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## DIGITAL SYSTEMS ADOPTION AND SUSTAINABILITY PRACTICES OF ACCREDITED HOTELS IN EASTERN VISAYAS, PHILIPPINES

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### Abstract

*This study examined the level of digital systems adoption and sustainability practices among accredited hotels in Eastern Visayas. Specifically, it assessed digital systems adoption in terms of guest-facing technologies, operational systems, and technological infrastructure, and evaluated sustainability practices across environmental, economic, and socio-cultural dimensions. It also tested whether a significant relationship exists between digital systems adoption and sustainability practices. A quantitative descriptive–correlational research design was employed. Data were collected from 64 respondents representing accredited hotels in Eastern Visayas through a structured survey questionnaire. Stratified random sampling was used to ensure proportional representation across provinces in the region. Descriptive statistics, including mean and standard deviation, were used to determine the levels of digital systems adoption and sustainability practices, while the Pearson Product–Moment Correlation Coefficient was utilized to examine the relationship between the variables at a 0.05 level of significance. Findings revealed that accredited hotels demonstrate a high level of digital systems adoption, indicating strong integration of technologies in guest services, operational processes, and infrastructure. Similarly, sustainability practices were found to be highly implemented across environmental, economic, and socio-cultural domains. Moreover, results showed a strong and statistically significant positive relationship between digital systems adoption and sustainability practices ( $r = .849, p < 0.05$ ). The study concludes that increased adoption of digital systems enhances sustainability practices among hotels. Digital technologies facilitate efficient resource management, streamline operations, and improve service delivery, thereby supporting sustainable outcomes. These findings underscore the importance of integrating digital innovation with sustainability strategies to promote long-term competitiveness and responsible tourism development in the hospitality industry.*

**Keywords:** Digital systems adoption; Sustainability practices; Hospitality industry; Accredited hotels; Eastern Visayas

## INTRODUCTION

Sustainability has evolved into a strategic imperative in the hospitality industry, driven by increasing environmental concerns, regulatory pressures, and changing consumer preferences (Abdou & Shehata, 2025). In response, hotels are integrating digital technologies to enhance operational efficiency while minimizing environmental impact. Innovations such as Internet of Things (IoT)-enabled systems, artificial intelligence (AI)-driven analytics, and mobile guest applications enable real-time monitoring and optimization of energy, water, and waste consumption (Khatteer, 2025). These technologies have demonstrated measurable outcomes, including reductions in energy use, water consumption, and greenhouse gas emissions, while improving operational performance and service delivery (Gajić et al., 2024; Thongmun et al., 2025). Consequently, digital transformation is increasingly recognized as a key enabler of sustainable hospitality.

The growing demand for environmentally responsible lodging further reinforces the adoption of sustainable practices (Thongmun et al., 2025). Contemporary travelers prefer hotels with transparent sustainability initiatives, often supported by digital tools such as in-app dashboards and carbon calculators that enhance trust and engagement (Alhejaili & Ahmad, 2025). Simultaneously, regulatory frameworks, including environmental, social, and governance (ESG) standards, are compelling hospitality operators to adopt measurable sustainability practices (Kunz et al., 2024; Abdou & Shehata, 2025). From a financial perspective, investments in sustainable technologies yield strong returns, with energy-efficient systems achieving payback periods of 1 to 3 years and food waste automation delivering high return on investment (Gajić et al., 2024; Khatteer, 2025).

Despite global advancements, the adoption of digital systems remains uneven, particularly in developing and resource-constrained regions. In the Philippines, and specifically in Eastern Visayas (Region VIII), hotels are increasingly implementing green practices such as energy monitoring, water conservation, and waste management (Waniwan & Cabaguing, 2025). However, empirical evidence on the extent of digital systems adoption and its direct relationship with sustainability outcomes remains limited. Regional challenges—including infrastructure constraints, financial limitations, and climate vulnerability—further hinder technological integration (Baluyot, 2025; Cabaguing et al., 2024). Given the region's exposure to environmental risks, the need for resilient and technology-driven sustainability strategies is particularly urgent.

Digital systems adoption in hospitality refers to the strategic integration of guest-facing technologies, operational systems, and technological infrastructure to enhance service delivery and organizational performance (Al-Okaily et al., 2025). Guest-facing technologies, such as property management systems (PMS) and mobile applications, improve customer experience while reducing resource consumption through paperless transactions (Talukder et al., 2025). Operational systems, including digital inventory management and cloud-based accounting, optimize resource utilization and minimize waste. Meanwhile, technological infrastructure, particularly IoT-enabled systems, supports real-time monitoring and control of energy and environmental performance (Aziz et al., 2025; Baxchab et al., 2024). Collectively, these technologies provide the foundation for achieving sustainability across environmental, economic, and socio-cultural dimensions (Abdou & Shehata, 2025; Singh, 2025).

Environmental sustainability in the hospitality sector focuses on minimizing ecological footprints through efficient energy use, water conservation, and waste reduction. Economic sustainability emphasizes long-term financial viability through cost efficiency, innovation, and local economic integration. Socio-cultural sustainability highlights the role of hotels in preserving local heritage, supporting community development, and promoting inclusive growth (UN Tourism, 2024; Mercado et al., 2024). Empirical studies suggest that digital technologies significantly contribute to these dimensions by enabling data-driven decision-making, improving operational transparency, and fostering stakeholder engagement (Khatteer, 2025).

The relationship between digitalization and sustainability is further supported by empirical evidence. Digital systems facilitate accurate monitoring and reporting, addressing challenges in sustainability measurement. They also enhance operational efficiency by automating processes, reducing waste, and optimizing resource allocation (Thongmun et al., 2025; Huang et al., 2025). Moreover, digital platforms contribute to socio-cultural sustainability by promoting local culture and encouraging environmentally responsible behavior among guests (Huang et al., 2025). However, barriers such as high initial investment costs, limited technical expertise, and resistance to organizational change continue to impede adoption, particularly among small and medium-sized hotels (Khatteer et al., 2021; Chan et al., 2020; Somera & Petrova, 2024).

Despite the expanding body of literature on sustainable hospitality, there remains a significant gap in localized empirical research examining the relationship between digital systems adoption and sustainability practices, particularly in Region VIII. Existing studies often focus on immediate outcomes of green resource management, with limited attention to the broader role of digital technologies and their long-term implications (Waniwan & Cabaguing, 2025). This study addresses this gap by investigating the level of digital systems adoption and sustainability practices among accredited hotels in Eastern Visayas and determining the relationship between these variables.

By providing empirical evidence within a regional context, this research contributes to the development of a localized digital sustainability framework that integrates technological innovation with environmental stewardship, economic resilience, and socio-cultural preservation. Ultimately, the study aims to support the advancement of a more sustainable, competitive, and resilient hospitality industry in Eastern Visayas.

### Objectives of the Study

The main objective of this study is to determine the relationship between digital systems adoption and sustainability practices among accredited hotels in Eastern Visayas.

Specifically, it aimed to answer the following questions:

1. What is the extent of digital systems adoption of accredited hotels in Eastern Visayas in terms of:
  - 1.1 Guest-Facing Technologies
  - 1.2 Operational Systems; and
  - 1.3 Technological Infrastructure?
2. What is the level of sustainability practices of these accredited hotels as perceived by the management and staff across these dimensions:

- 2.1. Environmental Sustainability,
  - 2.2. Economic Sustainability; and
  - 2.3. Socio-Cultural Sustainability?
3. Is there a significant relationship between the extent of digital systems adoption and the level of sustainability practices of accredited hotels in Eastern Visayas?

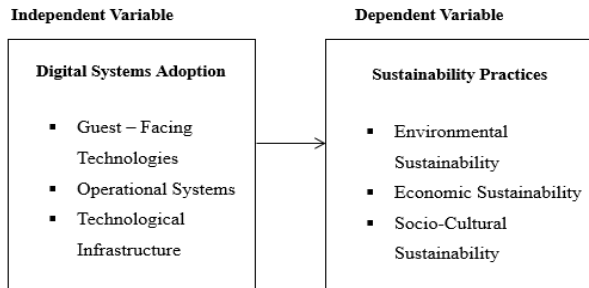


Figure 1. Paradigm of the Study

Shown in Figure 1. Is the paradigm of the study. The Independent Variable (IV) is Digital Systems Adoption, which measures the integration of technology into hotel workflows across three specific dimensions: guest – facing technologies, such as property management systems and online bookings; operational systems, including digital inventory, accounting, and HR systems; and technological infrastructure, such as contactless check-in and smart room controls. These inputs are expected to influence the Dependent Variable (DV), which is the sustainability practices, representing the hotel’s performance in achieving the “triple bottom line.” This sustainability performance is categorized into environmental sustainability, focusing on minimizing ecological footprints; economic sustainability, focusing on long-term financial viability; and socio-cultural sustainability, evaluating impacts on community heritage and staff digital literacy.

## THEORETICAL FRAMEWORK

This study is theoretically grounded in the Technology-Organization-Environment (TOE) Framework (Tornatzky & Fleischer, 1990), a foundational model used to understand the factors that drive or inhibit a firm’s adoption and implementation of technological innovations. As applied to this research, the framework posits that the decision of hotels in Eastern Visayas to adopt digital systems is influenced by three key contexts. First, the technological context refers to the characteristics of the digital systems themselves, such as their complexity, compatibility, and perceived value; this context explains investment choices in front-office operations, back-office operations, and customer-experience technologies, which serve as the study’s independent variables.

Second, the organizational context includes internal hotel characteristics such as size, financial resources, and management support, accounting for regional barriers like financial constraints and owner perspectives that moderate adoption. Finally, the environmental context encompasses the external market, infrastructure, and government policies. For the Eastern Visayas region, this is critical as it includes regional challenges such as slow internet speeds and the urgent need for climate resilience. By applying the TOE framework, this research considers the holistic

factors that shape the success of digital investments in achieving sustainability outcomes within the specific context of Region VIII.

## METHODOLOGY

### Research Design

The study employed a descriptive–correlational research design, which is appropriate for examining relationships between variables. The design enabled the researchers to systematically describe the extent of digital systems adoption and sustainability practices among accredited hotels while simultaneously determining the strength and direction of their association. As noted by Bhandari (2021), correlational designs are particularly useful in identifying patterns and predictive relationships in real-world settings where experimental manipulation is not feasible.

### Locale of the Study

The study was conducted in Eastern Visayas (Region VIII). The region provides a strategically significant context for this research due to its unique combination of ecological richness and infrastructural constraints. As a predominantly coastal and archipelagic region, it is highly vulnerable to climate-related risks, making sustainability practices particularly critical. At the same time, limitations in infrastructure, such as connectivity and technological access. This contextual diversity strengthens the external validity of the study by capturing a realistic representation of hospitality operations in emerging tourism regions. Moreover, the region’s growing tourism potential underscores the importance of examining how digitalization can support sustainable development in geographically dispersed, resource-constrained environments.

### Respondents of the Study

The respondents of the study are the managers and key operational staff of the accredited hotels in Region VIII. These individuals are directly involved in decision-making processes related to technological investments and sustainability initiatives, ensuring that responses are informed and experience-based. The inclusion criteria—such as a minimum tenure of one year and direct engagement with digital systems—further ensure that respondents have sufficient familiarity with their organization’s practices. By focusing on accredited hotels, the study maintains a standardized level of operational quality and regulatory compliance, which minimizes variability arising from informal or non-standardized establishments. The researchers used stratified random sampling to enhance the representativeness of the sample by ensuring proportional inclusion across provinces and highly urbanized cities within Region VIII. The application of G\*Power analysis to determine the minimum sample size further reinforces the statistical rigor of the study, ensuring adequate power to detect significant relationships. By combining stratification with simple random sampling within each subgroup, the study minimizes sampling bias while maintaining randomness.

### Research Instrument

The study utilized a structured questionnaire adapted from established instruments developed by Busulwa et al. (2022) and Berezan et al. (2014), ensuring content validity through the use of previously validated measures. The instrument was divided into two major constructs—digital systems adoption and sustainability practices—aligned with the study’s conceptual framework and facilitated focused data collection. The use of multiple dimensions within each construct, such as guest-facing technologies and environmental sustainability, enhances construct validity by

capturing the multifaceted nature of both variables. Furthermore, using a 4-point Likert scale eliminates neutral responses, encouraging more definitive responses and reducing central-tendency bias.

### Data Gathering Procedure

The data collection process followed a systematic and ethically grounded approach. First, the researchers secured prior approval from institutional authorities, and hotel management ensured compliance with organizational protocols and facilitated access to respondents. After approval, the researchers personally distributed the questionnaires, which allowed them to clarify instructions and address potential misunderstandings, thereby improving data accuracy. Additionally, follow-up procedures were conducted to achieve a high retrieval rate and reduce the likelihood of non-response bias among respondents. Likewise, the researchers assure adherence to confidentiality and voluntary participation to establish trust with respondents, which is essential for obtaining honest and reliable responses. The study adhered to established ethical principles, ensuring the protection of participants' rights and well-being throughout the research process. Informed consent was obtained from all participants, with clear communication about the study's purpose, procedures, risks, and benefits. The voluntary nature of participation and the right to withdraw at any time were emphasized, upholding the principle of respect for persons. Confidentiality and data security measures, including anonymization and secure storage, were implemented to protect participant information. The researcher also maintained objectivity and transparency, declaring the absence of conflicts of interest and avoiding coercion. By addressing potential risks and ensuring that benefits outweigh them, the study aligns with the principle of beneficence. Overall, the rigorous application of ethical standards enhances the credibility and integrity of the research.

### Data Analysis

The study utilized both descriptive and inferential statistics to analyze the study. Descriptive statistics, including weighted mean and standard deviation, were used to effectively summarize levels of digital system adoption and sustainability practices, providing a clear overview of the data. The Pearson Product-Moment Correlation Coefficient was used to examine the linear relationship between the variables, given the interval nature of the data. Testing the hypothesis at a 0.05 level of significance to ensure a standard threshold for determining statistical significance.

## RESULTS AND DISCUSSIONS

Digital Systems Adoption of Accredited Hotels in Eastern Visayas. The succeeding tables present the results for the Digital Systems Adoption of DOT-accredited Hotels in Eastern Visayas. It is explained through the three indicators, namely guest-facing technologies, operational systems, and technological infrastructure.

**Guest-Facing Technologies.** Table 1 shows the digital systems adoption of accredited hotels in Eastern Visayas in terms of Guest-Facing Technologies.

**Table 1.0. Digital Systems Adoption of DOT-accredited Hotels in Eastern Visayas in terms of Guest-Facing Technologies**

Indicators	Mean	SD	Interpretation
Our hotel offers mobile check-in/check-out services.	3.13	1.120	Moderately Adopting
Digital keys or contactless	3.31	1.111	Highly

room access are available to guests.			Adopting
We use personalized digital communication (e.g., app notifications, email) to enhance guest experience.	3.56	0.710	Highly Adopting
Virtual/augmented reality tools are used for pre-stay property tours.	3.00	1.008	Moderately Adopting
Guests can control in-room amenities (lighting, temperature) via digital devices.	3.50	0.617	Highly Adopting
<b>Grand Mean</b>	<b>3.30</b>	<b>0.547</b>	<b>Highly Adopting</b>

*Legend: 3.26-4.00-Highly Adopting, 2.51-3.25-Moderately Adopting, 1.76-2.50-Slightly Adopting, 1.00-1.75-Not Adopting*

The results show that accredited hotels in Eastern Visayas are highly adopting guest-facing technologies, with an overall mean of 3.30, interpreted as highly adopting. This indicates that hotels are actively utilizing digital tools that directly interact with guests, such as online booking platforms, mobile check-in and check-out systems, and digital guest service applications. The high adoption of these technologies suggests that hotels are responding to the increasing demand for convenient, fast, and personalized services among modern travelers. The use of digital platforms allows guests to manage reservations, communicate with hotel staff, and access services more efficiently. This trend aligns with industry observations that a large proportion of hotel bookings and guest transactions now occur through digital channels. Furthermore, technologies such as contactless check-in, QR-based concierge services, and smart room controls have become essential tools in improving guest satisfaction while ensuring safety and efficiency in service delivery (Hussein, 2025).

**Operational Systems.** Table 1.1 shows the results of the Digital Systems Adoption of Accredited Hotels in Eastern Visayas in relation to their Operational Systems.

**Table 1.1. Digital Systems Adoption of DOT-accredited Hotels in Eastern Visayas in terms of Operational Systems**

Indicators	Mean	SD	Interpretation
Our Property Management System (PMS) integrates with CRM and revenue management tools.	3.50	0.617	Highly Adopting
Automated systems are used for inventory management and procurement.	3.38	1.062	Highly Adopting
Data analytics tools inform operational decisions (e.g., staffing, pricing).	3.63	0.604	Highly Adopting
Staff use digital platforms for real-time communication and task management.	3.81	0.393	Highly Adopting

We have a digital system for tracking guest feedback and resolving issues.	3.88	0.333	Highly Adopting
<b>Grand Mean</b>	<b>3.64</b>	<b>0.485</b>	<b>Highly Adopting</b>

*Legend: 3.26-4.00-Highly Adopting, 2.51-3.25-Moderately Adopting, 1.76-2.50- Slightly Adopting, 1.00-1.75-Not Adopting*

The findings further reveal that operational systems are highly adopted among accredited hotels, as indicated by the high mean scores of 3.50, 3.38, 3.63, 3.81, and 3.88 across the indicators. These results suggest that hotels have significantly invested in digital systems that support internal operations such as digital inventory management, cloud-based accounting, and human resource information systems. The high adoption of these back-office technologies indicates that hotels recognize the importance of digitalization in improving operational efficiency and coordination among departments. Digital operational systems help reduce manual processes, minimize resource waste, and enhance transparency in financial and administrative activities. This supports the assertion that digitalization of internal processes serves as an “engine of operational efficiency,” enabling hotels to streamline workflows, reduce cost leakages, and ensure more consistent service delivery (Waniwan & Cabaguino, 2025).

**Technological Infrastructure.** The Digital Systems Adoption of Accredited Hotels in Eastern Visayas, in terms of technological infrastructure, is presented in Table 1.2.

**Table 1.2. Digital Systems Adoption of DOT-accredited Hotels in Eastern Visayas in terms of Technological Infrastructure**

Indicators	Mean	SD	Interpretation
Our hotel has reliable high-speed Wi-Fi coverage across all areas.	3.75	0.563	Highly Adopting
We use cloud-based systems for data storage and accessibility.	3.44	0.794	Highly Adopting
Cybersecurity measures are in place to protect guest and business data.	3.75	0.436	Highly Adopting
Our technology infrastructure complies with relevant standards (e.g., ISO 9001).	3.44	0.500	Highly Adopting
We regularly update and maintain digital systems to ensure performance.	3.75	0.563	Highly Adopting
<b>Grand Mean</b>	<b>3.63</b>	<b>0.461</b>	<b>Highly Adopting</b>

*Legend: 3.26-4.00-Highly Adopting, 2.51-3.25-Moderately Adopting, 1.76-2.50- Slightly Adopting, 1.00-1.75-Not Adopting*

In terms of technological infrastructure, the results also demonstrate a high level of adoption, with mean scores ranging from approximately 3.44 to 3.75, interpreted as highly adopting. This indicates that hotels have established the necessary technological foundations to support digital operations and service delivery. Technological infrastructure includes reliable internet

connectivity, integrated software platforms, cloud systems, and networked digital tools that enable different hotel systems to function cohesively. The high adoption level suggests that hotels are investing not only in individual technologies but also in the overall digital backbone required to sustain advanced systems. This reflects the idea that successful digital adoption in hospitality depends on the maturity of the organization’s digital ecosystem rather than isolated technological investments. Overall, the results indicate that accredited hotels in Eastern Visayas are highly adopting digital systems, as reflected in the grand mean of 3.52 (SD = 0.466). This demonstrates that hotels are integrating digital technologies across guest interactions, operational management, and infrastructure development. The high adoption levels suggest that hotels are building interconnected digital ecosystems that support efficient service delivery, improved customer experiences, and streamlined internal processes. Such comprehensive adoption of digital technologies positions hotels to respond effectively to evolving market demands, maintain competitiveness in the hospitality industry, and enhance organizational agility in an increasingly digital business environment.

**Sustainability Practices of Accredited Hotels.** The study also measures the sustainability practices of accredited hotels in Eastern Visayas, the results of which are presented in the succeeding tables.

**Environmental Sustainability.** Table 2.0 shows the results of the Sustainable Practices of Accredited Hotels in Eastern Visayas in relation to Environmental Sustainability.

**Table 2.0. Sustainable Practices of Accredited Hotels in Eastern Visayas in terms of Environmental Sustainability.**

Indicators	Mean	SD	Interpretation
We measure and set targets to reduce energy consumption (e.g., LED lighting, renewable energy).	3.69	0.687	Highly Practiced
Water conservation measures are implemented (e.g., low-flow fixtures, greywater recycling).	3.81	0.531	Highly Practiced
A comprehensive waste management program is in place (recycling, composting, reducing single-use plastics).	3.75	0.563	Highly Practiced
We use eco-friendly cleaning products and linens.	3.81	0.531	Highly Practiced
Our hotel complies with environmental standards (e.g., ISO 14001, ASEAN Green Hotel criteria).	3.94	0.244	Highly Practiced
<b>Grand Mean</b>	<b>3.80</b>	<b>0.422</b>	<b>Highly Practiced</b>

*Legend: 3.26-4.00-Highly Practiced, 2.51-3.25-Moderately Practiced, 1.76-2.50- Slightly Practiced, 1.00-1.75-Not Practiced*

Table 2 shows the sustainability practices of accredited hotels. It indicates that sustainability practices among hotels are highly implemented across the environmental, economic, and socio-cultural dimensions, reflecting a strong commitment to the Triple

Bottom Line approach to sustainability. The integration of environmental responsibility, economic viability, and socio-cultural engagement demonstrates that hotels are increasingly adopting sustainability not only as a compliance requirement but also as a strategic management approach that enhances operational efficiency, customer satisfaction, and long-term industry competitiveness. The high rating suggests that the hotels recognize the importance of minimizing environmental impacts while maintaining operational efficiency. Such practices reflect the growing commitment of hospitality establishments to environmental stewardship as part of sustainable tourism development. This finding supports the study of Abdelhady (2023), which explains that hotels adopting renewable energy systems and efficient resource management technologies—such as hybrid solar photovoltaic systems integrated with grid power—can significantly reduce carbon emissions and operational costs while achieving long-term sustainability goals. The integration of these technologies enables hotels to monitor and optimize energy consumption, which contributes to improved environmental performance and supports the high practice level observed in the present study.

Economic Sustainability. Another indicator for the Sustainability Practices of Accredited Hotels in Eastern Visayas is the Economic Sustainability. The result of this indicator is shown in Table 2.1. The respondents were asked about their perceptions regarding economic sustainability.

**Table 2.1.** Sustainable Practices of Accredited Hotels in Eastern Visayas in terms of Economic Sustainability.

Indicators	Mean	SD	Interpretation
We prioritize sourcing goods and services from local businesses.	3.81	0.393	Highly Practiced
Our pricing strategies reflect sustainable practices and ensure long-term profitability.	3.75	0.436	Highly Practiced
We invest in training staff to support sustainable operations.	3.81	0.393	Highly Practiced
Sustainability initiatives have reduced operational costs (e.g., energy, waste management).	3.63	0.701	Highly Practiced
We collaborate with tourism stakeholders to promote economic resilience in the local community.	3.81	0.393	Highly Practiced
<b>Grand Mean</b>	<b>3.76</b>	<b>0.343</b>	<b>Highly Practiced</b>

*Legend: 3.26-4.00-Highly Practiced, 2.51-3.25-Moderately Practiced, 1.76-2.50-Slightly Practiced, 1.00-1.75-Not Practiced*

For the economic sustainability dimension, the results show a mean of 3.76 (SD = 0.343), also interpreted as Highly Practiced. This suggests that hotels are effectively implementing practices that promote long-term financial stability while maintaining sustainable

operations. The high rating indicates that establishments are integrating cost-efficient resource management, sustainable investments, and operational strategies that balance profitability with responsible management. Sustainable practices, such as efficient energy use and waste reduction, often lead to reduced operational expenses and improved business performance.

According to Aggarwal et al. (2024), hotels that integrate sustainability initiatives into their operations not only improve environmental outcomes but also positively influence guest satisfaction, comfort, and revisit intentions. These positive customer perceptions contribute to stronger financial performance and competitive advantage in the hospitality industry. Thus, the high level of economic sustainability observed in this study suggests that hotels increasingly recognize sustainability as a strategy that enhances both operational efficiency and long-term profitability.

Socio-Cultural Sustainability. Aside from Economic Sustainability, socio-cultural is also one of the indicators of for Sustainable Practices, and the results is presented in Table 2.2.

**Table 2.2.** Sustainable Practices of Accredited Hotels in Eastern Visayas in terms of Socio-cultural Sustainability.

Indicators	Mean	SD	Interpretation
Our hotel respects and promotes local culture (decor, cuisine, etc.).	3.88	0.333	Highly Practiced
We provide local employment opportunities and ensure fair labor.	3.81	0.393	Highly Practiced
Guest education programs highlight local heritage.	3.63	0.488	Highly Practiced
We engage in community development projects.	3.69	0.588	Highly Practiced
Operations minimize negative impacts on local communities.	3.31	0.990	Highly Practiced
<b>Grand Mean</b>	<b>3.66</b>	<b>0.354</b>	<b>Highly Practiced</b>

*Legend: 3.26-4.00-Highly Practiced, 2.51-3.25-Moderately Practiced, 1.76-2.50-Slightly Practiced, 1.00-1.75-Not Practiced*

The socio-cultural sustainability dimension recorded a mean of 3.66 (SD = 0.354), which is likewise interpreted as Highly Practiced. This indicates that hotels are actively promoting practices that support local culture, encourage community participation, and foster employee development. The findings suggest that hotels understand the importance of maintaining positive relationships with local communities and preserving cultural heritage as part of responsible tourism. By supporting local employment, cultural preservation, and community engagement initiatives, hotels contribute to the social well-being of the destination.

The results are consistent with the findings of Aggarwal et al. (2024), which emphasize that sustainability initiatives, including socio-cultural engagement, significantly influence guests' perceptions and decision-making, particularly among environmentally and socially conscious travelers. As sustainability becomes a critical factor in hospitality management, hotels that demonstrate social responsibility and cultural sensitivity are more

likely to attract and retain guests who value ethical and community-oriented practices.

### Relationship Between Digital System Adoption and Sustainability Practices

**Table 3.0.** Relationship Between Digital System Adoption and Sustainability Practices of Accredited Hotels in Eastern Visayas

Variable 1	Variable 2	r-value	Interpretation	p-value	Interpretation	Decision
Digital System Adoption	Sustainability Practices	0.849	High Correlation	0.000	Highly Significant	Reject H0

$N=$ ,  $p < 0.05$

The findings reveal a strong and statistically significant positive relationship between digital system adoption and sustainability practices ( $r = .849$ ,  $p < .05$ ), indicating that hotels with higher levels of digital adoption also demonstrate stronger sustainability initiatives. This result aligns with the argument that digital transformation serves as a strategic enabler of environmental performance in the hospitality sector. According to Abdelhady (2023), integrating advanced technological systems is essential for achieving net-zero energy and carbon objectives in hotel buildings. His techno-economic analysis emphasizes that optimized digital monitoring and hybrid renewable energy systems significantly enhance energy efficiency and carbon reduction, supporting the strong positive association found in this study.

Similarly, research grounded in the Technology–Organization–Environment (TOE) framework (Tornatzky & Fleischer, 1990) explains that technological readiness and organizational support drive the successful adoption of innovations such as cloud systems and digital platforms. In the context of hotels, Aligarh et al. (2023) found that cloud computing adoption improves operational performance and strategic capabilities. Since operational efficiency is closely tied to resource optimization, cloud-based systems indirectly strengthen sustainability practices by reducing paperwork, streamlining processes, and minimizing energy-intensive manual operations. In line with this, Rajic et al. (2024) emphasized that smart energy management models are critical for sustainable hotel development. These studies provide empirical support that digital monitoring, automation, and analytics systems directly contribute to measurable sustainability outcomes, which explains the very high correlation coefficient observed in this research.

## CONCLUSION

This study provides empirical evidence on the role of digital systems adoption in advancing sustainability practices among accredited hotels in Eastern Visayas. The findings reveal that hotels in the region demonstrate a high level of digital adoption across guest-facing technologies, operational systems, and technological infrastructure, reflecting a mature digital ecosystem that enhances both service delivery and operational efficiency. This level of digital integration indicates that hospitality establishments are increasingly leveraging technology as a strategic asset to remain competitive in a rapidly evolving industry.

Similarly, sustainability practices were found to be highly implemented across environmental, economic, and socio-cultural dimensions. This suggests that hotels in Eastern Visayas have embedded sustainability into their operational frameworks, emphasizing resource efficiency, cost management, and community engagement, which reflects a shift toward more responsible and resilient tourism practices. A key contribution of

The study also measures the relationship between Digital System Adoption and Sustainability Practices as the hypothesis of the study. The results of which is shown in Table 3.0.

this study is the establishment of a strong, statistically significant positive relationship between digital system adoption and sustainability practices. This finding underscores the role of digital transformation as a critical enabler of sustainability outcomes, as it supports real-time monitoring, process automation, and data-driven decision-making. These capabilities not only improve environmental performance but also enhance financial stability and socio-cultural engagement.

These findings carry important practical implications. The results highlight the value of continued investment in advanced digital technologies, particularly those that integrate sustainability monitoring and operational optimization. Strengthening employees' competencies in both digital systems and sustainability practices is a crucial factor in maximizing the benefits of technological adoption. Moreover, the findings suggest the importance of institutional support mechanisms, such as policy incentives and technical assistance, to encourage wider adoption of digital sustainability initiatives, especially among smaller establishments facing resource constraints.

From a research perspective, the study points to the need for further investigation into additional organizational and contextual factors that may influence sustainability outcomes, as well as longitudinal analyses to better understand the long-term impacts of digital transformation.

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