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MSc in SHIPPING MANAGEMENT

DIPLOMA THESIS

**“CORPORATE SOCIAL RESPONSIBILITY AND
ENVIRONMENTAL SUSTAINABILITY:
DRIVERS FOR CSR AND SUSTAINABILITY
TRENDS IN THE SHIPPING INDUSTRY”**

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ΠΕΡΙΛΗΨΗ

Η παρούσα διπλωματική εργασία έχει ως στόχο να εξερευνήσει την εταιρική κοινωνική ευθύνη (ΕΚΕ), και την περιβαλλοντική βιωσιμότητα στο ναυτιλιακό κλάδο. Στο βασικό μέρος της εργασίας, θα γίνει μια παρουσίαση για την εταιρική κοινωνική ευθύνη, την περιβαλλοντική βιωσιμότητα και τον ναυτιλιακό κλάδο. Θα εξεταστούν οι κινητήριες δυνάμεις στις οποίες οι ναυτιλιακές εταιρείες βασίζουν την εφαρμογή της εταιρικής κοινωνικής ευθύνης και της περιβαλλοντικής βιωσιμότητας. Παράλληλα, θα εντοπισθούν οι τάσεις στον χώρο της ναυτιλίας σχετικά με την εταιρική κοινωνική ευθύνη και την βιωσιμότητα. Καταλήγοντας, θα ήταν εύλογο να τονισθεί το γεγονός ότι η εταιρική κοινωνική ευθύνη και η περιβαλλοντική βιωσιμότητα είναι δυο σημαντικές έννοιες στον ναυτιλιακό κλάδο.

Λέξεις κλειδιά: εταιρική κοινωνική ευθύνη (ΕΚΕ), περιβαλλοντική βιωσιμότητα, ναυτιλιακός κλάδος, κινητήριες δυνάμεις, τάσεις.

ABSTRACT

This present master thesis aims to explore Corporate Social Responsibility (CSR) and environmental sustainability in the shipping industry. In the main part of the study, an overview will be provided on Corporate Social Responsibility, environmental sustainability, and the shipping sector. The drivers behind which shipping companies base the implementation of CSR and environmental sustainability will be examined. At the same time, trends in the shipping sector related to CSR and sustainability will be identified. Finally, it should be emphasized that CSR and environmental sustainability are two important concepts in the shipping industry.

Key Words: Corporate Social Responsibility (CSR), Environmental Sustainability, Shipping industry, Drivers, Trends.

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ABBREVIATIONS LIST

AIS - Automatic Identification System
BCG - Boston Consulting Group
BWK - Ballast Water Convention
CO2 - Carbon Dioxide
CSR - Corporate Social Responsibility
DEI - Diversity, Equity, and Inclusion
DWT - Deadweight Tonnage
ECDIS - Electronic Chart Display and Information System
EGD - European Green Deal
EMS - Environmental Management System
ESG - Environmental, Social, and Governance
ETS - Emissions Trading System
EU - European Union
FSC - Flag State Control
GHG - Greenhouse Gas
GT - Gross Tonnage
IMO - International Maritime Organization
ISPS - International Ship and Port Facility Security Code
LEED - Leadership in Energy and Environmental Design
LNG - Liquefied Natural Gas
LPG - Liquefied Petroleum Gas
M&A - Mergers and Acquisitions
MARPOL - Marine Pollution Convention
MLC - Maritime Labour Convention
MPAs - Marine Protected Areas
NGOs - Non-Governmental Organizations
OCC – Onboard Carbon Capture
PSC - Port State Control
SDGs - Sustainable Development Goals
SOLAS - Safety of Life at Sea
STCW - Standards of Training, Certification, and Watchkeeping for Seafarers
TBL - Triple Bottom Line

UN - United Nations

UNCTAD - United Nations Conference on Trade and Development

VLCC - Very Large Crude Carrier

WCED - World Commission on Environment and Development

WPSP - World Ports Sustainability Program

CHAPTER 1: INTRODUCTION

Corporate Social Responsibility and Environmental Sustainability

In today's corporate world, companies have started to incorporate in their strategic planning several business strategies that are assisting them to achieve certain goals that have been set by the top management while also they remain competitive. Among other strategies, two very interesting concepts have stood out, the Corporate Social Responsibility (CSR) and the Environmental Sustainability. There is a growing transition of the ways that companies set their objectives as, it is widely known that, back in the day companies used to run mostly on profit-driven motives (Fontaine, 2013), while now there is an increased awareness of the impact that business operations leave behind, both on the society and the environment. Due to several emerging issues like, the growing concern of climate change (Garric, 2024) and the request for an overall positive contribution to the society, pressuring demands have been made from various groups like customers, employees, suppliers, community groups, governments, and shareholders towards companies to start investing in the concept of corporate social responsibility (Reagan, 2010). CSR can be characterized as a very dynamic concept (Srinivasamurthy, 2021). While many scholars have researched this topic over the years (Brin & Nehme, 2019), there has not been a unique definition found yet (Nimani et al., 2022). However, there are certain academics whose work and theories have been closely tied with CSR, such as Howard R. Bowen and Archie B. Carroll with his CSR theory "Carroll's Pyramid". Regarding the environmental sustainability, it is part of the wider concept of sustainability which consists of three dimensions, the economic, the social and the environmental (Rintamaki, 2020). This concept is particularly important in the shipping industry, as it is considered one of the most polluting industries, worldwide (Harrould-Kolieb, 2008). In the corporate world, environmental sustainability mainly focuses on actions taken by companies in order to mitigate the negative environmental impact from their operations and finding alternative and environmentally friendly ways to operate. When these two concepts are implemented together, they are generating many benefits for the company itself, with the main one being the company's long-term viability, but also for the society in general (Ahmadi, 2024).

The Shipping Industry

Without a doubt the maritime industry, is based on the international trade of goods and commodities, which is crucial factor for the worldwide economy (UNCTAD, 2023). Shipping is an industry with great history as its first sightings -rafts and boats- had been observed since the ancient times, with the first boat being a simple frame of sticks lashed together and covered expertly with sewn hides (Karan, 2019). As the world evolved over the next centuries, the shipping industry grew significantly and it is evident that it keeps evolving continuously. According to UNCTAD, in January of 2023 the world's merchant fleet consisted of 105,500 vessels of at least 100 gross tons (GT). The largest shipping nations around the world are Greece, Japan, China, Singapore, Hong Kong, Germany, South Korea, Norway, Bermuda, and the United States and they are considered the leaders in the industry (Gourtsilidou, 2021). It is worth mentioning that the Union of Greek Shipowners (UGS, p. 3), in their published 2022-2023 annual report, stated that “Greece is the largest shipowning nation in the world, as Greek shipowners control the highest share, 21% of the global merchant fleet in terms of deadweight tons”. There are several types of vessels that exist in the industry, owned by shipping companies and shipowners. Indisputably the variety of commercial vessels in the maritime industry is extremely wide. The main differences of the modern cargo vessels are depending mainly on the type of cargo and size. According to the Baltic Exchange, the main categories according to the type of cargo are the

- (i) Bulk Carriers
- (ii) Tankers
- (iii) Gas Carriers
- (iv) Container Vessels
- (v) Specialised Vessels.

The Bulk Carriers are designed to transport general cargo such as grain, coal and other raw commodities and depending on their size can be further categorized, indicatively, as Handymax, Panamax/Kamsarmax, or Capesize. The Tanker vessels are carrying petroleum products including but not limited crude oil, petrol and gasoline. Tanker vessels are also classified by their carrying capacity in deadweight tons (DWT) and can be further categorized as Panamax, Aframax, Suezmax or VLCCS (Very Large Crude Carrier). The Gas Carriers are designed to transport mainly Liquefied Petroleum Gas (LPG), Liquefied Natural Gas (LNG) or ammonia and are also have different sub-categories depending on their size and whether are semi or fully refrigerated or pressurised. Another category is the Container Vessels that are large vessels that carry dry cargo in intermodal containers and according to

their capacity can be indicatively classified as Ultra Large Container Ships, Very Large Container Ships, Panamax. Last but not least these Specialist Vessels are the tugs, Ro/Ros, reefers, fishing boats, offshore support vessels and numerous other types according to their specialization. When shipowners agree to transport cargo from one place to another, they usually do so through a contractual agreement called charter party which is a contractual agreement between the shipowner, the cargo owner, and the “charterer” for the hire of a vessel. Charter parties can be divided into four main categories the voyage charter, the contract of affreightment, the time charter and the bare boat charter (Stopford, 2009). The main differences between these four contractual agreements depend on the duration of hire and who bears the responsibility of the vessel (Stopford, 2009). No matter the type of charter party though, it goes without saying that the shipowner must provide in any case a seaworthy vessel, which is fit to meet, and undergo any peril of the sea or other incidental risks (Wilson, 2010). These vessels, assist in the transportation of different cargoes ranging from grain to crude oil, around the world by covering long distances while the differentiation in the vessel’s sizes and capacity assists in exporting and importing very large quantities of cargoes which eventually supports the overall global economy by connecting markets. It is also worth mentioning that this industry employs myriad of people internationally both ashore and on-board.

Corporate Social Responsibility and Environmental Sustainability in the Shipping Industry

While shipping has several benefits and contributes positively to the worldwide economy, it comes with certain important challenges that need to be addressed. Traditional business practices in the sector and shipowners used to prioritize the profitability of a company, by relying on cutting costs and buying cheap fuels. The continuous transportation of vessels, the constant usage of fuels, the carriage of substances like crude oil and liquid gasses, the disposal of ballast water from one region to another, the atmospheric pollution, the noise pollution, and the overall waste that is being generated for decades after decades from the vessels are posing significant environmental challenges for the marine biodiversity, the environment, and the society (Walker et al., 2018). Due to this dangerous environmental impact that maritime activities have, the shipping sector is faced with negative attitudes and criticism from societal bodies and organizations to change the traditional ways of operating with environmentally sustainable ones (Wang et al., 2021). It goes without saying that, today

there is a growing concern from shipping companies regarding the way in which they operate and their environmental and societal impact. Several maritime companies have tried, now and then, to incorporate certain strategies in their operations to deal with these emerging issues, as there are growing pressures from regulators, stakeholders, and the society itself (Chua et al., 2023). In these growing efforts two important global concepts have assisted, the Corporate Social Responsibility and the Sustainability, as businesses have started to pay great attention in the conservation of the environment and tackling climate change, while also fostering the society in which they operate in. The reasons why shipping companies decide to incorporate CSR and environmental sustainability in their operations vary from company to company. These decisions are divided into two categories the internal and external factors (Gulema and Roba, 2021), and two of the main factors for CSR and environmental sustainability implementation are, the regulatory compliance and the market's increased competition. It should be mentioned though, that as CSR is not a compulsory business strategy, up until now, many corporations decide that it does not suit them, and they do not engage in it (Heyward, 2022). However, certain trends in the industry such as decarbonization and digitalization are what drive shipping companies to engage in these two business strategies.

Problem Statement

It is true that in the recent years, the shipping industry has been identified as an important stakeholder in achieving global sustainability (Wang et al., 2021). This stems from the fact that as an industry, it has been facing for years increased pressures from its stakeholders and the society, to engage in more sustainable business practices due to worldwide dominating environmental concerns (Chang and Danao, 2017). Meanwhile researchers have studied the CSR and sustainability concept in the shipping industry, there is limited information that exists not only about what actually drives companies to implement these emerging concepts in their business models, but also about the sector's trends regarding CSR and environmental sustainability. In order to gain a better understanding about how the industry aligns with these two concepts and how they are incorporated in business strategies it is important to address these gaps in the existing literature. Concluding, this research strives to explore the main CSR drivers considering the CSR adoption by shipping companies, as well as map out the key CSR and sustainability trends that companies follow, based on existing literature.

Research Aim and Objectives

The aim of this master thesis is to navigate through the emerging topics of Corporate Social Responsibility and environmental sustainability in the shipping industry, while the main research questions of this study is to identify what are the key drivers of CSR, that influence shipping companies to adopt CSR in their business strategies, and to pinpoint the industry's trends that align with CSR and environmental sustainability initiatives, through the existing literature on internet sources. The desired result of this master thesis, is to contribute to the valuable knowledge of shipping experts and the shipping industry, regarding the main CSR drivers and the CSR end environmental sustainability trends in the industry.

Structure of the dissertation

Chapter 1: Introduction

The first chapter of this master thesis strives to provide a brief introduction about the three main research topics. It outlines the main topics discussed on this paper which are the CSR, environmental sustainability, the shipping industry, and the impact of shipping operations in the society by giving certain important details. Moreover, it presents the two main research questions about the CSR drivers and CSR and sustainability trends in the shipping industry.

Chapter 2: Literature Review

In this chapter, there is a thorough review on the existing literature on the topics of CSR and environmental sustainability, the shipping industry and how CSR and environmental sustainability are linked in the shipping industry. It identifies the main ideas and theories of each concept, the main factors that drive shipping companies to incorporate CSR into their business practices and the key trends followed by many shipping companies. Moreover, the current framework of the shipping industry is discussed in this chapter as well as certain conventions like the convention for the pollution prevention from ships and the convention for the safety of life at sea.

Chapter 3: Methodology

This chapter outlines the research methodology used for the research conduction, in order for credible answers to be found considering the main research questions. It includes the research design, the data sources, the data collection process, how this data was analyzed, ethical considerations that need to be considered and lastly the limitations of the study.

Chapter 4: Results

This chapter provides the main publication that were used in order to answer the research questions of the dissertation, considering the CSR factors and trends in the shipping industry. It also presents the finding by analyzing the data from these publications and it discusses briefly the results for the shipping industry.

Chapter 5: Discussion

This chapter aims to provide a thorough discussion according to the drawn-up results from the chapter above, about the significance of the CSR drivers and CSR and sustainability trends in the industry.

Chapter 6: Conclusion

The final chapter of this master thesis concludes the dissertation by summarizing the key finding and their relevance to the field, while it also offers recommendations for further research for practitioners and industry experts.

CHAPTER 2: LITERATURE REVIEW

INTRODUCTION TO CORPORATE SOCIAL RESPONSIBILITY AND ENVIRONMENTAL SUSTAINABILITY

CORPORATE SOCIAL RESPONSIBILITY

Corporate Social Responsibility (CSR) and Environmental Sustainability are two major concepts with significance and increasing importance in the maritime industry, which is believed by many to be a relevant contributor to several environmental challenges like marine pollution, carbon emissions and the management of marine resources. To address these challenges, shipping companies have, now more than ever, started to implement CSR practices into their core business strategies and operations (Anik et al., 2017). In the following literature review, we are going to observe the concept of CSR, its evolution throughout the decades, the various definitions available from multiple academics, along with some of the key models and theories, as well as the reasons for CSR implementation in corporate maritime strategies by companies in this specific industry. This will be followed by an exploration of the concept of sustainability which will be focused on environmental sustainability and its importance in the shipping industry. Finally, the review examines the topics regarding the importance of CSR and sustainability in the shipping sector, the drivers for the implementation of these emerging concepts in the industry, as well as current and future trends of CSR in the maritime sector. The main purpose of this literature review is to provide a thorough understanding regarding these evolving trends and how they connect with the maritime industry.

CORPORATE SOCIAL RESPONSIBILITY

Corporate Social Responsibility is a growing and evolving element for modern businesses and societies (Singh and Misra 2021). Nowadays, corporations have more than ever recognized the growing need to balance profit-making with social and environmental responsibility (Chua et al., 2023). On this paper we're going to be referring to Corporate Social Responsibility with its acronyms, CSR. In simple words, CSR is all about "a company's moral and legal obligation to act in the best interest of society beyond its own profits and interest (Carlsson and Akerstrom

2008). CSR implies that companies have responsibilities towards various stakeholders like customers, employees, investors, communities, and the environment (Hennen, 2023). Stakeholders can be categorized in three subgroups, the first one is governments and regulatory bodies generally, the second is industry participants and the third is the community (Chua et al., 2023). It is important to note that CSR, as a concept, can be considered a complex one as there is not a specific definition (Nimani et al., 2022), but more of a general idea of the topic, which the last few decades has evolved significantly (Singh and Misra, 2021). This is a continuous evolution as academics and authors, still research this topic and current and evolving trends continue to shape it. As stated above, there is not a specific definition for CSR in the current available literature even though that in the past many academics have focused their studies and research on the emerging topic of CSR. Below there is an outline of multiple definitions found online that famous scholars and institutions have provided regarding CSR, which in aggregate can support the understanding of this broad concept.

1. ***“Corporate social responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as the local community and society at large.”*** (World Business Council for Sustainable Development, 2000)
2. ***“Corporate social responsibility encompasses the economic, legal, ethical, and discretionary (philanthropic) expectations that society has of organizations at a given point in time”*** (Archie B. Carroll 1979,1991).
3. ***“CSR refers to the obligation of businessmen to pursue policies, to make decisions, or to follow lines of action which are desirable in terms of objectives and values of our society.”*** (Howard R. Bowen, 1953)
4. ***“CSR encompasses not only what companies do with their profits, but also how they make them. It goes beyond philanthropy and compliance and addresses how companies manage their economic, social, and environmental impacts, as well as their relationships in all key spheres of influence: the workplace, the marketplace, the supply chain, the community, and the public policy realm.”*** Harvard’s Kennedy School of Business

HISTORIC EVOLUTION OF CORPORATE SOCIAL RESPONSIBILITY

It is believed that early traces of the CSR concept can be observed back in the ancient civilizations, like Rome (Herciu, 2021). The laws of the Roman legal system governed socially responsible behavior, which was manifested in the creation of residences for poor people, asylums, hospitals and orphanages in need. (Herciu, 2021). Although these were the first sightings of CSR, it wasn't until the 1930s and 1940s that scholars started the thorough exploration of the corporations' responsibilities and duties in accordance with the impact on the society in which they operate, and they also tried to express how the performance of a company should be assessed in this area (Latapi Agudelo et al., 2019). Overall, it can be observed that these decades were crucial in pinpointing the broader role the businesses have in relation to the society. Over the span of the following decades, societal expectation for corporations shifted, marking a significant step in transforming the concept of CSR.

CSR in the 1950s

The concept of CSR became concrete during the 50s. In the years after the World War II, CSR reflected the social and economic conditions that the post-war world was dealing with (Herciu, 2021). This time in history, after the World War II, in a post-war era CSR-type operations were mostly observed by scholars as charity initiatives, e.g., in the form of donations, with only a few exceptions of companies which addressed broader social and environmental issues (Herciu, 2021). The 50s and CSR go hand in hand, as in the 1953 Howard Bowen published his influential book titled "Social Responsibilities of the Businessman" which later became one of the most important pieces of literature for CSR (Herciu, 2021). His work is going to be discussed in the next section of this paper.

CSR in the 1960s

The decade of the 60s is known worldwide for its major wave of activism, public awareness in the context of social issues like civil and labor rights, women's liberation and racial injustice (Latapi Agudelo et al., 2019). According to these events, corporations decided that it was about time to give rise to the implementation of more formal CSR practices in their business' strategies, meaning they focused on reducing pollution, improving working conditions, relations with their customers, and overall personnel policies (Herciu, 2021).

CSR in the 1970s

In this decade, it is important to note that legal measures ordered companies to incorporate organizational mechanisms to ensure their compliance with federal regulations regarding the environmental protection, the safety of their workers, the product safety and among other key issues the discrimination of the employees. Moreover, companies were advised to forecast and plan CSR efforts, assess their social performance, and establish corporate social policies and strategies. (Herciu, 2021)

CSR in the 1980s

The CSR concept in the 80s was significantly influenced by Edwards R. Freeman's Stakeholder Theory (Latapi Agudelo et al., 2019). His theory added a different perspective on the responsibility of a corporation which contradicted the primary one about a company's interests about profit maximization and shareholder value. Freeman argues that companies should consider a wider group of interests the stakeholders (Freeman and Mcvea, 2001). His theory will be examined in the next section of this paper.

CSR in the 1990s

During this decade as globalization started to grow, complex issues like ethical practices and sustainability were in the forefront of the CSR concept (Herciu, 2021). Another important issue according to CSR was the interests of the stakeholders which later became major components of an organization's corporate strategy.

CSR in the 2000s

In the recent years, CSR evolved from a voluntary concept for corporations to a necessary one (Herciu, 2021). CSR is now integrated deeply in corporate strategies as the recognition of complex challenges like social justice, environmental sustainability and increased transparency grows more and more as time goes by (Latapi Agudelo et al., 2019).

CSR in the present

The concept of CSR is evolving more and more as the years go by (Singh and Misra 2021). From charity acts in the Roman times, CSR has evolved into an essential strategic tool that companies across the globe integrated in their core business operations, as stakeholders have demanded from businesses to become more transparent regarding their societal and environmental impact (Nimani et al., 2022). After the 2010s many events have shaped the way CSR is being perceived by individuals and companies. Among these events are, the launch by

the United Nations about the Sustainable Development Goals (SDGs) in 2015, the signing of the Paris Agreement which happened the same year, the European Green Deal in 2019, the COVID-19 Pandemic and the technological breakthrough that happened during this decade. Companies have started to implement certain CSR trends and activities in their business operations, so that they contribute positively to the environment and the society, these trends include decarbonization, environmental sustainability, employee inclusivity, fair trade, diversity and equality regarding the age, sex, or religious beliefs.

ANALYSIS OF THE MAIN THEORIES AND MODELS OF CORPORATE SOCIAL RESPONSIBILITY

After the brief introduction of history and evolution of CSR throughout the years, we can confidently say that over the decades a significant number of scholars tried to examine and give a definition in this multifaceted concept. Each scholar provided diverse and unique perspectives and views on how businesses should engage with their social and environmental responsibilities. With the available academic literature on CSR, it is evident that there are a lot of theories, models, and frameworks about this topic, but it is not feasible to delve into every theory and model available online, given the constraint of this paper. Instead, the focus of this section will be placed on three pivotal figures who have played key roles in the establishment and evolution of CSR theories, who collectively provide a focused and comprehensive understanding of the main CSR theories and models. In the following section, we will discuss about Howard R. Bowen, Archie B. Carroll – Carroll's Pyramid, John Elkington's Triple Bottom Line Theory and lastly Edward Freeman's Stakeholder Theory, in the context of CSR.

- Howard R. Bowen; "The Father of Corporate Social Responsibility".

Born and raised in America, Howard R. Bowen is an economist with a major impact on the field of Corporate Social Responsibility, who is widely considered as "the father of Corporate Social Responsibility" (Acquier et al., 2011). *"At the core of Bowen's ideology, it was the belief that, corporations were not solely accountable to their shareholders but were integral stakeholders in the broader societal framework, while he also challenged the conventional notion that profit maximization should be the singular goal of businesses, advocating instead for a more holistic approach that factored in the well-being of employees, communities, and the environment"* (Skibetto, 2023). In his infamous publication "Social Responsibilities of the Businessman, 1953" he defined CSR as *"the obligations of businessmen to pursue policies, make decisions or follow lines of action which are*

desirable in terms of objectives and values of our society” (Bowen, 1953). Bowen’s work is considered the first complete examination of business ethics and social responsibility. It also established the foundation for businesses to integrate these critical concepts into their strategic planning and managerial decision-making process. To conclude, Bowen believed and stated that businesses had not only a responsibility of making profits, but also, they had an important role and overall impact on the society in which they operate (Isa, 2012). His work and ideas were a major motive and set the foundations for other academics to delve deeper and examine the CSR concept and more importantly it motivated business executives as well to address their ethical considerations and social impacts.

- Archie B. Carroll – Carroll’s Pyramid of Corporate Social Responsibility.

Archie B. Carroll is an American born and raised scholar and professor emeritus of Management at the University of Georgia. His theory named “Carroll’s Pyramid of Corporate Social Responsibility”, has made him a key figure in the field of CSR. Brin and Nehme (2019), in their work state that *“Carroll’s theory discusses the way that corporation interacts with its surrounding community and the whole world” and they continue by describing that “Carroll’s theory is composed of four fundamental obligations that create a foundation or infrastructure for the business’s responsibilities toward society”*. These obligations, from bottom to top, are economic, legal, ethical, and philanthropic (Brin and Nehme, 2019). Carroll’s suggestion for businesses is that CSR obligations should be implemented in a specific way. Meaning that, only when they achieve the first-level obligation (economic) in an efficient way, then and only then, they can progress on to the next one and so on (Brin and Nehme, 2019). Below we are going to take a more in depth look in these four responsibilities.

- i. Economic Responsibility

Carroll placed the economic responsibility as the base of the pyramid. This simply meant that the economic factor and the profitability of a business is vital for its survival and its ongoing concern and the foundation of all the other business responsibilities. Corporations create value to the society in which they operate, by providing their services and products to the individuals to fulfil their desires. Individuals on the other hand, reward businesses in an economic way and they assist them in remaining profitable. Profits not only play a key role in the reward of the shareholders, investors, and owners, but also in their reinvestment of the

profitability to support the ongoing business growth. Economic responsibility is represented for a corporation through investments, marketing strategies, business operations and long-term financial strategies with variant stakeholders (Brin and Nehme, 2019).

ii. Legal Responsibility

Legal responsibility is placed just above the economic one in Carroll's Pyramid. In the context of creating a fair business environment, businesses must adhere to the laws and regulations posed by the society in which they operate (Brin and Nehme, 2019). This is what characterizes businesses as responsible and helps them create a fair and trustworthy environment and society, and not delve into illegal practices such as money laundering or promoting harmful products to the society as this goes against the principles of CSR.

iii. Ethical Responsibility

After the legal responsibility, Carroll placed the ethical aspect. In her article Anderson (2024) argues that ***“Sometimes laws are not enough, and ethical principles are needed to ensure that a company does the right thing”***. This means that, businesses should do whatever they consider is beneficial for the society even if it is not always mandatory by the law.

iv. Philanthropic Responsibility

The last level of Carroll's Pyramid is the philanthropic responsibility. This represents a “voluntary activity”, not required by the law, taken by corporations, which desire to full-fill the societal activities and contribute in a positive way to the society, while also projecting a positive corporate citizenship image to help enhance its reputation both in the market and within the society (Brin and Nehme, 2019).

- John Elkington - The Triple Bottom Line Theory

The British business author, John Elkington is mostly known in the field of CSR for introducing his theory named “Triple Bottom Line” or “TBL” which can be found in his publication titled “Cannibals with Forks: The Triple Bottom Line of 21st Century Business”

(Brin and Nehme, 2019). This theory can be taken into consideration as a CSR framework that consists of three major dimensions of performance: the economic, social, and environmental, and these dimensions should strive in the achievement of sustainable results (Brin and Nehme, 2019). Elkington expressed that sustainability is the main goal of his theory, as companies apply the TBL in their business activities, for the achievement of ongoing financial earnings and social and environmental projects in the long run (Brin and Nehme, 2019). He also expressed the idea that, a successful business is not just about the profit that it generates, but also about the consideration that it makes in terms of people's and the planet's well-being. The three dimensions are the profit, the people and the planet, which are going to be analyzed more in depth in the following section.

i. Profit Dimension

Businesses should be generating earnings in the long run and not just in the present moment (Brin and Nehme, 2019). Elkington argued that this should be a company's main priority. With the incorporation of the TBL Theory, business executives can develop strategic plans regarding their profitability which will be achieved in a sustainable and ethical way.

ii. People dimension

Businesses must satisfy the needs that the society has, in which they operate and satisfy their customers (Brin and Nehme, 2019). This is highly important in the social responsibility aspect as it reflects how the results of a company's operations and the ways they have decided to function, affect their stakeholders and the relationships between these two entities.

iii. Planet dimension

This dimension focuses on the sustainability which is the main concept of the TBL theory, and the ecological footprint that corporations have due to their business operations (Brin and Nehme, 2019). Corporations in order to achieve a sustainable way of operation, they must comply with environmental regulations, pay attention to challenges in the environment and carefully deal with the sacred

natural resources which could become extinct in the near future (Brin and Nehme, 2019).

- Edward Freeman – The Stakeholder Theory

Edward Freeman in his publication titled Strategic Management: A Stakeholder Approach (1984) gave his own definition for the stakeholders as ***“any group or individual who can affect or is affected by the achievement of the organization’s objectives, such stakeholders include owners, employees, customers, government, and competitors”*** (Freeman, 1984). He also stated that a company needs several stakeholders to run its day-to-day business. This theory proposes that corporations have a greater responsibility than just generating profits and being profitable. This responsibility is to be responsive and take into consideration all the interests of their stakeholders, not just their shareholders, but every group affected by the company’s operations (Mahajan et al., 2023). When these interests are taken into consideration by the top management, companies can operate more ethically and sustainably.

THE IMPORTANCE OF CORPORATE SOCIAL RESPONSIBILITY IN BUSINESSES

Overall, CSR is an important strategic tool for a corporation nowadays (Nimani et al., 2022). When and if implemented in an effective way, it can have major benefits not only for the corporation itself but also for its different stakeholders and the society in general, as discussed above (Nimani et al., 2022). Let’s have a brief look on the benefits of CSR implementation. SIA Partners argue that corporations that decide to incorporate CSR initiatives in their business practices, can attract skilled employees, whose beliefs match the company’s ideology. This is believed to be crucial, as nowadays employees are seeking more and more to work for organizations that reflect their own ethical beliefs and ideologies. On the other hand, customers tend to choose companies that align with their own beliefs and ideologies, as it is widely known that nowadays they are becoming more and more conscious of the ethical and social impact of their purchasing decisions (Deep, 2023). Sellick Partnership (2023) argues that this change in consumer’s decisions has resulted in the rising of a new demographic, called the ***“socially responsible consumer”***. Another reason why CSR is important is that it boosts the brand's public image and market reputation as it demonstrates the company's commitment to operate in a sustainable and ethical way (Fasoulis and Kurt, 2018). Lastly, as companies follow and adhere with environmental laws and as they comply

with ethical standards and regulations it can help in risks mitigations regarding to legal penalties and lawsuits (Fasoulis and Kurt, 2018).

ENVIRONMENTAL SUSTAINABILITY

With the continuous evolution in the technological development that our world has been seeing the last decades, individuals began to realize that certain elements, that used to flourish in our environment, which were once considered essential for the progression and evolution of our development, are at major risk of disappearing or may suffer irreversible damage (Goodland and Daly, 1996). In simple words, natural resources and ecosystems that once were considered abundant are facing the threat of going extinct. This realization, of potential loss and long-term environmental damage due to human intervention, made individuals committed in protecting and preserving the environment and alternate the way in which they utilize and manage natural resources (Morelli, 2011). It is widely known that companies act in a profit-oriented way, not considering the effects that their actions have on the environment and in our health. The World Economic Forum in its Sustainability Strategy stated that ***“a company is more than an economic unit generating wealth, its performance should be measured not only on the return to shareholders but also on how it achieves its environmental, social and good governance objectives”***. Some companies even decided to go to the extent of “manipulating” their consumers and in order to appear more environmentally friendly than they are in real life, the so called ***“greenwashing”*** (Robinson, 2022). An indicative example is the Volkswagen emissions scandal in 2015, where it was revealed that in their diesel automobiles a specific software was installed in order to manipulate the emissions tests and make the vehicles appear less harmful to the environment, than they were (BBC, 2015). Beth Howell (2023) in her article published on the ECOEXPERTS has presented the following table regarding, the most polluting companies in 2023.

The most polluting companies in 2023

Rank	Company	Billion tonnes of carbon dioxide equivalent since 1965	Approximate number of employees	Tonnes of carbon dioxide equivalent per capita
1	Peabody Energy	15.39	6,600	2,231,818
2	Kuwait Petroleum Corp	13.48	6,319	2,133,248
3	ConocoPhillips	15.23	10,400	1,464,423
4	Chevron	43.35	48,155	900,218
5	Saudi Aramco	59.26	79,000	750,126
6	ExxonMobil	41.90	74,900	559,412
7	BP	34.02	70,100	485,306
8	National Iranian Oil Co	35.66	87,500	407,542
9	Royal Dutch Shell	31.95	83,000	384,939

Figure 1: Howell, 2023, "The most polluting companies in 2023", published on the ECOEXPERTS

In response to these negative events, environmental sustainability has become one of the main pillars of CSR in the corporate world (Książak and Fischbach, 2018). Businesses have become increasingly aware that they have an important contribution to make toward lessening the degradation of the environment and they recognize their need in active support of global efforts toward sustainable development (Impact Day, 2023). As the pressure increases for acting on those environmental challenges, this has pushed companies towards integrating sustainability considerations more extensively into the core of their business strategies (Kumar, n.d), in order to contribute to the global sustainable agenda. The most common and widely accepted definition, when it comes to Sustainability -including environmental sustainability- is from the World Commission on Environment and Development (WCED) or as it is commonly referred to as *Brundtland Commission*, in their 1987 report titled "*Our Common Future*", is the: "**Development that meets the needs of the present without compromising the ability of future generations to meet their own needs**". This definition is considered to be essential regarding the understanding of sustainability in various contexts Researchers distinguish three main dimensions of sustainability: the environmental—which we will analyze in this paper—the social, and the economic (Brin and Nehme, 2019) as discussed above, in the TBL Theory. They also preach about how reaching an equilibrium among these three dimensions is crucial for ensuring the society's well-being (Książak and Fischbach, 2018). Environmental sustainability deals with a variety of issues among others the environmental and water pollution, the climate change -extreme weather

conditions like heat waves and hurricanes-, the greenhouse effect and the increasing temperatures (National Registry of Environmental Professionals, 2021).

THE IMPORTANCE OF ENVIRONMENTAL SUSTAINABILITY

As the resources that are extracted from nature are those upon which society relies, their preservation is key to their continuing existence. There are restricted natural resources in the world and very limited power of the planet to absorb pollution and recover from other damaging activities is very limited (Dobrovolska, 2018). Knowing that societies keep growing continuously in terms of population and consumption needs, it is important for a balance to start manifesting regarding this finite set of resources. Another major challenge is that environmental degradation from industrial activities can contribute negatively, to the actual reduction of the available resources in the future, increasing even more the potential gap between the needs of society and the ability of nature to satisfy them (Anderson, 2024). Natural environments are frequently used for recreation and relaxation by a great number of people, e.g., forests, beaches, mountains, deserts, and rivers and sectors like tourism and hospitality seem to benefit by these environmental resources. Different sustainable undertakings can help save these environments and give a further chance to people so that they continue enjoying them, thus conserving the means of survival for other people who derive their livelihoods from the environments.

SUSTAINABLE DEVELOPMENT GOALS

As we are discussing about environmental sustainability, it is very important to mention the Sustainable Development Goals (SDGs). They are a set of goals which were launched in 2015 by the United Nation, and they embody a ***“universal call to, between now and 2030, to end poverty and hunger everywhere; combat inequalities within and among countries; build peaceful, just and inclusive societies; protect human rights and promote gender equality and the empowerment of the womankind; and to ensure the long-lasting protection of the planet and its natural resources. Moreover, to create suitable conditions for sustainable, inclusive, and sustained economic growth, shared prosperity, and decent work for all, considering different levels of national development and capacities.”*** (United Nations, 2015). In total, we count seventeen different goals which belong in the three different dimensions of sustainability, which we previously referred to (Rintamaki, 2020). They were unanimously adopted by all the UN member states, which have the mutual goal to achieve these by 2030 (United Nations, 2015). Although the SDGs were established as a

guide for the improvement and the sustainable development of societies, various industries, and companies have started to implement them in the business operations for their sustainable development as well (Rintamaki, 2020). Boston Consulting Group (BCG) in their 2023 annual sustainability report stated that *“The SDGs continue to serve as a vital framework for pursuing a greener, fairer and more prosperous society”*. The 17 goals, in numerical order, are presented in the following table:

The Sustainable Development Goals	
SDG 1	Zero Poverty
SDG 2	Zero Hunger
SDG 3	Good Health and Well-Being
SDG 4	Quality Education
SDG 5	Gender Equality
SDG 6	Clean Water and Sanitation
SDG 7	Affordable and Clean Energy
SDG 8	Decent Work and Economic Growth
SDG 9	Industry, Innovation, and Infrastructure
SDG 10	Reduced Inequalities
SDG 11	Sustainable Cities and Communities
SDG 12	Responsible Consumption and Production
SDG 13	Climate Action
SDG 14	Life Below Water
SDG 15	Life On Land
SDG 16	Peace, Justice and Strong Institutions
SDG 17	Partnerships for the Goals

Table 1: Presenting the Sustainable Development Goals. Source: United Nations (n.d.) "The 17 Goals". Available at: <https://sdgs.un.org/goals>

The common factor between CSR, Environmental Sustainability and the SDGs is the common commitment that all these three concepts share for a more enhanced and positive societal well-being (Shayan et al., 2022). Environmental sustainability is a crucial element of the SDGs, as several goals focus on important environmental challenges such as SDG 13

and SDG 14, - combating climate change conserving marine ecosystems and SDG 15- protecting terrestrial ecosystems (Rintamaki, 2020). CSR on the other hand, motivates businesses to be accountable for the social and environmental impacts of their operations and to go a step ahead than just profit-making. This concept aligns closely with certain SDGs like number 1- no poverty, SDG 2- zero hunger, SDG 8- decent work and economic growth and SDG 12- responsible consumption and production, (Rintamaki, 2020).

THE SHIPPING INDUSTRY

“Shipping is a fascinating business. Since the first cargoes were moved by sea more than 5,000 years ago it has been at the forefront of global development. The epic voyages of Columbus, Diaz and Magellan opened the maritime highways of the world, and the same pioneering spirit brought supertankers, container-ships, and the complex fleet of specialized ships which each year transport a ton of cargo for every person in the world. No business is more exciting.” (Stopford, 2009)

The shipping industry is of major importance for the global economy (Clarksons, n.d). Ultimately, a functioning economy is based on international trade which relies on the seamless movement of goods and commodities from one country to another as without this industry, intercontinental trade would quite simply not be possible (Clarksons, n.d.). Given that it is evident that there are many types of vessels owned by shipping companies and different type of cargoes owned by shippers. Shipping is important for promoting economic growth and linking markets across the world with increasing demands. However as this is a high-caliber industry, it is important to note that it leaves behind, due to its operations, a significant amount of negative environmental impact. As vessels move across the world, traveling in international waters to facilitate the movement of cargo, the environmental impact that shipping leaves behind is a major issue in the industry (Fasoulis and Kurt 2019). Some of the main types of pollution that concern the shipping industry include air pollution, water pollution, acoustic and oil pollution (Walker et al., 2019). Ships are responsible for more than 18% of nitrogen oxides pollution and 3% of Greenhouse gas (GHG) emissions. (Schrooten et al., 2009). Moreover, shipping accidents can be responsible for oil spills like the one in the summer of 1979 when the VLCC Atlantic Empress collided with the VLCC Aegean Captain, and it resulted in approximately 90 million gallons of oil spilled into the Atlantic Ocean (Marine Insight, 2024). This and many other incidents like the

Deep Horizon oil spill, also known as BP oil spill, in April of 2010 -the largest oil spill recorded in history- result in severe marine pollution, even life-threatening for the marine species living in the water (Marine Insight, 2024). Plastic waste is another important type of pollution that emerges from the shipping industry (Thushari and Senevirathna, 2020) as well as the spread of invasive species through the ship's ballast water from one region to another (Fasoulis and Kurt 2019). These types of pollutions, contribute to important environmental issues which threaten the wider environment and the health of the marine ecosystems as well as the society in general. Unfortunately, these environmental challenges increase rather than decrease and the industry is faced with growing pressures from regulatory bodies, governments, environmental organizations, and stakeholder to operate in a more sustainable and responsible way in order to assist in the environmental conservation regulation (Chua et al., 2023). This pressure can be proved essential, as it assists in the reduction of the industry's burning impact on the environment as well as in ensuring its continuous success, as in today's world environmental responsibility is a growing important value. Another interesting fact about this industry is that, due to its complex nature, it has a great number of stakeholders (Tran and Nguyen, 2021). Shipping companies, port – custom authorities, insurance companies, financial institutions and environmental – regulatory bodies are some of them. The shipping industry is the most highly regulated industry among others in the market, as it is governed by several international and national bodies (Tran and Nguyen, 2021). These regulatory bodies include the International Maritime Organization (IMO), the European Union (EU), the Port State Control (PSC) and lastly the Flag State Control (FSC).

- The International Maritime Organization (IMO) has a key role in shipping (Tran and Nguyen, 2021), as it is responsible for establishing regulations to ensure the safety and security of shipping while also preventing the marine pollution (IMO, n.d). It is continuously working towards making shipping a more sustainable industry with a series of important action plans like the Ballast Water Management Convention, the Initial Strategy for the reduction of Greenhouse Gases emissions and the Implementation of Sulfur regulation (Chua et al., 2023).
- The European Union (EU) establishes initiatives and policies for the regulation of environmental sustainability in the shipping industry, to preserve a greener future. Key players for a greener shipping future are, among others, the European Green Deal (EGD) which was launched towards the end of 2019, is a powerful strategy with the

goal for the European Union to become the first climate neutral continent by 2050 resulting in a cleaner environment, affordable energy, smarter transport and overall better quality of life (McDougall, 2021), the EU Emission Trading System (EU ETS) which is based on the “cap and trade” principle (European Union, 2005), with its primary goal being to reduce the GHG emissions in a wide range of sectors, particularly it started covering emissions from the maritime industry in 2024 (European Union, n.d.).

- The Port State Control (PSC) which is an international authority, is responsible for inspecting nonnative ships, to ensure compliance of the ship’s condition maritime regulations and international standards (IMO, n.d.). Specifically rules on safety, environmental standards, and pollution prevention as well as seafarers living standards and working conditions (Drobetz et al., 2014).
- Flag State Control (FSC) is a national authority, where a country has the authority to ensure that ships flying its flag, comply with international regulations including those concerning the environmental protection and safety laws (LSD Law, n.d.).

Two of the most important conventions of the International Maritime Organization, are:

- The International Convention for the Prevention of Pollution from Ships, known as MARPOL, which addresses the pollution from ships by oil, by noxious liquid substances carried in bulk, harmful substances carried by sea in packages form, sewage, garbage, and the prevention of air pollution from ships (IMO, n.d.).
- The International Convention for the Safety of Life at Sea, known as SOLAS, which focuses on the safety of maritime workers and merchant ships (IMO, n.d.).

These two conventions will be discussed in the next section of this paper. While a great number of other regulations exists, like the International Ship or Port Facility Security Code (ISPS), Standards of Training, Certification and Watchkeeping (STCW), they all share a mutual goal and that is to make the industry more accountable to its stakeholders and safeguard the current and future marine environment (Tran and Nguyen, 2021).

CORPORATE SOCIAL RESPONSIBILITY AND ENVIRONMENTAL SUSTAINABILITY IN THE SHIPPING SECTOR

In the previous section we discussed about CSR and Environmental Sustainability in general and saw how beneficial and important it is for businesses to incorporate both concepts in their day-to-day operations. In this section, we will discuss regarding CSR and Environmental Sustainability in the Shipping Sector. Both concepts are essential for the future of the shipping industry and the long-term success and viability of maritime companies. Now, more than ever, shipping companies have started to incorporate CSR practices into their core business operations as there are pressures from governments, international laws, regulations, stakeholders, environmental organizations, NGOs, local communities or even with their own initiative regarding with the industry's societal and environmental impact (Chua et al., 2023). Shipping companies incorporate CSR practices into their core operations in order to address emerging issues and promote sustainability, as this sector is faced with important environmental and societal challenges (Fasoulis and Kurt, 2018). CSR and sustainability practices cover a wide variety of emerging issues ranging from the sustainable shipping management to reducing the greenhouse gas emissions to promoting equality and inclusivity in the sector. More importantly, these practices assist shipping companies to adopt cleaner and greener technologies, reduce the GHG emissions, adhere to regulations like MARPOL, enhance the working conditions and safety of the millions of people employed in the industry, while promoting the equality and social justice among employees both ashore and on-board. To tackle these important environmental and social issues in the shipping industry through CSR and environmental sustainability, shipping companies implement certain initiatives and strategies like the following:

- **Ballast Water Management**

The Ballast Water Management Convention (BWM) was adopted in 2004 and it aims to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments (IMO, n.d.). According to this convention, it is mandatory for all vessels traveling in international routes to manage their ballast water effectively and act according to a specific standard, which stems from a ballast water management plan (IMO, n.d). Moreover, these ships are required to have two important things on board, a ballast water record book, and an international ballast water management

certificate (IMO, n.d.). In the long run most, ships are going to have installed, an on-board ballast water treatment system. As of now, as this procedure is quite costly and requires financial funds, the current solution for the prevention of the spreading of harmful organisms in different regions, is to discharge the ballast water from vessels mid-ocean (IMO, n.d.).

- **Slow Steaming to Reduce Carbon Emissions**

Slow steaming is not an entirely new concept as it has been adopted in the past by shipping companies, voluntarily, as a tool to reduce operating costs during economic downturns (Hellenic Shipping News, 2019). It was popular amongst shipowners and ship operators in the past, during the era of high bunker fuel prices. (Baluco, 2019). Overall, slow steaming is the intentional reduction in the travel speed of a vessel, in order to emit less pollutants in the atmosphere. Such strategies have been implemented by most shipping lines and they have assisted in the significant reduction of CO2 emissions from international shipping (Acciaro and Mckinnon, 2015).

- **Route planning optimization**

This powerful strategy involves, finding the best possible route from point A to point B through algorithms, technology, and artificial intelligence (Marine Digital, n.d) . This assists in the reduction of CO2 emissions in the atmosphere from the vessels, in minimizing the unnecessary fuel consumption by finding the shortest route, in avoiding adverse weather conditions like heavy seas and strong winds (Sinay, n.d.), and in avoiding traffic as well as port congestion and delays. Overall, route planning optimization is based on several factors that need to be thoroughly analyzed in order to find the quickest and safest way for a vessel to arrive in the port of destination.

- **Responsible Waste Management**

As the shipping industry continues to grow, so does the amount of waste it generates. This waste, if not properly managed, can lead to significant environmental damage, particularly in the oceans and the marine life (Radius Logistics, n.d.). According to ClearSeas (n.d), ships travelling across the world produce two different kind of wastes those. Those produced by the vessels and those produces by the crew and the passengers. The first category involves, propeller shaft oil, exhaust gas cleaning

system or scrubber discharge water, bilge water, cargo restudies and wash water, ballast water, hull coatings, microplastics and anchor wash water, while the second category involved garbage waste, food waste, sewage, and greywater (ClearSeas, n.d). When these wastes are improperly disposed in the marine environment, they can pose as a serious threat and have negative impact in the form of chemical pollution and non-degradable waste that affects marine life while also degrading the natural and economic value of coastal areas (Papandreou et al., 2020). So, to avoid and eliminate as much as possible these serious consequences, proper ways of handling, storing and disposing such wastes are needed.

- Green shipbuilding

As the shipping industry is faced with adverse reactions regarding the negative impact that the industry's operations have on the environment and as there is a global focus on preserving the environment, shipbuilders and naval architects have started to join the movement towards green shipbuilding, which translates as the reduction of environmental footprint of vessels throughout their lifecycles (Abdullah, 2023). This ranges from using eco-friendly materials for shipbuilding to developing vessels that use hydrogen-based propulsion. Green shipbuilding is all about building eco-friendly ships that use less fuel or even alternative fuels, create fewer emissions in the atmosphere and in an overall sense, have less impact on the environment and contributing towards the industry's goals for a greener future (Abdullah, 2023).

- Alternative or green fuels

The usage of alternative fuels is an important step towards decarbonization in the shipping sector. (Wang et al., 2023). These fuels include the liquified natural gas, liquified biogas, ammonia, ethanol, methanol, wind and solar power and hydrogen (Hansson et al., 2019). The industry can contribute to the worldwide efforts to combat climate change, by using these types of fuels. Moreover, in 2020, the IMO launched "The 2020 global Sulphur Limit" which suggests that for the ships that operate outside the designated Emission Control Areas, the IMO has set a limit for sulphur in fuel oil used on board ships of 0.50% mass by mass from 1 January 2020, this will significantly reduce the amount of sulphur oxide emanating from ships and should have major health and environmental benefits for the world, particularly for populations living close to ports and coasts (IMO 2019). This regulation encourages

shipping companies to try and explore alternative fuels in order to reduce the sulfur emissions.

- Marine Protected Areas

The International Union for Conservation of Nature (IUCN) defines Marine Protected Areas (MPAs) as **“A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values”** (IUCN, 2012). They are established and managed by governments, local communities, international organizations, or local communities, as the dangers faced by the oceans and the marine life grows more and more (Randone et al., 2019). The National Ocean Service (n.d), states that in these certain areas, human activity is restricted for conservation purposes, typically to protect natural or cultural resources. As shipping activities can seriously impact the MPAs through routine operations or accidental events (Randone et al., 2019) it is important for certain strategies and regulations to exist to reduce this impact.

- Sustainability Reporting

As sustainability is becoming a more and more important concept for businesses nowadays, sustainability reporting is crucial. According to PriceWaterhouseCoopers (n.d), **“A sustainability report is a document published by companies regarding the environmental, social and governance (ESG) impacts of their activities”**. For shipping companies this report is a vital tool that demonstrates the company’s transparency and accountability towards sustainable business practices (Subramaniam et al., 2023). It is highly important for companies to publish their sustainability reports on a regular basis as it not only enhances their transparency, but it also shows their compliance with industry’s regulations and laws and builds trust and fosters strong relationships with the company’s stakeholders, by addressing key ESG issues (Hellenic Chamber of Shipping, 2024).

- Proper Working Conditions

As seafarers spend most of their time traveling from one point to another, for six or even 12 months non-stop, it is essential for them to have proper working conditions. As working and living on board can be quite challenging and risky due a number of

factors like adverse weather conditions, rough seas, handling dangerous cargoes, as well as the physical demands of the job, ships must be equipped with the necessary safety equipment like helmets, life jackets, gloves as well as the right medical equipment in case of illness or personnel accidents. On top of that, the long working hours can be quite exhausting physically, so it is important that all crew members work within the hours stipulated by the Maritime Labor Convention (MLC). Moreover, the crew should have proper living conditions like a comfortable bed, ventilation, clean cabins, and facilities, as well as a well-balanced and healthy meal. Lastly, since these people are travelling for long periods away from their loved ones and they are carrying out tasks that are extremely stressful, this may result in very serious mental health issues like anxiety, depression, or burnout. As the nature of these issues is extremely delicate, proper handling is the key and awareness should be raised, for the stigma to be eliminated. (Svetina et al., 2024).

- Diversity in the workplace and equal opportunities for everyone
Heidi Heseltine (2022), the founder of Diversity Study Group, in her publication in the Global Maritime Forum titled “Diversity, equity and inclusion are gaining momentum in the maritime industry”, argued that ***“diversity, equity and inclusion (DEI) have gradually gained recognition in the shipping industry during the recent years, but as in 2022 the pace of this change is increasing significantly”***. A significant number of maritime companies have started to take action regarding the embodiment of these norms in their existing and new personnel, both on board and the shore personnel. Everyone should be treated with respect no matter their ethnicity, gender, sexual preference, religious beliefs and age and everyone should be presented with equal opportunities to succeed in the corporate world. This is not just about complying with the legal requirements of the workplace and the industry, but it is all about creating a healthy, productive, and dynamic work environment for long-term success and employee satisfaction.

Moreover, it is important for shipping companies to align with the United Nations Sustainable Development Goals (SDGs), which we referred to in the previous section of this paper. Several SDGs are particularly worth to mention, to support a sustainable future for the shipping industry.

- **SDG 7: Affordable and Clean Energy**
 “Ensure access to affordable, reliable, sustainable and modern energy for all” (United Nations, n.d). As this goal focuses on combating climate change, trends in the shipping industry support the shift towards sustainable energy sources and alternative fuels, in order for the industry to reduce its environmental impact, as it is one of the largest contributors for GHG emissions SDG (Wang et al., 2021).

- **SDG 9: Industry, Innovation, and Infrastructure**
 “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation” (United Nations, n.d). This goal emphasizes that resilient infrastructure is of major importance in the shipping sector, for its effective functioning. There have been many improvements in the way vessels are designed, like the green shipbuilding strategy, and operated which contribute to the overall environmental sustainability. SDG (Wang et al., 2021).

- **SDG 12: Responsible Consumption and Production**
 “Ensure sustainable consumption and production patterns” (United Nations, n.d). This goal is particularly important as it emphasizes the growing need for sustainable resource management, waste reduction, and efficient operational practices among all industry, as resources become more and more scarce. Specifically talking about the shipping industry, this goal is important as it focuses on the promotion of sustainable practices at each stage of a ship’s lifecycle.

- **SDG 13: Climate Action**
 “Take urgent action to combat climate change and its impacts” (United Nations, n.d). Said goal, is particularly important in the context of shipping as this industry is a major contributor in the greenhouse gas emissions. It emphasizes the need to address climate change through the adoption of cleaner technologies and sustainable business practices for the reduction of the greenhouse gas emissions (Rintamaki, 2020).

- **SDG 14: Life Below Water**
 “Conserve and sustainably use the oceans, seas and marine resources for sustainable development” (United Nations, n.d). In the context of shipping this goal particularly, emphasizes the reduction of marine pollution that is caused by the ballast water,

accidental oil spills and other dangerous or hazardous substances discharged by vessels in the ocean (Rintamaki, 2020).

While these 4 SDGs are particularly important for the shipping industry, studies have shown that there are efforts made by the industry towards almost every SDG (Wang, Wong, Li, Yuen, 2021).

THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS (MARPOL)

The International Convention for the Prevention of Pollution from ships (MARPOL) is the most important international convention regarding the safety of the marine environment. It covers the prevention of pollution of the marine environment by ships from operational or accidental causes (IMO, n.d). Ships flying the flag of countries that have signed the MARPOL convention, are subject to its requirements, regardless of the country in which they are sailing (Raunek, 2024). It includes six annexes in total, which target important regulations for different types of pollutions caused by vessels. The annexes are the following (Raunek, 2024):

- Annex I: Prevention of pollution by oil
- Annex II: control of pollution by noxious liquid substances in bulk
- Annex III: prevention of pollution by harmful substances carried by sea in packaged form
- Annex IV: prevention of pollution by sewage from ships
- Annex V: prevention of pollution by garbage
- Annex VI: prevention of air pollution from ships

“MARPOL has greatly contributed to a significant decrease in pollution from international shipping and applies to 99% of the world’s merchant tonnage” (IMO, n.d). Its objective is to encourage the shipping companies to adopt innovative technologies for the prevention of marine pollution, whose impacts affect sustainable marine resources. With this consideration, the fact that MARPOL prevents pollution and promotes cleaner technologies can actually mean it would end up supporting broader goals of sustainability, such as United Nations' SDGs of protecting ecosystems and biodiversity. A company’s compliance with MARPOL not only proves its commitment to the reduction of the environmental footprint from its

operations but it also highlights a corporate commitment towards a responsible action while, meeting public expectations regarding environmental issues.

THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA (SOLAS)

The International Convention for the Safety of Life at Sea (SOLAS) is an important maritime convention, with its main goal being to ensure that ships are designed and operated in a safe way in order to protect the lives of everyone on board, both crew and passengers (IMO, n.d.). Its first version was adopted in 1914 shortly after the infamous Titanic incident (IMO, n.d.). Since then, SOLAS has been updated several times with the most recent one being in 1974. It specifies the minimum standards for the construction, equipment, and operation of the vessels regarding their overall safety (IMO, n.d.). Flag States are responsible for ensuring that ships flying their flags comply with these requirements, and a number of certificates are prescribed in the Convention as proof that this has been done (IMO, n.d.). ***“As of April 2022, SOLAS has 167 contracting states which represent 99% of the world’s merchant fleet by gross tonnage”*** (Wikipedia, n.d.). The latest SOLAS Convention consists of Articles which set out general obligations and amendment procedures followed by an Annex which is divided into 14 chapters. According to the IMO (n.d.), these are the 14 chapters of SOLAS:

- Chapter I General Provision
- Chapter II- 1 - Construction- Subdivision and stability machinery and electrical installations
- Chapter II- 2 – Fire protection, fire detection and extinction
- Chapter III – Lifesaving appliances and arrangements
- Chapter IV – Radio Communications
- Chapter V – Safety of navigation
- Chapter VI – Carriage of Cargoes
- Chapter VII – Carriage of Dangerous Goods
- Chapter VIII – Nuclear Ships
- Chapter IX – Management for the Safe Operation of Ships
- Chapter X – Safety measures for high – speed craft
- Chapter XI- 1 & 2 – Special measures to enhance maritime Safety
- Chapter XII – Additional safety measures for bulk carriers
- Chapter XIII – Verification of Compliance

- Chapter XIV – Safety Measures for Ships Operating in Polar Waters

Every chapter covers a different aspect of maritime safety, ranging from the construction of ships to specific protocols for different types of vessels. A shipping company's commitment towards ensuring the safety of its on-board crew, passengers, cargo, the vessel, and the safe operation of the vessel in terms of the environment aligns with the CSR principles and the environmental sustainability (Tran and Nguyen, 2021). SOLAS serves as an essential element used by shipping companies to show their dedication and commitment towards the employee's safety and welfare. It also has a key role in showing the dedication towards the environmental sustainability of a while it also promotes the continuous improvement in practices that align with the broader goals of sustainability. Moreover, compliance with this convention, helps a firm's reputation in the market and among rivals, as well as it strengthens the relationship between the firm and its stakeholders which are key CSR objectives. It also fosters the environmental sustainability by minimizing the risk of maritime accidents that could eventually result in serious environmental damage.

THE DRIVERS OF CORPORATE SOCIAL RESPONSIBILITY IN THE SHIPPING INDUSTRY

As discussed above, CSR is becoming an important strategic tool that shipping companies incorporate in the business operations, and there are several reasons for this incorporation. These reasons are called drivers and they can range from regulatory compliance to continuous improvement for a company. While these motives can differ from company to company and from sector to sector, there is a generally accepted categorization for these, internal and external drivers (Gulema and Roba, 2021). Internal drivers refer to factors that fall within a company's control like the mission of a company, the internal environment of a company, the values and culture in a company, management practices, risk management, corporate governance, and internal stakeholders. External drivers, on the other hand, are factors that stem from the external environment of an organization and the company cannot control them, like market competition, customer needs, economic conditions, technology, laws, regulations, and market trend (Kunnaala et al., 2013). In the shipping industry the main drivers for CSR implementation are the following:

On the one hand internal drivers include:

- The mission of the company
When a shipping company prioritizes the environmental sustainability as part of its mission and incorporates this concept into its strategic planning and goals, it is more likely to engage with CSR and adopt greener practices and energy-efficient technologies in their daily business operations. (Rintamäki, 2020)

- Corporate Values and Culture
In an overall sense, the values and the culture of an organization are two aspects for mapping how an organization works. These two effectively manage to showcase how a company deals with its social and environmental responsibilities. When shipping companies have strong values that promote social responsibility, environmental protection, and ethical behavior they are more prone to integrating similar CSR practices into their operations. (Rintamäki, 2020)

- Risk Management
This CSR driver is particularly important for the company's risk management strategy because when social and environmental risks are addressed in advance, companies can protect their reputation and mitigate legal liabilities. As the shipping industry is aware of the reputational risks stemming from environmental incidents and social violations, a great number of companies from this sector are implementing CSR measures, to mitigate such risks. (Rintamäki, 2020)

- Cost saving
When companies invest, in CSR initiatives like energy-efficient technologies, greener fuels or waste reduction strategies, they manage to significantly lower their operating costs, which eventually assists in its overall financial performance. Therefore, by incorporating CSR initiatives, companies contribute both to the environmental protection while reducing their operational costs (Kunnaala et al., 2013).

On the other hand external Drivers include:

- Regulatory Compliance
Through a business perspective, this is considered one of the main drivers for incorporating CSR into its operations. International bodies and governments are

frequently imposing strict regulations for the reduction of the environmental impact, that shipping businesses have as a result of their operational activities. It is mandatory for companies to comply with these regulations and laws not only for the preservation of environment but also for the solely reason that disobedience often results in serious legal consequences like penalties, fines and even loss of credibility from their stakeholders (Rintamäki, 2020).

- Market Pressure and Competition

It is true that, throughout the years shipping companies have become extremely competitive with each other. They are constantly striving to make a difference in the market through several measures. As of CSR, it is true that it has become an important strategic tool, incorporated by shipping firms, which aim for their differentiation among other competitors as it assists in attracting new customers while maintaining the existing ones and gaining competitive advantage in the market. (Kunnaala et al., 2013)

- Improve relationships with the stakeholders and their expectations

This external driver focuses on the overall importance of building strong relationships with external stakeholders like customers. It is important to note that this theme is widely common in the concept of CSR. Certain industries like shipping often require thorough stakeholder engagement to address their demands, interests and build strong relationships with them (Fasoulis and Kurt 2018)

- Global Trends

Global sustainability trends, like the SDGs or decarbonization are very important themes in the shipping industry lately. These motivate shipping companies to adopt CSR practices to align current trends, gain competitive advantages, long term success, and achieving enhanced reputation among other competitors. (Rintamäki, 2020)

TRENDS OF CORPORATE SOCIAL RESPONSIBILITY AND SUSTAINABILITY IN THE SHIPPING INDUSTRY

The shipping industry is a complex and dynamic environment, which is continuously evolving, and shipowners are constantly required to adapt in certain changes (Intrade Magazine, 2021). This industry is constantly being affected by global trends and by advances in various subjects like technology, materials, and fuels (McLeman, n.d.) while it has also faced quite a number of challenges over the past year with a greater push for sustainability and a gradual adoption of technological advancements (Johnson-Brown, 2024). On the one hand, while shipping has an important role in today's world as it promotes the economic growth of countries and assists in facilitating the international trade, it is facing negative responses from the society and organizations due to the serious environmental impact that the industry's operations leave behind (Wang et al., 2021). On the other hand, in order to tackle these negative consequences, shipping companies have started to incorporate in their operations certain key activities that are considered the industry's trends. These trends comply with the IMO's frameworks, the technological developments in the shipping sector and the steps that leading shipping companies follow while adopting them can be either a voluntarily or involuntarily act. With the focus being on tackling the environmental issues that have arisen up until now from shipping operations and with the environmental sustainability underscoring an important concept in today's businesses, the key trends in the shipping sector, among other, are the decarbonization, digitalization, port sustainability, increased transparency, and mergers and acquisitions.

Decarbonization

We cannot say with confidence if decarbonization is a current or future trend, as it is an ongoing objective of the industry's companies. Deloitte (2021) defines decarbonization as *“the term used for the removal or reduction of carbon dioxide (CO2) output into the atmosphere”*. Efforts are made in an international level by governments for the reduction of the GHG emissions through policies and new technologies (Maizland, 2023). Although there is a great number of industries who contribute to the worldwide GHG emissions issue, we are going to focus on the shipping industry. It is true that, the shipping sector currently accounts for roughly 2.5 - 3% of the total GHG emissions, which is highly expected to increase

steadily in the future (Jeong et al., 2022). This led the IMO to adopt in 2018 an initial strategy about the reduction of the GHG emissions from ships (IMO, n.d.) and then as a step forward, in 2023, the IMO adopted and applied the “2023 Strategy on the Reduction of GHG Emissions from ships”. The newer version of this strategy corresponds to **“a framework for member states setting out the future vision for international shipping, the levels of ambition to reduce or possible even reach net-zero GHG emissions as soon as possible and guiding principles; and includes candidate mid- and long-term further measures with possible timelines and their impacts on states”** (IMO, n.d.). It also recognizes certain barriers that come with this, like the costly investments that are needed and the technical cooperation in order to achieve the net-zero goals. This target is set by the IMO to happen by 2050 or around this timeline but it depends on certain national conditions (IMO, n.d.).

Decarbonization is crucial in shipping, as most commercial ships currently run-on heavy fuel oil (Maier, 2023). The benefits that this type of fuel actually has is that it is not as costly as others in the market, and it has a high energy density which means that it can cover a long travel distance on a small amount (Valencia and Swift 2023). On the downside though, heavy fuels are not only responsible for severe climate change due to heavy GHG emissions but it can cause relatively serious health problems through the atmospheric pollutants emitted by it when it is burned as it contains a wide range of toxins (Degnarain, 2020).

Now more than ever, as decarbonization becomes a priority in the business strategies of shipping companies it is highly important to find the right approach or combination of approaches to tackle this serious environmental issue. For example, certain shipping companies have adopted the following approaches towards decarbonization:

- Using alternative fuels and alternative sources of energy

Many shipping companies have transitioned to more and more alternative or greener marine fuels and energy sources after the IMO’s initial strategy for GHG emissions reduction in 2018. These relatively new types of fuels include liquified natural gas (LNG), liquified biogas (LBG), hydrogen, ammonia, methanol, ethanol, hydrotreated vegetable oil (HVO), fuel cells, nuclear power, wind power, solar power, and electricity (Hansson et al., 2019)

- Energy Efficiency Improvements

These strategies involve technical measures for the reduction of fuel consumption like slow steaming, hull optimization, route optimization, weather routing, port efficiency

(Fridell et al., 2013). We have already talked about slow steaming and route optimization in the previous section of this paper, but it is important to keep in mind that, slow steaming is the most effective measure, because when vessel reduce their speed, this results in an overall reduction in fuel consumption and pollutant emissions (Pelic et al., 2023).

- On-board Carbon Capture (OCC)

Onboard carbon capture is a new technique that aims in the capture of carbon dioxide emissions generated on the ship before these are released into the atmosphere, and after their capture they are then changed into a liquid form and then carried away and stored deep underground or turned into value-added products (Arora, 2024). An interesting fact that should be mentioned about OCC is that the DNV in its published report titled “Maritime Forecast to 2050”, states that ***“Onboard carbon capture has potential to be the lowest cost solution for decarbonization”***.

Digitalization

Gartner’s IT Glossary (n.d.) defines digitalization as ***“the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving towards a digital business”***. As every industry in the past, the shipping industry had started operating according to the traditional methods way back in the day, like hand-written notes, manual record keeping and written forms. We can confidently say that these methods were very time consuming, and many manual errors were observed frequently. In today’s world, with the continuous technological developments and evolution, as any other industry, the shipping industry has started to implement the marine digitalization trend in its business models (Papageorgiou, 2020). While in the past decade many shipping companies had started to use new technologies in their day-to-day operations, the COVID-19 pandemic helped in the implementation of marine digitalization by almost every company across the globe, as many shipping companies had previously overlooked on this digital transformation (The American College of Greece, 2022). Digitalization, comes with many benefits both for the maritime firms and the environment as for example:

- e-Documentation, which is the replacement of using pen-and-paper with digital alternatives like computer software, which saves time, money, and space (DockMaster, 2023).

- Automation of processes which leads to increased productivity and more efficient and credible results (The American College of Greece, 2022).
- Real-time tracking of a vessel or cargo (The American College of Greece, 2022), which is a key tool in maritime firms that helps track their ships and cargoes in real-time which is essential for the vessels and crew's safety, its route and coordination planning.
- Emissions monitoring, like OCC, which is the real-time monitor and report of emissions on-board, which improves environmental performance (PierNext, 2023).
- Fuel efficiency, as digital tools can help make the best use of fuel consumption by analyze performance data and adjust operations accordingly (Marine Digital, n.d.).

Through certain practices, shipping companies have started to implement the trend of digitalization in their core business operations (Papageorgiou, 2020). This shift from old technologies to new ones, can be proven beneficial for the companies and its stakeholders. Digitalization deals with certain important issues in the industry like the safe navigation of vessels or digital documentation, but it also deals with certain issues that align with CSR and the environmental sustainability concepts as for example the energy management systems and the route planning optimization. Zheng et al. (2023) have identified that digitalization is positively correlated with CSR performance. Below are some of the main practices of digitalization in the industry.

- **Electronic Navigation Systems**
According to Wikipedia (n.d) electronic navigation is a form of navigation that ships use which depends on technological means. This system's main goal is the safety of the ship and the on-board personnel, as in the past human errors during the navigation were the main reasons for serious marine accidents (Matsidi, 2014). Nowadays, shipping companies are equipped with advanced systems like the Electronic Chart Display and Information System (ECDIS), the Automatic Identification System (AIS) Fleet Management System and the Integrated Bridge Systems so that it is easier to properly organize the vessel's data for a safer navigation.

- Optimized Route Planning
Marine Digital (n.d.) states that ***“choosing an alternative route in order to avoid storms, strong underwater currents, downpours and high waves can manage to get the ship to its destination much faster, saving both time and fuel”***. Maritime companies can use multiple digital programs to optimize the vessel’s route due to several reasons like avoiding adverse weather conditions or avoid port congestion, and at the same time this software ensures a reduction in the fuel consumption which leads to smaller environmental impact.

- Autonomous Shipping – Unmanned Vessels
This practice involves ships which are either fully autonomous, meaning that no human control is needed or that they are controlled remotely (IMO, n.d.). These ships use advanced technologies like Artificial Intelligence and sensors to perform their activities and they don’t require any manning (ILS, n.d.). KONGSBERG is a pioneer company which ***“successfully completed a live trial of autonomous shipping technology in Bornem, Belgium, demonstrating the progress the company has made in fully autonomous systems”*** (Taylor, 2023)

- Energy Management Systems
Energy management systems (EMS) analyse a ships current energy consumption and shows where it can use less energy which can result in assisting them to continuously improve their energy efficiency and reduce their costs without compromising their performance as well as their environmental impact (BMWK, 2019).

- Digital Documentation
As a result of digitalization, many of the important documents for shipping procedures that used to be in paper form lately have started to take a digital form like the electronic Bill of Lading (DockMaster, 2023). This is convenient as documents do not get lost, they can be sent in the other parties through online platforms in the span of a few minutes, and not many natural resources are sacrificed to produce more paper or other stationery. Blockchain is a relatively new and evolving technology, but it has really changed the way shipping documents are handled.

In general, this shift towards digitalization, facilitates a company's commitment towards greener and sustainable practices. As discussed above, EMS, OCC and fuel efficiency are beneficial ways for a company's "green" journey.

Port Sustainability

Environmental sustainability in ports is a growing trend in the current maritime world. The World Port Sustainability Program (WPSP, n.d.) stated that their mission is to *“demonstrate global leadership of ports in contributing to the Sustainable Development Goals of the United Nations. The program wants to empower port community actors worldwide to engage with business, governmental and societal stakeholders in creating sustainable added value for the local communities and wider regions in which their ports are embedded”*. As ports and their related activities have a major impact on the environment it is very important to find strategies to tackle this emerging issue. Quoting Constance Stickler (2023) in her article “Sustainable Ports Become a Reality”, *“some serious effects of climate change that ports are experiencing and will continue to experience are the rise of sea levels, extreme weather conditions like storms or heatwaves, and droughts”*. We should keep in mind that, port sustainability should not be a separate strategy than green ports, as the latter focus only on the environmental effects of shipping, while the former contains the economic and social factor as well (Stickler, 2023). Said that, with the right combination of responsible environmental, social, and economic actions, we are a step closer to achieving port sustainability. These actions include the following, according to the environment, focus should be on reducing emissions with the usage of shore power and GHG monitor, along with the adoption of renewable energy sources like the solar and wind power (Wootton and Helbing, 2022). In the social realm, actions should be focused on raising the awareness of the port workers and crew on board regarding the environmental impact of ports and how this can be reduced. Lastly regarding the economic realm, companies should focus on designing eco-friendly port facilities according to the green building standards like LEED (Leadership in Energy and Environmental Design) and strive for the implementation of green technologies (Leach and Reynolds, 2009).

Increased Transparency

When a company is being transparent towards its stakeholders it means that it is sincere and open about the way it operates. This transparency helps in establishing strong relationships with their stakeholders and boosts market reputation. As in this paper we're discussing about

CSR and Sustainability, being transparent with your clients is a major issued on both concepts. Lately more and more stakeholders are asking companies to be more transparent about the way they operate, their business models, and their adopted strategies (Fasoulis and Kurt, 2018). While shipping companies used to lack transparency towards their stakeholders and the society in general as they used to run on a profit-oriented way (Fontaine, 2013), nowadays there is a significant shift observed in this trend, as it not only strengthens the trust between interested parties, but it assists in ensuring competitive advantages as companies who implement this trend, are becoming more and more trustworthy and are seen as socially responsible. Companies have started to become crystal-clear towards the society and their clients about their environmental footprints and the way they operate. It is important to note that digitalization is proved to be key in shipping companies that want to increase their transparency (Pruzan-Jorgensen, 2010). There is a combination of requirements that drive transparency in shipping like regulatory requirements i.e., the IMO, stakeholder expectations and technological innovations.

Mergers and Acquisitions in Shipping (M&A)

We can confidently say that the shipping industry can be characterized by three key factors. Its dynamic nature, its continuous evolution, and its adaptability in changing circumstances. An important strategy that helps in adjusting to this ever-evolving environment is called “mergers and acquisitions”. This strategic tool has been observed in the shipping industry since the 1990s and it keeps growing since then (Lotus Containers, 2021). The merging of two Greek-owned shipping companies, Navios Maritime Partners L.P and Navios Maritime Acquisition Corporation in October of 2023, led to the creation of the largest shipping company listed on the New York Stock Exchange (Money Review, 2021). Both companies are a part of the Navios Group which is owned by the shipping magnate Angeliki Frangou. There is a myriad of reasons why shipping companies decide to engage in M&A, i.e. financial goals, operational reasons or strategic alignments (Patel, n.d.). In more details these reasons include:

- Economies of scale
- Diversification
- Market expansion
- Competitive Advantage
- Strategic synergies
- Fleet expansion

- Cost savings
- Better reputation

The M&A strategy can help shipping companies achieve their overall CSR and sustainability practices. Firstly, it can assist shipping companies to have better relationships with their stakeholders as merged firms usually have more assets and better financing to spend money on stakeholder engagement practices. In the case where a shipping company has zero CSR practices, usually when it is merged with another, it can begin to utilize more resources and eventually start engaging in CSR activities. Moreover, this strategy can be proved beneficial for shipping companies in order to obtaining new resources and technologies to boost their involvement in sustainable practices like clean fuels and equipment for decarbonization. Lastly, as in a general concept M&A is used for improving a company's reputation, it is clear that shipping companies that decide to get involved in M&A strive to have better reputation in the market and attract more new customers.

Conclusion

To conclude, in this literature review several key issues were discussed. Firstly, we highlighted the importance of shipping in facilitating the international trade, the movements of goods globally and the overall market growth (Clarksons, n.d.). Countries rely heavily on shipping for their economic growth through exporting their products in the global market. With this movement of products and resources across the world though, comes a great degree of responsibility from shipping companies, as this sector is responsible for several issues marine and air pollution which concern the environment, and issues like public health and social justice with concern the society (Fasoulis and Kurt 2019). As the shipping sector is considered one of the most extremely regulated sectors, companies are facing external pressures from governments, regulatory bodies (ex. IMO), organizations and their stakeholders to deal with these emerging issues (Tran and Nguyen, 2021). This is results in, the adoption of more sustainable and socially responsible practices from companies in this sector. These practices belong in the sphere of Corporate Social Responsibility and Environmental sustainability, which we examined throughout this literature review. More importantly, we discussed the definitions and main theories of CSR, as well as its importance and the main drivers for CSR implementation, followed by a discussion about environmental sustainability, its definition, its importance, and the Sustainable Development Goals. Secondly, after a brief introduction of the shipping industry and how CSR and environmental sustainability are implemented in this sector through activities like ballast water management

and slow steaming, we discussed about the MARPOL and SOLAS conventions which are important for the compliance with global standards and laws about the overall safety in marine operations. Lastly, it's important to note the current and future trends of CSR and sustainability in this sector, like the approach towards decarbonization, the digitalization in the industry and the mergers and acquisitions which have started to emerge in the sector.

CHAPTER 3: METHODOLOGY

Overview

The current chapter explains the methodology used for answering the main research questions of this paper after the provided context of the literature reviewed. The methodology chosen in this paper is the secondary research approach, in order to use the existing knowledge to uncover the reasons that shipping companies decide to implement CSR and environmental sustainability practices in their operations, as well as the current and emerging trends for CSR, in the industry respectively. The data sources used for this investigation include mostly, academic and industry publications, as well as credible online sources.

Research Design

In this paper, we are going to approach the research questions through the secondary research method, which is the analysis and interpretation of already existing data that was gather by someone else such as academics and industry experts. This approach will be used to shed light on what drives shipping companies to implement CSR activities and on what are the trends for CSR and sustainability in this industry. The reason that this method was chosen, is because it allows access to a wide range of data due to the complexity of the issues that we are investigating and eventually is to see if the findings and opinions from other academics' support or contradict each other. Although not many researchers have approached the issues that we are discussing about, enough sources are available to allow for the smooth execution of this research. Data collection for this study includes articles and publications found online which will be analyzed with the thematic approach, to see is there are common patterns, similar or opposite ideas or gaps in the existing data researched.

Data Sources

For this research, online data sources were mainly utilized to guarantee a thorough understanding of the drivers and trends of CSR and environmental sustainability in the shipping sector. The main types of sources used include academic journals and articles from reliable online databases like publications from the IMO website, ELSEVIER, ScienceDirect, Wiley Online Library and Taylor & Francis Online. These primary sources assisted in finding and reviewing articles from various academics, which later acted as a critical factor, in building a strong foundation of understanding the complex concepts which we are reviewing in this chapter.

Data Collection Process

The data collection process started with study material relevant with CSR and environmental sustainability, their key drivers for company implementation and what emerging trends. This material, which was mainly publications from academics, was found on online data sources like ELSEVIER, ScienceDirect and Wiley online library after typewriting in the search bar of each website keyword and phrases as “CSR and Environmental sustainability”, “CSR Drivers and Trends in Shipping”, “CSR implementation in the shipping industry” and “CSR Trends”. After a plethora of articles was gathered, each one was reviewed to see how relevant it was in term with the subjects. This helped in eliminating articles which did not meet the criteria in terms of relevance and validity as well as the one which provided obsolete information, which resulted in the final incorporation of the articles which matched said criteria. Once the final articles were gathered, they were categorized according to the context which they provided i.e., one category for CSR drivers in shipping and another for CSR trends in shipping.

Data Analysis

As stated above, in terms of the analytical techniques, thematic analysis was predominantly used throughout the data analysis process. This technique was employed as most of the data collected for this paper are primarily qualitative. It assisted in identifying recurring motivational factors of CSR and sustainability in the shipping industry. Data analysis also helped in shedding light about the CSR and sustainability trends that have occurred in the shipping industry.

The analysis process began with reviewing and analyzing the collected documents to understand their context. After the review of each article, 3 categories were created, in which every article was put. This helped in gathering in one place all the articles with similar content. The categories are:

1. CSR and sustainability in shipping
2. Drivers of CSR in shipping
3. Trends of CSR and Sustainability in shipping

While reviewing the collected documents, notes were kept in handwritten and digital form. These notes included information of the main aspects in accordance with the key parts of each document. This step was crucial for gaining a comprehensive understanding of the main themes related to CSR and environmental sustainability schemes in the shipping industry. After the reviewing and grouping were completed, the notes were further reviewed and analyzed. This step allowed for the identification of the similar patterns, themes, gaps, contradicting or supporting opinions of authors, in each category. Afterwards, these findings were grouped in the following two segments:

1. The drivers in the industry
2. The trends in the industry

This segmentation helped in aligning and comparing the findings of each category, which eventually led in generating the answer to the first research question about what drives shipping companies to implement CSR activities, which are the following:

- The values and the culture of a company
- The financial performance of the company
- Mitigation of reputational risks
- Attracting new customers
- Regulatory compliance
- Competition in the market
- Pressures from the external environment
- Stakeholders' expectations and relationships
- Top management's devotion to CSR
- The company's reputation in the market

The next part of this research is about identifying the CSR and sustainability trends in the shipping industry. After conducting detailed research on the topic, as there are not a lot of publications that discuss this issue directly, I based my research on articles which supported the answer to this question. By following the same process, after finding the right sources and thoroughly examining their contents it was time to eliminating the publications that did not meet the criteria of relevance and validity. This resulted in keeping only the necessary documents for this research, which was followed by carefully studying every publication and keeping organized hand-written and electronic notes on what industry experts consider as CSR and sustainability trends in shipping. This concludes the data analysis subsection by giving an answer to the second research question considering the CSR and environmental sustainability trends in the shipping industry. The main trends of the industry are the following:

- Decarbonization
- Port Sustainability
- Digitalization
- Increased transparency

Ethical considerations

After the presentation of the data analysis results, there are several ethical considerations that need to be taken into consideration. As the secondary data approach works mainly with existing data that has been reviewed primary by another expert, it is crucial for this data to be obtained through reputable and credible sources to ensure its accuracy, to avoid the spread of misinformation in this field of study and in the shipping industry. On top of that, appropriate credit needs to be given to the original authors, those who conducted the research that this chapter is based on. All the information and sources used, were properly cited and credit was given to every academic which their opinions were used, to avoid plagiarism and show respect to every author's right of intellectual property. Another key factor that needs to be addressed is the bias and objectivity of this research. The entire research on this chapter was conducted with immense neutrality to ensure that the data presented is not selectively but accurately reported including different opinions of various authors. Lastly, this research is conducted thoroughly with ethical consideration in order to make a positive contribution in the academic community and provide valuable information in the shipping industry, regarding the concepts of CSR and environmental sustainability.

Limitations of the study

One of the major limitations faced during this study is that access was denied on many websites, even with the usage of academic credentials. Therefore, I decided that it would be best if I only engaged with sources that had free of money access and could be reached while logging in with my academic credentials. It is worth mentioning that, although the sources that were used are considered credible, there could always be discrepancies which affect the consistency of the analyzed data. Moreover, the fact that the research was conducted mainly with qualitative data may restrict the results and opinions that this chapter was based, as there was no statistical data included. Lastly, it is true that both of the researched concepts, CSR and sustainability, are evolving rapidly and the shipping industry has a very dynamic nature, that constantly changes in time. This leaves us to consider the fact that, although credible data and resources were used, said data could become outdated and irrelevant very quickly as the industry and the trends evolve day by day.

CHAPTER 4: RESULTS

Overview

This section aims to present the findings of the secondary research, to identify the drivers and trends of corporate social responsibility and sustainability in the shipping industry. As stated above, sources included mostly credible websites to find academic journals and publications. The conducted research on the existing literature, showed several key drivers for CSR and sustainability adoption in the industry. It also revealed a few trends for CSR and sustainability, some of which have already been incorporated by shipping enterprises in the previous years and some of which are now starting to occur. The results are presented in two sections, the first one concerns the drivers and the second the trends.

Drivers of CSR and Sustainability in Shipping

To identify what drives shipping firms to implement CSR and sustainability the study mainly focused on 4 key publications.

The first article is written by Karagiannis, Vouros, Sioutas and Evangelinos (2022), and it is titled “Mapping the maritime CSR agenda: A cross-sectoral materiality analysis of sustainability reporting”. In this article’s literature review, the authors talked about maritime and CSR engagement, CSR engagement in the shipping industry, CSR engagement of port operators, maritime services providers and supplies and lastly for the barriers and drivers for CSR engagement. Focusing on the last part, the authors after examining the research of various authors such as Fafaliou, Yuen, Ashrafi, Lam and Lim, Shin and Thai, Drobetz and Bonilla-Priego came up with the following results about what motivates companies to incorporate CSR in their operating activities:

- CSR engagement has a positive impact on the financial performance of a company.
- There is increased customer satisfaction and high service quality when companies implement CSR in their strategies. Differentiation strategies are more likely to be implemented by companies that have engage in the concept of CSR.
- Companies usually engage with CSR and sustainability as there is heightened pressure for compliance with regulatory requirements.
- CSR engagement showed improved relationships with stakeholders.
- Increased competition between firms led companies to engage in more sustainable operations.

The second publication was conducted by Kunnaala, Rasi and Storgard, (2013) titled “Corporate Social Responsibility and Shipping; Views of Baltic Sea Shipping Companies on the Benefits of Responsibility”. In their research, the authors, through a questionnaire, asked 524 recipients from shipping companies several questions. Among those questions, we could identify the following, “What are or would be the main reasons why your company engages or would engage in corporate social responsibility?”. Kunnaala, Rasi and Storgard, considering the answers to these questions stated that, **“According to the answers given, the most predominant reasons for engaging in CSR were environmental concerns (17.1 % of the given answers), safety gains (14.6 %) and economic benefits (13.4 %). Over 82 % of the responding shipping companies had chosen environmental concerns to be one of the 5 most important motives to engage in CSR.”** Among other driving factors were, economic benefits, safety gains, better reputation for the company, being a good employer, customer’s pressure, avoid negative publicity, competitive advantage, and pressure from the society. In this research the motives were divided in two categories, internal or business driven and reputational or value driven. The authors explained that, gaining better reputation is one of the most crucial reason that explains CSR engagement by shipping companies and environmental issues are extremely emphasized in this industry.

The next article is written by Ioannis Fasoulis and Rafet Emek Kurt and it is titled as “Determinants to the implementation of corporate social responsibility in the maritime industry: a quantitative study” and it was published in 2018. According to their publication, the authors identified as CSR drivers the following 8 factors:

- Pressures from the stakeholders and their expectations.
- Trying to reduce negative impacts on the company such as legal issues and reputational damage.
- Compliance with regulations and CSR requirements.
- Attracting new customers
- Business expansion
- Environmental concerns to address the environmental performance of a company.
- Increased focus on sustainability, which brings more pressure to engage in CSR activities.
- Strong relationships with the stakeholders.

The last article used for this section, is written by Fjørtoft , Flø Grimstad and Glavee-Geo (2020) and it is titled as “Motivations for CSR in the Norwegian maritime cluster:

stakeholder perspectives and policy implications”. In their publication, the writers quoted Porter and Kramer by stating that four reasons are mostly cited for CSR engagement: moral obligation, sustainability, license to operate and reputation. Moreover, they mentioned that “CSR is perceived as a way of strengthening a company’s reputation through image and brand building” and they explain the two types of motivation, intrinsic and extrinsic. The first one is behavior driven by internal desire like curiosity and belonging whereas the latter is behavior that is driven by external rewards or punishment like money and competition (Team Asana, 2024). In terms of CSR, intrinsic motivation means that a company is more likely to implement CSR activities only if it truly cares about having a positive effect on the society and the environment. Extrinsic motivation on the other hand is likely to happen when companies want to accomplish certain results like better reputation or increased financial performance.

Gathering all the above findings from the existing literature review, we can conclude to the fact that there are 10 main driving factors that maritime companies base their CSR implementation. The following table presents these 10 main driving factors:

Ten important driving factors for CSR implementation from shipping companies	
1.	Corporate values and culture
2.	Mitigation of reputational risks
3.	Attracting new customers
4.	Regulatory compliance
5.	Market competition
6.	Pressures from the external environment
7.	Stakeholder’s expectations and relationships
8.	Top management’s CSR devotion
9.	The company’s market reputation
10.	The financial performance of the company

Table 2: The 10 most important driving factors for CSR implementation from shipping companies.

While these are the main drivers, some companies also take into consideration the business expansion factor, providing high service quality and environmental concerns. In general, these drivers can be categorized into two wider groups, as internal and external drivers. The first category includes, the values of the company, its financial performance, the mitigation of

reputational risks and top management’s devotion while the latter category includes compliance with industry regulations, market competition, expectations from stakeholder as well as maintaining good relationships with them, pressures from the outside environment of the company.

CSR and sustainability trends in the shipping industry

The first report used in this section, was conducted by Peder Michael Pruzan-Jorgensen, titled as “Sustainability Trends in the Container Shipping Industry” and it was published in 2010. It should be mentioned that this publication focuses on the containership industry and not the shipping industry as a whole. While this restricts the results for one subsector only the authors point of view seems to align with the overall sentiment of the industry. The author made two important remarks about the industry, “In the next five to seven years, market, stakeholder, customer, and regulatory pressures related to sustainability will drive significant changes in the way international container shipping lines operate and do business.”, his second remark was that “Environmental regulations are likely to become the most important cost-driver in the coming years, as governments and corporations raise the bar on air emissions, ballast water discharge, ship design, and ship recycling. In a similar way, regulatory changes related to security, business ethics, health and safety, and labor standards will put additional pressure on international container shipping lines to increase sustainability performance”. Further in his report Pruzan-Jorgensen identified four major trends which will have a strong effect in the containership industry the following years. These four trends are presented in the following table :

Four important trends in the containership industry	
1.	Increased transparency
2.	Development of sustainable business models and initiatives to reduce GHG and carbon emissions
3.	Localization
4.	Socio-economic changes

Table 3: BSR: Sustainability Trends in the Container Shipping Industry. Peder Michael Pruzan-Jorgensen, 2010, p. 5

1. Increased transparency

It is evident that heightened transparency is a major inquiry, from the stakeholder's point of view, about how the firm operates, its overall impact on the society and the world, and lastly about its overall performance. Pruzan-Jorgensen clearly states that "There will be no place to hide, and companies will be required to facilitate full transparency on the performance of ships and their operational impacts."

2. Development of sustainable business models and initiatives to reduce GHG and carbon emissions

This aspect focuses more on tackling GHG and carbon emissions, and activities like decarbonization for companies in the container shipping companies to reduce their environmental footprint.

3. Localization

This usually happens when, economic, and political powers are being decentralized when they fail to meet certain requirements from the communities, and local entities start to take on these roles. Requirements from the communities include a wide range of issues from respect of human rights, health, and safety to sustainable business practices. Overall, this trend highlights the necessity for the shipping industry to adopt more community-focused business practices.

4. Socio-economic changes

Certain changes in the worldwide socio-economic sphere like urbanization, the increase of the population, technological advancements and the rising of emerging markets can have important implications in the shipping industry like the development of new transportation models for secure delivery of cargo, port overcrowding which will result in excessive pollution levels and consequently to stricter regulations.

The next article was written by Mark Wootton and Jolke Helbing, and it was published in 2022. In his work titled as "Trends for sustainable ports and shipping", Wootton reports the following observations:

- Port sustainability is anticipated to become more intense in the following years as regulations for reducing carbon emissions and protecting the environment become stricter.
- A shift towards using shore power and electrification to power the vessel and its equipment can lead to cleaner results for the environment.

- The automation of the port equipment which can increase port efficiency while minimizing the levels of energy waste as well as the levels of carbon emissions.
- incorporating carbon reduction strategies into their operations like carbon calculation tools, using alternative fuels and alternative sources of energy

In the next article titled “The real cost of decarbonizing in the shipping industry”, published by Boston Consulting Group (BCG), written Peter Jameson, Ulrik Sanders, Camille Egloff, Mikkel Krogsgaard, Alex Dewar, Laurids Schack and Daniel Caceres Larsen, (2024) these BCG experts explained that decarbonization in the shipping industry can be accomplished with the assistance of:

- Enhanced regulatory framework by the IMO and the European Union
- Technological innovations found on ships and their engines designing
- Increased availability of alternative or greener fuels as well as and biofuels
- An overall corporate commitment to work through this serious environmental issue

In another publication by the BCG, titled as “Voyaging toward a Greener Maritime Future” written by Lynn Loo, Sanjay C Kuttan, Michael Tan, Sanjaya Mohottala and Seign Chiy Goh discussing about decarbonization, the authors stressed that,

“The path to net zero for shipowners and operators requires six main elements:

- ***A robust strategy and roadmap***
- ***Four specific decarbonization levers to reduce emissions which include the operational efficiency, the technological efficiency, the fuel transition, and the onboard carbon capture***
- ***Certain enablers such as dedicated sustainability teams in the company, strategic investments in green initiatives, internal carbon prices, and digitalization”***

The final source that was used for this segment is about “Key benefits of Digitalization in the maritime industry” published on DockMaster in 2023. This article stresses the importance that new technologies have in the shipping industry, as they assist in companies gaining significant positive results from tools like

- Electronic management systems
- Port community systems

- Automatic identification systems.

These technological developments have helped in the overall effectiveness in the industry, while they have also assisted in contributing to the overall sustainability that the industry strives for.

Lastly, even though many researchers have engaged in studying CSR in the shipping industry, not many have dealt with the sustainability and CSR trends in the industry. Finding information about these industry trends was quite difficult but from the above observations we can confidently conclude to the fact that decarbonization is one of the top priorities in the shipping industry and it is considered a major trend followed by many companies. The path towards net-zero is stressed by many industry experts. Moreover, the increased transparency about shipping operations, the development of sustainable port facilities, the transition for traditional fuels to alternative ones and the incorporation of digital innovations in business practices are some key emerging trends for shipping companies as well. Some of these trends have already been implemented in the industry while those that are relatively new and have just made their appearance, are now starting to be implemented.

Conclusion

To summarize this chapter, after conducting a thorough research through the already existing literature on CSR drivers, trends, and sustainability trends in the shipping industry in order to find clear answers about the research questions stated above, we can confidently say that the drivers can be divided into two major categories internal and external, the main drivers among others are the culture of a company, its financial, the regulatory compliance, the competition in the market and pressures from the external environment. Concerning the trends in the shipping industry, decarbonization is a major trend discussed by many academics, digitalization, increased transparency, and sustainable port facilities are of major importance as well.

CHAPTER 5: DISCUSSION

In the previous section of this study, we explored the main research questions considering the reasons that drive shipping companies to incorporate CSR into their core operations, and the current trends of the industry, in relation with CSR and environmental sustainability. The results that emerged from this research regarding the motivating factors for CSR

implementation, can be characterized as internal and external factors. The values of the company, its financial performance and profitability, the mitigation risks and top management's devotion can be included in the first category, while compliance with industry regulations, market competition, expectations from stakeholder as well as maintaining good relationships with them and pressures from the external environment of the company can be included in the second category, respectively. Now, regarding the CSR and sustainability trends in the shipping industry it appears that the several activities can be identified as decarbonization and way for reaching a net-zero, digitalization which was boosted with the technological evolution, transformation of regular ports to more sustainable ones and lastly increased transparency about business operations and the environmental footprint of the company which is a demand made by both the society and the shareholders -stakeholders in general.

According to the existing literature that was examined for this research, the above findings are consistent with previous research found online. For example, it is true that regulatory compliance is one of the most important CSR drivers in the shipping industry as this industry, as a whole has, a major environmental impact in the society which confirms the fact that many researchers highlight that this industry is one of the most heavily regulated in the market. Moreover, the expectations of a company's stakeholders about its sustainable business practices and its sustainable operations as well as building strong relationships with them, is another important driver which highlights the increased accountability that businesses have nowadays towards the society. It is important to note that the stakeholder's expectations as a CSR driver, is also relevant with Edwards Freeman's Stakeholder Theory. Although regulatory compliance and stakeholders' expectations are key driver for CSR implementation, the fact that this concept is not compulsory has influenced companies to start adopting the CSR concept in a proactive way in order to mitigate reputational risks and to make sure that they are one step ahead from other companies of the sector which have decided that CSR does not align with them and their overall objectives, as it can also act as a differentiation strategy and give companies competitive advantage.

Moving on to the trends, it is evident that more and more shipping companies nowadays through decarbonization strategies, are following the net-zero path which is a major trend in today's corporate world for the reduction of the GHG emissions emitted into the atmosphere from maritime activities. Shipping companies are also transitioning into becoming more

transparent towards the society in which they operate, as there are pressuring demands by groups such as stakeholders. Another important incorporated trend in the industry is the digitalization that is a result of the technological advancements the last decades. Moreover, many companies have followed a transition from traditional fuels to more environmentally friendly ones, which contributes also to the reduction of the GHG emissions but also to the overall sustainability, as they do not emit many pollutants. Digitalization in the shipping industry can take many forms but it is mostly incorporated through strategies like EMS, Route Planning Optimization, digital documentations, and emission monitoring control which assists in the GHG emissions reduction and contribute to the overall sustainability in shipping. Lastly a switch that has been observed lately is the transitioning from regular ports to sustainable ones by using shore power, proper waste management, renewable energy sources and ballast water management. These activities promote the attempts of the shipping companies to go greener and contribute to the reduction of the negative consequences that their operations have. It should be taken into consideration though, that while these are the current trends followed by shipping companies, the industry is characterized by its dynamic character and continuous evolution. With respect to that, there should always be further research considering the CSR drivers and the industry's trends and attempts to go green as these could change in a short span of time. In an overall sense, the existing literature and the results of this research align with each other, and these two together highlight the increased importance of the CSR and sustainability engagement by shipping companies.

CHAPTER 6: CONCLUSION

The primary aim of this dissertation was to identify, through research, two main points. The first one being, the drivers of corporate social responsibility implementation in shipping enterprises and the second being, the trends in the industry regarding corporate social responsibility and environmental sustainability. In the past, as every company on the market, shipping companies used to operate in the traditional way with the economic incentive being their top priority. Now businesses on the shipping sector are facing growing pressures and demands from the society and their stakeholders to transition from the traditional operations to modern ones, that balance two important aspects, the financial performance, and the sustainable business practices. These demands stem from the fact that this industry is considered by many as one of the most polluting industry in the market.

A few important points were highlighted, regarding CSR and environmental sustainability in the shipping industry. Firstly, the strongest driver for CSR implementation in the industry is proved to be the regulatory pressures that it faces. IMO is a big contributor as it has imposed many regulations throughout the years regarding the environmental sustainability, the safety of vessels and seafarers. More specifically, among other important regulations, they include the MARPOL and the SOLAS conventions that take into consideration certain issues regarding the safety of the marine environment, as well as the safe design and operation of ships for the protection of everyone on board respectively. These regulations have forced shipping companies to transition from traditional fuel oils to more eco-friendly ones, proper manage the waste generated by the ships and their on-board crew or passengers, the ship design and operation, and their overall environmental and societal impact. In order to comply with these regulations though, companies are investing in a number of techniques like newer technologies that aim at the reduction of carbon emissions such as OCC and EMS, as well as eco-friendly fuels like liquified natural gas, or hydrogen. Secondly, the stakeholder's expectation as well as the market demands in the shipping sector, were identified as another influential CSR driver. As shipping is a major contributor to the GHG emissions and as vessels generate a vast majority of pollution worldwide, stakeholders including customers, suppliers, investors, and societal organizations are demanding shipping companies to take accountability and become transparent about their operations. These demands have influenced shipping corporations to start incorporating greener practices, to become more environmentally friendly

Considering the CSR and environmental sustainability trends in the shipping industry, the focus is on decarbonization and emission reduction, digitalization, increased transparency, alternative fuels and sustainable port facilities. The importance that is posed on these trends underscores the industry's commitment to reduce its environmental impact and its contribution to the achievement of the SDGs. Shipping companies are following these trends in order to comply with regulatory pressures and achieving the main net-zero goal imposed by the IMO. Among these trends, some of them are relatively new in the industry while others have a strong presence from the past. As shipping companies try to adopt in the new green era, it is evident that the concepts of CSR and environmental sustainability are becoming core components of a company's business strategy. It is worth mentioning that, while progress has been made towards sustainable shipping practices and although that shipping companies identify the importance that CSR and environmental sustainability have on them, certain challenges arise such as the costly financial investments that are needed in order for new technologies to be implemented in a company. This suggests that maybe there is a window open for regulators or governments to give certain incentives to businesses to invest in sustainable technologies.

The findings of this study contribute to the overall academic literature that exists on CSR and environmental sustainability. This contribution is actually important on heavy regulated industries with a significant environmental impact like the shipping industry. Regarding this industry, the findings highlight the need for an holistic CSR and sustainability approach. This approach does not only correspond to regulatory pressures and market demands but it also anticipates the emerging future environmental challenges. When sustainability is incorporated in the business planning of a company it can assist in its long-term viability by gaining competitive advantage, as it acts as a differentiation strategy from competitors as well, while it also benefits the company by an enhanced reputation, attracting new customers and an overall improved efficiency.

Regardless of the insights provided by this study, it is crucial to acknowledge certain limitations that were faced. One of the main limitations, is the methodology used for the conduction of the study, which was the secondary research methodology. In other words, the sources for the research consisted of the already existing data and literature that was available online. While secondary research can still be a valuable tool and offer certain valuable insights, it has certain constraints when it is compared to primary research methods. As not

much research was available online regarding the research questions, while existing data was focusing primarily on CSR and environmental sustainability in shipping, a few publications were found that had conducted their own research regarding CSR drivers and sustainability in the shipping industry. Another downside of the secondary research data is that the publications used were mostly published in 2019-2022. This, along with the fact that the shipping industry is characterized by its dynamic environment, and it is evolving continuously, indicates that there may have been recent changes in regulations or market trends that were not taken into consideration during the time that this research was conducted, meaning that the current finding might not represent accurately the current industry practices. Based on the results of this research, it should be noted that, further research needs are important to be done in order to keep up with the progressing nature of CSR and environmental sustainability in the shipping sector over time. This further research would be helpful in the better understanding of the nature of CSR implementation factors and the sustainability trends in the industry, and how these two concepts change according to new regulations and current market conditions. Moreover, it would provide insightful information about how shipping companies adjust their business plans and sustainability strategies over the long run. On top of that, further studies could focus on understanding the evolving role that those new technologies have in the field of CSR and environmental sustainability in the shipping industry, and how the industry benefits from them. Based on these facts, and as most of the literature available provides information about certain points in time considering CSR and environmental sustainability, it is recommended for longitudinal research to be conducted by industry's specialists. The main point of this research is to keep track of the CSR drivers and sustainability trends in the shipping industry, over long-term periods of time in order to understand them on a deeper level and see how they adapt to changes in the market. As we conclude this journey of exploring CSR drivers and environmental sustainability trends in the shipping industry, it is highly important to understand and accept the considerable impact that this industry has on two important sectors, the global economy, and the environment. While this industry is an important asset for the global trade and the economic development of countries across the world, with its practices it can cause devastating and long-term effects to the society and the environment, which could become permanent. As this realization is becoming a worldwide concern, shipping companies have started to implement CSR and environmental sustainability practices into their core business operations. While the concepts of CSR and sustainability are voluntarily and optional, when integrated in a company's strategic planning they can prove beneficial for the company's

long-term viability as well as its image and reputation in the society. Firstly, the key findings of this study highlight the various CSR drivers for shipping companies are mainly internal and external drivers. In particular the first category includes the company's mission and values, the financial performance, market reputation and pressures and top management's devotion. The second category includes the regulatory compliances, competition in the market, stakeholder's expectations, and external pressures. Shipping companies that actively engage with CSR and comply with industry's regulations can certainly gain competitive advantage which could eventually position them as leaders in the industry.

Secondly, as CSR and environmental sustainability two emerging concepts for the shipping sector and as companies have tried to adjust them in their business practices, there are several notable environmental sustainability trends which are being implemented by shipping companies. Firstly, more and more companies are working towards the reduction of the GHG emissions through OCC systems, EEI and the usage of alternative fuels like biofuels and hydrogen. Another important trend in the shipping industry is digitalization and the digital technologies implemented in shipping operations for an overall sustainability approach. Technologies and software like AI, blockchain, route planning optimization, OCC and electronic navigation can enhance the overall operational efficiency of a company, but it can also manage its environmental impact efficiently. Although these trends come with many benefits for the company and its overall impact on the society, there are certain challenges persisting that blocks companies from engaging in them. The biggest hold back is of financial nature. The financial investments needed for digitalization to be able to work effectively in a company and the cost of alternative fuels in order to promote the zero-emissions trend, are both quite costly.

To conclude, the implementation of CSR and sustainable practices the shipping industry, does not always have to do with regulatory compliance or market pressures.

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