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Green Logistics and Sustainable Innovation: Strategic Solutions in The Market of Sultanate of Oman

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Abstract

Many initiatives to control climate change and mitigate its effects have been developed recently. The implementation of the new green logistics strategy and its effects on the commercial sectors in Oman are the subject of several initiatives and studies that are required. The fact that COVID-19 accelerates supply chain management and its operations in Oman to begin using green solutions and a sustainable business strategy to achieve sustainable development, it is critical to understand which aspects deserve specific consideration. Sustainable solutions in the field of logistics management as well as maintaining net zero emissions in the Sultanate of Oman by implementing such a strategy. Maintaining a sustainable business model and sustainable supply chain management will assist any logistics organization in Oman in reducing emissions and achieving long-term success, which directly impacts green logistics. This paper's main objectives are to examine and identify strategies for implementing the influence of green logistics on transportation and how to keep green logistics aligned with a sustainable transportation system. This research also focuses on sustainable business models that will enhance logistics in support of zero net emissions as well as sustainable solutions that will facilitate the implementation of green logistics. The goal will be possible to achieve by combining sustainable SCM with green logistics, just as the associated SCM is necessary and aligns with logistics.

Keywords
Green logistics, Sustainable solutions, Sustainable business model, Sustainable SCM, Last-mile delivery.

1. Introduction

Strategies for countries moving toward the adoption of green technology, which will assist them in reaching zero net emissions. One of the key elements seen as facilitating the nations achieve this aim is green logistics. Day by day, we can see new innovations in this field that will create big chances to implement green logistics on the ground on both sides of logistics, whether first-mile or last-mile delivery. This study focused on the Oman market to meet the government's vision for zero net emissions by using global innovation solutions and benefiting from them in the field of supply chain management. The adoption of green logistics technology is confirmed by recent research to be influenced by perceived usefulness and considered flexibility of use, as well as other factors like financial rewards, environmental benefits, regulatory pressures, and organizational support. Perceived usefulness and perceived ease of use were both significant predictors of adoption. The most important factors influencing perceived usefulness were environmental benefits, efficiency improvements, and competitive advantages. The most important factors influencing perceived ease of use were organizational support, compatibility with existing systems, and ease of use. Wu, S., Li, J., & Tian, L. (2020). Another study that was conducted in a chain claim that perceived usefulness and reported ease of use were both highly important adoption predictors. Benefits to the environment, economic reductions, and regulatory pressures were the main variables impacting perceived usefulness. The reliability, accessibility of charging infrastructure, and integration with existing systems were the main variables determining perceived ease of use. Li et al. (2019).

1.1 Objectives

Oman is one of the nations that relies heavily on fossil fuels with CO2 emissions, having produced 16.5 KT in 2019 (worldbank, 2023). as well as the lack of green logistics infrastructure in the market of the Sultanate of Oman (Alshammasi et al., 2021). The Market of the Sultanate of Oman: Assessing the Impact of Green Logistics on the Performance of Firms (Al-Musallami et al., 2018) Both the logistics and the supply chain must be oriented towards the protection of resources and the care of the environment to achieve business logistics that are effective and mitigated (Danalakshmi et al., 2020; Gaur & Vazquez-Brust, 2019). Environmental policy aimed at reducing environmental pollution by 2050 has the priority of minimizing environmental pollution (Lux & Pfluger, 2020). It is significant to note that logistics activities are governed by existing laws and bylaws as well as methods for centralized and unified regulation of logistics chains, which are a set of subjects, objects, and logistics activities that promote material, informational, financial, and other flows (Grabara et al., 2020) (Figure 1).

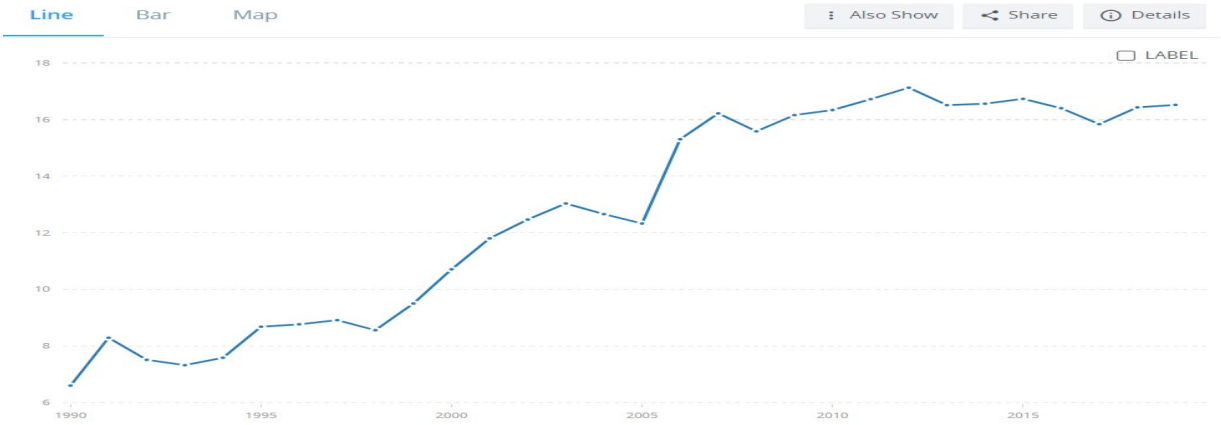

Figure 1. CO2 emissions (metric tons per capita): Oman
Source: https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?end=2019&locations=OM&start=1990&view=chart

2. Literature Review:
Theoretical Background and Development of Hypotheses

A series of studies have been highlighting the most effectives key solutions for developing green transportation system the most relevant review and recent ones to see its impact on this paper in the following point.

2.1 Smart Logistics and Sustainability

Parallelly, smart logistics requires smart cities to smoothly implement smart logistics (Liu et al., 2018). Here we refer to "smart logistics" as services or products embedded with internet communication (Shee et al., 2020). With the era of developing and crowded cities, smart cities become needed (Gao et al., 2021) for governments and individuals, as well as sustainable solutions (Liu et al., 2018); otherwise, it will be very hard to survive in those cities. Sustainable development will ensure individuals can survive in those cities as well as maintain a healthy life for them, saving our planet for future generations (Leckel et al., 2020). The need for smart logistics has increased recently and has become one of the major things people focus on as it makes their lives much easier and more reliable (Shee et al., 2020), as well as more sustainable (Gao et al., 2021).

A crucial challenge to sustainable logistics is represented by the rise of e-commerce and door-to-door services (Savin, 2022) that are causing significant changes in the delivery process (Simoni et al., 2020). Developing a sustainable solution for logistics will impact the business in a positive way (Lozzi et al., 2018). Sustainable development will be beneficial if it is long-term (elazquez & Chankov, 2019; Kiba-Janiak et al., 2021), and it will require government and authorized agency support (Bates, 2018). By mentioniissmart logistics, we are referring directly to green logistics and attempting to maintain sustainability in areas where traffic and CO2 production are high; finding a solution that makes people's lives easier and healthier, particularly in crowded cities.

2.2 Transportation Modes

In essence, a hybrid model is a combination of two or more methods (Correia et al., 2021); (Krstić et al., 2021) of transportation. In some cases, it is one kind of vehicle, and that vehicle has a hybrid system (Ranieri et al., 2018) which can run on fuel and battery. Such vehicles become more important to meet sustainability (Ranieri et al., 2018). In addition to that, in many cases, one mode of transportation (Caspersen & Navrud, 2021) is not enough, especially if the goods have been shipped from a long distance (Boysen et al., 2021). Such transportation can deliver the products faster, but it will require a well-organized system to maintain smooth movements for goods (Castillo et al., 2022).

IOT is one of the amazing solutions for transportation as the system can calculate all probability that can benefit the users and business owners (Kiba-Janiak et al., 2021), due to implementations of IOT in transportations (Balisi et al., 2021) the threat has been increased to be hacked as well and losing of data has big chance as well (Zahra et al., 2021); (Kiba-Janiak et al., 2021).

Intelligent transportation solutions are incorporating smart services to increase the quality of service (Balisi et al., 2021) in terms of availability and interoperability on the Internet of Things (IoT) age (Garofalaki & Kallergis, 2019). Smart transportation services rely on real-time data from a variety of key actors, including autonomous vehicles, smart road signs, smart traffic sensors, and smart devices (Boysen et al., 2021); (Mavrin et al., 2020).

Such technology will support transportation to be aligned with green logistics, which is what this study aims for.

2.3 Design Logistic Strategies

Companies are currently moving away from multi-channel strategies to provide their customers with an omni-channel experience, so setting 11 logistics variables from four strategic areas, including delivery mode, velocity, time slot, slot price differentiation, location selection, delivery area, transport service, automation, integration, order allocation, and returns mode, is necessary to implement an omni-channel management strategy (delivery service, distribution setting, fulfillment strategy, and returns management) (Marchet et al., 2018).

Systematizing the logistics flow and instruments for sustainable development is achieved by choosing logistics functions based on structural and functional approaches. There are two core topics that can be grouped under well-known methods and instruments, A basic logistics concept is implemented in the first topic, which belongs to the logistics element as a function Secondly, the implementation of key management functions of logistics flows explains how the method impacts logistics flows, green methods can be used at different stages of logistics processes without duplication, and perspective methodologies and instruments can be defined and applied (Rakhmangulov et al., 2017). As part of reverse logistics, green supply chains (GSC) aim to reduce the amount of waste that ends up in landfills. Manufacturers are responsible for remanufacturing and retailers are responsible for recycling. Word-of-mouth (WOM) is the operationalization of customer environmental awareness (CEA) (Chen et al., 2019) .In order to achieve socially sustainable development, a number of management strategies must be implemented to balance the trade-off between profit and environmental sustainability (Katiyar et al., 2018).

A "shared logistics platform" is required for the efficient use of resources because the logistics industry is known for producing significant amounts of energy and resource waste, which harms the environment. The sharing logistics platform is a marketplace for purchasing, renting, and selling space for logistics storage, and it makes money by renting out space that isn't being used in logistics warehouses or centers (Table 1),Green logistics platforms must become more prevalent in order to significantly reduce resource waste and address environmental pollution issues (Kwak et al., 2020)**.**

Table 1. Logistic Strategies

Goal	Strategy	Action Items
Reduce carbon emissions in logistics operations	Switch to electric vehicles for local deliveries (Choi & Sarkis, 2015)	Research and procure electric vehicles for local deliveries; Install charging stations at logistics hubs and warehouses
	Optimize transport routes to reduce fuel consumption	Analyze transport data to identify most efficient routes; Train drivers on fuel-efficient driving techniques
	Implement a reverse logistics program to minimize waste (Govindan et al., 2015)	Develop a system for collecting and recycling packaging materials and returned products; Partner with local organizations to donate or repurpose items
Promote sustainable innovation	Invest in renewable energy sources	Research and install solar panels or wind turbines at logistics hubs and warehouses; Explore opportunities for energy storage
	Develop sustainable packaging solutions	Research and develop biodegradable or compostable packaging materials; Implement sustainable packaging design guidelines
	Foster a culture of sustainability	Educate employees on sustainable business practices; Encourage employee input and innovation through a suggestion program; Publish annual sustainability report

2.4 Sustainable Business Model

Sustainability-supporting business models Additionally, sustainable business models could provide higher levels of risk mitigation and resilience, as well as opportunities for diversification and value creation. To realize these advantages, organizations have become increasingly interested in implementing sustainable solutions (Geissdoerfer et al., 2018). Business models that are sustainable integrate sustainability into their value propositions and value creation logic. Thus, they fulfill the needs of both customers and the environment (Abdelkafi & Täuscher, 2016). There are five propositions that describe sustainable business models: First An economy, a society, and an environment combining economic, social, and environmental benefits can be viewed as value forms. The second requirement of sustainable business models is the ability to generate and distribute value among multi-stakeholder systems, including the natural environment and society as primary stakeholder groups. Third, value networks with new goals, designs, and governance are necessary for sustainable business models. Fourth, to create shared value, sustainable business models must consider the interests and responsibilities of all stakeholders. and the last one is product-service system innovation that internalizes externalities promotes the development of sustainable business models (Evans et al., 2017).

2.5 Green Transport Technology Development

Green transportation should consider many factors, including the level of the economy, the energy structure, and the advancement of technology (Yang et al., 2021). Utilized various optimization models and solution techniques to alleviate the negative external impacts of freight transportations through ‘greening’ freight transportation using Operational Research-based planning techniques including urban, electric vehicles, and maritime transportation (Bektaş et al., 2019).

Transportation brought great convenience to people, and automobile transportation is the major factor causing greenhouse gas emissions and climate change, there is a hike in the use and production of electric vehicles (energy

vehicles) with the continuous growth in the number of energy vehicles (Table 2), it is necessary for the government to provide strong support of green transportation so they proposes a system and that system runs stably and effectively in practical application and can meet the requirements (Hu et al., 2020).

Table 2. Ranking for Oman

Rankings for Oman (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	76	67	90
2020	84	68	109
2019	80	57	101

Source: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021/om.pdf

Oman ranked 76th globally among 132 economic featured (GII, 2021) which considered good but still need to be improved more as well. To maximize the use of green vehicles, enterprises should take advantage of their advantages in the green vehicle market. green vehicles could enable companies to invest in modern fleets, new solutions (such as own charging stations) can increase energy efficiency (self-sufficiency), a rise in social awareness would force companies to adopt appropriate environmental protection and environmental vehicle policies, and the development of green public transportation (Klimecka-Tatar et al., 2021).

2.6 Green Supply Chain Strategy

Many businesses and individuals switched to online SCM during COVID-19. Such moves impact all previous strategies and help the organization implement the new strategy. The green SC strategy has a positive impact on the environment as it works to align with green logistics (Yu & Khan, 2022), provide accurate requirements for the business, and reduce waste and unnecessary logistics (Suguna et al., 2021). Recently Omani market has shifted to a green strategy as other countries have; it helps the local organization move forward with the green SC strategy and shows succuss on the ground (Biswas & Sarker, 2020).

A green supply chain strategy will accelerate achieving zero net emissions (Dughaishi et al., 2022) in Oman. SC is involved in different activities, for example: logistics, transportation, warehousing, and last-mile delivery (Hanbazazah et al., 2019).

2.7 Last Mile Delivery

The concept of LMD has been around for a long time (Golinska-Dawson et al., 2020), but recently the demand and need for it have increased rapidly (Ngoc et al., 2019) due to the congestion in urban areas (Zhong et al., 2021). With the increase of such cities (Golinska-Dawson et al., 2020), the need for LMD also increases (Castiglione et al., 2018). In the current LMD, there are different types of modes that are common to people (Golinska-Dawson et al., 2020), such as: reception box, collect point, attended home delivery, and unattended home delivery (Tiwapat et al., 2018); (Golinska-Dawson et al., 2020). (Saha et al., 2020). E-commerce brings many new concepts which people prefer such as on-demand delivery and LMD (T. v. Le & Ukkusuri, 2019). (Samouh et al., 2020); (Kiba-Janiak et al., 2021); (Voccia et al., 2019). Drone delivery is the most possible option in crowded cities (Bassi, 2019), as it does not require so much infrastructure investment (Suguna et al., 2021) such as roads or traffic lights (Kiba-Janiak et al., 2021). Many organizations see it as the best solution for delivering goods, food, and medicines (T. v. Le & Ukkusuri, 2019), but it is still not fully authorized in many countries. Trials are going on globally, and all preparations and possible challenges are being examined to be ready to implement such delivery. Robotic delivery is one of the solutions for LMD, and the amazing thing about it is that it is environmental in nature and that it supports sustainability (Suguna et al., 2021). Such transportation can be considered a smart transportation method. This method may face some difficulties, such as legal regulation (Hoffmann & Prause, 2018), and it has not yet been used in a real case, but some countries are working on it. Trends in technology can impact the LMD on the positive side (Tiwapat et al., 2018). As we can see from the above, the demand for LMD has been increasing more and more. LMD in smart cities must be advanced and

meet customer requirements (Mortara et al., 2020), and because demand is increasing rapidly, solutions must be available as soon as possible.

2.8 Technology Acceptance Model Theory (TAM)

The Technology Acceptance Model (TAM) is a theoretical framework that explains how users perceive and adopt new technologies. According to TAM, perceived usefulness (PU) and perceived ease of use (PEOU) are the key factors that influence the intention to use a technology. In the context of green logistics and sustainable innovation, TAM can be used to understand the factors that affect the adoption of sustainable practices in the logistics industry.

In Oman, the logistics industry is facing several challenges related to sustainability. To address these challenges, companies need to adopt sustainable practices and technologies. TAM can provide a useful framework to understand the factors that influence the adoption of these practices and technologies.

One study that applied TAM in the context of sustainable innovation in Oman is the research by Al Balushi, Al Mashani, and Al Khatri (2019). They investigated the factors that influence the adoption of sustainable practices in the logistics industry in Oman. The study found that both perceived usefulness and perceived ease of use had a significant impact on the intention to use sustainable practices. The study also found that organizational support and compatibility with existing systems were important factors that influenced the adoption of sustainable practices.

Another study that applied TAM in the context of green logistics in Oman is the research by Al-Ghassani, Al-Swidi, and Al-Saifi (2018). They investigated the factors that influence the adoption of green logistics practices in Oman. The study found that both perceived usefulness and perceived ease of use had a significant impact on the intention to use green logistics practices. The study also found that environmental regulations and customer pressure were important factors that influenced the adoption of green logistics practices.

3. Method

Descriptive Mythology: This article presents what can be accomplished in the Sultanate of Oman market with previous studies that were conducted in related domains and makes use of descriptive mythology in this study. This study can be added value for many organizations in terms of contributing and provide sustainable solutions in this field, it will save researchers time and money to analyze the results and discoveries of earlier studies and apply them in the same field.

Data collection: It is not necessary for this research to interview decision-makers in the Oman market or deliver questionnaires to them. As propose Business operations should be stable and maintain good transformation. The new model of SC should know the exact requirement for clear planning (Yu & Khan, 2022).

4. Research hypotheses

Here are some possible hypotheses for Green Logistics and Sustainable Innovation in the market of the Sultanate of Oman:

H1: The adoption of green logistics practices positively influences environmental performance in the logistics industry.

This hypothesis research shows the adoption of green logistics practices can result in significant reductions in carbon emissions and other environmental impacts in the logistics industry (Eltayeb et al., 2019). Therefore, it is expected that companies in the Sultanate of Oman that adopt green logistics practices will experience improved environmental performance.

H2: Investment in sustainable innovation positively influences the competitiveness of companies.

This hypothesis is supported by research that has shown that investment in sustainable innovation can lead to improved competitiveness, as companies develop new products and services that meet the changing needs of consumers and the market (Albino et al., 2019). Therefore, it is expected that companies in the Sultanate of Oman that invest in sustainable innovation will experience improved competitiveness.

H3: Integration of green logistics and sustainable innovation positively influences the overall sustainability performance of companies.

This hypothesis supported research that has shown that integrations of green logistics and sustainable innovation have the chance to lead to significant improvement in overall sustainability performance as organizations develop more sustainable products, reduce their environmental impacts, and improve their social and economic performance (Li et al., 2018). Therefore, it is expected that companies in the Sultanate of Oman that integrate green logistics and sustainable innovation will experience improved sustainability performance.

5. Finding and Discussion

Green logistics and sustainable innovation are becoming increasingly important in business, as companies recognize the need to reduce their environmental impact and operate more sustainably. The Sultanate of Oman is no exception, with businesses seeking strategic solutions to address these issues.

One solution that has gained traction in recent years is the adoption of green logistics practices. Green logistics involves the use of environmentally friendly transportation methods, as well as the optimization of supply chain operations to minimize waste and reduce carbon emissions. This can include initiatives such as using electric or hybrid vehicles for transportation, optimizing shipping routes to reduce the distance traveled, and using more sustainable packaging materials.

Another critical area for sustainable innovation in Oman is renewable energy. The country has significant potential for renewable energy production, particularly in the form of solar power. By investing in solar energy infrastructure and incentivizing the adoption of solar technology, businesses in Oman can reduce their reliance on fossil fuels and decrease their carbon footprint.

Overall, green logistics and sustainable innovation are critical strategic solutions for businesses in Oman looking to reduce their environmental impact and operate more sustainably. By adopting these practices, companies can reduce their carbon footprint and potentially save costs through increased efficiency and reduced waste.

The results acquired from this study were reported in the literature. yet there some suggestions can be list as:

- Omani Government Developed approach and strategy detailed description of the methodology for Adapting for green logistic framework is a need.
- Private sectors should play a role in contributing and adapting GSCM in their business development strategies.
- Researchers and analyses are recommended to finalize and assessment the current Omani market on the studies of sustainable supply chain to go beyond the tradition logistic.

Last mile delivery service is considered as the most expensive and emission producer in the market and by controlling it will add value for the logistics sector to control producing emissions.

Finding: The research highlights the growing importance of green logistics and sustainable innovation in Oman, as businesses recognize the need to reduce environmental impact. Green logistics practices involve environmentally friendly transportation methods and supply chain optimization to minimize waste and carbon emissions. Renewable energy, particularly solar power, is identified as a critical area for sustainable innovation in Oman. The study emphasizes the need for the Omani government to develop a detailed approach and strategy for adopting a green logistics framework, the involvement of the private sector in adopting Green Supply Chain Management (GSCM) in business development, and the importance of researchers assessing the current Omani market for sustainable supply chain studies. Additionally, it suggests that controlling last-mile delivery services, known for being expensive and emission-producing, could significantly benefit the logistics sector by reducing emissions and adding value. Overall, adopting green logistics and sustainable practices is crucial for Omani businesses to decrease their carbon footprint, enhance efficiency, and potentially reduce costs.

6. Conclusion

This article has documented the key sustainable solutions that Omani market should adapt it for developing more sustainable logistics strategy. In conclusion, adopting a green logistics strategy will help the organization provide a quick response to customer requirements (Kaviyani-Charati et al., 2022). Organizations should ensure that everything is in place for the transition to the new strategy to ensure that no gaps arise (Yousifi, 2021) and that no operations are halted because of such transformations (Abdul Aziz et al., 2021). One of the key questions must be: ‘‘How long it will take to alter the decisions on sustainable logistic?’’

7. Future Studies

The Green supply chain logistic study is the basis of sustainable transportation. This study forms the basis of efforts to improve Studies that analyze how an extended sustainable supply chain performs in comparison to traditional frameworks The impact of implementing behavioral modification tactics on green demand and supply could also be

empirically examined. A need for Future research that can create and highlight the tools and models to handle the high levels of uncertainty and difficulties in prediction associated with the behavioral components of green consumption. Furthermore, such contributions from the government will accelerate the change in Oman's position globally in producing emissions and lead the country to score better than it has in the meantime. All of that will require more effort from the public and private sectors as well as monitoring by governments.

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Biographies

Sultan Alkaabi, a distinguished professional with over two decades of experience in supply chain management, has carved a niche for himself as a trailblazer and thought leader in the field. His journey is marked by a relentless pursuit of excellence, a commitment to innovation, and a dedication to advancing the discipline of the supply chain. He embarked on his career in supply chain management while studying his undergraduate studies in early 2003. His early experiences provided him with a solid foundation and ignited his interest in optimizing complex systems to streamline processes and enhance efficiency. Throughout his career, Sultan has had the privilege of contributing his expertise to

various organizations, leaving an indelible mark on each. His ability to analyze, strategize, and implement solutions has been a key driver in his success. Sultan has worked with renowned corporations, leveraging his skills to tackle challenges ranging from procurement to distribution.

Abu Bakar Abdul Hamid is a renowned scholar and researcher specializing in Logistics, Materials, and Supply Chain Management. He obtained his Doctor of Philosophy (PhD) degree in 2003 from the University of Derby, where he extensively explored the intricacies of these crucial fields. Presently affiliated with Putra Business School in Malaysia, Abu Bakar has committed his career to advancing knowledge through both quantitative and qualitative social research. With a profound interest in the dynamics of logistics and supply chain management, Abu Bakar has made significant contributions to the academic discourse in these domains. His research work exemplifies his dedication to rigorous methodologies and nuanced comprehension of the challenges and possibilities within the field. In addition to his academic pursuits, Abu Bakar Abdul Hamid is recognized for his active involvement within the scholarly community, promoting collaborative efforts and facilitating the exchange of ideas. As a thought leader in his field, Abu Bakar continually inspires students and colleagues alike with his valuable contributions to the understanding and enhancement of logistics, materials, and supply chain management practices. His work stands as a testament to his unwavering commitment to advancing knowledge and making meaningful impacts in the realms of business and academia.

Samar Alghalebi is an experienced professional with over 7 years of expertise in the Energy and Waste Management sectors. She specializes in Developing Management and has a proven track record of fostering revenue growth, establishing strategic partnerships, and consistently delivering outstanding results for clients. Samar is recognized for her strong analytical skills and extensive knowledge of the energy market and regulations in the Gulf Cooperation Council (GCC) region. Throughout her career, she has been dedicated to driving innovation and sustainability in the energy sector, making significant contributions to the development and implementation of commercial projects. Samar's leadership and strategic acumen have been instrumental in navigating the complex landscape of energy and waste management, earning her a reputation as a trusted expert in the field. Her commitment to excellence is evident in her exceptional track record and long-standing relationships within the industry. As she continues to shape the future of energy projects, Samar remains a dynamic force in the commercial landscape, embodying the qualities of a forward-thinking and results-driven professional.

Issa Al Rawahi is a highly accomplished and experienced professional in the aviation industry. Currently pursuing a Ph.D. at UNITEN, he has had an impressive 11-year tenure as the Manager of Air Traffic Operations at Etihad Airways, demonstrating exceptional expertise and leadership in the field. Issa holds a Commercial Pilot License (CPL) and an FAA/GCAA Dispatch License, which highlight his comprehensive understanding of aviation operations. His educational background includes a bachelor’s degree in aviation management and an MBA, further solidifying his foundation in the industry. As the Manager of Air Traffic Operations, Issa is responsible for overseeing both the strategic and operational aspects of Air Traffic Management, a role that requires precision and strategic thinking. He has a global influence, collaborating closely with esteemed organizations such as ICAO, IATA, and ANSPs. He actively participates in various local and international ATM meetings and conferences. His exceptional communication, negotiation, and leadership skills have undoubtedly contributed to his success in navigating the dynamic and complex landscape of air traffic operations. His dedication to advancing the aviation industry is evident in both his academic pursuits and his extensive professional experience.