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Determinants of The Adoption of Environmental Sustainability Practices in Hotels and Its Financial Implications: Evidence from the Korça Region, Albania

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ABSTRACT

The adoption of environmental sustainability practices (ESPs) in the hotel industry has garnered significant attention due to increasing environmental pressures, particularly in the tourism sector. The need for sustainable tourism is evident; however, the evidence regarding the adoption of ESPs in developing economies remains limited. This study investigates the adoption of ESPs among Albanian hotels, focusing on the level of engagement in ESPs adoption, motivation factors, barriers, enabling factors, and their financial implications. The research is exploratory and based on primary data collected from 33 hotels through a structured questionnaire administered to hotel managers or owners. The analysis included descriptive statistics, the reliability and internal consistency analysis, and a regression analysis used to assess the relationship between variables. The findings reveal non-uniform adoption patterns. Energy-efficiency practices are among the most widely adopted, with mean values of up to 3.82, while waste management, water management, and digital practices remain limited, with mean values as low as 1.42. Cost reduction emerges as the main motivation factor (mean = 4.15), whereas financial constraints and high upfront costs represent the main barriers (mean = 3.55). Regression results indicate a significant positive effect of motivation factors ($\beta = 0.339$, $p = 0.005$) and a significant negative effect of barriers ($\beta = -0.284$, $p = 0.042$), while enabling factors are not statistically significant ($p = 0.653$). These findings suggest the limited external support for accelerating ESPs adoption. This research contributes to the literature by providing empirical evidence on an issue underexplored and highlighting its financial implications.

1. INTRODUCTION

The tourism sector plays a significant role in the economic development of many countries; however, alongside growth opportunities, it faces various challenges. Among these, environmental pressures represent one of the most critical issues that this sector faces. Hotels rely heavily on using natural resources, such as energy, water, and materials, which makes them substantial contributors to environmental degradation. With growing concern about climate change and resource depletion, hotels need to adapt their business operations by making sustainability the core of their operations. This has resulted in increased efforts from hotels, which have adopted various environmental sustainability practices (ESPs) aimed at reducing energy and water consumption and minimizing waste generation.

In response to these challenges, Environmental Management Systems (EMS) have emerged as a structured approach that organizations can use to identify and reduce their environmental impact. An EMS supports hotels by providing them with the framework through which environmental considerations can become an integral part of their business operations and decision-making. Committing to adopting an EMS can bring benefits beyond environmental benefits. However, beyond the formal EMS framework, hotels are increasingly adopting ESPs, such as energy-efficiency, water management, and waste management. The adoption of these practices can lead to cost savings through reduced resource use, competitive advantage, enhanced reputation, and improved financial performance position [1-3].

This issue has been the subject of research by many authors globally, who have examined various aspects of ESPs adoption in the hotel industry, including the types of practices adopted, barriers and motivation factors for adopting them, and the financial implications related to it. The existing literature highlights regulatory and stakeholder pressure, environmental considerations [4, 5] and financial benefits as key motivations for ESPs adoption, while key barriers include high initial investment costs and a lack of technical expertise [6-9]. Despite the various benefits that the existing literature shows ESPs adoption can bring for hotels, factors related to the context of the country analyzed need to be considered.

Despite the growing interest in this area, research on ESPs adoption in less developed countries, and particularly in Albania, remains limited. Tourism is one of the key sectors in Albania, regarding its contribution to the economic

development of the country. The sector's contribution to GDP reached 21.6% in 2022, while its contribution to employment was 246700 jobs, or 21.2% of the workforce [10]. According to INSTAT, the number of tourists has increased significantly in recent years, reaching 12.47 million tourists in 2024. These numbers reflect the crucial role that tourism plays in Albania's economic development. Korca is one of the regions that has become very attractive for many tourists. The good combination of nature, culture, and cuisine has contributed to the growing number of tourists in the region. In 2024, the Korca region reached 595 882 tourists [11]. The significant growth of tourism has also created a need for more accommodation structures in the region. However, the growing number of tourists leads to intensified activity of these structures, which requires more resources. As a result, the environmental implications become significant. All these make the Korca region appropriate for a deep investigation of ESPs.

ESPs adoption among Albanian hotels faces various challenges. These practices are not widely adopted in the country, which comes from the lack of awareness, lack of technical expertise, and high initial investment costs [12]. As a result, ESPs adoption in the context of Albanian hotels remains underexplored.

This research aims to investigate ESPs adoption in Albanian hotels. It starts with an introduction and is followed by a detailed literature review that is divided into subsections, focused on the types of ESPs adopted, key drivers for ESPs adoption, key barriers, and the financial implications of ESPs adoption. The work continues with the explanation of the research methodology, the detailed analysis of the results, and the main conclusions. In this way, the research is contributing to enriching the existing literature in this area, particularly by offering insights from Albania. It can also serve as a guide for the managers of hotels who want to increase efforts in adopting ESPs.

2. LITERATURE REVIEW

ESPs have been widely examined in the international literature, focusing on various aspects, such as the types of practices implemented, the motivation factors driving its adoption, the barriers that limit adoption, and the financial implications associated with these systems. Before proceeding with a detailed analysis of these aspects, it is important to distinguish between ESPs and EMS. U.S. Environmental Protection Agency [13], defines the EMS as "…. ***a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency"***. While EMS represents a more formal management framework, this research focuses more on the ESPs adopted by Albanian hotels. These aspects are analyzed in more details in the following sections.

2.1 Types of environmental sustainability practices in the hotel industry

ESPs can be divided into various categories, such as waste management, energy efficiency, water use efficiency, and clean air [3, 8, 14-16]. Most of the literature reviewed focused on ESPs adopted in the hotel industry.

Energy efficiency practices, which lead to reduced energy consumption, include using renewable energy; using high-efficiency lighting fixtures, such as LED lamps; using Heating, Ventilation, and Air Conditioning (HVAC) systems; using energy star-rated appliances, such as boilers; using a green roof to reduce storm water runoff and insulate the building, which can lead to lower heating costs; using occupancy sensors to enable the energy management; using regenerative elevators to reduce energy needs; promoting towel reuse, which leads to lower hot water and as a result lower energy needs; purchasing green power credits; using window tinting and weather-stripping; and where it is possible change the glazing of the building by using a double layer low-emissions glass; and orient the building to the north [3, 8,15-18].

Waste management practices include various recycling and waste reduction practices, such as separating solid waste for selective recycling; recycling of oil, paper, aluminium, cardboard, ink/toner cartridge, and even the construction waste; collection of batteries; promoting paper reuse; using leasing for purchasing office appliances; using refillable bottles or containers, using low-packing materials; reusing old towels; using eco-friendly toiletries; avoid using plastic-based packaging; installing a green roof by using recycled materials; and also composting on-site [3, 8, 15-17]. All these measures would significantly reduce the level of pollution and carbon emissions generated by the business's waste.

Water use efficiency practices encompass measures that lead to reduced water consumption. These practices include promoting towel/linen reuse, the use of water saving information cards for guests, using smart sensors to stop the water flow when it is not used or detect water leak, using low-flow water fixtures or faucet aerators, using flushing toilets or low-flow shower heads and taps, using a rainwater harvesting system, reusing grey water for landscaping purposes, installing a desalination plant for producing drinking water on-site, using pre-rinsing spray washers in the kitchen, and conducting an audit to the irrigation system [3, 8, 15-17]. These practices would enable water conservation and also lead to reduced greenhouse gases emitted.

Clean air practices include conducting air quality testing, installing air filtration, replacing cleaning chemicals with eco-friendly ones, installing high-efficiency MERV8 filters, installing green roofs, and creating smoking sections for guests [3, 16]. These practices contribute to improved air quality and enhanced sustainability reputation of hotels.

2.2 Key motivation factors for adopting environmental sustainability practices

Adopting ESPs among hotels can be seen not only as a necessity but also a choice. Motivation factors that drive ESPs adoption in hotels can be divided into three main categories: factors related to regulatory and stakeholders' pressure, factors related to environmental and social responsibility, and factors related to operational and financial performance.

Regulatory and stakeholders pressure include factors, such as: compliance with regulatory and legislation requirements, supportive state regulations, influence of competitors practices and industry standards, and expectations on sustainability from various stakeholders such as employees, local community, and investors pressure from customers and their willingness to sacrifice for the environment, marketing benefits, increased competitiveness, and enhanced public image and visibility among eco-conscious travelers [4, 5, 9, 12, 13, 19-21].

Environmental and social responsibility factors include factors such as preserving natural resources or sustainable resource management, commitment to reducing pollution, waste, and environmental impact, increased employee awareness on environmental requirements, and social responsibility [3, 12, 13, 19, 22].

Operational and financial performance factors, include cost reduction through low energy consumption, which can be achieved through the use of smart meters and Internet of Things (IoT), LED lighting, renewable energy, efficient Heating, Ventilation, and Air Conditioning (HVAC)systems [1, 3, 9, 15, 18, 21]; reduced waste generated, that leads to reduced waste management costs, and water use [1, 3, 8, 9, 22]; improved resource efficiency and operational performance, including reduced number of accidents in the workplace, the efficient material use, and higher productivity [1, 3], enhanced competitiveness enabled by the competitive advantage of being an eco-friendly hotel, which leads to a better market position [1, 2], higher profitability enabled by increased revenue and reduced costs, and improved financial performance [9, 13-15, 23-27] a potential improved financial resilience during crisis [28], the reasonable payback period [9], reduced charges for nonconformity and environmental fees [2].

Therefore, the decision to adopt ESPs in hotels is driven by a combination of regulatory pressures, a commitment to social and environmental responsibility, and gaining operational and financial benefits, making ESPs adoption a strategic move that enhances long-term sustainability and competitiveness.

2.3 Barriers to adopting environmental sustainability practices

Besides the factors that motivate hotels to adopt ESPs there are various barriers that prevent them from taking action in this direction. These barriers can be divided into three categories: product-related, internal, and external barriers.

Product-related barriers include a lack of qualified verifiers/consultants [29]; the need for professional training [15]; immaturity or unreliability of technology, long payback period [6]; high implementation and maintenance services [6-9, 12, 15]. These barriers make ESPs adoption a complex and expensive process, and sometimes offer an uncertain financial return, which might cause hotels to hesitate adopting it.

Internal barriers include administrative burden, lack of human resources [19]; lack of a sense of urgency [29]; uncertainty of the results [7, 12]; lack of knowledge, skills, and expertise [7, 12]; physical limitations, lack of initiative and support from the owners and managers, lack of resources and budget priorities [6, 7]; difficulty in managing staff, difficulties in balancing service quality and environmental performance, resistance from management and staff [8, 12]. Even when external conditions are favourable, these internal barriers might hinder the ESPs adoption.

External barriers include regulatory ambiguity of ESPs standards, conflicting guidance, inconsistent government support, lack of laws or weak enforcement mechanisms, weather-related challenges, lack of consumer awareness and demand, limited availability of eco/green suppliers, greenwashing, and certification credibility [6, 8, 12, 29]. If hotels operate in an external environment that is not supportive, this can hinder their efforts in transitioning towards ESPs adoption.

2.4 Financial implications of adopting environmental sustainability practices

ESPs have various positive and negative financial implications that vary with the size of the hotel and the ESP adopted. They can be divided into various categories, such as: initial cost, operational cost savings, long-term financial benefits, and financial performance and market outcomes.

Initial cost is one of the key factors mentioned in many of the studies analyzed. Investing in energy-efficient appliances, waste-management systems, and water-saving technologies often requires a high initial cost [7, 8, 15], high and ongoing maintenance costs [6, 12], and any costs for professional training needed to implement these practices [15]. Considering the financial requirements, financial resilience becomes a crucial factor in ensuring long-term sustainability of ESPs, which suggests that hotels with a more consolidated financial structure may be more capable of affording the high costs related to ESPs adoption [30]. Besides the initial costs, ESPs adoption is often associated with various benefits, such as cost savings, related to increased energy efficiency, using smart meters, LED lighting, and renewable energy, that lead to reduced energy consumption [15, 18]. Additional benefits come from installing low-flow water sensors, low-flow water fixtures, re-using grey water, which lead to water consumption and costs, and waste reduction costs, resulting from recycling and waste management practices [2, 3, 16]. Furthermore, the adoption of ESPs in some cases has been associated with reduced charges for nonconformity and environmental fees, which reflects of improved regulatory and environmental compliance [2]. Beyond this, ESPs adoption leads to enhanced overall performance, increased operations efficiency, and increased resource utilization [3, 22]. Besides ESPs, digital technologies, like blockchain, can contribute to enhancing the financial performance of hotels [31]. Overall, the financial implications reflect the balance between the high initial cost and the potential long-term benefits. Start-ups could play a crucial role by bringing innovative ideas that could support the acceleration of ESPs adoption in hotels, but their impact could be limited by various factors, including limited access to funding [32].

In the Albanian context, the adoption of ESPs is at an early stage. The tourism sector has experienced significant growth in the last few years, playing a crucial role in the country's economic development. However, this has not been followed by an intensive adoption of ESPs. Compared to the international context, studies on ESPs adoption in the Albanian context remain limited. The findings of existing research [12, 33] show that most Albanian hotels, particularly the small hotels, face significant barriers to adopting ESPs. These barriers include financial restrictions, a low level of awareness, and a lack of technical expertise. Key financial barriers include high upfront costs and slow return on investment, which can significantly prevent the adoption of ESPs, particularly for small hotels. These barriers are reinforced by infrastructural challenges in waste management [34], while cost reduction appears to be the primary motivation factor for ESPs adoption.

Despite this, the topic of ESPs adoption among Albanian hotels remains underexplored. There is a lack of studies, particularly of quantitative studies that analyse the effect of motivation factors, barriers, and enabling factors. As a result, this research addresses the gap in the literature by analysing barriers, motivation factors, and enabling factors, as well as

their role in ESPs adoption, considering also the financial implications. This helps to enrich the existing international literature in the field, and particularly in the Albanian context.

3. METHODOLOGY OF THE STUDY

This research aimed to investigate the key motivation factors that drive ESPs adoption among Albanian hotels, key barriers that prevent them from adopting ESPs, the enabling factors that can facilitate it and the financial implications related to it. The research was primary and had a quantitative nature. The data was collected from hotel managers and owners through a structured questionnaire that included questions using a 5-point Likert scale. The quantitative approach used allowed testing the relationship between the level of engagement in adopting EMS practices and key motivation factors, key barriers and enabling factors. The research was exploratory and focused on identifying and interpreting the relationship between the independent and dependent variables. To enable reaching this aim, various objectives were set, such as:

•To measure the level of engagement of Albanian hotels in ESPs adoption.

•To identify key motivation factors that drive ESPs adoption.

•To identify key barriers that prevent hotels from adopting ESPs practices.

•To assess the role of enabling factors in ESPs adoption.

•To analyse the financial implications of ESPs adoption.

The questionnaire was distributed to 33 hotels from a total of 90 hotels operating in the region. The sampling technique used was non-probability, and the hotel selected to participate in the research was based on the criteria of operating in the region and the willingness of managers/owners to participate in the research. Considering the small number of hotels operating in the region, and the nature of the research this sampling technique was considered appropriate.

Considering the growing tourism activity in the region in recent years and the growing number of accommodation structures, this makes the region appropriate for this research. As previously mentioned, part of the research was with hotel managers or owners, who are directly involved in the decision-making of the hotels, including decisions about ESPs adoption. Considering the structure of the hotel industry in Albania, which is dominated by small and family-owned hotels, this will be reflected in the sample composition. The sample is small, but it reflects the structure of the hotel industry in the region, where small and family-owned hotels dominate.

The questionnaire was composed of two sections. The first section included questions related to the profile of the hotels, while the second part included questions on the level of engagement in ESPs adoption, motivation factors, key barriers and enabling factors. Considering the latent nature of these variables, various indicators were used to measure them. To measure the level of engagement in ESPs adoption, 20 indicators were used, which covered various areas, such as energy-efficiency practices, water use efficiency, waste management, and air quality. Among the traditional environmental practices, the questionnaire also included indicators measuring the adoption of smart and digital technologies. Technologies, such as occupancy sensors, real-time energy monitoring systems, and IoT-based tools, lead to reduced resource use. Integrating them into hotels' operations can lead to increased efficiency and reduced costs, and improved long-run financial performance. Motivation factors initially included 7 indicators, but after the reliability analysis and checking item-total correlations, 3 of them were removed (Legislation, competition, no motivation factor) due to weak contribution in internal consistency. Barriers included 5 indicators, and enabling factors 5 indicators.

These indicators were used to create indices for each latent variable by calculating the mean of all the respective indicators. NA_INDEX was the index of the level of engagement in ESPs adoption, MF_INDEX was the index of the retained motivation factors, BARR_INDEX was the index of barriers, and EN_INDEX was the index of the enabling factors. The time data collected were processed through Statistical Package for the Social Sciences (SPSS). The analysis started with descriptive statistics, followed by reliability and internal consistency analysis, and ended with regression analysis. Descriptive statistics included mean, standard deviation, and frequencies, while reliability and internal consistency were assessed through Cronbach's Alpha. The regression model tested was:

$$NA\_INDEX = c + \beta_1 * MF\_INDEX + \beta_2 * BARR\_INDEX + \beta_3 * EF\_INDEX + \varepsilon$$

Participating in the research was optional, and respondents were informed about the research aim and were assured of the confidentiality of the information they were asked to provide.

Despite its contribution, the research faces various limitations that need to be considered. The first limitation is related to the sample size, which suggests that the findings of this research may not be generalised for all hotels in Albania. The second limitation is related to the limits of self-reporting data, which has the risk of bias. Future research can widen the analysis beyond the Korca region and can increase the sample size to obtain more valid and representative results.

4. DISCUSSION OF RESULTS

This section presents the key findings of the empirical analysis. It starts with a description of the general characteristics of the hotels involved in the research and continues with an analysis of the patterns that characterize their level of commitment to ESPs adoption. The analysis is followed by a detailed analysis of the mean, variance and frequencies of the level of commitment to ESPs adoption, the motivation factors, barriers, and enabling factors. The following sections focus on reliability and internal consistency tests and linear regression analysis, which helped identify the key factors determining ESPs adoption in the context of Albania. This approach enables a comprehensive analysis of the factors that drive ESPs adoption and those that limit it.

4.1 Descriptive statistics of the sample

The questionnaire used for this research consisted of two sections. The first section included questions about the general characteristics of the hotels, while the second part focused on issues related to ESPs adoption, their commitment to adopting ESPs, key motivations driving this commitment, key barriers, and enabling factors. This section starts with an overview of the key characteristics of the hotels that become part of the

research. Of all the hotels that participated in the research [33], most of them were business hotels (39.4%), followed by bed and breakfast hotels (24.4%), and boutique hotels (12.1%). This is also a reflection of the hotel structure in the country and in the Korca region, where family-owned hotels composed a significant part, with limited large hotels. In terms of ownership, most of the hotels involved in the research (75.8%) were owned by a single owner, which has implications in the decision-making process and access to financial and organizational resources.

Regarding service quality, most hotels classified themselves as offering mid-range services (66.7%), while only 24.4% offered world-class services. This aligns with their size, with approximately 88% of the hotels operating with fewer than 30 rooms. These data show that most hotels in the region will tend to focus more on cost control than differentiation coming from offering high-quality services. Most of the hotels involved in the research were located close to city centers (69.7%), while those located in the suburbs, mountains, or rural areas composed a small portion. The high concentration in urban areas might be a reflection of the stability of the demand and the better infrastructure available compared to other areas.

In terms of the quality classification, a significant share of hotels (39.4%) reported that they were classified as four-star hotels, while 30.3% of them relied primarily on rankings from platforms such as Booking or TripAdvisor instead of using formal classification systems. Furthermore, most hotels have been operating for less than 10 years (75.8%), which may reflect the growing number of new hospitality structures to respond to the growing tourism activity in the region during the last few years. The data on employment confirm the domination of small hotels, with 45.5% employing fewer than 5 workers and 72.7% employing fewer than 10 workers. In terms of the type of work, full-time workers dominated (81.8%), which reflects the stability of operations.

4.2 Descriptive analysis of environmental sustainability practices adoption patterns

The data collected through the questionnaire were processed and analysed using various descriptive statistics, including mean, standard deviation, and frequencies. They helped assess the level of engagement to ESPs adoption, motivation factors, barriers, and key enabling factors. The results shown in Table 1 reflect a relatively high level of engagement in ESPs adopting particularly in energy efficiency practices, starting with using energy-efficient lighting equipment and heating equipment, with a mean of 3.8; followed by the use of automatic energy on/off control systems, with a mean of 3.64; energy efficient appliances, with a mean of 3.52; and using shampoo and soap dispensers in hotel rooms, with a mean of 3.48. In contrast, waste management and water efficiency practices exhibit a lower commitment level, as reflected in the low mean values.

Regarding the use of smart/digital ESPs, the results suggest a moderate level of commitment, with a higher level of adoption in the use of digital applications for hotel management and guest communication, and the use of occupancy sensors in rooms, with a mean of 3.21 for both. With respect to the motivation factors, cost savings is seen as the key driver in ESPs adoption, with a mean of 4.15; followed by the implementation of sustainability-related policies, with a mean of 3.85. The main barriers identified include implementation and maintenance costs, with a mean of 3.55; followed by the slow return on investment, with a mean of 3.33; and lack of financial and technical resources, both with a mean of 3.03. Regarding the enabling factors, they show low mean values, suggesting limited support of government, non-government organizations, hotel associations and tourism agencies for ESPs adoption.

The values of the standard deviation indicate moderate to high differences in the patterns of ESPs adoption among the hotels involved in the research. Overall, these results highlight cost savings as a key driver for ESPs adoption, where the practices that tend to bring immediate operational benefits dominate, while avoiding or delaying the adoption of practices that require greater investment or external support.

To complement the mean and standard deviation, the analysis continues with the frequency analysis to understand the distribution and intensity of ESPs adoption among the hotels involved in the research. Table 2 contains the frequency distribution of the indicators related to the level of engagement in ESPs adoption. The frequencies related to energy-efficiency practices show a domination of responses with higher values, which reflects the adoption of these practices in most hotels. This reflects that these practices are not only widely adopted by hotels, but also adopted by most of them. In contrast, the waste management and water efficiency practices show a distribution with the highest frequencies in the lowest values, suggesting a low adoption. It may be a reflection of barriers to adopting these practices in hotels, with only a few early adopters. These results are also consistent with the findings of the existing studies [7, 6, 12, 15], which suggest that businesses tend to delay the adoption of ESPs that require a high upfront investment, particularly for small hotels.

Regarding the adoption of smart and digital ESPs, the results suggest a low adoption of more advanced technologies, such as IoT devices, with a moderate to high adoption in less advanced technologies, such as occupancy sensors. This suggests that the adoption of these practices is in its early stages because of the significant investment and the complexity of using these products. Overall, the results show non-uniform implementation of ESPs among hotels involved in this research. This suggests that hotels prioritize more immediate operational benefits, instead of adopting practices that require higher investment and may delay the benefits.

The frequency analysis continues with the motivation factors for ESPs adoption. Table 3 contains the results, which show that cost savings remains one of the key drivers, with 84.8% of the hotels selecting 4 or 5, which means they consider it as an important or very important motivation factor. This reflects the crucial role that financial considerations play in driving ESP adoption. These results are consistent with the findings of previous studies [1, 8, 23], which highlight financial incentives as key drivers of ESPs adoption. It also confirms that in the Albanian context, economic considerations are more significant than environmental considerations.

A similar tendency exists for the implementation of sustainability-oriented policies and environmental protection, while green marketing is getting medium to high valuations, which suggests the benefits coming from it are not recognized as much as the financial benefits.

Table 4 presents the frequency distribution of the indicators used to measure the barriers that Albanian hotels face in adopting ESPs. The results show the domination of financial and cost-related barriers. For the implementation and maintenance costs, 51.5% of the respondents rate it as a high

or very high barrier, while for the limited financial resources, 45.5% of them admit that it represents a significant or very significant barrier. For the barriers related to training and expertise, the frequency distribution shows a predominance of moderate to high levels, suggesting their significant role as a major barrier to ESPs adoption. The slow return on investment is seen as a moderate barrier, with around 51.5% of the respondents valuating it with a 3, and 36.4% reporting a high level. This suggests that while hotels recognise the benefits of ESPs adoption, financial constraints or delayed financial returns reduce their capacity to adopt ESPs.

Table 1. Mean and standard deviation of the indicators used to measure the level of engagement in environmental sustainability practices (ESPs)

Variable	Indicators	Mean	Std. Deviation
Level of engagement in	Using energy-efficient lighting equipment	3.8182	0.8461
	Using energy-efficient household appliances	3.5152	1.0642
	Using energy-efficient heating equipment	3.8182	0.8083
	Using automatic energy on/off control systems	3.6364	1.1407
	Using eco-friendly detergents	3.1212	0.9273
	Using shampoo and soap dispensers in hotel rooms	3.4848	1.2777
	Encouraging guests to reuse towels	2.2727	1.0975
	Using dual-flush toilets	3.5152	1.1758
	Using low-flow showers and washbasins	2.6970	1.1035
	Waste separation in different areas	2.3030	1.1315
	Donating unconsumed food	2.3636	1.2703
	Donating hotel furniture and equipment	1.9394	1.0880
	Recycling waste such as paper, cans, plastics, glass, etc.	1.9697	1.0150
	Rainwater harvesting	1.4242	0.6629
	Using smart thermostats in hotel rooms (for automatic temperature regulation based on guest presence)	2.7879	1.3171
	Using real-time energy management systems (smart meters) to monitor energy consumption and optimize usage in real time	2.2727	1.2814
	Using occupancy sensors in rooms to automatically switch on/off energy for lighting, TV, air conditioning, etc., to avoid unnecessary consumption	3.2121	1.5157
	Using automated irrigation and water management systems for efficient management of outdoor areas (hotel gardens)	2.4545	1.4162
	Using digital applications for hotel management and guest communication, helping reduce physical materials (paper, brochures, invoices) and optimize services	3.2121	1.2439
	Using IoT devices for proactive maintenance (monitoring filters, leaks, etc.) to prevent excessive consumption and resource loss	2.4545	1.3250
Motivation factors	Cost savings	4.1515	0.7550
	Green marketing	3.3636	0.9943
	Environment protection	3.6667	1.1087
	Implementation of sustainability-related policies	3.8485	1.0038
Barriers	Implementation and maintenance cost	3.5455	0.9712
	Lack of funds, financial resources	3.3030	1.0150
	Lack of information and technical guidance	3.2424	1.0009
	Lack of training and expertise	3.3030	0.7699
	Slow return on investment (ROI)	3.3333	0.8165
Enabling or supporting factors	Central governance	2.0606	1.0289
	Local governance (municipality, commune)	1.9697	0.9515
	Non-Government Organizations	1.5455	0.8693
	Hotel and hospitality associations	1.6970	0.8834
	Tourism agencies and guides	2.0909	0.9799

Source: Authors' calculations.

Table 2. Frequencies of the level of engagement in environmental sustainability practices (ESPs) adoption

Variable	Indicators	Frequency				
		1	2	3	4	5
Level of engagement in	Using energy-efficient lighting equipment	0.0	3.0	36.4	36.4	24.4
	Using energy-efficient household appliances	9.1	0.0	36.4	39.4	15.2
	Using energy-efficient heating equipment	0.0	0.0	42.4	33.3	24.2
	Using automatic energy on/off control systems	6.1	6.1	33.3	27.3	27.3
	Using eco-friendly detergents	9.1	6.1	51.5	30.3	3.0
	Using shampoo and soap dispensers in hotel rooms	12.1	6.1	27.3	30.3	24.2
	Encouraging guests to reuse towels	33.3	21.2	30.3	15.2	0.0
	Using dual-flush toilets	6.1	12.1	30.3	27.3	24.2
	Using low-flow showers and washbasins	18.2	21.2	36.4	21.2	3.0
	Waste separation in different areas	33.3	21.2	27.3	18.2	0.0
	Donating unconsumed food	36.4	15.2	30.3	12.1	6.1
	Donating hotel furniture and equipment	48.5	18.2	27.3	3.0	3.0
	Recycling waste such as paper, cans, plastics, glass, etc.	42.4	27.3	21.2	9.1	0.0

	Rainwater harvesting	66.7	24.2	9.1	0.0	0.0
	Using smart thermostats in hotel rooms (for automatic temperature regulation based on guest presence)	24.2	18.2	18.2	33.3	6.1
	Using real-time energy management systems (smart meters) to monitor energy consumption and optimize usage in real time	39.4	18.2	24.2	12.1	6.1
	Using occupancy sensors in rooms to automatically switch on/off energy for lighting, TV, air conditioning, etc., to avoid unnecessary consumption	21.2	15.2	9.1	30.3	24.2
	Using automated irrigation and water management systems for efficient management of outdoor areas (hotel gardens)	33.3	24.2	21.2	6.1	15.2
	Using digital applications for hotel management and guest communication, helping reduce physical materials (paper, brochures, invoices) and optimize services	15.2	6.1	36.4	27.3	15.2
	Using IoT devices for proactive maintenance (monitoring filters, leaks, etc.) to prevent excessive consumption and resource loss	30.3	24.2	27.3	6.1	12.1

Source: Authors' calculations.

Table 3. Frequencies of the indicators used to measure key motivation factors in environmental sustainability practices (ESPs) adoption

Variable	Indicators	Frequency				
		1	2	3	4	5
Motivation factors	Cost savings	0.0	3.0	12.1	51.5	33.3
	Green marketing	3.0	15.2	36.4	33.3	12.1
	Environment protection	3.0	9.1	36.4	21.2	30.3
	Implementation of sustainability-related policies	3.0	3.0	30.3	33.3	30.3

Source: Authors' calculations.

Table 4. Frequencies of the indicators used to measure barriers in environmental sustainability practices (ESPs) adoption

Variable	Indicators	Frequency				
		1	2	3	4	5
Barriers	Implementation and maintenance cost	0.0	15.2	33.3	33.3	18.2
	Lack of funds, financial resources	6.1	12.1	36.4	36.4	9.1
	Lack of information and technical guidance	3.0	18.2	42.4	24.2	12.1
	Lack of training and expertise	0.0	15.2	42.4	39.4	3.0
	Slow return on investment (ROI)	0.0	12.1	51.5	27.3	9.1

Source: Authors' calculations.

Table 5. Frequencies of the indicators used to measure and enabling factors for environmental sustainability practices (ESPs) adoption

Variable	Indicators	Frequency				
		1	2	3	4	5
Enabling or supporting factors	Central governance	42.4	15.2	36.4	6.1	0.0
	Local governance (municipality, commune)	45.5	12.1	42.4	0.0	0.0
	Non-Government Organizations	66.7	15.2	15.2	3.0	0.0
	Hotel and hospitality associations	57.6	15.2	27.3	0.0	0.0
	Tourism agencies and guides	36.4	24.2	33.3	6.1	0.0

Source: Authors' calculations.

Table 5 presents the frequency distribution for the enabling factors for ESPs adoption. What predominates based on the results is weak support from various parties, including government bodies or agencies. This is reflected in the low ratings for central and local governance, with 57.6% of respondents rating it with 1 or 2, which reflects the limited support they offer to hotels for ESPs adoption. A similar situation is for tourism agencies and guides, as well as hospitality associations. These results suggest that the lack of a supporting ecosystem forces Albanian hotels to rely mainly on their internal resources, and can also partly explain the slow adoption of ESPs.

4.3 Reliability and internal consistency test

The reliability of the latent variables was assessed by using Cronbach alpha. The results, shown in Table 6, confirm the internal consistency of the latent variables. Cronbach Alpha for the level of engagement in ESPs adoption is 0.798, indicating a good level of reliability. Considering the high number of indicators used to measure the level of engagement, these results reflect a stable measurement scale. For barriers, the value of Cronbach's Alpha is 0.708, which is slightly above the commonly accepted threshold of 0.7 [35]. This also suggests that the indicators used to measure barriers serve as a consistent and reliable measure of the obstacles that prevent ESPs adoption. The enabling factors exhibit a Cronbach's Alpha value of 0.839, reflecting high reliability.

Table 6. Reliability analysis results for the latent variables

NO.	Variable	Cronbach Alpha
1	Level of engagement	0.798
2	Motivation factors	0.822
3	Barriers	0.708
4	Enabling or supporting factors	0.839

Source: Authors' calculations.

Initial internal consistency analysis showed a Cronbach's Alpha below the threshold of 0.7. After conducting the item-total correlation, three indicators were removed because they reduced the reliability of the analysis. After removing them, Cronbach's Alpha increased to 0.822, indicating high internal consistency. The retained indicators included cost savings, green marketing, environmental protection, and implementation of sustainability-related policies.

4.4 Environmental sustainability practices adoption determinants

To conduct a more comprehensive analysis of the factors determining ESPs adoption among Albanian hotels, a linear regression analysis was employed. The aim was to determine the extent to which motivation factors, barriers, and enabling factors affected the level of engagement in ESPs adoption in

Albanian hotels. This completes the analysis conducted in the previous sections, which was more descriptive. The analysis starts with the presentation of the model summary, which is given in Table 7. The results show a R^2 of 0.312, which suggests that 31.2% of the variance of the level of engagement in ESPs adoption is explained by motivation factors, barriers, and enabling factors. The adjusted R^2 is 0.241, suggesting that the model has moderate explanatory power.

Table 7. Regression model summary

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.559	0.312	0.241	0.457

Source: Authors' calculations.

The analysis of variance (ANOVA) results presented in Table 8 show that the regression model is statistically significant. This is reflected in the probability value of the F-statistic, which is 0.012, smaller than the 5% significance level. These results suggest that the independent variables considered, including motivation factors, barriers, and enabling factors, considered together, provide a significant explanation of the level of commitment to ESPs adoption in Albanian hotels.

Table 8. The analysis of variance (ANOVA) results

ANOVA[a]						
	Model	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	2.750	3	0.917	4.390	.012[b]
	Residual	6.056	29	0.209		
	Total	8.806	32			

a. Dependent Variable: NA_INDEX
b. Predictors: (Constant), EN_INDEX, BARR_INDEX, MF_INDEX

Source: Authors' calculations.

Table 9 presents more detailed information on the regression analysis, which helps analyze the effect of all independent variables to the level of commitment of Albanian hotels to ESPs adoption. The results show that of the three factors considered, motivation factors ($p = 0.005$) and barriers ($p = 0.042$) have a significant effect on the level of commitment to ESPs adoption, while enabling factors do not have a significant effect. From the two factors that have a positive effect, motivation factors have a positive effect, while barriers have a negative effect. These results are logical because motivation factors, such as cost savings or competition, increase businesses' motivation to adopt ESPs, while barriers, such as high implementation costs and financial restrictions, prevent them from adopting such practices. These results are consistent with the findings of the existing studies [1, 14, 15, 22, 23], which highlight the crucial role of financial and operational factors as key determinants of ESPs adoption, and the results of [6, 7, 8, 29], which highlight the negative effect of barriers, such as financial constraints, lack of technical expertise, and high upfront cost in slowing down ESPs adoption. While for the enabling factors, the insignificant effect may be a reflection of a weak supporting ecosystem. These results differ from the findings of existing literature [6, 8, 12, 29], which highlight the significant role of the government support in promoting or preventing ESPs adoption. The findings of the empirical analysis, which suggest the insignificant role of enabling factors, indicate the underdevelopment of institutional mechanisms dedicated to supporting businesses in ESPs adoption.

Table 9. Regression coefficients for the determinant factors of environmental sustainability practices (ESPs) adoption

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	2.588	0.637		4.061	0.000
	MF_INDEX	0.339	0.110	0.509	3.072	0.005
	BARR_INDEX	-0.284	0.133	-0.339	-2.132	0.042
	EN_INDEX	-0.052	0.115	-0.074	-0.454	0.653

a. Dependent Variable: NA_INDEX

Source: Authors' calculations.

These regression results also have significant financial implications. The first one is related to the significant positive effect of motivation factors on ESPs adoption, where cost savings are one of the key drivers. This confirms that for Albanian hotels, financial incentives play a more significant role than environmental implications. The negative significant effect of barriers highlights the crucial role of financial constraints, particularly the high upfront cost and slow return on investment. The findings suggest that ESPs adoption is not merely a matter of environmental awareness, but is also significantly influenced by financial considerations. The insignificant effect of enabling factors suggests that the lack of external support can limit the speed of ESPs adoption among hotels. Overall, these findings suggest that improved access to finance, combined with other supporting mechanisms, could accelerate ESPs adoption among Albanian hotels.

5. CONCLUSIONS

This research investigated ESPs adoption among Albanian hotels. It focused on the level of engagement in adopting ESPs, the key motivation factors driving the adoption process, key barriers, and enabling factors. The analysis used descriptive statistics, including mean, standard deviation, and frequencies, and used a regression model. Considering the limited research on this topic among Albanian hotels, the research contributed to enriching the existing literature in the field, particularly in the context of Albania.

The results from the descriptive analysis showed non-uniform results regarding the adoption of ESPs. Energy-efficiency practices were among the most widely adopted practices, while waste management and water use efficiency measures showed limited adoption. This is a signal that hotels are driven more by short-term benefits, such as cost savings when adopting such practices. Among the barriers, financial constraints were one of the crucial barriers slowing down ESPs adoption.

Regression analysis showed a significant positive effect of motivation factors on ESPs adoption and a significant negative effect of barriers. This confirms that for Albanian hotels, financial incentives play a more significant role than environmental implications. While enabling factors did not have a significant effect, this suggests a weak supporting system. This means that hotels rely more on their own funds, which can slow down the adoption of ESPs. These findings suggest that government incentives can play a crucial role in

accelerating ESPs adoption.

Despite its contribution to this field, the research faces various limitations, including the sample size, the use of regional data, and limitations related to self-reported data, which need to be considered in the interpretation of the results. Future research can expand the analysis on a national basis and use more objective financial performance indicators.

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