



© Universiti Tun Hussein Onn Malaysia Publisher's Office

IJSCET<http://publisher.uthm.edu.my/ojs/index.php/ijscet>

ISSN : 2180-3242 e-ISSN : 2600-7959

International
Journal of
Sustainable
Construction
Engineering and
Technology

Sustainable Facilities Management (SFM) Initiatives in Malaysia Hotel Industry

Alyaa Afifah Abu Talib¹, Nor Rima Muhamad Ariff^{1,2,*}, Mohamad Sufian Hasim¹, Mohd Hafiz Hanafiah³, Alpana Sivam⁴

¹College of Built Environment,
Universiti Teknologi MARA (UiTM) Shah Alam, Selangor, MALAYSIA

²RIG: Tropical Building Performance (Trob-P),
Universiti Teknologi MARA (UiTM) Shah Alam, Selangor, MALAYSIA

³Faculty of Hotel and Tourism Management,
UiTM Selangor Puncak Alam Campus, Selangor, MALAYSIA

⁴UniSA Creative,
University of South Australia, AUSTRALIA

*Corresponding Author

DOI: <https://doi.org/10.30880/ijscet.2023.14.05.007>

Received 01 May 2023; Accepted 06 August 2023; Available online 31 October 2023

Abstract: This study offers valuable insights into the implementation of Sustainable Facilities Management (SFM) initiatives within Malaysia's hotel industry. By drawing upon traditional organizational theory, the research identifies sustainable measures at strategic, tactical, and operational levels. Environmental issues have gained increasing recognition among hoteliers worldwide, making them a crucial area of focus. The rise of the tourism sector is often associated with the hospitality industry's impact on the environment. Through preliminary semi-structured interviews with eight respondents from diverse hotel experiences, the study analysed the current SFM initiatives in the context of the Malaysian hotel industry. The findings highlight that SFM practices follow a top-to-bottom sequential process, encompassing policy planning (strategic), awareness-raising (tactical), implementation (operational), and monitoring and improvement planning (operational). Emphasizing the significance of integrating SFM initiatives into day-to-day hotel operations, the study underscores the need for systematic and comprehensive sustainability practices. Moreover, this study makes a valuable contribution by developing Sustainable Facilities Management (SFM) initiatives that assess hotels' long-term commitment to sustainability, benefiting not only the industry but also the wider community. By focusing on SFM initiatives in the hospitality sector, this article offers crucial information to fuel the rapid growth of sustainable development within Malaysia's hospitality industry.

Keywords: Sustainability, hotel industry, Facilities Management (FM), Sustainable Facilities Management (SFM), sustainable initiatives

1. Introduction

In the past decade, sustainability has undergone a radical transformation, leading to its critical acceptance across various industries (Brundtland International Institute for Sustainable Development, 2017; Floričić, 2020; Kasim, 2014).

With the World Commission on Environment and Development (WCED) emphasising sustainable development as an inclusive approach for the mass development of the built environment about 25 years ago, the importance of sustainability has only grown since then. In the hospitality sector, particularly in hotels that operate around the clock, sustainable management has become an indispensable practice. During the COP26 UN Climate Change Conference, the Glasgow Declaration was formally introduced. This declaration presents a comprehensive plan aimed at mobilizing the tourism industry to play its part in the global effort to reduce emissions by 50% by 2030 and achieve carbon neutrality by 2050. Simultaneously, the Hotel Energy Solutions (HES) project, a collaborative initiative of The World Tourism Organization (UNWTO) and prominent United Nations and EU agencies in the Tourism and Energy sectors, revealed that hotels and various types of accommodations collectively account for around 2% of the overall 5% global CO₂ emissions generated by the tourism sector.

Despite facing challenges in reducing their carbon footprint, the hotel industry has demonstrated a serious commitment to addressing this issue on a global scale. Various studies (Abdou et al., 2020; Melissen et al., 2016; Mousavi et al., 2017; Stoffers et al., 2021; Wong et al., 2021) have highlighted the industry's emphasis on sustainability initiatives. As a significant component of the tourism sector and one of the rapidly growing sectors in today's economy, hotels recognize the urgency of adopting sustainable practices.

By implementing eco-friendly solutions, hotels aim to minimise pollution, enhance customer satisfaction, and mitigate potential reputational challenges (Wong et al., 2021). Hoteliers worldwide have increasingly recognised the significance of addressing environmental issues, making it a crucial area of focus. With growing concerns over the escalating challenges of global climate change, the Malaysian government has proactively taken measures to address this pressing issue. As a result, the hotel industry has been compelled to embrace sustainability practices that align with the 17 Sustainable Development Goals (SDGs). These goals serve as a comprehensive framework to promote environmental responsibility and contribute to a more sustainable future.

In response to UNWTO, Malaysia's tourism sector plays a vital role which has been explicit in Malaysian National Ecotourism Plan (MNEP 2016-2025). In this plan, The Ministry of Tourism and Culture Malaysia (2016) emphasise the hotel industry responsibility to adhere and embrace to sustainability principles, with a focus on three criteria: eco-friendly building premises, green technology and nurturing human resources. These sustainability practices in hotel industry align with the goal of the National Tourism Policy (2020-2030) which aims to position Malaysia among the top 10 global destinations in terms of both tourist arrivals and receipts.

Failure to manage facilities effectively during the implementation of sustainable practices may lead to dissatisfaction among business stakeholders, ultimately impacting the hotel's business goals (Floričić, 2020; González-Rodríguez et al., 2019). Understanding the current practices of sustainability implementation is crucial, particularly in ensuring alignment with the core nature of the hotel industry. The distinguishing point of this study, compared to other studies in this area, is that it has considered the role of facilities management (FM) in implementing sustainable hotel operations, known as Sustainable Facilities Management (SFM). Nielsen et al. (2016) emphasised that the FM profession is a multidisciplinary field capable of providing solutions and making significant contributions at the organizational level. Presently, one of the key priorities for hotel facilities managers is to tackle environmental management challenges to enhance organisational effectiveness and well-being. The facilities manager's competency in SFM demands their ability to integrate an organisation's people, place, and business, resulting in benefits in terms of economic, environmental, and social aspects of sustainability (British Institute of Facilities Management (BIFM), 2018; Hodges, 2014; van Sprang & Drion, 2020).

SFM is defined as "the implementation of sustainability principles within the realm of FM" (Alfalah & Zayed, 2020; Galamba & Nielsen, 2016; Shah, 2008). The main focus of SFM is to incorporate sustainability practices into the organisational operations of FM (Abu Talib et al., 2020; Baaki et al., 2016; Nazeer et al., 2019). Numerous studies have confirmed that SFM does not introduce entirely new practices; instead, it integrates sustainability practices with the established principles of FM in organisational management (Alfalah & Zayed, 2020; Mwangi, 2018; Nazeer et al., 2019; Nielsen et al., 2016). The integration of sustainability practices into the FM system yields significant impacts across various aspects, encompassing human resources, facility management, procedure development, and information management. This alignment also contributes to advancing the 'green' agenda. As a result, hotel management benefits from projecting a positive image while actively reducing their contribution to climate change (Abdou et al., 2020; Alfalah & Zayed, 2020; Mohanty, 2015).

Past research acknowledges that lack of attention by the hotel management leading to inadequate implementation of sustainable practices (Aladag et al., 2020; Nielsen et al., 2016; Rahman & Reynolds, 2016; Santos et al., 2017). Excessive energy usage in the hotel industry is a major source of CO₂ emissions, including water consumption and waste generation (Amado dos Santos et al., 2020; Khalil et al., 2022). The implementation of SFM in Malaysia's hotel industry requires improvement to reduce the possible contribution to the increasing impact of global climate change and environmental degradation (Abu Talib et al., 2020; Yusliza et al., 2020; Zaiton et al., 2016; Zuriyati et al., 2014). Despite the evident benefits of reduced resource consumption, operating costs, and an enhanced corporate business image, several studies have reported that comprehensive sustainable practices based on SFM remain scarce in the hotel industry (Abdou et al., 2020; Moliner et al., 2019; Santos et al., 2017; Stoffers et al., 2021). As such, it is crucial for the

hotel business to proactively consider modifying SFM practices to align with ethical principles and contribute to minimizing environmental deterioration caused by global climate change.

A study conducted by Ahn and Kwon (2020) investigated customers' attitudinal loyalty towards green hotels and found a significant relationship between emotional-related experiences and customer attitudes, influencing their revisit intentions towards green hotels (sustainable practices) in Malaysia. Consequently, a green innovation strategy can be considered essential in the hotel industry as it enables hotels to gain competitive advantages in an environment that prioritizes environmental concerns. However, the challenges of adopting sustainable practices are still debated (see (Abu Talib et al., 2020; Asadi et al., 2020; Asbollah et al., 2016; Baaki et al., 2016; Suki, 2015; Zaiton et al., 2016).

This article presents the significance of sustainability practices in the hotel industry, focusing on the implementation of SFM initiatives. As this is a preliminary study, it aims to provide an initial exploration of the subject. As discussed, SFM plays a crucial role in addressing the challenges posed by an ever-changing world. Despite the significant scholarly attention given to sustainable and green practices in the Malaysian hospitality industry, there has been limited focus on integrating SFM within the hotel sector at the organisational level. Therefore, the primary objective of this preliminary study is to identify the current SFM initiatives undertaken by hotel industry players. The study aims to explore SFM initiatives from an organisational perspective, encompassing three main levels: strategic, tactical, and operational.

2. Literature Review

SFM plays a pivotal role in coordinating the organizational sustainability activities to achieve the vision and mission. It can be effectively implemented through an integrated approach that begins with strategic planning, followed by governance, tactical implementation, and finally, operations and maintenance for continuous improvement (Abu Talib et al., 2020; Barrett & Finch, 2014; Hodges, 2014; Institute Facility Management Association (IFMA), 2021; Wilson, 2018). This comprehensive approach ensures the seamless integration of sustainability principles throughout the organization, aligning with its long-term objectives and fostering a culture of continuous improvement. The integrated approach is crucial for reducing the need to overcome organizational barriers (Amado dos Santos et al., 2020). In the context of Facilities Management (FM), facility managers play important roles in sustainable practices, and it is expected that facility managers take measures to safeguard the environment, requiring them to plan, manage, develop, direct, evaluate, and support the entire organization's commitment towards implementing SFM (IFMA, 2022). Thus, ISO 41012:2017 specifies FM roles at three levels, namely strategic, tactical, and operational. From the perspective of the hotel industry, these roles should be closely synchronized with the organisation's directions for implementing sustainable operations. Certainly, according to the Institute of Workplace and Facilities Management, facility managers play a critical role in minimising the impact on the environment through sustainable practices and the efficient use of resources (IWFM, 2022).

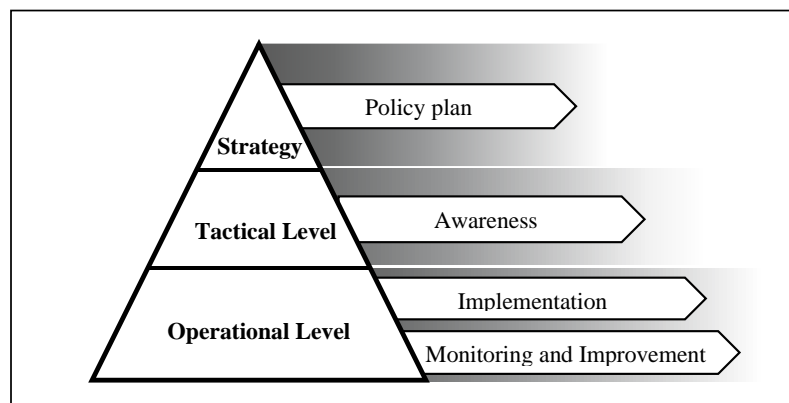


Fig. 1 - Traditional Organisational Theory Incorporate with SFM Roles in Organisation
Sources: Adapted from Barrett & Finch (2014); Hodges (2014); International Facility Management Association (IFMA) (2018); and Wilson (2018)

FM is a people-oriented discipline. With the acknowledgement of FM roles in organisations, it is worth noting to examine these roles in traditional organisation theory, which relates to the three above-mentioned levels of organisation. The traditional organisational theory is the most prevalent and widely utilised formal organisational structure. Emphasising the importance of the organisation, traditional organisational theory consists of a set of interrelated concepts that elucidate the behaviour of individuals, groups, or subgroups as they interact to achieve common goals (Hossain et al., 2020). It follows a top-down approach, where communication flows from top management to the operational levels of the organization, ensuring that everyone has clearly defined roles (Braccini & Margherita, 2018; Hossain et al., 2020). This theory is widely used in various industries, including hotel operations

(González-Rodríguez et al., 2019; Singjai et al., 2018; Tan, 2020). Inadequate management of FM can lead to compromised service quality, escalated operating costs, and ongoing environmental degradation (Priyangika et al., 2019; Zakaria et al., 2018). Environmental concern notably influences the managerial intention to implement sustainable hotel practices (Abu Talib et al., 2020; Verma & Chandra, 2018). Thus, adopting this theory in hotel organisations consequently guides FM in comprehensively and systematically managing the organisation towards optimum service delivery. Incorporating SFM initiatives into a systematic organisational framework would enhance the development of optimal delivery and abilities in the appropriate direction.

Figure 1 demonstrates how SFM is incorporated into the traditional organizational theory, aligning it with four measures of sustainable initiatives in the hotel industry. The selection of the traditional organisational theory is based on its focus on hierarchical power structures and its capacity to establish comprehensive management principles in a systematic manner. Meanwhile, the four measures encompass (i) policy, (ii) awareness, (iii) implementation, and (iv) monitoring and improvement plan. These measures are firmly based on the established criteria of the Global Sustainable Tourism Council (GSTC), an international association promoting sustainability practices for hospitality and tourism which serve as a valuable reference in promoting sustainable practices worldwide (see Figure 2). GSTC oversees accreditation standards primarily focused on hotels and tourism on a global scale, and its accredited standards are certified and recognised following the GSTC Criteria. This standard further warrants the adoption of sustainable practices and service delivery, aiming to derive maximum benefits in economic, social, and environmental aspects to combat climate change. Consequently, the four measures are strategically aligned with the traditional organizational hierarchy, adhering to the top-to-bottom approach of the theory. Integrating SFM within the organisation enables a systematic delivery of sustainable operations while enhancing the life cycle of facilities. Recognising the paramount importance of sustainability in all business organizations, particularly in hotels, SFM continues to play a vital role throughout the buildings' life cycle.



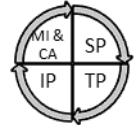
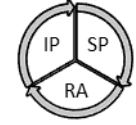
SFM Measures for Hotel Organisations Applications										
<ul style="list-style-type: none"> ▪ PLAN – Strategize policy plan ▪ DO – Communicate awareness and implementation plan ▪ CHECK – Internal monitoring and report ▪ ACT – Corrective actions 	 <p><i>European Ecotourism Labelling Standards (EETLS)</i></p>									
<ul style="list-style-type: none"> ▪ Strategic Planning ▪ Communicate & Raise Awareness ▪ Implementation Plan ▪ Evaluate & Improvement Plan 	 <p><i>ECO Certification Malta Standard (ECMS)</i></p>									
<ul style="list-style-type: none"> ▪ STRATEGY PLAN – Formulate Policies, objectives ▪ TACTICAL – Communication (awareness and training) ▪ OPERATION – Procedures and reporting ▪ CORRECTIVE – Monitoring, audit and improvement 	 <p><i>Asian Eco-tourism Standards for Accommodations (AESA)</i></p>									
<ul style="list-style-type: none"> ▪ Formulate Strategies ▪ Communicate and raise awareness ▪ Implement initiatives 	 <p><i>ASEAN Green Hotel Standard (AGHS)</i></p>									
<p>Legend:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">SP – Strategic Plan</td> <td style="width: 33%;">IP – Implementation Plan</td> <td style="width: 33%;">RA – Communicate & Raise Awareness</td> </tr> <tr> <td>TP – Tactical Plan</td> <td>AP – Audit performance</td> <td>MI – Improvement Plan</td> </tr> <tr> <td>CA – Corrective Actions</td> <td></td> <td></td> </tr> </table>		SP – Strategic Plan	IP – Implementation Plan	RA – Communicate & Raise Awareness	TP – Tactical Plan	AP – Audit performance	MI – Improvement Plan	CA – Corrective Actions		
SP – Strategic Plan	IP – Implementation Plan	RA – Communicate & Raise Awareness								
TP – Tactical Plan	AP – Audit performance	MI – Improvement Plan								
CA – Corrective Actions										

Fig. 1 - Sustianable measure for hotel industry

Sources: (Global Sustainable Tourism Council (GSTC), 2015; Wendling et al., 2018)

3. Strategic: SFM Policy Plan

The SFM policy plan represents a carefully devised course of action formulated by an organisation to address specific problems or interconnected issues. It outlines the necessary steps and actions to be taken to achieve specific goals and objectives (The Government of the Republic of Macedonia, 2007). According to the Royal Institution of Chartered Surveyors (RICS) (2020), the policy plan serves as the initial step in the development of the SFM strategy. Its primary focus is to comprehend the business strategies derived from the organizational vision and mission statements. The policy plan plays a crucial role in enhancing decision-making and raising awareness of SFM within the hotel industry (Ahmed et al., 2021; Amado dos Santos et al., 2020; Batistia & de Francisco, 2018; Priyangika et al., 2019). The leadership and commitment of the organisation's top management are crucial in promoting sustainable practices, as they must ensure that the FM policy and its objectives align with the organisation's strategic direction (BS EN ISO 41001:2018). This includes adopting SFM practices. However, a lack of commitment from top management can lead to the limitation of sustainable hospitality services (Ahmed et al., 2021).

Elmualim (2017) highlights the significance of implementing strategies to foster and promote sustainable practices within the hotel industry. The SFM policy plan fosters stakeholders' commitment to implementing SFM initiatives (Abdou et al., 2020; Alonso-Almeida et al., 2017; Amado dos Santos et al., 2020; Khalil et al., 2022). Establishing a comprehensive policy framework is essential for the successful deployment of sustainable practices (Alfalah & Zayed, 2020; Horng et al., 2017). Therefore, incorporating the SFM policy plan from the outset of executing SFM initiatives is critical to making a long-term positive environmental impact.

4. Tactical: SFM Awareness Plan

The awareness-raising plan is critical for disseminating sustainability information, fostering accountability, and promoting an inclusive approach to implementing sustainable actions (SDG Accountability, 2021). The awareness-raising strategy, as described by SDG Accountability (2021), is a process that aims to enlighten and educate people about a particular topic or issue to influence their attitudes, behaviours, and beliefs in order to achieve specific objectives or goals. As shown in Figure 1 emphasise on the communicating and raising awareness on sustainable. According to Verma and Chandra (2018), behavioural factors such is critical in implementing sustainable business process and positively influence the managerial intention to implement green hotel practices. Sustainability idea should deliberate stakeholders and organizational needs thus require promoting collective organisational environment where stakeholders are committed to sustainability practices (Ahmed et al., 2021; Amado dos Santos et al., 2020). As shown in Figure 1, tactical level emphasises communicating and raising awareness on sustainability. According to Verma and Chandra (2018), behavioural factors, such as employees' environmental awareness, are critical in implementing sustainable business processes and positively influencing managerial intentions to adopt green hotel practices. The idea of sustainability should consider stakeholders' and organisational needs, thus requiring the promotion of a collective organisational environment where stakeholders are committed to hospitality sustainability practices (Amado dos Santos et al., 2020).

Therefore, in the context of SFM, the act at the tactical level is to implement the strategic objective of the organisation (ISO 41012:2017). A proactive tactical strategy in FM benefits for optimal performance in the hotel's operation (Khalil et al., 2022). Efficient energy, water, and other essential practices can proactively raise awareness to reduce the carbon footprint and environmental impact. By promoting awareness, individuals gain a better understanding of existing SFM activities, particularly within the hotel industry. Stre-Valen and Buser (2019) asserted that sustainability goals are achieved through dynamic increases in sustainability awareness. According to Abdou et al. (2020), it is crucial for hotels to incorporate awareness-raising initiatives in their management plans by sharing information and fostering a deeper understanding of sustainability goals. A thoughtfully designed program serves as the initial step in promoting awareness of SFM efforts. Consequently, elevating sustainability awareness in hotel management becomes paramount in gaining a comprehensive understanding of sustainability principles.

4.1 Operational

At the operational level, the organisation carries out actions, controls, and monitors the implementation of SFM to achieve its objectives in sustainable practices. The performance needs to be monitored through defined processes by the organisation so that improvement plans can be developed for future enhancements (BS EN ISO 41001:2018). The following sections provide an explanation of two sub-levels, namely SFM Implementation Plan and SFM Monitoring and Improvement Plan.

SFM Implementation Plan

As emphasised by Alexander (2013) and Wilson (2018), an implementation plan is a crucial process that translates strategies and plans into actionable steps aimed at achieving strategic objectives and goals. This plan plays a pivotal role in implementing solutions based on the proposed strategy (State of Colorado, 2021). Subsequently, the next stage

involves putting the agreed policy strategy into action and promoting sustainability awareness. This action is essential in transforming sustainability data into tangible realities within hotel management (Batista & de Francisco, 2018). Once the plan has been strategically formulated, it guides the orientation of SFM initiatives into practical activities.

At the implementation level, the implementation of SFM poses challenges. Abdou et al. (2020) assert that sustainable practices not only enhance resource efficiency but also act as a marketing strategy to attract clients who prioritize sustainability. While a study conducted by Ahmed et al. (2021) revealed that the maintenance scope encounters difficulties in reducing energy and water consumption, where they observed that guests' lack of awareness regarding green housekeeping practices has resulted in unnecessary laundry work, leading to avoidable energy and water usage. Hence, the success of SFM also relies on the cooperation of hotel guests and their awareness in supporting the implementation of SFM (Amado dos Santos et al., 2020; Bianco et al., 2023). Meanwhile, the awareness-raising plan for sustainable practices among hotel staff is of utmost importance (Abdou et al., 2020; Alonso-Almeida et al., 2017; Khalil et al., 2022), especially considering that the staff, including the managers, mostly come from mono-disciplinary backgrounds (Ahmed et al., 2021). The Facility Manager has a crucial role in ensuring that the objectives of sustainable practices through the adoption of SFM are fully understood by the staff. Ensuring a common understanding of the hotel's aspirations among the staff is vital in fostering collective awareness. Implementing educational programs, such as staff training, plays a crucial role in equipping employees with a thorough understanding of sustainability practices in the hotel industry (Bianco et al., 2023; Khalil et al., 2022).

Operational: SFM Monitoring and Improvement Plan

Monitoring and evaluation are integral components of performance evaluation in Facilities Management (FM). The FM action plan must be closely monitored to ensure that it aligns with the set targets and progresses as planned. Concurrently, the identification and implementation of process improvement initiatives are necessary for achieving continuous improvement in FM practices (BS EN ISO 41001:2018; Khalil et al., 2022; Naji et al., 2023). By monitoring the action plan's progress and implementing improvement strategies, FM teams can effectively meet their goals and enhance the overall performance of the SFM initiatives. Regarding sustainability, the evaluation addresses specific aspects, such as commitments and declarations, methods and tools for implementation, assessment, or reporting, as well as the role of the sustainability team (Amaral et al., 2020).

Monitoring and future improvements are orderly procedures that involve gathering, analysing, and leveraging information to assess a program's progress in achieving objectives and aiding management decisions for enhancing future performance (UN Women, 2021). Monitoring necessitates establishing meaningful reporting through regular daily tracking of SFM activities (Wilson, 2018). The data collected through monitoring is then utilised to identify areas for improvement and actions accordingly to ensure effective hotel management. For maintaining sustainable practices, SFM initiatives are encouraged to adopt consistent monitoring, recording, and documentation (Alfalah & Zayed, 2020; Alonso-Almeida et al., 2017).

The hotel management's emphasis on sustainable business practices and the involvement of stakeholders in sustainability initiatives highlight the importance of effectively evaluating Sustainable Facilities Management (SFM). Such evaluation is vital not only for the hotel's sustainability goals but also for more effectively promoting green hotels (Ahmed et al., 2021). These practices necessitate long-term commitments to identify any missed opportunities for future improvement. The continuous enhancement of the SFM initiative is crucial for the survival of hotel businesses and their ability to remain competitive in the market (Khalil et al., 2022).

5. Methodology

The preliminary semi-structured interview of this study employed a non-probability heterogenous purposive sampling, where the target respondents were those experienced in managerial positions involved in operation of the hotels. This approach required the researcher to purposefully select participants or samples based on specific criteria, aiming to have a comprehensive variety of ideas relevant to the research objectives (Etikan & Bala, 2017). The face-to-face interviews aimed to explore SFM initiatives practices within the context of the Malaysian hotel industry. The findings of these interviews are expected to provide additional insights to complement existing literature and will be used to propose an SFM framework in a later stage of this study. Six hoteliers from five-star hotels and two academics were interviewed. The selection of five-star hotels was based on their need to gain a competitive advantage in the hospitality industry (Barakagira & Paapa, 2023), as they progressively set targets for environmentally sustainable hotel operations. Meanwhile, the interest in SFM is not limited to hospitality players but also extends to experts in the academic field (Amado dos Santos et al., 2022; Wong et al., 2022).

The interviews lasted between 45 to 60 minutes and were recorded and transcribed for content analysis, using a thematic approach. Table 1 presents the professional backgrounds of the hotelier respondents, showcasing their work experience in the hotel industry, ranging from six to more than twenty years. These hoteliers were employed in six different five-star hotels. On the other hand, the two academicians who participated in the interviews are hospitality field experts with previous industry experience. Their insights were sought to understand SSM from an academic perspective, providing a valuable blend of theoretical and practical perspectives on sustainable practices in the hotel

industry. As emphasised by Nicely (2018), individuals with substantial field experience are considered more reliable due to their expertise and know-how. Therefore, the information gathered from these respondents, based on their extensive knowledge and experience in the hotel sector, was deemed reliable and valuable.

Table 1 - The sampling of the hotelier and academic respondents

Respondents Categories	Respondents	Designation	Experience in Hotel Industry
Hoteliers	R1	Room Division Manager	15
	R2	Assistant Hotel Manager	8
	R3	Front Office Manager	6
	R4	Group General Manager	35
	R5	Front Office Manager	16
	R6	Hotel Manager	11
Academic ^(a)	R7	Lecturer of Hotel Faculty	25
	R8	Lecturer of Hotel Faculty	10

Notes: ^(a) Academics who have work experience in the hospitality industry before joining the university

Table 2 organises the semi-structured interview questions into three parts, aligning them with the traditional organizational hierarchy: strategic, tactical, and operational. The strategic level comprises two questions that explore the respondents' understanding of SFM practices in the hotel industry. Moving to the tactical level, two questions investigate the hotel management's long-term initiatives. Lastly, the operational focus centres on current hotel management practices at the third level.

Table 2 - Initiative Instruments for Semi-structured Interview

Level	Initiative Instruments
Strategic	Understanding of Strategic Facilities Management.
	Adoption of sustainability policy in the hotel organization.
Tactical	Communication by the hotel organization regarding sustainability
	Raising awareness within the hotel organisation.
Operational	Current practices implemented in the hotel organisation and how the SFM initiatives are being:
	(a) implemented
	(b) monitored and improved.
	(e.g., reduce energy consumption, water and reduce the waste).

6. Results

6.1 Strategic Level: SFM Policy Plan

In Table 3, the respondents' answers to two questions about SFM initiatives practices at the strategic level of hotel organizations are displayed. All the participating 'hoteliers' confirmed that sustainability is now integrated into their policies. They have developed sustainability programs and implemented ongoing improvements within hotel management. Regarding the second question, all hotelier respondents expressed strong agreement that sustainable practices are actively embraced in the hotel industry. Respondent R5 made the following comment:

"Our management has been implementing the sustainable policy for over a decade. We have been consistently upgrading and improving over the last ten years, indirectly enhancing our understanding and knowledge of sustainable practices." (Respondent R5)

The response shows the hotel's long-term commitment to sustainability and their continuous efforts to enhance their practices and knowledge in this area. Meanwhile, the academician respondents (R7 and R8) highlighted that SFM encompasses multiple disciplines that should be seamlessly integrated into the core business model of hotels. Both respondents concurred that SFM needs to respond to the growing demand for sustainable hotels by implementing robust strategic planning. They also emphasised the importance of imparting a solid understanding of sustainability principles, particularly to hotel staff, to facilitate more effective and efficient practices.

Table 3 - Initiative theme for strategic level

Level	Strategic Sustainable Facilities Management (SFM) Practice Description	Initiatives Themes?
Strategic: SFM Policy Plan	<ul style="list-style-type: none"> Promote SFM as a policy-mandated action plan. 	✓ Action plan

6.2 Tactical level: SFM Awareness Plan

The findings from the second part of the tactical questions are presented in Table 4. Six respondents (R1, R2, R3, R4, R5, and R6) reported effectively communicating SFM practices within their hotels through discussions, meetings, and idea exchanges. Respondents R4, R5, and R6 specifically mentioned that SFM communications were integrated into their hotel policies, aligning with the objective of promoting sustainability awareness through strategic planning. Notably, respondent R5 disclosed that the hotel disseminated information about SFM to its staff through published hotel reports, using them as benchmarks for achieving their sustainability goals. This indicates the proactive efforts made by these hotels to foster communication and raise awareness about sustainability practices among their staff, aligning with their overall strategic goals.

"We communicate sustainability through other 'brands' hotel published reports as our benchmark to achieve the targeted goal" (respondent R5).

Meanwhile, the academicians unanimously agreed and stressed the importance of SFM communications involving various stakeholders, including hotel staff, visitors, suppliers, and communities. They highlighted that communication on sustainability should not be limited to internal hotel management but should extend to the broader society to raise awareness about sustainable practices. Respondent R7 made the following comment:

"The most important aspect of management is communication. Without it, for example, meetings and daily briefings can lead to miscommunication and chaos. However, this should not be the end of it. Communication with guests, vendors, and the community is also critical. Hotel management can place a friendly reminder for the guests to save energy in each room" (Respondent R7).

The comment highlights the significance of effective communication in hotel management, not only within the organisation but also with external stakeholders such as guests, vendors, and the community. It underscores the importance of communicating sustainability practices to all stakeholders for successful implementation and awareness.

As for to the second question, all respondents confirmed that their hotel staff were well-informed about sustainability concerns. They revealed that knowledge sharing was the primary communication method adopted by their management. For instance, the most common measure employed by all these respondents' management was to disseminate sustainability information in the staff lounge or on the bulletin board. Furthermore, respondents R1, R2, and R3 shared that their hotels had initiated strategies to reduce energy usage costs in monthly billings, such as installing energy-saving lighting systems. Both R3 and R4 mentioned that they documented and displayed the monthly electrical billings (energy) and waste (weights produced) in the staff lounge to share the data and enhance SFM awareness among personnel. This approach indirectly fosters SFM awareness among employees. As R3 and R4 claimed:

"We revealed monthly electric billings to the staff and the weight of the waste produced as one way to raise awareness" (Respondent R3).

"We maintain a consistent focus on managing our daily waste. For instance, we conduct waste audits involving employees in the collection, sorting, and weighing of trash. By engaging employees in these activities, they gradually become more aware of and understand the importance of adopting green practices" (Respondent R4).

Meanwhile, R5 mentioned that they use reports published by other hotels as benchmarks for assessing current SFM practices and share the outcomes with their team. The approach highlights the proactive measures taken by these hotels to communicate sustainability information to their staff and raise awareness about SFM practices among employees. Respondents R4, R5, and R6 mentioned that their teams underwent education on the importance and benefits of SFM during management training sessions. Meanwhile, respondent R5 specified that such training occurred annually, and employees were selected based on their availability to gain hands-on experience in SFM. This illustrates their management's recognition of the importance of staff training as a means to enhance employees' understanding of sustainability's significance. Their hotel management prioritise staff training as a means to promote sustainable practices and increase awareness among their employees. Table 4 also indicate the importance of the human resources

department in promoting sustainability practices and the various methods hotels employ to raise awareness and train their staff on sustainable practices.

Table 4 - Initiative theme for tactical level

Level	Sustainable Facilities Management (SFM) Practice Description	Initiatives Themes
<i>Tactical: SFM Awareness Plan</i>	<ul style="list-style-type: none"> • The hotel's Human Resources (HR) department plays a crucial role in disseminating sustainable practices to hotel employees. • Communication about SFM primarily centres around the hotel's policy requirements. • The human resources department takes the responsibility of disseminating sustainable information to employees to raise awareness. • Hotels raise awareness among employees by displaying monthly operational costs (e.g., monthly water and energy billings) • Hotels emphasise and organise training programs for hotel staff. 	<ul style="list-style-type: none"> ✓ Human resources ✓ Spread awareness ✓ Human resources

6.3 Operational Level

SFM Implementation Plan

Table 5 illustrates the current operational SFM practices at the respondents' hotels at implementation plans. Pertaining to the operational-level inquiry, R2, R3, R4, R5, and R6 collectively claimed that their current practices revolved around energy, water, and waste management. All of them stated that their initial efforts were focused on reducing energy consumption. As a primary initiative, six hotelier respondents switched to new energy-saving lights. Regarding energy efficiency and measures to curb consumption, respondents R1 and R5 highlighted the installation of sensor lighting systems as an intelligent approach to minimise unnecessary energy waste in areas inaccessible to guest.

"We use sensors and timers to control lighting in some areas that are not accessible to guests" (respondent R1).

Table 5 - Initiative theme for operational implementation

Level	Sustainable Facilities Management (SFM) Practice Description	Initiatives Themes
Operational: SFM implementation	<ul style="list-style-type: none"> • Implemented cutting-edge smart energy system technologies to enhance energy efficiency. • Utilised an advanced air conditioning control system to reduce unnecessary energy consumption. • Employed timers for air conditioning units to optimize energy usage. • Transitioned to LED lighting to significantly save energy. • Placed friendly reminder notes to advise guests and hotel personnel to use energy more responsibly. 	<ul style="list-style-type: none"> ✓ Energy management
	<ul style="list-style-type: none"> • Implemented reduced linen change practices to conserve resources. • Placed friendly reminders for guests to "save water" and use it responsibly. • Reduced water usage for irrigation activities, such as watering plants or landscapes. • Adopted rainwater harvesting techniques to minimize excessive water consumption. • Installed water-saving devices to optimize water usage. • Implemented water-saving faucets to reduce excessive water use. 	<ul style="list-style-type: none"> ✓ Water management
	<ul style="list-style-type: none"> • Implemented waste management based on the 3R approach (reduce, reuse, and recycle). 	<ul style="list-style-type: none"> ✓ Waste Management

-
- Recycled newspapers, soap, oils, glass bottles, and cans.
 - Initiated recycling programs for single-use plastics.
 - Provided guests with biodegradable laundry bags to promote sustainable practices.
 - Composted perishable food waste to reduce organic waste and promote recycling.
-

Both academic respondents agreed that air conditioning was one of the most significant contributors to hotel energy consumption. Additionally, most hoteliers responded that they employed standard practices, such as controlling the air-conditioning temperature and temporarily turning off the system during off-peak hours, to conserve energy. Consequently, hotel management should aim to maintain an optimal temperature, especially during peak hours, to avoid excessive energy consumption. Meanwhile, five respondents (R1, R3, R4, R5, and R6) utilized intelligent energy system technology for tracking and monitor their daily energy consumption.

"The most recent technology we adopted is the energy consumption system, which provides daily, weekly, and monthly data on energy usage. With this system, we can make rough estimations for our electrical billings based on the energy consumption patterns." (Respondent R4).

In line with the suggestions from the academic respondents (R7 and R8), one of the most common practices involves using friendly reminder notes for guests and hotel employees to raise awareness about sustainable practices.

"The water-saving reminder note is placed not only in the guest room but also in the administration area and other communal spaces (lobby and restaurants)" (respondent R5).

As suggested by academia (R7 and R8), one of the most common practices is to use friendly reminder notes for guests and hotel employees to raise awareness on water-saving practices.

"The water-saving reminder note is placed not only in the guest rooms but also in the administration area and other communal spaces, such as the lobby and restaurants." (Respondent R5).

Based on the duration of guests' stays, six respondents adopt similar approaches to reduce water consumption by minimising linen cleaning. For instance, all respondents stated that bed linens were changed twice for guests staying for six nights, depending on the quality of the linens. Regarding water consumption management, three respondents (R3, R5, and R6) installed water-saving fixtures on showerheads, faucets, and toilets (low-flow). Furthermore, R3 and R5 hotels implemented rainwater harvesting for irrigation purposes.

In line with the recommendations of the academician respondents, hotels are encouraged to invest in water-saving fixtures for toilets (taps, toilets, and showerheads). Additionally, leaving friendly reminder notes in guest rooms serves as a gentle nudge for water conservation. All hoteliers responded positively to the 3R program (reduce, reuse, recycle) initiatives as they have successfully implemented it. Others common practices include composting food waste, recycling used toiletries (soap), recycling newspapers, and adopting paperless and biodegradable plastics.

"We provide in-room bins with the recycled (3R symbol) label. Daily, we collect recyclable waste such as newspapers, glass bottles, and used soap, and send it to the recycling collector. The use of single-use plastic is prohibited in this hotel. The guest laundry bags are customized using biodegradable plastic." (Respondent R5).

The above findings demonstrate a strong emphasis on proactive initiatives by the hotels in implementing SFM. They have adopted various measures to promote energy efficiency, water conservation, and waste reduction. The hotels have implemented initiatives to reduce energy consumption and taken significant steps towards water conservation. These initiatives include promoting responsible energy saving and water usage among guests and staff. The successful implementation of the 3R program showcases the commitment of hoteliers to sustainable practices. These efforts reflect the hotels' dedication to promoting sustainability in the hospitality industry, leading to a positive impact on their environmental footprint.

SFM Monitoring and Improvement Plan

As per the interviewees' insights, SFM was applied across three organisational levels in the hotel: strategic, tactical, and operational. At the strategic level, a policy plan was devised to enhance internal awareness and ensure

efficient implementation at the operational level. The operational level was dedicated to adopting common practices aimed at decreasing energy consumption, reducing waste, and optimizing water usage. Conversely, R1, R5, and R6 stressed the significance of future improvement plans after the initial SFM implementation. Emphasis on continuous improvement and communication to enhance sustainable practices, R4 and R6 highlighted:

"There is always room for improvement. Based on the improvement action plan, we communicate and raise awareness among the staff, enabling them to address deficiencies and avoid repeating any errors" (Respondent R4).

"Future improvement plans have been developed based on the identified areas of improvement from the management's initiatives" (Respondent R6).

The above remarks underline the significance of communication and continuous improvement. Therefore, the central theme of the initiative under SFM monitoring and improvement is to promote effective communication and raise awareness among staff members. This allows them to address deficiencies and avoid repeating any errors, ultimately fostering a strong culture of sustainability within the hotel. The hotel has taken a proactive approach to identify areas for improvement in their SFM practices. These areas have been recognised through the management's initiatives and efforts to evaluate and enhance sustainability measures.

The commitment to continuous improvement and communication further strengthens their efforts to reduce their environmental footprint and enhance their overall sustainability performance. By developing future improvement plans, the hotel demonstrates its commitment to continuously advancing its sustainable practices and addressing any shortcomings that may arise. These findings underscore the importance of strategic planning, effective implementation, and ongoing improvement to achieve long-term sustainable practices within the hotel industry.

7. Discussions

The investigation findings centred on the current sustainability initiatives implemented by hotel operators. The results were categorised into four sustainable measures: the policy plan, the awareness-raising plan, the implementation plan, and the improvement plan. Each measure's initiatives were aligned with reputable central sources for hospitality and tourism worldwide. Overall, Malaysian hotel operators followed a well-established organisational hierarchy, comprising the strategic level (policy plan), tactical level (awareness-raising strategy), and operational level (implementation plan and improvement plan).

Table 6 - Overall mapping of current SFM practices

Organisational level/ Initiative Measures	Strategic: A. Policy plan	Tactical: B. Awareness-Raising Plan	Operational: C. Implementation Plan	Operational: D. Improvement plan
Summarised Initiatives Themes	▪ Compromised and adhered to the sustainable policy.	▪ Spreading awareness ▪ Human resources roles	▪ The majority focus on energy, water, and waste reduction initiatives.	▪ Significantly less emphasis was placed on the present, but priority will be placed on the future.

Table 6 illustrates the alignment of sustainable measures with organizational levels, highlighting the management's strategic direction towards SFM. According to Wong et al. (2021), the hotel industry is progressively integrating sustainable practices into their core business, not only to minimize pollution but also to enhance customer satisfaction and reputation. Therefore, embedding SFM in their business strategies is crucial (Abu Talib et al., 2020; Baaki et al., 2016; Nazeer et al., 2019) as day-to-day hotel activities are claimed to be the main contributors to environmental degradation (Amado dos Santos et al., 2020; Khalil et al., 2022).

Top management support is essential at the decision-making level to drive SFM (Sustainable Forest Management) initiatives and effectively communicate the green aspirations throughout the organization. Without strong commitment from management, there can be organizational barriers and limitations in successfully implementing SFM initiatives (Abdou et al., 2020; Ahmed et al., 2021; Elmualim, 2017; Amado dos Santos et al., 2020; Khalil et al., 2022). It is crucial to ensure that the SFM policy plan is well-known to the hotel staff, as they play a pivotal role in operationalizing the SFM initiative (Abdou et al., 2020; Stre-Valen and Buser, 2019).

At the tactical level, the human resources department plays a crucial role in implementing an awareness-raising plan among stakeholders. The consideration of employee behavior in the implementation of SFM is essential (Ahmed et al., 2021; Amado dos Santos et al., 2020; Verma & Chandra, 2018), especially since hotel staff typically come from diverse disciplines (Ahmed et al., 2021). Through effective communication strategies, the human resources department

disseminates information to employees, fostering a sustainability culture within the organization and encouraging active engagement in promoting sustainable practices. To achieve this, the human resources department must plan educational programs and staff training efforts to equip the staff with sustainable knowledge and awareness (Bianco et al., 2023; Khalil et al., 2022; Stre-Valen & Buser, 2019).

SFM initiatives at the hotel's operational level primarily focus on energy efficiency, water conservation, and waste reduction. According to Ahmed et al. (2021), the FM team faced challenges in reducing energy and water consumption due to hotel guests' behavior. Therefore, raising awareness should not only be limited to hotel staff but should also extend to the guests as they are the main users of the hotel facilities. Floričić (2020) and González-Rodríguez et al. (2019) have noted that defects in service delivery during the implementation of sustainable practices can lead to disappointment among hotel stakeholders. Top management may face the consequences in terms of reputational challenges (Wong et al., 2021) and customer loyalty (Ahn & Kwon, 2020).

While the study highlights the hotel industry's recognition of the importance of adopting SFM to address global climate change challenges, there is relatively less emphasis on showcasing current achievements in sustainability. Although monitoring and improvement are integral to SFM practices (BS EN ISO 41001:2018; Khalil et al., 2022; Naji et al., 2023), this study found a lack of projection regarding future improvements. Top management should prioritize these aspects if they aim to achieve their long-term sustainable objectives and remain competitive in the market (Khalil et al., 2022). Table 6 also reveals that only one respondent implemented corrective steps on the initiatives.

This research's findings point out the importance of introducing an improvement plan at the operational level, as previously discussed. The hotel operators' commitment to continuously enhancing sustainability efforts and their eagerness to implement more innovative and effective measures in the future necessitate a comprehensive approach. Constantly investigating current practices to identify and address areas of weakness is crucial. Consequently, the introduction of future improvement plans as a second element at the operational level following implementation becomes imperative. Thus, by aligning initiatives with different organisational levels and placing significant emphasis on future improvements, the hotels show a strong commitment to contributing to a more sustainable future. However, the introduction of improvement plans is essential to ensure ongoing progress and continued success in their sustainability endeavours.

8. Study Implication

The study on sustainable development theory and organisational sustainable development has significant implications for the adoption of Sustainable Facilities Management (SFM) initiatives in the hotel industry. The integration of sustainable development theory in organisations provides a holistic approach that encompasses environmental, economic, and social aspects. In the context of the hotel industry, this means that SFM initiatives should consider these interconnected features to achieve overall sustainability. These interconnected features play a crucial role in establishing sustainable entities in any business or industry, offering both contributions and benefits in return. From a holistic viewpoint, there is a practicable opportunity for integrating environmental, economic, and social factors, gradually incorporating these objectives alongside SFM practices. This integration is essential for the hotel industry to include in the strategy, leading to comprehensive adoption tools.

At each organizational level (strategic, tactical, and operational), SFM practices play a vital role in hotel management. The embedded measures of policy planning, awareness-raising, execution, and monitoring and improvement plans form a sequential framework that integrates SFM into the organisational structure. By aligning resources such as people, place, process, and technology, FM can effectively deliver sustainable practices and ensure the functionality of the built environment. FM can deliver their disciplines and ensure the functionality of the built environment. SFM plays a crucial role in organizing organizational sustainability initiatives for optimal sustainability delivery. The study findings demonstrate that the hotel industry acknowledges the importance of implementing SFM initiatives to address global climate change challenges. FM practices are perceived as flexible services and the fastest-emerging function in various sectors, providing critical sustainability for seamless hotel operations while maintaining business objectives. The growing interest in sustainable development and the pressure from government, consumers and various stakeholders are likely to push hotels to adopt SFM practices as the industry norm.

Given that all-day hotel operations can contribute to adverse environmental impacts, the adoption of SFM initiatives becomes even more crucial in Malaysia's hotel industry to meet sustainable agendas. This study underlines the need for intense emphasis on SFM initiatives to mitigate negative environmental effects and promote sustainable practices within hotel organisations. The study highlights the commitment of top management towards sustainability through the development of a strategic SFM policy as a policy-mandated action plan. The concept of sustainability necessitates careful consideration of both stakeholders' and organisational needs. This calls for fostering a collaborative organisational environment that encourages stakeholders to be actively committed to sustainable practices in the hospitality industry. Thus, the SFM policy should be translated into developing initiatives at the tactical level, where raising awareness among the hotel stakeholders is crucial. The human resource department should play an active role in educating the staff through training and best practices that can enhance their knowledge and adherence to the hotel's direction of going green.

Meanwhile, the implementation, monitoring, and improvement plan should be continuous. At the operational level, the SFM initiatives mainly focus on the three main resources, namely energy, water, and waste. The hotel operations consume a substantial amount of energy, water, and produce waste. The initiatives given on the approach to minimise energy consumption and water usage, as well as waste reduction through recycling approaches, are crucial. These efforts not only rely on maintenance operations and technology used but also on the involvement of stakeholders, particularly employees and hotel guests. SFM is not complete without monitoring and improvement initiatives. To complete the top-bottom approach, the improvement plan requires closer attention. The performance of SFM needs to be evaluated for future improvements and advancements in sustainable practices.

This study's preliminary findings, in future will be used to establish the SFM conceptual framework for assessing long-term commitment to SFM initiatives. The integration of sustainable initiatives in facilities management aligns with the broader context of sustainable development traditional organisational theory, providing a robust foundation for fostering sustainability in the hotel industry.

9. Conclusion

This research makes a significant contribution to hospitality industry players understanding of SFM practices in the hotel industry by recognising the execution of systematic and comprehensive integrated sustainability initiatives. By linking sustainable measures and initiatives, it enhances the hoteliers and their stakeholders' knowledge of implementing SFM practices in Malaysia's hotel industry. Additionally, this study extends the body of knowledge on hospitality and sustainability by providing insights into SFM practices within hotel industry setting.

Building on the initial findings of this preliminary study, the research aims to establish a foundation for future investigations while emphasising the significance of SFM in elevating sustainability practices within the hotel industry. Furthermore, the study highlights SFM's role in contributing to broader environmental and social objectives, underscoring its importance in promoting a more sustainable and responsible hospitality sector.

In addition, the findings of this study can inspire future researchers to explore the development of extensive SFM programs in other industries. Additionally, researchers are encouraged to investigate FM's role as a consultant, facilitating the optimal delivery of SFM operations without disrupting core business operations. Addressing potential impediments faced by FM functions in providing optimal service to end-users and stakeholders is essential for advancing sustainable practices in the industry.

Acknowledgement

The authors would like to express their appreciation to the Ministry of Higher Education (MoHE) for their support through the Fundamental Research Grant Scheme (FRGS): FRGS/1/2019/SS11/UITM/02/3, which funded this project.

References

- Abdou, A. H., Hassan, T. H., & El Dief, M. M. (2020). A Description of green hotel practices and their role in achieving sustainable development. *Sustainability*, *Vol. 12*, 1–20.
- Abu Talib, A. A., Muhamad Ariff, N. R., Hasim, M. S., & Mohd Hanafiah, M. H. (2020). Positioning strategic Sustainable Facilities Management (SFM) for hotel industry in Malaysia. *Asian Journal of Quality of Life*, *Vol. 4*(No. 17), 49–62.
- Ahmed, M. F., Mokhtar, M. B., Lim, C. K., Hooi, A. W. K., & Lee, K. E. (2021). Leadership Roles for Sustainable Development: The Case of a Malaysian Green Hotel. *Sustainability*, *13*(18), 10260.
- Ahn, J., & Kwon, J. (2020). Green hotel brands in Malaysia: perceived value, cost, anticipated emotion, and revisit intention. *Current Issues in Tourism*, *23*(12), 1559-1574.
- Alexander, K. (2013). Facilities management innovation and performance. In K. Alexander, B. Atkin, J. Brochner, & T. I. Haugen (Eds.), *Journal of Chemical Information and Modeling*. London & New York: Spon Press Taylor & Franciss Group.
- Alfalah, G., & Zayed, T. (2020). A review of sustainable facility management research. *Sustainable Cities and Society*, *Vol. 55*, 1–10.
- Alonso-Almeida, M. del M., Fernández Robin, C., Celemín Pedroche, M. S., & Astorga, P. S. (2017). Revisiting green practices in the hotel industry: A comparison between mature and emerging destinations. *Journal of Cleaner Production*, *Vol. 140*, 1415–1428.
- Amaral, A. R., Rodrigues, E., Gaspar, A. R., & Gomes, Á. (2020). A review of empirical data of sustainability initiatives in university campus operations. *Journal of Cleaner Production*, *250*, 119558.
- Amado dos Santos, R., Méxas, M. P., Meiriño, M. J., Sampaio, M. C., & Costa, H. G. (2020). Criteria for assessing a sustainable hotel business. *Journal of Cleaner Production*, *262*, 121347.
- Asadi, S., OmSalameh Pourhashemi, S., Nilashi, M., Abdullah, R., Samad, S., Yadegaridehkordi, E., Aljojo, N., & Razali, N. S. (2020). Investigating influence of green innovation on sustainability performance: A case on Malaysian hotel industry. *Journal of Cleaner Production*, *258*, 120860.

- Asbollah, A. Z., Isa, N. M., & Kamaruzzaman, S. N. (2016). Sustainability and the facilities management in Malaysia. *EDP Sciences, Vol. 66*, 1–5.
- Baaki, T. K., Baharum, M. R., & Ali, A. S. (2016). A review of sustainable facilities management knowledge and practice. *MATEC Web of Conferences, Vol. 66*, 1–10.
- Barakagira, A., & Paapa, C. (2023). Green practices implementation for environmental sustainability by five-star hotels in Kampala, Uganda. *Environment, Development and Sustainability*.
- Barrett, P., & Finch, E. (2014). *Facilities Management: The Dynamics of Excellence* (3rd Editio; L. John Wiley & Sons, Ed.). Wiley Blackwell.
- Batista, A. A. da S., & de Francisco, A. C. (2018). Organizational sustainability practices: a study of the firms listed by the corporate sustainability index. *Sustainability (Switzerland), 10*(1).
- Bianco, S., Bernard, S., & Singal, M. (2023). The impact of sustainability certifications on performance and competitive action in hotels. *International Journal of Hospitality Management, 108*, 103379.
- British Institute of Facilities Management (BIFM). (2018). *Embracing workplace to move FM forward*. Hertfordshire, United Kingdom.
- Braccini, A. M., & Margherita, E. G. (2018). Exploring organizational sustainability of industry 4.0 under the triple bottom line: The case of a manufacturing company. *Sustainability, 11*(1), 36.
- Brundtland International Institute for Sustainable Development. (2017). *Sustainable Development | IISD*. <http://www.iisd.org/topic/sustainable-development>
- Elmualim, A. (2017). CSR and sustainability in FM: evolving practices and an integrated index. *Procedia Engineering, Vol. 180*, 1577–1584.
- Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal, 5*(6), 215–217.
- Floričić, T. (2020). Sustainable solutions in the hospitality industry and competitiveness context of “green hotels.” *Civil Engineering Journal (Iran), Vol. 6*(No. 6), 1104–1113.
- Galamba, K. R., & Nielsen, S. B. (2016). Towards sustainable public FM: collective building of capabilities. *Facilities, 34*(3–4), 177–195.
- Global Sustainable Tourism Council (GSTC). (2018). Achieve GSTC recognition of a set of standards or system. [https://www.gstccouncil.org/certification/achieve-gstc-recognized/#:~:text=GSTC Recognized,by GSTC's independent Assurance Panel](https://www.gstccouncil.org/certification/achieve-gstc-recognized/#:~:text=GSTC%20Recognized,by%20GSTC's%20independent%20Assurance%20Panel).
- González-Rodríguez, M. R., Martín-Samper, R. C., Köseoglu, M. A., & Okumus, F. (2019). Hotels' corporate social responsibility practices, organizational culture, firm reputation, and performance. *Journal of Sustainable Tourism, Vol. 27*(No. 3), 398–419.
- Hodges, C. P. (2014). *Sustainable Facility Management – The Integration of sustainability into a facility manager's core competencies* (p. 38). p. 38. International Facility Management Association (IFMA).
- Hong, J.-S., Liu, C.-H., Chou, S.-F., Tsai, C.-Y., & Chung, Y.-C. (2017). From innovation to sustainability: Sustainability innovations of eco-friendly hotels in Taiwan. *International Journal of Hospitality Management, Vol. 63*, 44–52.
- Hossain, M. S., Kannan, S. N., & Raman, S. K. K. N. (2020). Organisational Learning in the Hospitality Industry: a literature review. *Asia-Pacific Journal of Innovation in Hospitality and Tourism (APJIHT), 1*.
- International Facility Management Association (IFMA). (2021). *A sustainable framework*. http://community.ifma.org/knowledge_library
- International Facility Management Association (IFMA). (2022), *11 Core Competencies of Facility Management*. [Rhttps://knowledgelibrary.ifma.org/11-core-competencies-of-facility-management/](https://knowledgelibrary.ifma.org/11-core-competencies-of-facility-management/)
- International Organization for Standardization (ISO). (2017). *Facility management — Guidance on strategy outsourcing and the development of agreements* (ISO 41012:2017).
- International Organization for Standardization (ISO). (2018). *Facility management – Management systems* (ISO 41001:2018).
- International Organization for Standardization (ISO). (2018). *Facility management — Vocabulary* (ISO 41011:2017).
- Institute of Workplace and Facilities Management (IWFM). (2022). *Professional Standards Handbook*, The Institute of Workplace & Facilities Management. Hertfordshire, United Kingdom
- Kamaruzzaman, S. N., & Ahmad Zawawi, E. M. (2010). Development of facilities management in Malaysia. *Journal of Facilities Management, Vol. 8*(No. 1), 75–81.
- Kasim, A. (2014). Environmental management system. *International Journal of Contemporary Hospitality Management, Vol. 27*(No. 6), 1233–1253.
- Khalil, N., Che Abdullah, S. N., Haron, S. N., & Hamid, M. Y. (2022). A review of green practices and initiatives from stakeholder's perspectives towards sustainable hotel operations and performance impact. *Journal of Facilities Management, ahead-of-print*(ahead-of-print).
- Malaysia National Ecotourism Plan (MNEP). (2016). Malaysia National Ecotourism Plan 2016-2025. *Ministry of Tourism and Culture Malaysia*, pp. 561–563.
- Melissen, F., van Ginneken, R., & Wood, R. C. (2016). Sustainability challenges and opportunities arising from the

- owner-operator split in hotels. *International Journal of Hospitality Management*, 54, 35–42.
- Meng, X. (2015). Facilities management: tracing its development trajectory. *Property Management*, 33(3), 212–223.
- Min, Z., Morgenstern, P., & Marjanovic-Halburd, L. (2016). Facilities management added value in closing the energy performance gap. *International Journal of Sustainable Built Environment*, 5(2), 197–209.
- Mohanty, S. (2015). Hospitality sector staying green for competitive advantage. *International Journal of Research & Scientific Innovation*, 2(11), 36–39.
- Moliner, M. Á., Monferrer, D., Estrada, M., & Rodríguez, R. M. (2019). Environmental sustainability and the hospitality customer experience: A study in tourist accommodation. *Sustainability (Switzerland)*, 11(19).
- Mousavi, S. A., Hoşkara, E., & Woosnam, K. M. (2017). Developing a model for sustainable hotels in Northern Cyprus. *Sustainability (Switzerland)*, 9(11).
- Mwangi, W. (2018). Hotel Study makes business case for achieving SDG 12.3 | News | SDG Knowledge Hub | IISD. R <http://sdg.iisd.org/news/hotel-study-makes-business-case-for-achieving-sdg-12-3/>
- Naji, K. K., Gunduz, M., & Maki, O. (2023). Development of a Campus Facility Management Operational Framework Using a Modified Delphi Method. *Journal of Construction Engineering and Management*, 149(7), 04023052.
- Nazeer, F. S., Gunatilake, S., & Ramachandra, T. (2019). Significant sustainable facilities management (SFM) practices in the health care (HC) sector. *IOP Conference Series: Earth and Environmental Science*, 290(1).
- Nielsen, S. B., Sarasoja, A.-L., & Galamba, K. R. (2016). Sustainability in Facilities Management: an overview of current research. *Facilities*, 34(9/10), 535–563.
- Priyangika, K. D. T., Perera, B. A. K. S., & Wickremanayake, T. L. (2019). Facilities management roles in the hotel industry : the skills and competencies required facilities management roles in the hotel industry : The. *Journal of Quality Assurance in Hospitality & Tourism*, 00(00), 1–20.
- Royal Institution of Chartered Surveyors (RICS). (2020). Introducing strategic facilities management. <https://www.rics.org/asean/news-insight/future-of-surveying/talent-and-skills/introducing-strategic-facilities-management/>
- Santos, R. A. dos, Méxas, M. P., & Meiriño, M. J. (2017). Sustainability and hotel business: criteria for holistic, integrated and participative development. *Journal of Cleaner Production*, 142, 217–224.
- Singjai, K., Winata, L., & Kummer, T. F. (2018). Green initiatives and their competitive advantage for the hotel industry in developing countries. *International Journal of Hospitality Management*, 75, 131-143.
- State of Colorado. (2021). Implementation Plan. Retrieved from Colorado State Web Official website: http://www.riss.kr/search/detail/DetailView.do?p_mat_type=be54d9b8bc7cdb09&control_no=1810dff61154ea10ffe0bdc3ef48d419#redirect
- Stoffers, J., Eringa, K., Niks, J., & Kleefstra, A. (2021). Workplace innovation and organizational performance in the hospitality industry. *Sustainability (Switzerland)*, 13(11), 1–13.
- Støre-Valen, M., & Buser, M. (2019). Implementing sustainable facility management: challenges and barriers encountered by Scandinavian FM practitioners. *Facilities*, 37(9–10), 550–570.
- Suki, N. M. (2015). Consumers’ environmental behaviour towards staying at a green hotel. *Management of Environmental Quality: An International Journal*, 26(1), 103–117.
- Sustainability Development Goals (SDG) Accountability. (2021). Raising awareness through public outreach campaigns. <https://sdgaccountability.org/working-with-informal-processes/raising-awareness-through-public-outreach-campaigns/>
- Tan, C. C. (2020). Usefulness of neural network as pre-run to structural equation modeling analysis: Case of hotels. *International Journal of Advanced Science and Technology*, 29(7), 2485-2494.
- Tarí, J. J., Claver-Cortés, E., Pereira-Moliner, J., & Molina-Azorín, J. F. (2010). Levels of quality and environmental management in the hotel industry: Their joint influence on firm performance. *International Journal of Hospitality Management*, 29(3), 500–510.
- The Government of Republic of Macedonia. (2007). *Policy development handbook*. <http://www.vlada.mk/>
- UN Woman. (2021). What is monitoring and evaluation?. https://jobs.undp.org/cj_view_job.cfm?cur_job_id=86680
- United Nations World Tourism Organization (UNWTO). (n.d.). *Hotel Energy Solutions (HES)*. <https://www.unwto.org/hotel-energy-solution>
- United Nations World Tourism Organization (UNWTO). (n.d.). *Transforming Tourism for Climate Action*. <https://www.unwto.org/sustainable-development/climate-action>
- Van Sprang, H., & Drion, B. (2020). Introduction to Facility Management. Routledge.
- Verma, V. K., Chandra, B. (2018). Intention to implement green hotel practices: evidence from Indian hotel industry. *International Journal of Management Practice*, 11(1), 24-41.
- Wilson, D. (2018). *Strategic FM framework RICS guidance note , Global 1st edition*. Houston, USA & London, United Kingdom.
- Wong, A. K. F., Kim, S., & Hwang, Y. (2022). Effects of Perceived Corporate Social Responsibility (CSR) Performance on Hotel Employees’ Behavior. *International Journal of Hospitality & Tourism Administration*, 23(6), 1145-1173.

- Wong, A. K. F., Kim, S., Lee, S., & Elliot, S. (2021). An application of Delphi method and analytic hierarchy process in understanding hotel corporate social responsibility performance scale. *Journal of Sustainable Tourism*, 29(7), 1153-1179.
- Yusliza, M. Y., Amirudin, A., Rahadi, R. A., Afzan, N., Sarah, N., Ramayah, T., Mokhlis, S. (2020). An investigation of pro-environmental behaviour and sustainable development in Malaysia. *Sustainability*, 12(7083), 1–21.
- Zaiton, S., Herman, S., Kasimu, A. B., & Hassan, H. (2016). Sustainable tourism practices among hotels in Malaysia: financial and non-financial benefits. *Journal of Sustainability Science and Management*, 11(1), 73–81.
- Zakaria, I. B., Hashim, S. Z., & Ahzahar, N. (2018). Critical Success factor for sustainable facilities management: a review of literature. *International Journal of Academic Research in Business and Social Sciences*, 8(7), 469–480.
- Zuriyati, Z., Rahimah, M. T., Arifin, T., Suhaily, A., Mai, S., Mior, F., & Munir, B. (2014). Intention to visit green hotel in Malaysia: the impact of personal traits and marketing. *International Journal of Business and Social Science*, 5(7), 167–173.