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# Unveiling the Impact of Sustainable Interior Design Criteria on Hotel's Operational Performance Effectiveness and User's Hedonic Consumption

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**Abstract:** Performance effectiveness in the hotel's operational stage is significant for hotel industry as the industry relies on customer satisfaction towards the service. Fulfilling the customer's satisfaction and users' hedonic on the aesthetic appearance, interiors, room decorations, and furnishings is crucial for hotel's operational and facilities management concept. However, awareness the management of tangible interiors and aesthetic performance on sustainable interiors products are still lacking in the hotel's operational performance. This study aims to close the loop between the sustainable interior design (SID) and facilities management, by identifying the criteria of SID relating to hotel's operational performance and user's hedonic consumption. A semi-structured interview was carried out this study involving three professionals; architect, interior designer, GBI facilitator, in various green hotels project. The data is analysed using ATLAS.ti9© qualitative software. The findings revealed that there are seven (7) sustainable ID criteria consists of biophilic, energy efficiency, water consumption, health and social flexibility, environmental comfort, ergonomics, and green awareness. This study is significant for the hoteliers in identifying critical elements contributed to the successful performance in hotel's operational stage using sustainable interiors.

**Keywords:** Sustainable interior design, performance effectiveness, hedonic consumption, hotel industry, ATLAS.ti

## 1. Introduction

For hotel industry, the first one considers the responsible design of buildings aiming to avoid the excessive use of resources by proper design. As supported by Othman and Mazli (2012), interior design plays an important role on human mood and social behaviours. Hotels are concentrating on aesthetics values as one aspect of perceived experiential value. The effect is stronger for hotel service goods that has been demonstrated to improve consumers' attitudes towards their

intentions to stay in the hotel (Kirillova and Chan, 2018). For example, a study by Artuğer (2020) showed that factors that should be considered for fulfilling the needs of hotel guests were physical appearance of the hotel, room decoration, furnishing, elements such as the colours used in the hotel, the quality of furniture, odours, music, heating and cooling. These factors, including the interior designs, are considered as tangible values that should be allocated in the hotel aesthetics.

Inevitably, quality improvements, business performance and operational performance are key priority in hotel industry. The relationship between interior design and hotels is integral, as it influences the guest experience, establishes brand identity, improves functionality, provides a competitive advantage, enhances long-term value, As supported by Sampaio *et al.*, (2019), developing a market orientation is essential for hotels to enhance their operational performance effectiveness and among the noteworthy aspects in hotel operations is sustainability. In the recent reports, practices on sustainability have emerged as a critical concern in the hotel strategy as long-term profitability to company and communities (Hilton, 2020; Marriott International, 2020; Shangri-La, 2020). According to Claver-Cortés *et al.*, (2007) and, Ham & Han (2013), among the green practices and initiatives implemented by the hoteliers are by promoting sustainable and environmental-friendly products and services for hotels. Since the hotel industry services are vary and complex, it is crucial to recognize the contextual characteristics and understand the surrounding environment of operations through proper assessment of performance. Sustainable practice in hotel industry is not only crucial for the management of new assets but, at the same time, they are essential for managing existing assets (Hasim *et al.*, 2020).

## 2. Unveiling the Criteria of Sustainable Interior Design in the Hotel Industry

The hotel's operational stage hotel also has an impact on the further degradation of the environment including high energy and water consumption, thermal comfort, and indoor air quality (Hsiao et al, 2018; Jin et al., 2016; Claver-Cortes et al 2007) and deteriorations that leads to higher maintenance cost (Heide et al., 2007; Kirillova & Chan, 2018). The maintenance of aesthetic features in a hotel is closely tied to interior design. The choice of materials, furnishings, and finishes in the interior design can impact the maintenance requirements and durability of the hotel (Artuğer, 2020; Pertičević & Milkić, 2018). Hence, integrating sustainable design elements into the interior design can contribute to the hotel's overall performance and align with sustainability goals. The fundamental idea of environmentally sustainable interior design is designing practical things in its surrounding built environment while providing services integrating with sustainable development concepts (Loftness et al.,2007). Sustainable interior design practices, such as using eco-friendly materials, incorporating energy-efficient lighting and HVAC systems, and implementing water-saving fixtures, contribute to the hotel's environmental responsibility. This not only aligns with sustainability goals but can also result in cost savings through reduced energy consumption and operational expenses.

Pertičević and Milkić (2018) defined sustainable interior design (SID) as efficient usage of space, the material with less impact on the environment, reducing non-renewable energy consumption, and reducing pollution and waste. SID is portrayed as a design whereby utterly using technologies and components constructed to minimize negative environmental impact on end users while increasing beneficial effects toward environmental, economic, and social systems over the building's life cycle. To ease the understanding of SID for hotels, evidence from precedent research and green hotel ratings revealed the criteria of SID and its definition. As shown in Table 1, the criteria were initially compiled from the ASEAN Standard of Green Hotel, Malaysia Green Hotel Standard, Green Building Index for Existing Hotel, Green Building Index for Interior, MyHijau Directory and previous research (sources: GBI, 2014, 2015; ASEAN, 2016; Malaysia, 2018; MGTC, 2018; Heide *et al.*, 2007; Kirillova & Chan, 2018; Zemke *et al.*, 2018; Ben Aissa & Goaid, 2016; Panno, 2020).

**Table 1 - Criteria and Description of Sustainable Interior Design (SID)**

Criteria	Description
Biophilic Design	The connection between nature and humans through design using direct and indirect nature experiences
Energy Efficiency	The ability in reducing the amount of energy required for heating, cooling, lighting, and operating appliance
Water Consumption	Reduce water usage by specifying the right technologies on selected fixture and equipment
Health and Social Flexibility	Monitoring equipment that measures moisture, particles, and temperature to perform proper control in our indoor environment
Environmental Comfort	Level of comfort and satisfaction of human beings within a space
Ergonomic	Branch of science that seeks to understand human abilities and limitations and improves people's interaction with products, systems, and environments
Green Awareness and Signages	Collaboration with the community and local organization that include the practice list of community life improvement, green awareness message signage and cultural / local living promotional activities

According to Hasim *et al.*, (2020), sustainable practice in organisation will benefit the owners towards sustainable economic, environmental, socio-cultural as well as legal policy. However, benchmarking the operational performance effectiveness and hedonic consumption based on sustainable interior designs is lacking in the previous study. In hotel, the assets comprise the property building, core facilities, furniture, fixtures, equipment and additional amenities. Those assets factors lead to the effectiveness of the business; i.e. the area, building design, sceneries, and interior design, providing unique ambiance and experience to the guests (Jones & Lockwood, 2002).

## 2.1 Key Elements of Performance Effectiveness in Hotel Operations

Performance effectiveness in hotel operations refers to the ability of a hotel to achieve its operational objectives and deliver high-quality services to guests while maximizing efficiency and profitability (O'Neill & Mattila, 2006). It encompasses various aspects of hotel operations, including guest satisfaction, operational efficiency, service quality, employee performance, compliance and safety. Performance effectiveness lies in the requirements of facilities management. This is supported by Baharum and Pitt (2009) that mentioned performance effectiveness as critical component in facilities management that significantly contribute to business stability. Therefore, there is a need to assess performance to guide management decision-making and performance measurement applies to hotel operations. Zemke *et al.*, (2018) stated that traditional methods of assessing a building's aesthetic and design quality include design competitions, where professionals (eg: architects, building managers, engineers) evaluate the building's design and assess the building's functional performance in terms of maintainability, energy efficiency and occupant's satisfaction. For instance, interior designers perform services relating to interior spaces including programming, design analysis, space planning, aesthetics, and inspection of work on site, using specialized knowledge of interior construction, building systems and components, building regulations, equipment, materials, and furnishings.

Panno (2020) added that subjective and non-financial measures are particularly relevant for service companies, as those in the hotel industry, in which the product obtained and sold is an intangible experience. By striving for high levels of performance effectiveness, organizations can improve outcomes, increase customer satisfaction, and achieve their desired objectives. Panno (2020) described that performance can be determined and measured with an appropriate measurement activity. Ultimately, performance effectiveness in hotel operations entails achieving a balance between guest satisfaction, service quality, operational efficiency, financial performance, employee performance, and compliance to drive the overall success and competitiveness of the hotel. The elements of performance effectiveness need to be identified to relate its significance towards hotel operation. Hence, Table 2 shows the compilation of performance effectiveness from precedent research.

**Table 2 - Elements of Performance Effectiveness in Hotel's Operation**

<b>Elements of Performance Effectiveness</b>	<b>Description</b>	<b>Source(S)</b>
Functional Performance	Refers to the ability of the building and its various components to fulfil their intended functions effectively and efficiently. It encompasses the practical aspects of the building's design, layout, and systems that directly impact the guest experience and operational efficiency.	(Braun, 2011; Dabestani <i>et al.</i> , 2016; Hasim <i>et al.</i> , 2020)
Environmental Performance	Refers to the extent to which a hotel minimizes its environmental impact and operates in a sustainable manner. It involves adopting practices and implementing measures that reduce resource consumption, waste generation, and greenhouse gas emissions.	(Hasim <i>et al.</i> , 2020; Jiang & Kim, 2015; Xu & Gursoy, 2015)
Technical Performance	Refers to the effectiveness and reliability of the technical systems and infrastructure that support the building's operations and guest services. It encompasses the functionality, performance, and maintenance of various technical elements within the building.	(Braun, 2011; Dabestani <i>et al.</i> , 2016; Hasim <i>et al.</i> , 2020)
Social Performance	Refers to the impact and contribution of the building to the well-being of the surrounding community, guests, and staff. It involves creating spaces and experiences that foster social interaction, promote inclusivity, and contribute positively to the social fabric.	(Berezan <i>et al.</i> , 2013; Park & Kim, 2014; Trang <i>et al.</i> , 2019)

Ideally, performance effectiveness involves meeting or exceeding guest expectations and ensuring a positive experience throughout their stay. This includes factors such as personalized service, prompt response to guest needs, comfortable accommodations, and overall guest satisfaction. According to Kirillova and Chan (2018), the effects of environmental on consumer behaviour have been studied in relation to sustainable interiors in hotels, including hedonic consumption by Countryman and Jang (2006) and Lin (2016).

## 2.2 User’s Hedonic Consumption in Sustainable Interiors

Service and hospitality experiences in hotels are conventionally viewed as hedonic, with an emphasis on aesthetic consumption (Oh et al.,2007). Aesthetically pleasing and visually appealing interiors with well-designed spaces, stylish furnishings, and attractive decor can enhance the hedonic experience of hotel guests. This is due to the hotel’s appearance which has become a form of commodified enchantment, the product of an aesthetic process that aims to create novelty, surprise, and excitement to generate profits (Kirillova and Chan, 2018). The consumption of hospitality products diverges from the consumption of typical service operations due to its inherent aesthetic orientation. For example, the concept of a servicescape, which encompasses both exterior and interior design as well as the tangible and also ambient conditions of service provision. According to Artuğer (2020), servicescape refers to the comprehensive physical environment perceived by customers and consists of elements including interior components such as facilities, furniture, and signs. Artuğer (2020) also added that customer satisfaction is one of the most important marketing priorities for businesses. It is crucial to relate the hedonic consumption of sustainable interior design in hotels. Preferably, to improve the performance effectiveness, it should be able to fulfil the hedonic consumption of hotel users. Table 3 provides the variables of hedonic consumption in the hotel industry.

**Table 3 - Elements of Users’ Hedonic Consumption Relating to Sustainable Interior Design**

User’s Hedonic Consumption	Relation of Hedonic to the Sustainable Interior Design	Author(s)
Mood	Sustainable interior design in hotels considers the user's mood to create a welcoming and comfortable atmosphere. This involves the use of color psychology, appropriate lighting levels, and the incorporation of natural elements to positively impact the mood and well-being of guests.	Mishra & Gupta, (2019) Nanu et al., 2020)
Happiness	Sustainable interior design strives to create spaces that promote happiness and well-being. This includes incorporating elements of biophilic design, such as indoor plants, natural materials, and access to views of nature. Providing comfortable seating areas, social gathering spaces, and recreational facilities promotes social interaction and happiness among guests.	Ransley & Ingram (2001)
Preferences	Design elements that reflect local culture and aesthetics can also enhance user preferences and create a sense of connection. It should provide moments of surprise, delight, or joy through exceptional service, unique amenities, or unexpected gestures that can enhance the hedonic consumption in hotels.	Artuğer (2020) Kirillova & Chan (2018),

Therefore, this study is carried out to identify and validate the components of sustainable interior design (SID) requirements relating to performance effectiveness and users’ hedonic consumption. It aims to bridge the gap between the requirements of SID and facilities management by encompassing both performance effectiveness and users' hedonic consumption within the realm of facilities management requirements, thereby establishing a comprehensive approach.

## 3. Materials and Method

A qualitative method using semi structured interview was carried out in the preliminary phase of this study. A total of ten experts with proficiency and well experienced in designing various green hotels was invited via email invitation to participate in the interview session. Their selections are based on their expert profile as Green Building Index (GBI) facilitator and have involved in designing green hotels. The selection of expert’s background is crucial in ensuring that their responses are aligned to the field of sustainable design and the impact on hotel performance effectiveness and hedonic consumption. Out of ten, a total of three participants have responded the invitation and agreed to be interviewed. The participants state their willingness provide their input for the interview session. All participants represent both government and private organisations. The participants were comprised of Principal Architect/GBI facilitator (Participant 1), senior interior designer consultant (Participant 2) and senior architect (Participant 3). All three experts were currently

practitioners involving in construction design and build projects as well as the experts are acknowledged in the field of designing green hotels projects as well as other category of green projects.

The samples for in-depth interview has no pre-set rules in terms of interviewee numbers (Cobern & Adams, 2020; Dworkin, 2012). According to Cobern and Adams (2020), calculations for samples do not exist in qualitative research and therefore the concept of generalization should not be applied to qualitative work. An interview is used to determine what opinions are held by interviewees and there is a critical assumption: the number of unique opinions is not very large. Hence, qualitative interviewers is urged to exchange the rhetoric of generalizing for the rhetoric of external validity. Therefore, the findings for this research is valid to provide preliminary findings on the empirical phase of this study.

### 3.1 The Interview Questions

The interview questions consisted of open-ended-type questions, as shown in Table 4. The responses were recorded and transcribed into a written format document. The data is then analysed using content analysis and also network presentation of ATLAS.ti 9© qualitative software. The quotations and responses from the interview session were segmented using deductive techniques, where the coding and themes were preliminary prepared to help answer the research questions. ATLAS.ti networks are used to present the connections of quotations to the codings based on the participants' responses.

**Table 4 - Open ended questions for the interview session**

ITEM	IN-DEPTH INTERVIEW QUESTIONS
1	Do you agree that the sustainable interior design impacted the hotel's performance effectiveness? Why?
2	Do you agree that sustainable interior design impacted users' hedonic consumption? Why?
3	Do you agree with the relevancy of the criteria of sustainable interior design that relates to performance effectiveness and hedonic consumption?

### 3.2 Administration of Interview and Participants' Demographic

The interview session was carried out in a separate date and session where each session took about 45 minutes to 1 hour. The interview process began by briefing the interviewee on the purpose of the interview and also explanation of research background. Table 5 shows the background of the experts who participate in this semi-structured interview. In terms of years of working experience, all of the participants have 14 years to 25 years working experience. It reveals their maturity, knowledge and experience in designing and requirements in green projects.

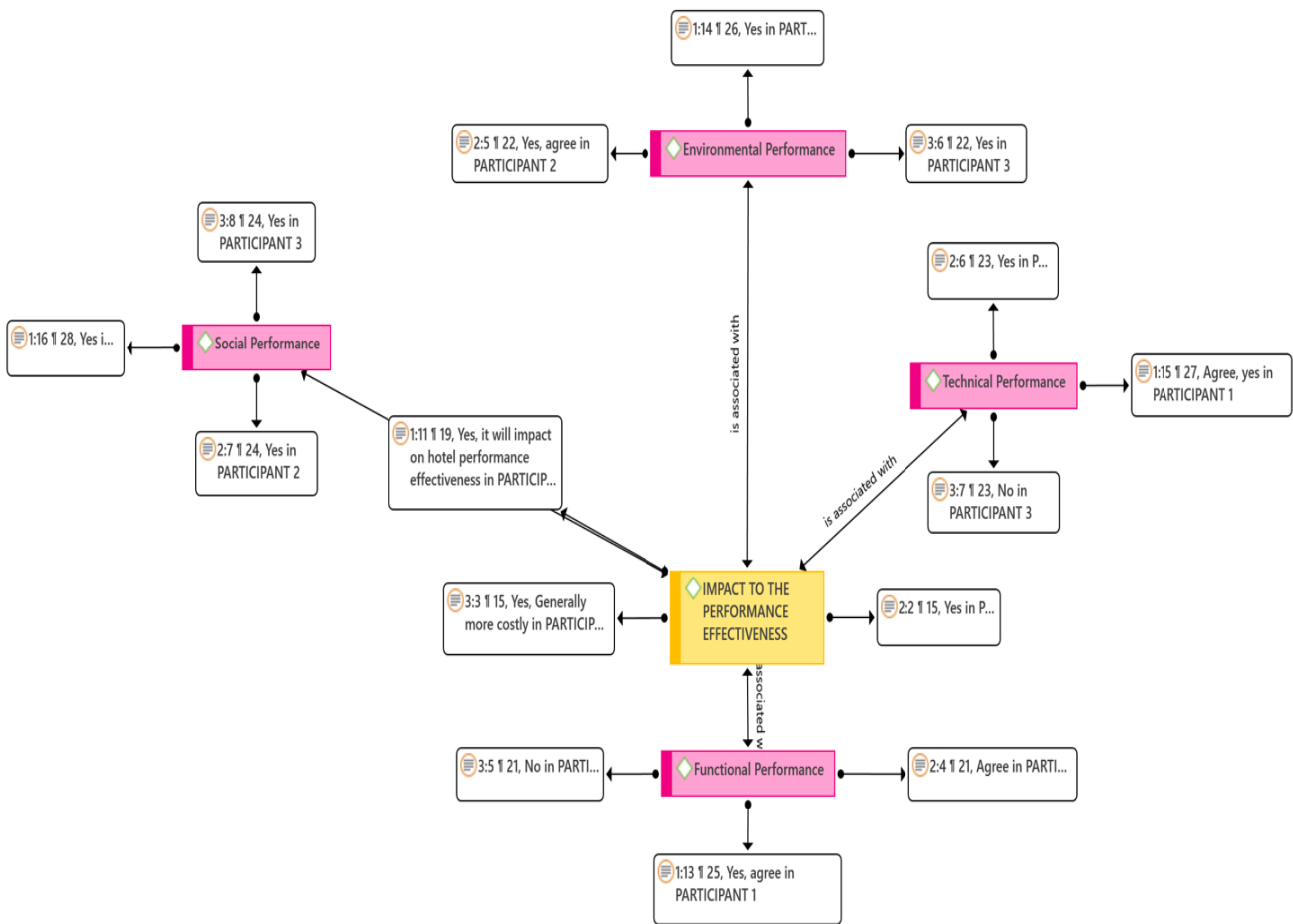
**Table 5 - Background of the Interview Participants**

REF.	SECTOR	BACKGROUND / DESIGNATION LEVEL	YEARS OF EXPERIENCE
Participant 1 (P1)	Government	Principal Architect / GBI Facilitator	25 years
Participant 2 (P2)	Private	Interior Design / Senior Interior Consultant	15 years
Participant 3 (P3)	Private	Architect / Senior Architect	18 years

## 4. Findings and Discussions

### 4.1 Sustainable Interiors Impacted to Hotel's Operational Performance Effectiveness

The interview participants were asked about their agreement that the hotel's performance effectiveness will be influenced based on sustainable interior designs. The performance effectiveness was listed towards functional performance, technical performance, environmental performance and social performance. The evidence of the participants' responses was shown using the network of ATLAS.ti© in Figure 1.



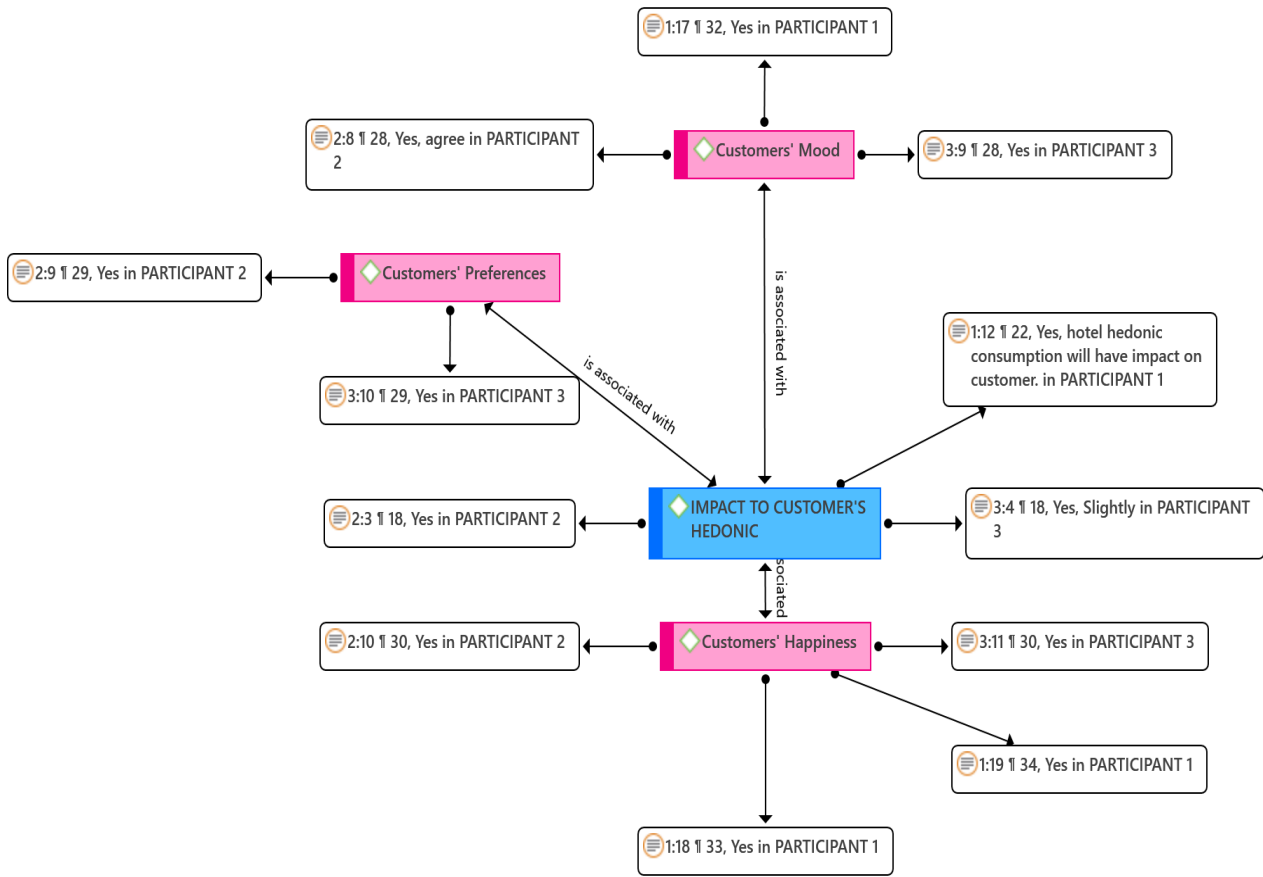
**Fig. 1 - Network of coding and participants’ responses on sustainable interior design impacted to hotel’s performance effectiveness**

The findings show that the participants agreed that the sustainable interior is associated to the hotel’s performance effectiveness in functional performance, environmental performance, technical performance and social performance. It is evidenced through quotations ID 13, 14, 15 and 16 by Participant #1 (1:13, 1:14, 1:15, 1:16) and the rest of quotations from Participant #2 and Participant #3 (2:4, 2:5, 2:6, 2:7, 3:6, 3:8). However, Participant #3 is disagreed with the impact of hotel’s performance to the functional and technical, as evidenced in quotation 5 and 7 (3:5 and 3:7). This response could be emerged because of the participants misunderstanding on the description of functional performance and technical performance. As described Dabestani *et al.*, (2016), functional is described as the ability of the building to achieve the optimum serve towards functional purpose, fit-for-purpose, and meet the organisation’s objectives and goals. While technical performance is described as a measure of how well function of the building meets the efficiency of technical services in the building that supports the building operation (Shalabi, 2017; Khalil *et al*, 2016). As supported by Abisuga *et al.* (2019), the robustness of functional and technical is needed for routine extensive maintenance, which includes adaptability, aesthetics and durability of materials to cater to unplanned functional and technical failures.

Ideally, these performance elements relate to the context of sustainability in hotel operations. In terms of environmental performance, sustainable interior practices emphasize waste reduction through strategies such as recycling, repurposing, and incorporating durable materials (Pertičević & Milkić, 2018; Mishra & Gupta, 2019). By designing for longevity and considering the life cycle of products, sustainable interior design minimizes waste generation, leading to improved environmental performance. For instance, a carefully planned interior design with attention to sustainable materials, durability, and timeless aesthetics can contribute to the long-term value of the hotel. According to Zemke *et al.*, (2018), a critical aspect of operating a hotel is to understand which components of the property itself influence the guests’ perceptions of the property and how their assessments of the hotel’s design are related to actual performance. Khalil *et al.* (2022) unveiled that the roles of hoteliers in adopting green practices for the hotel operation would not only impact performance effectiveness on the economic and environmental, but also contribute to the social performance attributes such as the customer’s safety, health, satisfaction, enjoyment, happiness and comfort. As stressed by Panno (2020), implementing green practices represents practical approaches to enhance the utilization of resources and capabilities, fostering a comprehensive understanding of the organizational accomplishments. It can be demonstrated through consideration of sustainable interior design criteria into hotel’s design and planning stage.

## 4.2 Sustainable Interiors Impacted to Users' Hedonic Consumption

Next, the participants were asked on their opinion whether sustainable interior is impacted to the user's hedonic consumption in customer's mood, happiness and preferences.



**Fig. 2 - Network of coding and participants' responses on sustainable interiors design impacted to user's hedonic consumption**

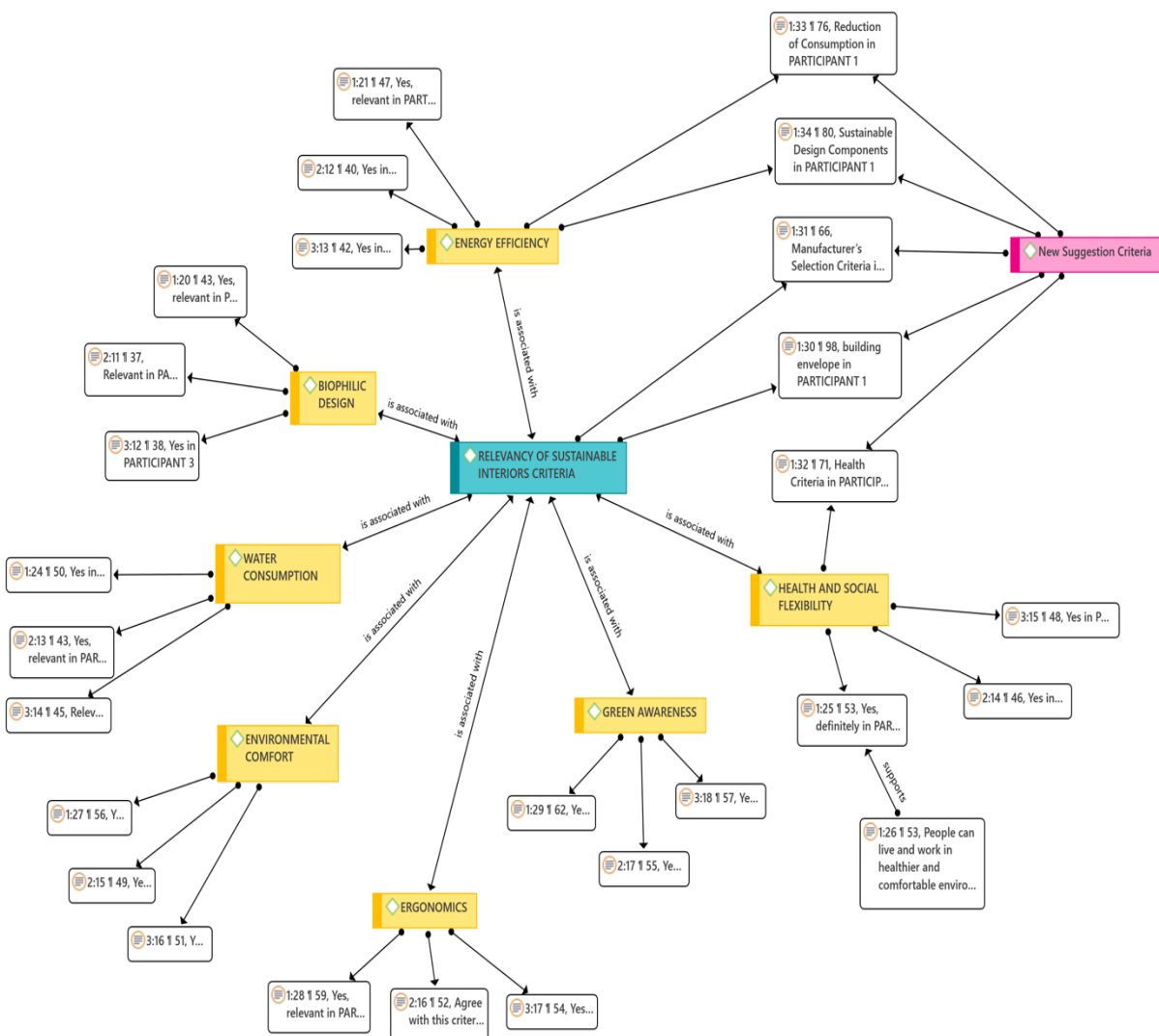
As shown in the network of ATLAS.ti© in Figure 2, all of the participants agreed that the sustainable interiors impacted to the hedonic consumption on customer's mood (Quotations ID 1:17, 2:8, 3:9) happiness (Quotations ID 1:18, 2:10, 3:11), and preferences (Quotations ID 2:9, 3:10, 1:19). Hedonic is defined as experience or consumers experiential analysis based on the facility or products used. This is aligned with Haapala & Pulkka (2015) that described sustainable interior design practices aim to create visually appealing and harmonious spaces using eco-friendly materials, natural elements, and thoughtful design choices. This enhanced aesthetic appeal contributes to users' hedonic consumption by providing a visually pleasing and enjoyable environment. Other than that, sustainable interior design often incorporates biophilic elements, such as greenery, natural textures, and views of the outdoors (Cho & Lee, 2018; Fischer & Stanzus, 2014). This connection with nature has been shown to enhance users' hedonic experiences, promoting feelings of calmness, rejuvenation, and an overall sense of happiness. This is supported by Han *et al.*, (2020) and Zemke *et al.* (2018) that the hotel's green practices significantly increased values and pro-environmental intentions, and both hedonic and utilitarian values. Delivering personalized and attentive service that caters to individual needs, preferences, and desires can create a positive emotional connection and enhance the hedonic experience. As mentioned by Zemke *et al.* (2018), a service that is designed to better satisfy the hedonic and utilitarian needs of the customer will garner a larger market share and higher revenues.

Hotel appearance has become a form of commodified enchantment, the product of an aesthetics process that aims to create novelty, surprise, and excitement to generate profits (Kirillova & Chan, 2018). Incorporating sustainable interiors with cutting-edge technology, smart amenities, and innovative features that enhance convenience, comfort, and enjoyment for guests can contribute to their hedonic experiences. According to Kirillova and Chan (2018), the effects of environmental factors on consumer behaviour have been studied in relation to these concepts in several contexts. Hospitality that focuses on the quality and satisfaction of hotel guests can thrive in the dynamic tourist market. For hotels, hospitality stands apart from other associated endeavors in the realm of accommodation provision through its unwavering

commitment to upholding service quality that aligns with customers' evolving lifestyles and contemporary trends (Khalil et al, 2022). Creating a hotel's atmosphere through captivating decor, enchanting lighting, or whimsical elements can evoke a sense of wonder and enhance the hedonic experience. Hence, it is important to understand the preferences and desires of hotel guest to tailor the hedonic elements to their specific needs.

### 4.3 Suitability of SID Criteria to Hotel's Performance Effectiveness and User's Hedonic Consumption

In the last interview question, the participants were asked in terms of their agreement with the criteria in sustainable interior design (SID) that relates to the performance effectiveness and hedonic consumption. As previously described, a pre-guided reference list of SID criteria is shown to the interview participants which consists of seven criteria: i) *Biophilic*, ii) *Energy Efficiency*, iii) *Water Consumption*, iv) *Health and Social Flexibility*, v) *Environmental Comfort*, vi) *Ergonomics* and vii) *Green Awareness*. To recap, these criteria were compiled from ASEAN Standard of Green Hotel, Malaysia Green Hotel Standard, Green Building Index for Existing Hotel, Green Building Index for Interior, MyHijau Directory and previous research (sources: GBI, 2014, 2015; ASEAN, 2016; Malaysia, 2018; MyHijau, 2018; Braun, 2011; Heide et al., 2007; Kirillova & Chan, 2018; Zemke et al., 2018; Ben Aissa & Goaid, 2016; Panno, 2020).



**Fig. 3 - Network of coding and participants' responses on criteria of sustainable interiors to performance effectiveness and hedonic**

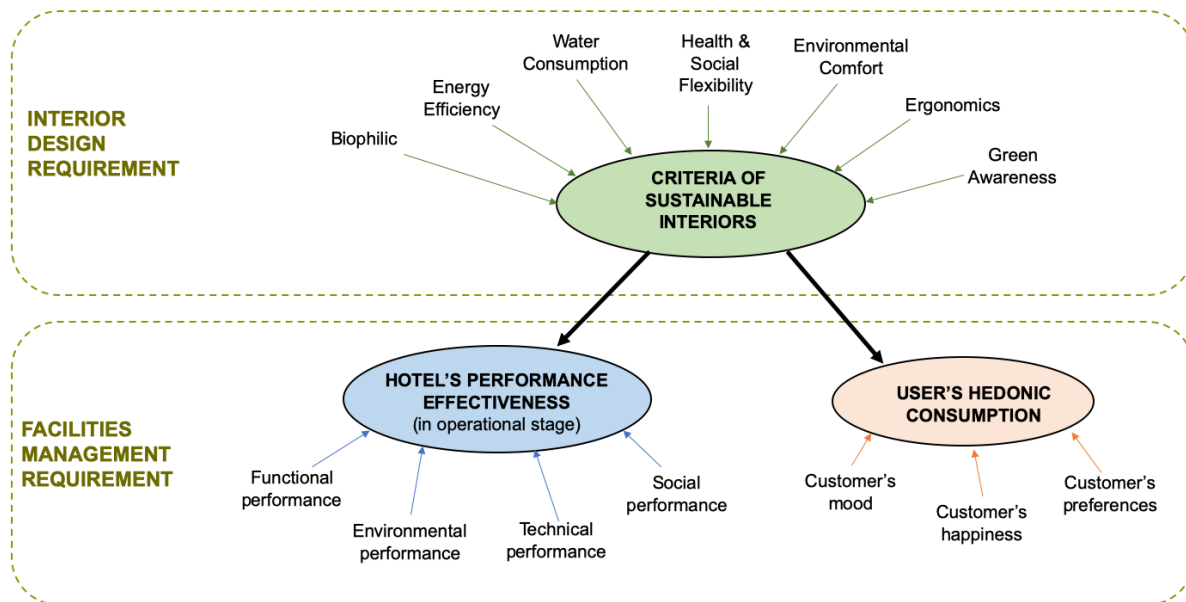
As shown in the network of ATLAS.ti© in Figure 3, the interview participant agreed with the relevancy of seven (7) sustainable ID criteria consists of *Biophilic*, *Energy Efficiency*, *Water Consumption*, *Health and Social Flexibility*, *Environmental Comfort*, *Ergonomics* and *Green Awareness*. There are new suggestions of sustainable interior criteria were suggested by Participant #1 where the criteria of sustainable interior are also includes *Reduction of Consumption*, *Sustainable Design Components*, *Manufacturer's Selection*, *Building Envelope* and *Health Criteria* (Quotation ID 1:33,



1:34, 1:31, 1:30, 1:32). These criteria are aligned to those items listed in the GBI criteria for green hotels (GBI, 2014). However, those new suggestions are also associated to the criteria of Energy Efficiency and Health and Social Flexibility. As supported by Pertičević & Milkić (2018), efficient usage of space, the material with less impact on environments, reducing non-renewable energy consumption, reducing pollution and waste. The findings are also tally with (Rashdan and Ashour, 2017) that described sustainable interiors as criteria of sustainable interior products and materials are significant to manufacturer selection, health, reduced consumption, sustainable design components, and efficient design resource management sustainability is a well-established business trend. It associates a company's policies, goals, and practices aligned with the social, environmental, cultural, and economic elements of sustainable development (Amini & Bienstock, 2014).

It is inevitable that the elements of sustainable is frequently driven as development that fulfils the demands of the present without jeopardizing future generation's ability to satisfy their own needs (Visser & Brundtland, 2013). Environmental concerns have long been identified as the protection of the natural environment, emphasising on global climate change, pollution, environmental degradation and extinction, and waste management. As supported by Hayles (2015), sustainable interiors demarcated as the materials' intended application, aesthetic qualities, environmental and health impacts, availability, ease of instalment and maintenance, and initial and life cycle costs. The implications of all the findings gathered in this exploratory interview were the significant process for the first phase of the study. The findings of sustainable interior design criteria impacted hotel performance effectiveness and hedonic consumption tally to the requirements of facilities management (FM). According to Koleoso *et al.* (2017), the developed scale in facilities management comprises items to measure both tangible (hard) and intangible (soft) aspects. Therefore, the assessment of the hotel's operational performance and users' hedonic serves as a valuable tool that has great potential for decision makers at both strategic and operational levels in FM concept.

The concept of building performance addresses a comprehensive evaluation that is closely related to the operational level, which can feed-forward as a decision-making tool for stakeholders (Abisuga & Wang, 2019; Amos *et al.*, 2019; Seshadhri & Paul, 2017). Hence, the planning, design and construction of hotel buildings can be improved through the feed-forward of evaluation. Figure 4 summarises the concept of sustainable interior criteria that impacted the hotel's performance effectiveness and user's hedonic consumption, based on the outcome of interview findings. It reflects the aim of the study that attempts to close the loop between interior design requirements and facilities management requirements.



**Fig. 4 - Conceptual summary of sustainable interiors criteria impacted the hotel's performance effectiveness and user's hedonic consumption**

## 5. Conclusion

It can be concluded that identifying sustainable interior elements in hotels are crucial to establish effective performance and competitive benefit since they contribute significantly to developing a positive brand image, meeting customer expectations and standards as well as reducing operational costs. Sustainability in the green hotel business depending on the well-combination of management theory and industry green practice. This study is significant to help the hotel industry managers identify which aspects of the property are critical to successful performance by integrating

facilities management to the sustainable interior design requirements. Further study will be addressed to the sub-divisions or sub-components from the main criteria of sustainable interior elements and further stage in questionnaire development.

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## References

- Abisuga, A. O., Wang, C. C. and Sunindijo, R. Y. (2019). A holistic framework with user-centred facilities performance attributes for evaluating higher education buildings. *Facilities*, 38(1–2), 132–160.
- Amaratunga, D. and Baldry, D. (1998). Appraising the total performance of higher education buildings: A participatory approach towards a knowledge-based system?, *Construction and Building Research Conference 1998: Proceedings (COBRA) 2nd-3rd September 1998, Oxford Brookes University*, (January), 1–17.
- Amini, M., & Bienstock, C. C. (2014). Corporate sustainability: An integrative definition and framework to evaluate corporate practice and guide academic research. *Journal of Cleaner Production*, 76, 12–19.
- Amos, D., Musa, Z. N. and Au-Yong, C. P. (2019). A review of facilities management performance measurement. *Property Management*, 37(4), 490–511.
- Artuğer, S. (2020). The effect of servicescape in hotels on customer satisfaction: Evidence from resort hotels. *Turizam*, 24(3), 113–124.
- ASEAN (2016). *Asean Green Hotel Standard*, The Asean Secretariat. Available at: <http://www.asean.org/wp-content/uploads/2012/05/ASEAN-Green-Hotel-Standard.pdf>.
- Baharum, M. R., & Pitt, M. (2009). Determining a conceptual framework for green FM intellectual capital. *Journal of Facility Management*, 7(1), 267–282. <https://doi.org/10.1108/14725960910990026>
- Ben Aissa, S., & Goaid, M. (2016). Determinants of tourism hotel market efficiency. *International Journal of Culture, Tourism, and Hospitality Research*, 10(2), 173–190. <https://doi.org/10.1108/IJCTHR-11-2013-0080>
- Berezan, O., Raab, C., Yoo, M., & Love, C. (2013). Sustainable hotel practices and nationality: The impact on guest satisfaction and guest intention to return. *International Journal of Hospitality Management*, 34(1), 227–233. <https://doi.org/10.1016/j.ijhm.2013.03.010>
- Bohdanowicz, P. (2006). *Responsible Resource Management in Hotels – Attitudes, Indicators, Tools and Strategies*, Royal Institute of Technology, Stockholm.
- Bohdanowicz, P. (2009). *Theory and Practice of Environmental Management and Monitoring in Hotel Chains*. Sustainable Book Tourism. Routledge: Taylor & Francis
- Braun, R. (2011). *The lobby as a living room: What interior design innovations and products do luxury hotels implement to attract guests to their lobby?* Bachelor Thesis: Modul Vienna University
- Coburn, W. W., & Adams, B. A. (2020). When interviewing: how many is enough? *International Journal of Assessment Tools in Education*, 7(1), 73–79.
- Countryman, C. and Jang, S.C. (2006), “The effects of atmospheric elements on customer impression: the case of hotel lobbies”, *International Journal of Contemporary Hospitality Management*, 18,7, 534-545
- Cho, M., & Lee, J. (2018). The impact of sustainable interior design on employees' workplace attitudes and behaviors. *Sustainability*, 10(11), 3934
- Chou, C. J., Chen, K. S. and Wang, Y. Y. (2012). Green practices in the restaurant industry from an innovation adoption perspective: Evidence from Taiwan. *International Journal of Hospitality Management*, 31(3), 703–711.
- Claver-Cortés, E., Molina-Azorin, J.F., Pereira-Moliner, J. & Gamero, M. D. L. (2007). Environmental strategies and their impact on hotel performance. *Journal of Sustainable Tourism*, 15(6), 663–679.
- Dabestani, R., Shahin, A., Saljoughian, M., & Shirouyehzad, H. (2016). Importance-performance analysis of service quality dimensions for the customer groups segmented by DEA: The case of four star hotels. *International Journal of Quality and Reliability Management*, 33(2), 160–177. <https://doi.org/10.1108/IJQRM-02-2014-0022>
- Desmet, P. M. A. and Pohlmeier, A. E. (2013). Positive Design: An Introduction to Design for Subjective Well-Being. *International Journal of Design*, 7(3), 5–19.
- Dworkin, S. L. (2012). Sample size policy for qualitative studies using in-depth interviews. *Archives of Sexual Behavior*, 41(6), 1319–1320.
- Fischer, D., & Stanzus, L. (2014). Green experience: The recreational value of sustainable interior design elements. *Journal of Cleaner Production*, 65, 283-292.
- GBI (2015). *GBI Assessment Criteria for Interiors V1.1* (January), pp. 1–19.
- Green Hotel Association (2016). *What Are Green Hotels?* Available at: <http://greenhotels.com/index.php>.
- Ham, S. and Han, H. (2013). Role of Perceived Fit With Hotels Green Practices in the Formation of Customer Loyalty: Impact of Environmental Concerns. *Asia Pacific Journal of Tourism Research*, 18(7), 731–748. d.

- Han, H., Bo, M. Chua B.L and Ryu, H.B. (2020). Hedonic and Utilitarian Performances as Determinants of Mental Health and Pro-Social Behaviors among Volunteer Tourists. *International Journal of Environment Research and Public Health*, 17(6594), 1–14.
- Haapala, A., & Pulkka, R. (2015). User experiences of sustainable interior design: Exploring the relationship between design qualities and user satisfaction. *Journal of Cleaner Production*, 109, 222-230.
- Hasim, M. S., Yasin, M. F. M. and Zaidi, M. A. (2020) Sustainability Commitment in Facilities Management : Perception of Facilities Manager for South Australian Universities. (October).
- Hayles, C. S. (2015). Environmentally sustainable interior design: A snapshot of current supply of and demand for green, sustainable or Fair Trade products for interior design practice. *International Journal of Sustainable Built Environment*, 4(1), 100–108.
- Heide, M., Lærdal, K., & Grønhaug, K. (2007). The design and management of ambience-Implications for hotel architecture and service. *Tourism Management*, 28(5), 1315–1325. <https://doi.org/10.1016/j.tourman.2007.01.011>
- Hilton (2020) Hilton 2020 environmental, social and governance (ESG) report.
- Hsiao, T. Y., Chuang, C. M. and Huang, L. (2018) The contents, determinants, and strategic procedure for implementing suitable green activities in star hotels. *International Journal of Hospitality Management*, 69(March 2017), 1–13.
- Jiang, Y., & Kim, Y. (2015). Developing multi-dimensional green value extending social exchange theory to explore customers' purchase intention in green hotels-evidence from Korea. *International Journal of Contemporary Hospitality Management*, 27(2), 308–334. <https://doi.org/10.1108/IJCHM-08-2013-0383>
- Jones, P., & Lockwood, A. (2002). *The Management of Hotel Operations*. Cengage Learning EMEA.
- Khalil, N., Kamaruzzaman, S. N., & Baharum, M. R. (2016). Ranking the indicators of building performance and the users' risk via Analytical Hierarchy Process (AHP): Case of Malaysia. *Ecological Indicators*, 71, 567–576. <https://doi.org/10.1016/j.ecolind.2016.07.032>
- Khalil, N., Che Abdullah, S.N., Haron, S.N. and Hamid, M.Y. (2022). A review of green practices and initiatives from stakeholder;s perspectives towards sustainable hotel ooperations and performance impact. *Journal of Facilities Management*, vol. (ahead-of-print), 1-30. <https://doi.org/10.1108/JFM-03-2022-0025>
- Kirillova, K. and Chan, J. (2018). What is beautiful we book: Hotel visual appeal and expected service quality. *International Journal of Contemporary Hospitality Management*, 30(3), pp. 1788–1807
- Koleoso, H., Omirin, M. Adewunmi, Y. & Babawale, G. (2013). Applicability of existing performance evaluation tools and concepts to the Nigerian facilities management practice. *International Journal of Strategic Property Management*, 17(4), 361–376.
- Lee, S. (Ally) (2020). Investigating the importance of positive hotel design. *International Journal of Hospitality Management*, 88(March 2019), p. 102523.
- Lee, T. J. (2011). Role of hotel design in enhancing destination branding. *Annals of Tourism Research*, 38(2), pp. 708–711.
- Lin, I. Y. (2016). Effects of visual servicescape aesthetics comprehension and appreciation on consumer experience. *Journal of Services Marketing*, 30(7), 692–712. <https://doi.org/10.1108/JSM-08-2015-0258>
- Loftness, V., Hakkinen, B., Adan, O., & Nevalainen, A. (2007). Elements that contribute to healthy building design. *Environmental Health Perspectives*, 115(6), 965–970. <https://doi.org/10.1289/ehp.8988>
- MOTAC (2018) "Green Hotel Criteria". Ministry of Tourism, Arts and Culture Malaysia <https://www.motac.gov.my/en/services/registration/tourist-accommodation-premises/category/16-green-hotel>
- Marriott International (2020). 2020 Serve 360 Report.
- Mat, N. E. M. N., Kamaruzzaman, S. N. and Pitt, M. (2011). Assessing the maintenance aspect of facilities management through a performance measurement system: a Malaysian case study. *Procedia Engineering*, 20, pp. 329–338.
- MGTC (2018). MyHijau Directory 12th Edition. Malaysian Green Technology and Climate Change Corporation (MGTC): Malaysia
- Mishra, A., & Gupta, A. (2019). Green hotel servicescape: attributes and unique experiences. *Current Issues in Tourism*, 22(20), 2566–2578. <https://doi.org/10.1080/13683500.2018.1502259>
- Nanu, L., Ali, F., Berezina, K., & Cobanoglu, C. (2020). The effect of hotel lobby design on booking intentions: An intergenerational examination. *International Journal of Hospitality Management*, 89(December 2019). <https://doi.org/10.1016/j.ijhm.2020.102530>
- Oh, H., Fiore, A. M., & Jeoung, M. (2007). Measuring experience economy concepts: Tourism applications. *Journal of Travel Research*, 46(2), 119–132. <https://doi.org/10.1177/0047287507304039>
- O'Neill, J. W., & Mattila, A. S. (2006). Hotel guest satisfaction, loyalty and commitment: A critical review and a conceptual framework. *Cornell Hospitality Quarterly*, 47(1), 39-49.
- Othman, A. R. and Mazli, M. A. M. (2012). Influences of Daylighting towards Readers' Satisfaction at Raja Tun Uda Public Library, Shah Alam. *Procedia - Social and Behavioral Sciences*, 68, pp. 244–257.
- Park, J., & Kim, H. J. (2014). Environmental proactivity of hotel operations: Antecedents and the moderating effect of ownership type. *International Journal of Hospitality Management*, 37, 1–10. <https://doi.org/10.1016/j.ijhm.2013.09.011>
- Panno, A. (2020). Performance measurement and management in small companies of the service sector; evidence from

- a sample of Italian hotels. *Measuring Business Excellence*, 24(2), pp. 133–160.
- Penny, W. Y. K. (2007). The use of environmental management as a facilities management tool in the Macao hotel sector. *Facilities*, 25(7–8), pp. 286–295.
- Pertičević, M. and Milkić, N. (2018). Environmentally Sustainable Interior Design - the Challenges and Trends. *Safety Engineering*, 8(2), pp. 103–108.
- Phillips, P. A. (2004). Customer-oriented hotel aesthetics: A shareholder value perspective. *Journal of Retail & Leisure Property*, 3(4), pp. 365–373.
- Pitt, M., Cannavina, D. Sulaiman. S. Mahyuddin, N. & Wu, C. (2016). Hotel maintenance management in Sanya, China. *Journal of Facilities Management*, 14(4), pp. 304–314.
- Ransley, J., & Ingram, H. (2001). What is “good” hotel design? *Facilities*, 19(1), 79–87. <https://doi.org/10.1108/02632770110362857>
- Rashdan, W. and Ashour, A. F. (2017). Criteria for sustainable interior design solutions. *WIT Transactions on Ecology and the Environment*, 223(September), pp. 311–322.
- Sampaio, C. A. F., Hernández-Mogollón, J. M. and Rodrigues, R. G. (2019). Assessing the relationship between market orientation and business performance in the hotel industry – the mediating role of service quality. *Journal of Knowledge Management*, 23(4), pp. 644–663.
- Seshadhri, G. and Paul, V. K. (2017). User requirement related performance attributes for government residential buildings. *Journal of Facilities Management*, 15(4), pp. 409–422.
- Shangri-La, A. L. (2020). Sustainability Report 2020. *Sustainability Report 2020*, pp. 1–83. Available at: <https://wegreen.walisongo.ac.id/annual-report/>.
- Trang, H. L. T., Lee, J. S., & Han, H. (2019). How do green attributes elicit pro-environmental behaviors in guests? The case of green hotels in Vietnam. *Journal of Travel and Tourism Marketing*, 36(1), 14–28. <https://doi.org/10.1080/10548408.2018.1486782>
- Tsai, W. H., Yang, C. H., Chang, J. C. & Lee, H. L. (2014). An Activity-Based Costing decision model for life cycle assessment in green building projects. *European Journal of Operational Research*, 238(2), pp. 607–619.
- World Travel and Tourism Council (2021). *Economic Impact Reports*. Available at: <https://wttc.org/Research/Economic-Impact>.
- Zemke, D. M. V., Chen, Y. S., Raab, C. & Zhong, Y.Y. (2017). Hotel design, guest satisfaction, and behavioural intentions. *An International Journal of Tourism and Hospitality Research*, 28(3), pp. 338–350.
- Zemke, D. M. V., Raab, C. and Wu, K. (2018). How does hotel design contribute to property performance? *International Journal of Contemporary Hospitality Management*, 30(2), pp. 919–938.