

The Effect of Sustainable Business Practices on Organizational Performance in the United Arab Emirates

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Received: September 2, 2023; **Accepted:** September 20, 2024

Abstract: The study aimed to examine the impact of sustainable business practices on organizational behavior. Under a qualitative research design, purposive sampling was used to conduct interviews at Abu Dhabi Sewerage Services Company (ADSSC) in the UAE, and thematic analysis was applied to analyze the data. The interviews were conducted using a semi-structured questionnaire, with participation from seven managers at ADSSC. The research findings revealed that ADSSC employs modern technology and has a comprehensive plan for implementing sustainable business practices. More than 95 percent of customers expressed satisfaction with their services, attributed to the SMS and calling facilities that offer quick responses. However, there was a 5 percent dissatisfaction rate due to recurring issues caused by private companies. The infrastructure of Abu Dhabi's sewerage services needs to expand to accommodate the growing population and urban sprawl. ADSSC faces challenges related to reliance on subsidies and the need to adopt appropriate tariff regimes and regulations to maintain its market significance.

Keywords: Sustainable Business Practice, Energy Management System, Organizational performance

Type: Research paper



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DOI: 10.51325/ejbti.v3i3.138

1. Introduction

There is an increased need for businesses worldwide to incorporate sustainable practices into their primary operations. This is because sustainability has become an increasingly crucial factor for organizations to consider. According to research conducted by Machete & Marques (2021), this trend is undeniable in water and sanitation, where sewerage corporations are beginning to engage in joint activities that actively support sustainable development. Despite this progress, significant challenges remain, notably in the United Arab Emirates (UAE), where the quality of water and sewerage services has not fully embraced the concept of

sustainability (Ahmed et al., 2019). Furthermore, the adverse effects of inefficient water and sanitation contribute directly to global warming (Chojnacka et al., 2020). This issue is critical in the UAE, as the country's rapid economic development and population growth have resulted in poor management of the country's sewage system. Sewerage firms in the region are incorporating essential components into their plans to enhance sustainability practices to address the industry's current challenges. By doing so, they aim to meet the standards of sustainability and contribute toward achieving the Sustainable Development Goals (SDGs) set by the United Nations (Tsalis et al., 2020).

Given the above, it is clear that the Abu Dhabi Sewerage Services Company (ADSSC) holds a significant role in wastewater management in the United Arab Emirates. According to ADSSC (2016), the company's primary responsibility is to collect, recycle, treat, and deliver reclaimed water to the municipality for use in horticulture. The ADSSC has a clearly defined mandate to provide environmentally friendly and sustainable sewage management services. It accomplishes this mission by working closely with the government of the UAE (Alzaabi & Mezher, 2021).

The partnership between the firm and the government has enhanced the company's performance concerning sustainable practices. The ADSSC works closely with its contractors and suppliers to ensure that the goods they deliver align with the demand to further improve the effectiveness of its sustainability efforts (Tsai et al., 2020). Because of this agreement, the ADSSC can now supply the inhabitants with critically important sewage services. However, Kizhisseri et al. (2021) reported that the enormous stresses placed on the infrastructure of ADSSC due to rapid urbanization and the exponential increase in the population of cities were significant. As a direct consequence, the organization encounters substantial resistance while attempting to realize its goal of adopting environmentally responsible policies.

The research by Rosati & Faria (2019) maintained that the development of public organizations positively affects a country's overall performance. Therefore, many organizations worldwide are implementing sustainable practices to improve their performance, particularly in the public sector. For example, Kizhisseri et al. (2021) developed a financial model for water management in Abu Dhabi until 2050. The UAE government has also introduced a 4G model to encourage sustainable practices and improve organizational performance, especially for public organizations.

In addition, Ahmad (2017) stated that treated sewage water can be utilized for non-potable purposes, particularly in areas facing water scarcity. In this regard, numerous companies are working closely with the ADSSC to treat sewage water for irrigation purposes. However, the ADSSC is facing the challenge of coping with the increasing population's demand for sewage water treatment. Nevertheless, the ADSSC can employ modified practices to meet the city's sewage water treatment requirements. This study aims to examine the impact of sustainable practices on the performance of the ADSSC in the UAE. The study's outcomes contribute to the existing body of literature on sustainable practices in public organizations and their role in fostering overall national development (Khan et al., 2021).

The company has an ISO 9001, ISO 14001, ISO 45001, and ISO 55001 certified Integrated Management System (IMS) at ADSSC. The ISO 50001 EnMS

matched the IMS concerning the essential procedures: document and record management, training and competence, operational processes, internal audit processes, legal requirements, etc. By streamlining the process and promoting interaction between the two systems, the IMS made it easier to roll out the EnMS. O&M protocols and contractual agreements already in place at ADSSC generally specify the activities needed to maintain the efficient functioning of all equipment and processes across assets, including quality inspections. The EnMS Team successfully coordinated, communicated, and carried out all required tasks because it included all of the key players in validating energy performance and O&M processes. On-site O&M personnel at Al Mafraq STP reported on the status of the EnPIs and other crucial calibration equipment to the EnMS Group regularly.

When there have been modifications to the asset's functioning, such as adding or removing certain pieces of equipment, the data-gathering procedure to measure, monitor, and validate EnPIs may become rather laborious. While the tools developed by ADSSC are straightforward and well-documented, it may be possible to save time and effort by automating some of the data-collecting procedures. The digitization of data collecting and monitoring may be aided by using Business Intelligence software solutions like Microsoft Power BI. The ADSSC and its major O&M partners must participate in ongoing training and awareness programs. A large-scale initiative has been running at ADSSC since 2021 to expand the EnMS's coverage area to include all of ADSSC's other assets. In 2022, many locations are set to undergo ISO 50001 recertification.

Improved energy efficiency in wastewater treatment processes and infrastructure has been a primary goal of the EnMS. The ADSSC could consider diversifying its energy holdings in the future. One such practice is using combined heat and power (CHP) systems to generate energy from biogas. The remainder of the paper is structured as follows—Section 2 literature overview. Section 3 reviews the study and provides a research literature gap. In Section 4, we develop our hypotheses and research framework. Section 5 Data and methodology. Section 6 Findings and Analysis and a brief discussion of results. Section 7 contains the conclusion and policy recommendations.

2. Literature Review

The Resource-Based View (RBV) framework evaluates a company's resources in terms of how effectively they provide sustainable competitive advantages. This evaluation is carried out from a theoretical perspective. According to Khan et al. (2022), resources that are unique and not easily replicable by competitors are more likely to be deeply integrated within the organization, making imitation difficult. The RBV offers an inside-out view of a firm's market performance, suggesting that valuable, scarce, difficult-to-imitate, and imperfectly transferable resources are the primary sources of a sustained competitive advantage and enhanced performance. Additionally, the Triple Bottom Line (TBL) Theory provides a comprehensive framework for analyzing a corporation's total performance concerning its economic, social, and environmental effects, as stated by Omri & Belaïd (2021). It highlights that a company's success is determined not only by its financial performance but also by its contributions to the well-being of society and the natural environment. Sustainable business practices require a

careful analysis of how a company's activities impact the environment, society, and the company's finances. Businesses that implement sustainable practices can reduce their environmental impact, enhance their social responsibility, and yield long-lasting economic benefits. Findings from a study by Ahmed & Sarkar (2019) depicted that the TBL framework serves as a guide for businesses to assess their impact on society and the environment, in addition to their financial performance. It enables firms to consider the needs of all stakeholders, including customers, employees, suppliers, shareholders, and local communities.

Sustainability in resource management can be achieved through the use of non-potable water produced by recycling sewage water. This can be realized by installing district cooling plants designed to utilize Treated Sewage Effluent (TSE). Notably, sustainability priorities hinge on three pillars: environment, community, and people, in alignment with regional and national sustainability strategies. Using treated sewage water can yield significant savings of up to thirty-five percent compared to conventional sewerage and water sanitation systems. The government's investment in upgrading sewerage and water sanitation services is crucial for addressing the increasing sewage generation resulting from population growth.

The Abu Dhabi Sewerage Services Company (ADSSC) has launched strategic programs for the enhancement of tunnels, constructing deep sewer tunnels with a substantial investment of AED 5.7 billion, and environmental programs for the efficient treatment and recycling of wastewater for non-potable water provision to parks and farms. Effective data management, comprising finance, investment, and operations functions, is pivotal for continuously delivering quality sewerage services (ADSSC, 2016). The Supervisory Control and Data Acquisition (SCADA) system is an essential tool for the data management of sewerage and water sanitation companies, providing sophisticated and reliable solutions. ADSSC's strategic priorities include providing optimal sewerage services, reaching all individuals in the state with the required sewage and water management services, and offering efficient customer service by enabling users to make complaints and give feedback (Leflaive & Hjort, 2020). Furthermore, the company has partnered with the Masdar Institute of Science and Technology to conduct advanced research to provide the community with sustainable and safe sewerage systems. Notably, the challenge the company faces is balancing the preservation of the natural environment with the development of sewerage and water sanitation infrastructure, given the massive urbanization experienced in Abu Dhabi in recent decades.

Maletič et al. (2016) have stated that organizations can derive enormous benefits from operations in productivity, cost reduction, economic performance, and innovation—various competitive opportunities linked with environmentally friendly management range from external marketing to internal performance benefits. Practical evidence of the organizational performance of business firms in the UAE revealed that environmental policies and measures have been implemented to a certain extent, which assisted in meeting the minimum requirements of the regulatory authorities (Maletič et al., 2022). Furthermore, the firms applied environmental policies and measures to extract economic advantages for their benefits. However, due to the unprecedented population growth, increasing scarcity of resources, and extensive exploitation of natural resources in the UAE, it is necessary that highly

proactive and practical approaches are implemented to ensure the goals associated with the dimensions of sustainability in business practices. For instance, Abu Dhabi has the highest reserve for 90% of total reserves or 92 billion barrels, while Dubai has 4 billion barrels, and Sharjah has 1.5 billion barrels. The country has produced around 2.9 million barrels of crude oil daily, but it aims to increase the production to 4 million barrels.

Within the context of ADSSC, its operations are characterized by rapid urbanization, rapid economic growth, and environmental challenges. In recent years, Abu Dhabi has experienced an exponential increase in population growth, which has resulted in increased demand for wastewater services and water. According to Alaeddine (2023), the country faces specific environmental challenges related to water scarcity, air pollution, and climate change. The UAE has also prioritized sustainable business practices, with a strong emphasis on promoting renewable energy, reducing greenhouse gas emissions, and improving resource efficiency. Therefore, ADSSC has faced increased pressure to adopt sustainable business practices, which have helped improve its efficiency and environmental impact and meet stakeholders' expectations, including regulators, customers, and the broader community (Amoako et al., 2021). Sustainable business practices relevant for ADSSC include reducing greenhouse gas emissions and energy consumption, managing waste and recycling, improving water efficiency, and enhancing communication and stakeholder engagement.

By adopting sustainable business practices, ADSSC can help improve organizational performance in various ways, such as improving operational efficiency, reducing costs, increasing brand value and reputation, and meeting regulatory requirements (Yesufu & Alajlani, 2022). Nevertheless, the specific influence of sustainable business practices on the performance of ADSSC needs to be explored through empirical research. To expand the context of ADSSC concerning the United Arab Emirates, it is essential to note that the UAE has made substantial changes to promote sustainable growth and development in recent years. The UAE has become the leading actor to submit the Nationally Determined Contribution to the United Nations Framework Conventions regarding Climate Change (UNFCCC), in which the country has pledged to minimize greenhouse gas emissions by 2050 by 70 percent (Nascimento et al., 2022).

3. Literature Gap

There is a lack of empirical research examining the specific relationship between sustainable business practices and organizational performance within the context of the United Arab Emirates (UAE). Innovative activities include conducting sustainability audits, developing sustainable products and services, implementing sustainable supply chain practices, collaborating with stakeholders, measuring and reporting sustainability performance, and promoting employee engagement. Although there is a growing body of literature exploring the impact of sustainability practices on performance outcomes across various industries and regions (Maletič et al., 2021), there is a relative dearth of studies focused specifically on this relationship in the UAE. According to Shahzad et al. (2022), companies that adopt sustainability innovation practices, such as developing

environmentally friendly products and processes, are more likely to achieve favorable organizational performance outcomes, including reduced environmental impact and enhanced employee satisfaction.

Organizational performance relates to how well an organization achieves its objectives and goals, measuring the efficiency and effectiveness of the organization in reaching its intended outcomes (Zaman et al., 2023). Additionally, the research highlights that companies with positive non-financial performance outcomes are more likely to achieve better economic performance, such as increased sales growth and profitability. Hence, the study emphasizes the importance of investing in sustainability innovation practices to enhance overall performance outcomes. Further, the research conducted by Asiaei et al. (2022) found that businesses that embrace sustainability practices and implement environmental management systems tend to demonstrate higher levels of sustainable performance, leading to increased economic growth. Moreover, the study demonstrated that innovation plays a significant role in the connection between sustainable performance and economic development. This study aims to investigate the link between organizational performance and sustainable business practices at Abu Dhabi Sewerage Services Company (ADSSC) and to identify the particular practices of sustainable business that significantly affect the performance of ADSSC. Additionally, the research intends to explore the relationship between organizational performance and sustainable business practices in other companies.

According to the findings by Kamble et al. (2023), businesses with stronger sustainable performance are more likely to engage in creative activities, ultimately leading to increased economic growth. The study outcomes underscore the need to incorporate sustainability practices and establish environmental management systems within the operations of ADSSC. These steps lead to improved sustainable performance and economic growth, thus ADSSC must take these measures.

On the other hand, studies that have already been conducted occurred in a variety of settings, each with unique legislative frameworks, cultural values, and market conditions (Kostova et al., 2020). Since ADSSC operates in a unique environment, the conclusions from these studies cannot be directly applied to the organization. According to Ahmad (2017), there is a need to define specific non-financial and financial performance outcomes relevant to ADSSC, such as customer satisfaction, employee engagement, cost reductions, and revenue growth. In light of this, this study aims to investigate the specific impact that sustainable business practices have on firm performance in the UAE, specifically at the Abu Dhabi Sewerage Services firm. This will allow the research to contribute to the existing body of literature on sustainability practices and organizational performance and provide valuable insights for UAE-based businesses working to enhance their sustainability and performance outcomes (Masli et al., 2022).

4. Conceptual Framework

Sustainable design theory addresses environmental and societal issues by rethinking industrial processes and products and also discusses the organizational operation for a more sustainable socio-economic system. However,

evidence shows that implementing these ideas still needs improvement, and a gap exists between speculations and concrete action (Baldassarre et al., 2020).

elucidated that financial management is essential for promoting sustainable business development and practices. Moreover, organizations that embrace shared values as part of their business strategy are on the rise. The growing interconnectedness and future value of a business is critical to increasing reliance on sustainable issues by businesses. The business's competitive advantage is pinned on budget allocation for sustainable issues. Conclusively, financial management plays a pivotal role in sustainable business practices.

Four key aspects of organizational culture are focused on by Cherian et al. (2021), i.e., employee attitude, behavior, performance, and productivity. They proved that organizational culture significantly impacts work performance in two selected companies, regardless of their nationalities. The issue of sustainability has gained momentum, which is indispensable for stakeholders and academic disciplines (Niedlich et al., 2020). The literature also suggested that business sustainability can be achieved through technology, services, and practices and that innovation in business models is necessary. Marrucci et al. (2022) emphasized that an organization's ability to adapt to environmental changes is key to business success. The innovation of the business model assists the organization in improving its approach toward people management and work organization.

Figure 1 presents the conceptual model, and two hypotheses are formulated:

H1: There is a significant relationship between sustainability drivers and sustainable development practices.

H2: There is a pivotal association between a company's performance and sustainable practice.



Figure 1: Conceptual Model

5. Methodology

5.1. Data Sources

In line with focusing on the intersection between theory and practice in sustainable design and business, our respondents were from the Abu Dhabi Sewerage Services (ADSS) firm. A diverse questionnaire was developed and data collected from 7 managers of ADSSC. The questionnaire was originally created in English and then translated into Arabic to ensure better comprehension by respondents from the company based in the UAE.

5.2. Methods

A qualitative research design was chosen due to its capability to examine the same set of variables from different respondents (Mwita, 2022). This design has provided the opportunity to explore variations in adapting sustainable business practices for improved organizational performance.

5.3. Analysis

The responses from the respondents were discussed, and useful information was included in this study. Themes were developed according to the content obtained from the interviews (Alam, 2021).

The first two questions (1-2) explored opinions regarding sustainability and the organization's overall strategic plan. The next two questions (3-4) concerned the aims and objectives of the organization to achieve sustainability and the modes of employee engagement at ADSSC. Question (5) addressed customer satisfaction with the company's performance. Questions (6-7-8) investigated the organization's effectiveness and the use of innovative technology. Questions (9-10) discussed the technology demands of ADSSC and the challenges faced by the company. The last two questions (11-12) probed into the organizational framework and metrics.

5.4. Tools of Analysis

An interpretive approach was used to assess sustainability and measure it with respect to technology, innovation, and business model adaptation (Sarkar et al., 2021). Additionally, organizational culture is assessed by employee attitudes and Human Resource Management practices. Organizational performance is measured by the behavior of top leadership, stakeholders' approaches, and productivity. Qualitative research delves into incredible detail and is the chosen method for comprehending specific research problems (Mehrad & Zangeneh, 2019). Thematic analysis is performed, and themes are processed according to the data collected.

6. Analysis and Findings

6.1. Thematic Analysis

Theme 1: Role and Program of Sustainability & Targets of Sustainability and Engagement of Employees

The responses from the participants indicated that "ADSSC is committed to sustainability. ADSSC is enhancing sustainability through its longstanding commitment to implementing carbon and energy management through

management systems and improvement initiatives," as explained by R1. According to respondents, ADSSC is well-equipped to address issues to activate its supply chain in search of efficient, innovative, and low-carbon alternatives for purchased equipment, materials, and services.

UAE has also planned energy efficiency and developed a National Energy Strategy 2050. The primary goal of Plan 2050 is to reduce carbon emissions, improve demand-side management, and enhance energy efficiencies across all sectors, as described by R5. The target for UAE until 2050 is to improve energy efficiency by 40 percent. Considering this, our organization (ADSSC) also seeks to ensure its EnMS initiatives align with the National Energy Strategy.

ADSSC, with modern strategies, has become a renowned leader in sustainability. The main objective of the organization is to continue the energy savings measure. "ADSSC has critical goals for the EnMS to monitor energy patterns, reduce energy consumption, and improve energy efficiencies," described by R7. It is planned to utilize wastewater treatment assets to reduce energy demand and encourage cost savings. Our organization has a well-designed methodology for transparent monitoring and reporting on energy performance data.

In 2019, ADSSC established Energy Management Teams with members from different organizational functions. This included key stakeholders from the O&M division, project division, HR, finance, and the Integrated Management System (IMS). Moreover, our organization has articulated the Energy Management Policy endorsed by the top management of ADSSC. They reviewed to authorize and link important energy commitments. "This policy is available to all ADSSC employees by assigning their roles and responsibilities," elucidated by R3 and R6.

Theme 2: Customer Satisfaction and Sustainability and Accomplishment of Sustainable Practices and Recycling Strategies of ADSSC

Respondents maintained that "they keep a record related to customer problems and that the O&M department is responsible for this purpose," which was responded to by R1 and R3. Our data indicated that 95 percent of customers have been satisfied in the last 6 months because of our service provision and maintenance. Five percent are dissatisfied because of repeat problems from the private sector. Our customers prefer SMS and calling services, which we adopted for communication.

Moreover, the year's plan of ADSSC keeps in mind the needs of our clients. The strategic plan outlines the ADSSC's KPIs, strategic priorities, and performance metrics, as explained by R5 and R7. We have nine departments, and each department has developed its strategies, mission, goals, and KPIs by aligning them with the company's overall plan. ARP and QRP systems are installed to keep track of the performance of all departments. "We examined our company performance through OPEX and CAPEX App to remain competitive in markets," R1 and R4.

Theme 3: Innovative Technologies for Water and Sanitation and Direct Impact of Sustainability Drivers

ADSSC focuses on the use of modern information and communication technology. "Our organization focuses on modern IT technology and solutions to facilitate

employees and top management," as described by R7. ADSSC focuses on technology-based solutions and uses SCADA and ORACLE—information received from these solutions is used for business decisions. Hence, ARP is our primary IT tool in the decision-making process.

Respondents identified energy management benefits through a quantitative process. Energy Performance Indicators were developed for installation at Al Mafrq STP. Our data shows a 19 percent reduction in consumption from 2006; approximately 0.5 million USD cost was saved. 340 KJ/m³ of wastewater was treated until the half of 2018, and 1641 was in 2020, elucidated by R7. Carbon emissions reduced by 2660 metric tons from 2017-2020. The results we quote above are verified from IMVP used by our EnMS team. Staff were implemented for more than one year.

Per customer response and demand, we are expanding and rehabilitating the existing infrastructure. "We meet our regulatory requirements, and the company is improving its products and services through benchmark initiatives," justified by R2.

Theme 4: Barriers and Issues and Organizational Framework for Sustainable Practices and Sustainability Metrics

Respondents explained that evaluation is performed by internal capabilities through SWOT analysis in various departments of ADSSC. Interviews and surveys are conducted to check the capabilities of the company. "The company has yet to complete the treasury department for its monetary resources in the future," as narrated by R3.

Our external and internal stakeholders use PESTEL by categorizing stakeholders and their existing relationships. Generally, the main stakeholders are government units, developers, regulators, suppliers, and consultants. "There are some problems at ADSSC related to reliance on subsidies, adoption of tariff regimes, and regulations for the company to keep it relevant in the market," R5.

At ADSSC, annual sustainability reports are published and are always public on the website. These annual reports include case studies on the company's good practices, lessons learned, and energy management systems reports. Everyone can access these easily from the website; this also shows our company's transparency (R1, R3, and R6).

A significant relationship exists between sustainable development practices and sustainability drivers, and the hypothesis proved.

H1: A significant relationship was found between sustainability drivers and sustainable development practices.

H2: A pivotal association between the company's performance and sustainable practice was found.

6.2. Discussion

This study presented a comprehensive analysis of the company's performance from various angles, including top management, employees, regulations, operational management, auditing, and performance. Thematic analysis was applied to each question, incorporating responses extracted from interviews. The results are corroborated by similar studies, such as the "Energy Management System: A Case Study" (2022) from the Clean Energy Ministerial website and a business case study by Panda (2019).

7. Conclusion

The strategic objective of sustainable business design encompasses certain terminologies and perspectives, integrating thematic analysis. Thus, core activities and main challenges are linked to implementing business practices for organizational development. Sustainable business theory offers a synthesized yet insightful overview of research streams that contribute to business literature and its implementation in ADSS. The study aimed to inspect sustainable business practices and their impact on organizational behavior. A qualitative research design was adopted, data was collected through purposive sampling, and interviews were conducted using a structured questionnaire involving seven managers from ADSS Company. Thematic analysis of the research findings indicated that ADSSC utilized modern equipment (SCADA & ORACLE) and had comprehensive plans for sustainable business practices. They employ various applications and software for monitoring, evaluation, and maintaining records and assessments of their policies. Moreover, stakeholder involvement is taken seriously, and PESTLE analysis is used for this purpose.

ADSSC established an Energy Management System (EnMS) and saved costs of USD 0.5 million by reducing energy consumption. Sustainable practices and the treatment of wastewater also saw significant increases from 2017. Additionally, the company has been working on Vision 2050, with nine departments planning to meet the requirements. The company involves both internal and external stakeholders to improve organizational performance. According to company records, more than 95 percent of customers were satisfied with their services, attributable to SMS and calling facilities with quick responses. However, 5 percent of customers expressed dissatisfaction due to recurring issues from private companies. Due to the growing population and urban expansion, Abu Dhabi Company's infrastructure requires expansion, which the company is committed to prioritizing. ADSSC has identified barriers that affect their performance, such as dependence on subsidies and the need for approval of tariff regimes and regulations to remain substantial in the market.

We have developed a yearly plan for ADSSC with the needs of our clients in mind. The strategic plan details the ADSSC's KPIs, strategic priorities, and performance metrics. Each of the nine departments has developed its strategies, missions, goals, and KPIs in alignment with the company's overall plan. ARP and QRP systems are installed to track the performance of all departments. We assess our company's performance through the OPEX and CAPEX App to remain competitive.

As for policy implications, the increasing population and urban sprawl in Abu Dhabi necessitate a substantial expansion of the company's infrastructure to meet growing demands and maintain service efficiency. ADSSC faces several challenges, notably its reliance on subsidies and the need for adaptive tariff regimes and regulations to stay relevant and competitive in the market. To effectively address these challenges, it is crucial to align with global best practices and enhance internal capabilities. This includes advancing employee training programs to embrace new technologies and strategies for sustainability. By implementing these recommendations, ADSSC can ensure its operations are both

sustainable and conducive to meeting the future needs of Abu Dhabi's rapidly evolving landscape.

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