1392. [CrossRef]
84. Mejia, C. Influencing green technology use behavior in the hospitality industry and the role of the "green champion". *J. Hosp. Mark. Manag.* **2019**, *28*, 538–557. [CrossRef]
85. Chan, E.S.W.; Okumus, F.; Chan, W. The Applications of Environmental Technologies in Hotels. *J. Hosp. Mark. Manag.* **2017**, *26*, 23–47. [CrossRef]
86. Chan, E.S.W. Influencing stakeholders to reduce carbon footprints: Hotel managers' perspective. *Int. J. Hosp. Manag.* **2021**, *94*, 102807. [CrossRef]
87. Dangelico, R.M. Green Product Innovation: Where we are and Where we are Going. *Bus. Strateg. Environ.* **2016**, *25*, 560–576. [CrossRef]
88. Teng, C.-C.; Lu, A.C.C.; Huang, T.-T. Drivers of consumers' behavioral intention toward green hotels. *Int. J. Contemp. Hosp. Manag.* **2018**, *30*, 1134–1151. [CrossRef]
89. Sharma, R.; Yadav, D.; Sharma, M. An insight into green practices followed in the Indian hotel industry. *Afr. J. Hosp. Tour. Leis.* **2018**, *7*, 1–9.
90. Simona Moise, M.; Gil-Saura, I.; Ruiz-Molina, M.-E. Implications of Value Co-Creation in Green Hotels: The Moderating Effect of Trip Purpose and Generational Cohort. *Sustainability* **2020**, *12*, 9866. [CrossRef]
91. Assaker, G.; O'Connor, P.; El-Haddad, R. Examining an integrated model of green image, perceived quality, satisfaction, trust, and loyalty in upscale hotels. *J. Hosp. Mark. Manag.* **2020**, *29*, 934–955. [CrossRef]
92. Olya, H.; Altinay, L.; Farmaki, A.; Kenebayeva, A.; Gursoy, D. Hotels' sustainability practices and guests' familiarity, attitudes and behaviours. *J. Sustain. Tour.* **2021**, *29*, 1063–1081. [CrossRef]
93. Varun, K.; Indu, B.; Ashish, K. Internal Branding: A Review of Indian Hotel Industry. *Adv. Manag.* **2015**, *8*, 11–13.

94. Yadav, R.; Dokania, A.K.; Pathak, G.S. The influence of green marketing functions in building corporate image Evidences from hospitality industry in a developing nation. *Int. J. Contemp. Hosp. Manag.* **2016**, *28*, 2178–2196. [CrossRef]
95. Ahn, Y.H.; Pearce, A.R. Green luxury: A case study of two green hotels. *J. Green Build.* **2013**, *8*, 90–119. [CrossRef]
96. Nicholas, J.M.; Steyn, H. Project Quality Management. In *Project Management for Engineering, Business, and Technology*; Elsevier: Amsterdam, The Netherlands, 2012; pp. 320–350. [CrossRef]
97. Lozano, R. A holistic perspective on corporate sustainability drivers. *Corp. Soc. Responsib. Environ. Manag.* **2015**, *22*, 32–44. [CrossRef]
98. Mzembe, A.N.; Lindgreen, A.; Idemudia, U.; Melissen, F. A club perspective of sustainability certification schemes in the tourism and hospitality industry. *J. Sustain. Tour.* **2020**, *28*, 1332–1350. [CrossRef]
99. Davidson, L.; Sahli, M. Foreign direct investment in tourism, poverty alleviation, and sustainable development: A review of the Gambian hotel sector. *J. Sustain. Tour.* **2015**, *23*, 167–187. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.