

Title

**SUSTAINABLE PROCUREMENT AND CORPORATE
SOCIAL RESPONSIBILITY IN THE MARITIME NETWORK**

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Abstract

As the emphasis on environmental and social consciousness grows, the disclosure of sustainable practices becomes a crucial element of business operations where a company informs stakeholders about its commitments to sustainable development in the value chain. Unlike retail or manufacturing industries, the existing sustainability frameworks in the maritime industry are still generic and unclear. It is evident that sustainable initiatives in B2B industries do not gain sufficient attention. Since the sustainability agenda is one of the leading interests and topics in maritime networks, the initiation of sustainability engagement by managers is well-positioned to commence within the realm of the supply chain. Within the sphere of applications and practices, procurement emerges as a readily accessible and substantial segment where a firm possesses ample opportunity to participate in sustainable initiatives. Nevertheless, the literature search shows that practices and understanding of sustainable procurement in the maritime industry are minimal.

With the inspiration of relevant arguments on the topic, this thesis is dedicated to exploring how maritime companies perceive the role of procurement in sustainable development and to what extent these practices have been applied in their sourcing function. With a deductive approach and the use of a questionnaire, this study collected empirical data from managers who engage in the maritime industry. The results indicate that the general intensity of sustainable initiative implementation is to somewhat extent. While supplier selection and governance are executed to a high degree, building relationships with suppliers shows a weak sign with low ratings and high deviation from company to company. Other than that, social factors, which are safety, human rights, and diversity-owned suppliers, have the highest implementation degrees amongst maritime companies.

Keywords: CSR, sustainable procurement, sustainability in maritime, responsible sourcing, sustainable supplier selection, buyer-supplier relationships, supplier governance, B2B Corporate Social Responsibility.

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I feel thankful that maritime management has become a part of my academic journey because I have been deeply fascinated with the shipping industry and marine operations. As a master's student who has a background in supply chain and procurement, I have learned about sustainability principles throughout my previous degree. During my study at USN, this topic again came into many discussions in different subjects, which made me spark an idea to combine two fields of knowledge together in my thesis research. I do believe that sustainability will be the central topic of maritime, and many companies would consider it as either a challenge to solve or an opportunity to take. Writing a thesis on this topic gave me various valuable insights into the potential of the maritime sector.

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Abbreviations

CSR:	Corporate Social Responsibility
IMO:	International Maritime Organization
UN:	United Nations
SDG:	Sustainable Development Goals
RQ:	Research question
Lim:	Limitation
Std.Dev:	Standard deviation
LCA:	Life-cycle assessment

INTRODUCTION

1. Research problem clarifications

Over a decade ago, sustainability was already perceived as a top-three priority in corporate strategy, according to a survey by McKinsey (Sheila Bonini, 2010). To the maritime industry per se, sustainability has become an essential component because this sector has major impacts on economic, environmental and social aspects (Asgari et al., 2015).

Maritime sector is known as various functional entities such as shipping, marine industries, and port operations (Viederyte, 2013). Moreover, the companies in these industries often enhance the maritime cluster with multitude supporting services, such as education, classification, finance, legal. Shi et al. (2020) argue that maritime sector conventionally involves port operations, maritime transportation, and auxiliary service. Nevertheless, there are various extended sectors that share many intersections, such as marine equipment, naval construction, intermediate services, supporting services, and maritime regulators. Hence, this research attempts to group these sectors into *four main categories* of maritime companies. The first group is *shipping* which includes transportation of goods and passengers. *Marine* comes to the second item of the list as it involves ship building, marine technical companies, technical/offshores services, and marine energy institutions. *Port industry* includes stevedores, port management, border agency, and passenger handling. Lastly, *associated maritime business* presents legals, insurance, ship broking, and financial service companies.

Maritime inherently is a B2B industry that has a long tradition of competing with low-cost, technology solutions, and differentiation strategies (Lindstad et al., 2016; Okumus et al., 2023). In the past decades, the concern for sustainability practices has been drawing interest from stakeholders in this sector due to the fact that the principle of being environmentally and socially responsible appears as a complement for a maritime company to sustain its global competitiveness (Caniëls et al., 2016; Jasmi & Fernando, 2018; Yuen et al., 2017). In a research of Geerts and Dooms (2022), the authors aim to develop a Corporate Social Responsibility (CSR) profile for large cruise ship lines. (Zhou et al., 2021) contribute to the topic with a sustainable framework for shipping companies. From listed sustainability reports by major maritime companies, the sustainability approach comprises three dimensions: employee training and management, sustainable business management, and sustainable shipping operations. Klymenko and Halse (2023) reveal that Norwegian maritime companies are

attempting to disclose information on sustainability performance, especially responsible initiatives in their supply chains. The authors confirm that the cluster organizations share a common objective to become the zero-emission industry which is in line with the UN sustainable development goals. Multiple companies claim that sustainability is integrated into their business strategy to adapt to new challenges regarding sustainability responsibilities, simultaneously contributing to the common goals. In marine technical industry, solutions are aggressively proposed; however, most companies pay their interests on how their business are forwardly tightened with sustainable compliance, energy choice, and innovation (Basurko & Mesbahi, 2014; Luciana et al., 2021; Yin et al., 2014). These practices are strongly consist with their responses to the International Maritime Organization (IMO)'s regulations on emissions, ballast water discharge, and ship design (Lirn et al., 2014).

As an emerging issue, the upstream parts of their value chains lack attention for discussions. Lately, supply chain management has gained prominence due to heightened global competition and initiatives geared toward value-seeking (Fernando & Saththasivam, 2017). Fernando et al. (2018) argue that the sustainability agenda ought to be a primary focus for all supply chains. In relation to that, maritime exhibits extensive and intricate networks necessitating scrutiny through vulnerability analysis (Liu et al., 2018). Monitoring these complex networks proves challenging in terms of environmental practices, greenhouse gas footprints, and social responsible actions (Karakasnaki et al., 2023; Liu et al., 2018). The implementation of sustainable practices can aid the maritime sector in adhering to IMO regulations and attaining sustainability objectives, thereby benefiting both society and future generations (Jasmi & Fernando, 2018). This underlying research specifically focuses on procurement function in a supply chain of companies to highlight its important roles in sustainability efforts. In addition, it is expected to come up with sustainable initiatives that can be applied to keep a company's sourcing strategy aligned to sustainable goals. Apart from the fact that companies actively look for suppliers who have significant sustainable profiles, the roles of procurement department can go beyond that i.e., create a synergy and coherence in its network regarding mutual goals in sustainable development. It is argued that the firms also must bear the responsibilities toward their suppliers' environmental, economic, and social performance (Hartmann & Moeller, 2014; Seuring & Müller, 2008). Together with the inherent concern about environmental impacts of the given industry, the social element is gaining much more attention as the policy focus (Lee et al., 2019).

It is argued that the importance of sourcing contributes greatly to the development of sustainable initiatives and goals. Moreover, with the emergence of Corporate Social Responsibility concept, and then Environment-Social-Governance (ESG), many maritime companies do not take actions individually but actively engage suppliers who can share the same values. In the past decades, multiple scientific papers have been undertaken in sustainable supply chain and sourcing, especially supplier selection topic in various industries, typically in manufacturing, and retail sectors, while there is not a comprehensive literature discussing about the topic in maritime context to the best of my knowledge. As a backbone of international trade and global economy, maritime appears as active research areas. A good amount of literature in the field has been undertaken in the relevant topics such as perceptions, cost benefits, technical or economic challenges and drivers of the sustainable maritime, but a specific discussion about how a maritime company take action to engage and assess their suppliers does not exist.

The fact that research about sustainable procurement in maritime networks is limited. This thesis aims to investigate further *sustainable procurement with the approach of Corporate Social Responsibility (CSR) principle in maritime industry* by finding answers for the research question “*for what extent maritime companies engage sustainable procurement practices?*”. First, the research will gain understanding of sustainable procurement practices in B2B settings through reviewed literature. Second, this knowledge will be translated into a survey where managers’ opinions are collected to elaborate how maritime companies perceive and conduct these sustainable practices in their procurement segment. The focus of sustainability concept in this research is both environmental and social elements.

The empirical evidence gathered from this study will highlight the alignment of procurement segment with sustainable goals in maritime companies. With the conceptual framework, which is built from existing papers and successful implementation, this thesis will contribute to strengthening the research field which is maritime industry. Finally, the current study has an ambition to use analysis and finding parts to generate opportunities for further research directions.

The purpose of this research is on one hand, to highlight how important it is for a company to manage their input and create a coherence in the business network, on other hand, generate sustainable initiatives that can be applied in practice. By getting in touch with managers at different levels in maritime companies, there are some feedback and opinions recorded during

the conduction of the survey will be added as the source of both quantitative and qualitative data.

2. Scope of the thesis

To shed the light for the proposed research problem, this thesis is conducted by an open survey to maritime companies doing business in Norway. Even though this thesis does not aim to explore certain characteristics of Norwegian maritime companies, a defined geographic object for research assists data collection process because geographic concentration is applicable for doing research with limited resources and time.

Other than that, when the thesis presents the research object as “*maritime network*”, it aims to encompass interconnected firms and institutions in a specific field, i.e., manufacturers, suppliers, and customers. One special trait of Norwegian maritime industry is that the network is quite extensive because the maritime business has strong relation to offshore service sector where highly customized vessels are built to serve energy companies’ operations. Other than that, Klymenko and Halse (2023) suppose that Norwegian maritime cluster has a high profile of sustainability, which can assist the data collection process of the topic.

3. Goal of the thesis

This thesis is dedicated to the alignment of sustainable procurement to a company’s strategic goal within the context of maritime industry. To be exact, the main purpose is to explore insights regarding corporate’s sustainability and procurement function. Hence, the research question arise as follows:

For what extent do maritime companies engage sustainable procurement practices?

To answer this research question, four research objectives have been defined:

Firstly, the research aims to establish knowledge amongst these terms: sustainability in maritime industry, Corporate Social Responsibility, sustainable procurement, and firm’s approaches to sustainable goals. By doing so, a better understanding of why a company must align the roles of sourcing activities to its strategy towards sustainability achievements. This goal can be achieved by secondary data source which is from existing literature and confirmed by an empirical questionnaire.

Secondly, it aims to explore how a buying company defines its sustainable procurement practices with the approach of Corporate Social Responsibility. Thereby, a theoretical framework of sustainable sourcing is outlined.

Thirdly, to explore what products/services that are sustainably sourced.

Fourthly, this research tries to assess to what extent maritime companies engage in sustainable procurement activities in their operations.

Lastly, to identify which practices appear as the most focused from managers' perspectives in maritime companies.

LITERATURE REVIEW

1. Goals for the review

This chapter comprises the development of conceptual theories regarding sustainable procurement in maritime industry. Several purposes are therefore to be accomplished. Firstly, this part provides a foundation of knowledge which the thesis will be based on. Various concepts are defined and connected to consolidate the justifications of research problem, thereby, it is expected to present in-depth knowledge of the topic. Through this chapter, the research object is maritime companies which are categorized by four segments in introduction part: shipping, marine, port, and maritime service business. The first part of this review will elaborate on the concept of sustainability, the connection of CSR to sustainable development, contribution of sustainable procurement to sustainability in the given industry, and the discussions of these concepts in the maritime setting. Secondly, it is critical to investigate some current works and trends that have been done by scholars in the field to gather insights. Lastly, a theoretical framework is proposed to set a direction for the given topic. Findings from literature review also are the premises for discussion part in later.

2. Literature search strategy

As suggested, several databases granted from USN library are used to serve the literature selection. The chosen sources are Scopus, ScienceDirect, and IEEE Xplore. These sources are selected because they are known as major providers of academic journals in business, social, and science topics. Some parameters for the literature search are also defined. Initially, to papers that support the theoretical background for the topic, it is sensible that the year of publication can be old, while with relating papers that address similar issues, the maximum of ten years from the time being is set to ensure the information is not outdated. Secondly, the source for secondary literature will be extracted only from three types of publications: peer reviewed academic journals, books, and reports. While refereed journal is supposed to be the most appropriate source for thesis projects because of its academic rigor and creditability, textbooks are useful to provide comprehensive knowledge in certain areas with a systematic and accessible format (Saunders et al., 2009). Additionally, reports from established organizations can supply high quality, relating information to the topic in an industry (Saunders et al., 2009). Books and reports can be retrieved from different sources rather than the proposed databases.

The searching process will be followed some recommendations proposed by (Saunders et al., 2009). To start with, the search terms are generated with a list of words strings that can potentially lead to useful papers. Different attempts with Boolean search should be applied to filter down relevant information regarding industry, year of publication, or geographical context. It is challenging to select proper literature by some relevant keywords such as “sustainability in maritime”, “sustainable procurement”, “sustainable sourcing”, or combine them together since sustainability and maritime are broadly discussed across over different fields. Some filters regarding subject areas are also applied to limit the results. During the selection of papers, the literature matrix is used. Table 1 shows the numbers of publications found from these sources with defined search queries. Firstly, the number of shown literature that discusses general concepts is huge, even with filters of published years; therefore, manual scan by reading titles, keywords, and abstracts to eliminate irrelevant papers. After this step, selected papers are read and recorded ideas for reviewing. Secondly, with the application on maritime industry, there are too a few papers. To solve this issue, snowball techniques are used to approach more literature. With snowballing, the author identifies a qualified paper first, and then browse its reference list to find relevant papers resolving the same topics. Another way to expand the potential literature is to trace citations of the main paper, which leads forward to several literature in more recent time.

Source	Word strings	Number of found papers
Scopus	TITLE-ABS-KEY ("sustainable procurement" AND "maritime")	2
	TITLE-ABS-KEY ("CSR" OR "sustainability" AND "procurement" OR "sourcing" AND "maritime industry")	2
	ALL ("procurement" AND "sustainability" AND "maritime industry") AND PUBYEAR > 2012 AND PUBYEAR < 2025	87
	TITLE-ABS-KEY (strategic AND sustainable AND procurement OR sourcing AND categories)	6

ScienceDirect	"Sustainable procurement" or "CSR" and "maritime"	8
IEEE Xplore	("All Metadata": "CSR in maritime") OR ("All Metadata": sustainability) AND ("All Metadata": procurement)	56

Table 1: Literature search summary

3. Reviewed literature

3.1 Overview of Sustainability

3.1.1 Sustainability and Sustainable goals

Sustainable concept of an organization can be explained as a goal to meet the needs of present but simultaneously does not harm future generation’s resources (Elkington & Rowlands, 1999). Within organizational context, the idea of sustainability is initially associated with the economic success which involves financial capacity and decent products and service (Florea et al., 2013). As a matter of fact, sustainability is such a sophisticated and multi-dimensional framework (Hart and Milstein, 2003). Sustainable concept is developed through a triple-bottom-line framework that consists of three aspects: economic, ecological, and social development. Noted that in modern businesses and societies, this concept has a strong focus on thriving the industries with economic growth, well-being of the societies, and environmental protection (Lun, 2011).

As Eccles et al. (2012) discuss, sustainability goal of a company is a transformation that contribute to a sustainable society by conscious and ongoing efforts to develop a long-term value for both internal and external stakeholders. To make the goal happen, the execution strategies include twofold. First is to build a leadership commitment, at the same time, incorporate the outsiders. The second step is to establish the employee engagement and the implementation process. These two stages have a mutual relation which means each element has both cause and effect on others. Regarding role of the external engagement per se through the sustainability transformation, the authors are convinced that a sustainable company always seeks partnership with other organizations to advance its objectives. One of the most critical strategies is to support its supply chain activities. It is therefore argued that a company is not able to obtain its sustainable goal without a cooperation with external supports (Eccles et al., 2012).

3.1.2 The need for sustainability

With the rising concern of environmental crisis, global economy growth, and social humanity issues, sustainability has emerged as a common topic across various industries. Many companies therefore engage sustainability concept into their business models and operational design (Sarkis et al., 2013). It has been argued that the activities that support social and environmental development always come with a cost, therefore, it must be a compromise between the economic aspect and other two factors. Nevertheless, eco-friendly development and social policies of a company should not be separated from the financial elements. According to Porter and Kramer (2002), these three pillars can form the competitive advantage of a company. Eccles et al. (2012) also claim that sustainability-related strategies are vital to the business to compete in the market as customers are no longer satisfied with a business partner who only concentrates on short-term profitability without considering environmental responsibilities and social welfare. Therefore, the optimal approach of sustainability is when these three factors intersect. The term a sustainable company thus should be defined as an achievement of an organization who can gain competitiveness and simultaneously embrace of triple-bottom-line concept in its operations (Carter & Rogers, 2008).

Amongst approaches, Corporate Social Responsibility is one of the ways in which a company can fulfill its commitments to corporate sustainability (Ashrafi et al., 2018). The concept is typically described as the strategic framework of an organization aimed at creating lasting value in social, environmental, and economic realms. This all-encompassing strategy emphasizes a dedication to enduring responsibility, with the goal of aligning the company's interests with those of its stakeholders and the broader community.

3.1.3 Corporate Social Responsibility (CSR)

In the past decades, CSR has been appearing as a massively growing interest in sustainable goal topic (Huang et al., 2022) as there is a strong association between CSR practices and the promotion of sustainability growth (Ashrafi et al., 2018; Schönherr et al., 2017). Alhaddi (2015) also confirms that CSR can be seen as a business model that promotes sustainability development. It is claimed that the concept is no longer an option, but a must-have business practice for sustainability goals (Wang et al., 2016). Companies nowadays, therefore, do not wonder whether they should engage into CSR, instead, they attempt to seek solutions of how to integrate CSR practices into their strategic goal with an effective planned manner (Wang et al., 2016). The terms corporate sustainability and corporate social responsibility can be

interchangeably used. They both refer to voluntary business activities (Lo, 2010) which a company incorporates into their strategy to become sustainable in three pillars: economic, environment, and social.

Fig. 1

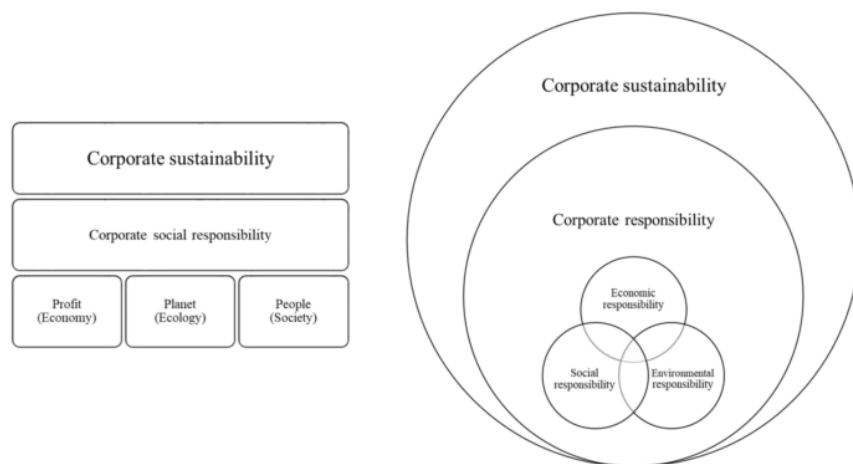


Figure 1: CSR and Sustainability (Van Marrewijk, 2003)

The concept involves the relationship between triple bottom line and stakeholders' expectation where a company makes efforts to improve its social and environmental aspects by discretionary activities (Aguinis & Glavas, 2012; Lantos, 2001; Leire & Mont, 2010). It is a belief that apart from investors and shareholders, a company entails responsibilities to other social stakeholders, such as consumers, governments, communities, and natural environment (Publications, 2012). CSR is supposed to be applied in all sizes of organizations; however, the discussions are often held in large firms which are more powerful, tangible, and influential. The concept is discussed in multilevel approaches because it is engaged into different core activities of a company (Aguinis & Glavas, 2012). In the scope of this research, the topic focuses on buyer-supplier settings where buying companies show their liabilities and sourcing practices to integrate sustainable elements into their operations. Sustainable procurement has become a potent means to support the attainment of sustainable development objectives by encouraging more environmentally, socially, and economically responsible consumption and production (Islam et al., 2017). Policies centered on these three dimensions can be seamlessly incorporated into procurement practices.

3.2 Sustainability in Procurement

3.2.1 Sustainable Supply Chain and Procurement

Sustainable supply chain strategies are defined as various operational practices of a company by which respond the regulations in business environments or involve sustainability concept in the relationship with internal and external stakeholders (Min & Galle, 1997). Thus, it is claimed that a company can either behave in proactive and reactive manners toward sustainability development (Humphreys et al., 2003). A company pursuits reactive strategy when it needs to stay in line with international standards or legislation. A proactive strategy on the other hand, is the range of voluntary actions that aim to gain competitiveness advantage by engaging into different sustainable aspects. While most of the motivations to sustainable movement focus on the roles of industry's compliance and regulation pressure, proactive efforts of a company should be discussed more.

According to Seuring and Müller (2008), supply chain management is an essential context for a company's sustainable efforts. The authors are well perceived that a company can integrate sustainable development in supply chain by working along two concepts: environmental and social aspects which shed the light for more sustainable products and processes. Regarding sustainable procurement concept, Pagell et al. (2010) define it as *"the management of all aspect in the upstream part of the supply chain to optimize the sustainability performance"*. It is convinced that the status of resource detriment in the world raises a concern that companies need to act more responsible and navigate their businesses in a sustainable manner (Prahalad & Hamel, 1994).

Other than that, outsourcing non-core activities and optimizing sourcing from multiple suppliers make a supply chain more and more complex to be monitored. Conventionally, an organization often focuses on some basic benchmarks regarding sourcing activities such as: costs, quality, flexibility, reality, and after sale service; therein, the attempt to purchase goods with low prices often comes first. As purchasing strategy has evolved and become extremely complex, more criteria are taken into consideration, such as innovation and sustainability (Famiyeh & Kwarteng, 2018). Svahn and Westerlund (2009) claim that a sustainable sourcing strategy must involve additional practices to integrate sustainability. The fact that majority of research papers in the topic covers is in industrial field where sourcing inputs are raw materials

and components (Govindan et al., 2013; Rostamzadeh et al., 2015). Sustainable procurement in private non-manufacturing companies has little focus and attention.

3.2.2 Roles of Procurement in Sustainability development

In charge of purchasing a wide range of goods, services as well as outsourcing decisions, procurers can improve the sustainable performance for a company by setting benchmarks and preferences that fit into the corporation’s strategy. In fact, supplier networks and supply chain management are the domains of a company’s operations (Jasmi & Fernando, 2018). It is also argued that purchasing functions are central to a company’s sustainable development efforts (Krause et al., 2009).

Procurement function contributes greatly to a corporate sustainable goal since this segment has an ability to exert influence over external organizations in the whole supply chain (Meehan & Bryde, 2011). Initiatives or sustainability-focused systems are incorporated in planning, sourcing, supplier assessment, contracting, monitoring, and control (Akhavan & Beckmann, 2017; Maignan et al., 2002). Multiple studies focus initially in the topics of environmental purchasing, and there are more and more comprehensive discussions about social responsibility factors (Huang et al., 2022). Regarding sustainable supplier management, Zimmer et al. (2016) propose a basic concept that involves three main interrelated core processes named sustainable supplier selection, supplier monitoring, and supplier development.

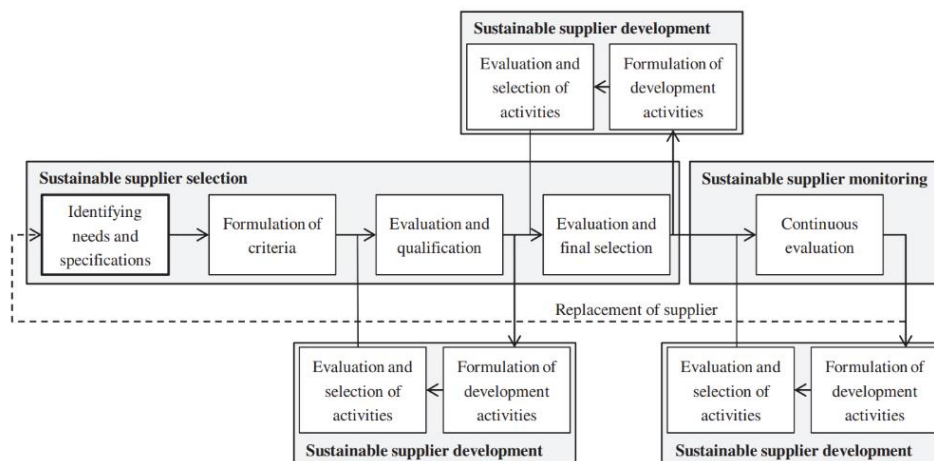


Figure 2: Sustainable procurement core process (Zimmer et al., 2016)

Supplier selection is a critical function of supply chain management because such strategic decisions can potentially defines the company’s competitive advantages (Bals et al., 2019;

Grimm et al., 2014). It is argued that strategic sourcing has a great impact on the financial performance of a company since quality, cost, and delivery time of the inputs depend on the suppliers who have ability and capacity to support these elements. Therefore, a company needs to understand impacts of their supplier selection decisions on competitive advantages, as well as the relationship between this operation and corporate's strategy (Koufteros et al., 2012; Singh & Singh, 2019; Sun & Ming, 2021). Indeed, Mena et al. (2018) proposed that it is vital to align the operational function as supplier selection to a firm's strategy.

3.2.3 Strategic Sustainable Procurement

Most of the literature in sustainable procurement topic do not distinguish the differences amongst sourcing categories (Dabhilkar et al., 2016). It is argued that a buyer makes decisions towards its procured products/services according to company's capability and priority. To a company that pursue the commitment to sustainability, it is challenging to guarantee the suppliers' compliance to social and environmental standards across categories of products (Dabhilkar et al., 2016). There are four main categories of products in the perspective of buying companies: *leverage items* (high impact on profit and often sourced in large volume, can be procured from multiple suppliers); *strategic items* (high impact on profit but entails high supply risks, can be acquired from very few suppliers); *bottleneck items* (low impact on profit but the available suppliers can be very scarce, high supply risks as suppliers have dominating bargaining power over buyers), *non-critical/routine items* (low impact on profit and know supply risks, can be sourced from many suppliers) (Pagell et al., 2010).

A research from Dabhilkar et al. (2016) shows that companies impose sustainable compliance to suppliers in three categories: leverage, strategic, and routine items. It is explained that buying firms have weak bargaining power toward suppliers in bottleneck items.

3.2.4 Selection of shipping modes

The selection of shipping modes is a popular topic. Environment considerations in transport choices result in the development of multiple indicators used to evaluate carriers' environment performance, such as Clean Shipping Index (CSI), Energy Efficiency Operational Indicator (EEOI) from IMO, or Environmental Ship Index from International Association of Ports and Harbors. The eco-labelling initiatives therefore thrive within the shipping industry. Many international ports even offer discounts to the vessels that have the high ranks in these indices.

The index is also of great help for shippers and freight suppliers to retain their efforts in sustainability development regarding shipping modes decision.

3.3 Sustainability in the maritime industry

3.3.1 The need of Sustainability in the maritime industry

The efficiency in terms of cost and quantities has established maritime transport as the most dominant logistics mode with approximately 80% of the world trade volume (Stopford, 2008). Maritime thus appears as a labor-intensive industry that is vital for the global economy. Even though it is evidence that maritime shipping is the most eco-friendly mode, the sector is still claimed as a major contributor to the causes of negative impacts on the planet through CO₂ emissions, ship operations, accidents, losses and damages on seas (Gilbert & Bows, 2012). The maritime industry itself inherently can be a springboard for the global sustainable goals. Three sustainability pillars which are environmental, social, and financial aspects show a well connection through the lens of shipping operations. While to enhance environmental performance by diminish fuel consumption and speed, a company can improve financial outcomes and thereby, indirectly has positive impacts on quality of society by creating more benefits or jobs (Mansouri et al., 2015). These practices have been popular discussions by scholars when it comes to sustainability goals in maritime setting. It is evidence that a company can diversify their corporate sustainability approaches at supply chain level (Formentini & Taticchi, 2016). Addition to that, sustainability strategies and initiatives have strong connections with the fact that how a company establishes and manages the relationships with its supply chain partners, especially its suppliers (Gimenez & Tachizawa, 2012).

Mansouri et al. (2015) review that the number of published research in sustainability of shipping has gained more popularity during the time. This is because the demand for sustainable maritime practices increases considerably (Jasmi & Fernando, 2018). However, the majority approach is to solve problems regarding technical aspects. In general the strategies to respond to sustainable goals of shipping companies are to reduce emission and fuel consumption (Mansouri et al., 2015) which mostly can be done with advanced technology such as energy-saving engines and ship designs or computerized optimization which increases energy-efficiency. Additionally, maritime companies tend to collaborate with energy companies to invest in new types of energies that are considered greener and cleaner (Wang et al., 2020). According to Lee et al. (2019), environmental dimension is the most widely

addressed by literature. Most proposed solutions aim to solve challenges regarding ships and port equipment. Scientific research in sustainable maritime supply chain topic is very limited (Lam, 2015), not to mention there is no decent theoretical framework being built about sustainability in supply chain maritime (Fasoulis & Kurt, 2019b). Amongst the sustainable goals, environmental development has gained the most interest by both industrial experts and scholars, thus it motivates numerous managerial practices to take place (Fasoulis & Kurt, 2019b; Lähdeaho et al., 2020; Lam, 2015). Green maritime, green shipping, or green supply chain has drawn extensive discussion in published literature. It is justified when most shipping companies put much of their efforts into addressing ecological issues. While it is challenging to optimize profitability between financial aspects and social development, Yin et al. (2014) show that shipping companies can improve financial figures and protect environment at the same time by some practices, such as by going slow steam. Supporting the positive relationship between these two elements, (Lirn et al., 2014) discuss that green shipping management improve financial performance of the transport companies. Nevertheless, it should not be concluded that sustainability in shipping only revolves on environmental development. Social elements also need serious attention.

Some of the motivations for sustainability adoption in business operations are forced by growing regulatory frameworks and pressure from stakeholders. The International Maritime Organization (IMO) has set a target of reducing environmental pressure since the early 2000s, ever since numerous corporates in maritime networks have perceived the transition with full attention. The role of IMO is to establish several protocols and regulations to keep the maritime industry stay in line with UN convention on Law of the sea (Lee et al., 2019).

3.3.2 Sustainable approaches in the maritime industry

- **UN Sustainable Development Goals (SDG)**

It is common that some companies select several SDG that are most aligned with their core business to develop relating initiatives and parameters to measure their performance (Klymenko & Halse, 2023). The foundation of these practices focuses on three pillars of sustainability concepts: economy, social, and environment. It is evident that maritime sector is associated with sustainable development goals in many aspects (Wang et al., 2020). First of all, maritime is a primary contributor that is responsible to preserve ocean and marine resources as stated from SDG 14 (Virto, 2018). Inherently, such a global industry encourages the

development of logistics infrastructure and technology. Cross-border trading activities increase strong partnership opportunities. The responsibility of the industry is also to reduce emission, consider clean energy choice to ensure the well-being of communities. As the operations take place significantly offshore, the sector cares about safety and provides decent working conditions for seafarers/workers (Wang et al., 2020). According to these mentioned interactions, there is much room for sustainable initiatives in the maritime industry. Companies tend to pick up some sustainable applications that suit best with their regions, requests from stakeholders, industries, or in varied activities (Benamara et al., 2019). UNCTAD provides an approach to maritime sustainability as follows in *figure 2*.

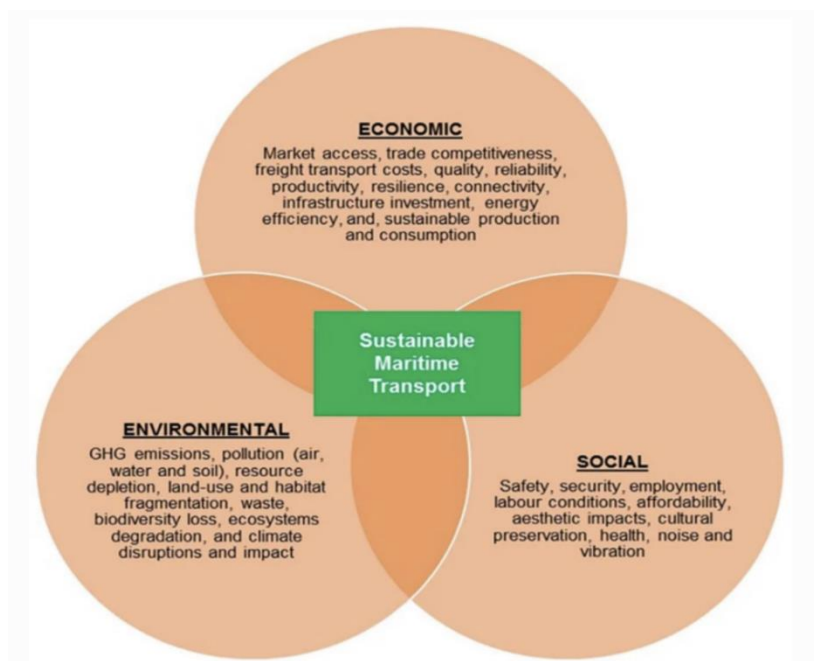


Figure 3: the maritime transport sustainability UNCTAD (2015)

Wang et al. (2020) debate that maritime companies can expand their sustainability development in many aspects even though some global sustainable goals are unnecessarily aligned with the core business of maritime sector. In order to achieve the success of sustainability implementation, partnerships and cooperation with the global chain members are essential in maritime networks. The focal firm is supposed to have mutual benefits and common goals with its suppliers and customers. Fair trading program can be supported to ensure a healthy competition in the market. By doing these practices, the company can enhance the synergies and coherence in sustainability development in the value chain and eventually gain competitiveness in its supply chain (Wang et al., 2020). In this sense, partnerships in economic

aspects are considered. Regarding environmental efforts, the essence of eco-friendly protection is to reduce emissions or prevent the pollution caused by ship operations. The first approach in maritime cluster is to execute due diligence in relation to international conventions, codes of conduct, and guidelines. Companies often refer to external standard-setting organizations, such as IMO or ISO. The maritime companies can partner with various social groups to promote working condition standards or increase social welfares for locals. Wang et al. (2020) present different sustainable development goals that a maritime firm can contribute to as follow:

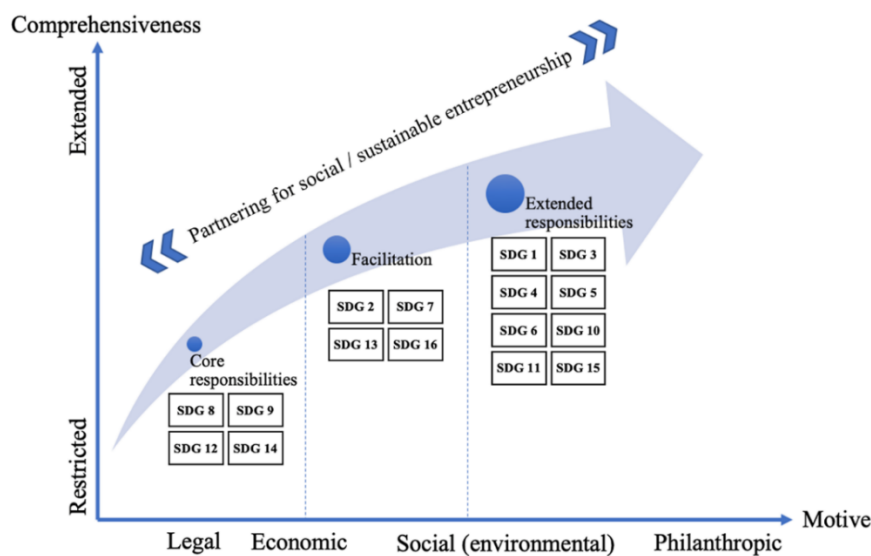


Figure 4: Sustainability goals of maritime industry

- Corporate Social Responsibility (CSR)

Maritime and shipping in particular is probably the most international sector, as the same time heavily regulated by regulations and policies (Fasoulis & Kurt, 2019a), therefore, this industry has been always accustomed to CSR and sustainability tendencies. While the commitment to sustainability aims to optimize the use of resource, it also promote the coherence of the networks by building synergies to generate more value (Benamara et al., 2019).The shipping industry encourages CSR adoption because it promotes companies’ images and reputation (Poulovassilis & Meidanis, 2013). Additionally, Fasoulis and Kurt (2019a) claim that CSR plays a great role to improve identity and trust from not only its stakeholders, but also its employees in the sector.

CSR has been widely discussed in the maritime industry. In the port sector, CSR considers the assessment of the well-being and growth at both regional and local levels, environmental preservation, and the fostering of communities with elevated living standards. This is achieved through collaborative efforts and shared responsibility (Ashrafi et al., 2019). A survey from 223 shipping companies in Singapore reveals that CSR has a great alignment with activities within the value chain to sustain the competitiveness through differentiation strategy (Yuen et al., 2017). Nevertheless, while CSR concept is pretty mature in manufacturing firms when they can define the benchmarks for their materials and production line, CSR has been only gradually gaining attention in the maritime context (Fasoulis & Kurt, 2019a).

3.4 Sustainable procurement in the maritime industry

Sustainable procurement is a popular topic across various industries but not particularly in the maritime or transport sector (Luttenberger & Luttenberger, 2017). The number of available research is abundant in global product suppliers, but very limited in service-provider business. As an industry with tremendous economic contribution, together with high impact on environment, and involvement of many social issues, the maritime becomes a potential area for sustainable procurement research (Kudla & Klaas-Wissing, 2012). Not in a direct focus on sustainable sourcing in the maritime industry, Karagiannis et al. (2022) suppose that the growing awareness of sustainability and the unpredictable impact of climate change on economic viability have compelled maritime companies to adopt sustainability-focused strategies through CSR principles. These companies now demand similar sustainability standards from their partners to improve their overall sustainability performance. The authors remark that very few service providers and suppliers exclusively associated with the maritime sector publish CSR reports. In this thesis project, the concept of CSR and sustainable procurement is extracted from literature with a general approach where there is no specific industry applied. The theoretical framework, therefore, can be applicable in many sectors, including the maritime industry. Furthermore, CSR principle in procurement is a universal approach with the essence of sourcing responsibly. Companies demonstrate responsible sourcing practices by actively engaging with suppliers to enforce Corporate Social Responsibility standards (Ramchandani et al., 2020). In relation to that, a maritime company must develop sustainable initiatives and practices to implement throughout its operations.

3.5 Sustainability practices in procurement

This current thesis intends to present both social and environmental aspects by adopting a framework from Huang et al. (2022), which discusses about sustainability with CSR principles approach.

Wang et al. (2020) suppose that the companies should scale up their sustainability practices and form a compliance in a specific area. Other than that, it is wise to involve more value chain members regarding sustainability matters (Wang et al., 2020). Discussing this topic, the collaboration between buyers and suppliers stands out. The relationship between supplier selection and sustainability performance of a company has significantly discussed in recent research. (Tseng et al., 2019) confirmed that collaboration in supply chain is crucial toward sustainable goal. This literature review concluded that by improving such cooperation, not only the company, but also other partners can mutually achieve sustainability objectives. Huang et al. (2022) identified four essential practices of CSR in the relation between buyers and suppliers: Responsible sourcing, responsible supplier selection, supplier CSR governance, and buyer-supplier partnerships. This state-of-the-art research provides a comprehensive review from 174 articles on sustainability and CSR topics in B2B context. The paper highlights the activities that should be required between buyers and suppliers to make economic, social, and environmental impacts. As there is highly relevant to the underlying research topic, this thesis will adopt the framework of CSR practices from (Huang et al., 2022) and continue to apply its finding in a specific industry which is the maritime. In the next parts, the components and definitions of these practices will be further explored in the following part.

3.5.1 Responsible procurement

In essence, sustainable procurement is responsible for managing all aspects of component and material flows in upstream part of a supply chain with the ultimate in triple bottom line indicators. The concept of sustainable procurement usually refers at a first glance to green activities which can involve eco-friendly factors (Igarashi et al., 2013). Carter and Jennings (2002) introduce specific activities that are associated to responsible procurement. The research collects responses from sourcing managers from various industries. These practices mainly focus on following categories:

a) Environment

A company executes *life-cycle analysis/assessment (LCA)* of the products they want to acquire. LCA methodology aims to evaluate environmental aspects of a product/service along each stage of its life, from the source of material, manufacturing, distribution, utilization, until the end of its use (Smet, 1990). This approach offers a great environmental benefit, especially in marine technology field (Ling-Chin & Roskilly, 2016). It is explained that decarbonization is one of the most priorities of shipping companies and becoming an important part of their strategies (Fernández-Ríos et al., 2022). LCA helps shipping companies to minimize environmental deterioration by the choice of ship design, equipment, and materials (Lam & Lai, 2015). Thus, LCA has been widely discussed as a solution that a maritime company can attempt to become greener and more sustainable mobility. Additionally, a company may make efforts to *reduce the amount of package material*. Packaging material management is a common practice in the green shipping movement (Jozef et al., 2019; Lai et al., 2011). Magnier and Schoormans (2017) claim that it is important to consider packaging in the efforts of decreasing footprint. While the role of packaging is essential as it protects products from leakage, damages; maintains the quality; provides information; or assists the storage process and transportation (Steenis et al., 2017), most packages are often one-time used (Zhang & Zhao, 2012). Because the product life cycle of these packages is short, it contributes to the increase of waste and pollution. From the mentioned reasons, many companies have a strategy to reuse, reduce, and recycle packages with the concept of green packages.

b) Diversity

This is an important factor in sustainable procurement because firms purchase from minority companies, or women business enterprise suppliers (Carter & Jennings, 2002, 2004)

c) Human rights & Safety

Safe locations and decent working conditions of employees from suppliers' site are the important criteria to select a business partner (Carter & Jennings, 2004). Leire and Mont (2010) The companies would not risk their reputation to source from the suppliers who pay very unfair compensation to their workers and remain in an inhumane working environment. To an industry that is highly labor intensive as maritime, safety and human rights have been appearing a central topic. Karakasnaki et al. (2023), employee well-being and quality of working conditions become a vital part of sustainability goal of maritime industry. Some popular

discussions are dedicated to seafarers' welfare because of the uniqueness of their occupation and working environment.

d) Contribution to community

Another social element that can be expected from buying companies that how they contribute to the development of the community. Education and training programs to local suppliers are considered as useful practices (Carter & Jennings, 2002).

3.5.2. Responsible supplier selection

Supplier management process is a starting point of corporate sustainability objectives (Neumüller et al., 2016). Due to the increase of outsourcing activities, emerging regulations, and social concerns, an organization must change its way to make decisions regarding to supplier base (Ghayebloo et al., 2015). There is a requirement to formulate a responsible supplier selection strategy to avoid risks regarding negative scandals, government intervention, customer sanctions (Huang et al., 2022). In relation to sustainable business operations, Büyüközkan and Çifçi (2011) claim that the main goal of the selection process is to promote corporate sustainability through the suppliers who have highest potential to satisfy buying companies with sustainable manners and competitive costs.. Gavronski et al. (2011) also debate that when a company select its strategic suppliers, there are more factors should be considered rather than only care about prices. In case sustainable criteria are the competitive dimensions of the company, they must be integrated into supplier selection process. Otherwise, a company can face supply disruption (Hu & Hsu, 2010). As a result, there is no longer the competition amongst a single company with others, but amongst their supply chains (Bai & Sarkis, 2014).

Addition to this, the selection of shipping modes and carriers also play a vital role in green supply chain efforts. As an important link in the supply chain, transportation modes are expected to be greener by both shippers and freight providers (Cullinane & Toy, 2000; Lister, 2015). In a procurement process, the purchasing of transport services is an important part. The choice of shipping mode involves many factors regarding environmental considerations in recent decades (Christodoulou, 2019). Kudla and Klaas-Wissing (2012) argue that research on sustainable logistics provider selection needs more attention because shipping processes have significant impacts on both green and social efforts of a company, such as greenhouse gas emissions, noise, and safety.

3.5.3 Supplier CSR governance

In order to achieve the ultimate performance of sustainable initiatives, a company must establish a governance mechanism to control its business strategies and manage the relationships with its suppliers (Formentini & Taticchi, 2016). There are different approaches to supplier governance practices. For example, some argue that a company can monitor its suppliers by either contractual formal mechanism or informal practices such as collaboration, sharing knowledge, and values. While the former aims to set standards, business agreements, and audits that influence its network members, the latter works rather on trust and relationship building (Marttinen et al., 2023). Some formal practices will be discussed in this part, and the next part will elaborate hand-offs mechanism.

a) Supplier assessment

Supplier assessment is one of the most popular and straightforward practices where a company gathers information to evaluate and monitor social and environmental performance of its supply base (Koberg & Longoni, 2019). Normally, firms set their standards and requirements through a formal form such as *Code of conduct* (Jiang, 2009). Hereby, a company provides a baseline of their requirements and expects suppliers to comply with such private standards. There are practical sustainable procurement projects that have been implemented by companies. For instance, E. ON UK has introduced a joint social and ecological standard including human rights, minimization of environmental impacts and maintenance of ethics and business integrity with its suppliers (Holloos et al., 2012). BASF, a major chemical company runs a measurement system that helps to foster unceasing sustainable improvement in global supply base through selection, evaluation, and development program. In case the suppliers fail to comply with the sustainability benchmark, they are eliminated from supply base of BASF (Saling et al., 2002). This company also introduces a strict Code of conduct to its network members to follow. Golar LNG requests its suppliers to meet factors regarding environmental and social responsibility aside with quality, reliability, reputation, service, and maintenance (golarlng.com).

b) Certification programs and inspection

Another common mechanism to govern suppliers' compliance is *certification programs and inspection*. Firms may inquire suppliers before entering a deal that whether they are certified

with some third-party sustainability proof or labels (Hoejmose & Adrien-Kirby, 2012; Portney, 2015). The sustainability certification inspection is an important approach to ensure responsible production and collaboration (Amundsen, 2022). Some firms even appreciate it if their suppliers are proactive to certify themselves as it shows the clear sustainable alignment between both parties. The program should be implemented in the early phase in order to mitigate risks in the supply chain (Cole & Aitken, 2019). At a private company level, the adoption of certification program is voluntary, however, it shows the commitment of a firm to sustainable initiatives and motivate it to enhance the ability to show the competitiveness (Yang et al., 2010). Lun et al. (2015) suggest that shipping companies can adopt ISO 14001 certification because such management system imposes process standards to these companies' suppliers. A research from Ashrafi et al. (2019) confirms that ISO 14001 is the most popular standards adopted by port sector.

c) Auditing programs

Regarding ISO adoption, the program requires a company to execute an initial audit program and regular recertification. Firms can also use *periodic audit* services from third-party companies to evaluate the compliance of suppliers to sustainable factors. Pwc provides audit services to non-financial performances in the form of CSR reports (Wang et al., 2022). Walker (2016) claims that certification programs are vital to marine transportation sector as many maritime companies are operating without a formal sustainable framework. Thus, the adoption of voluntary certification can mitigate potential risks and enhance sustainability efforts beyond regulatory requirements.

3.5.4 Buyer-Supplier relationships

The collaboration between buying companies and suppliers regarding sustainability development has been becoming greatly improved because managers realize that the common objectives can help both parties resolve the challenges of misalignment (Villena, 2019). Moreover, suppliers will become more consistent when they send the same message to other parts of their supply chain. In several studies, collaboration even is considered more effective practice than supplier evaluation (Klassen & Vachon, 2003). Gimenez and Sierra (2013) claim that both supplier assessment and partnership are essential procurement practices to sustainable efforts, meanwhile the assessment can lead to business cooperation eventually.

a) Joint planning activities

As a rule, there are two manners for a firm to boost sustainability of their supply base: either they will eliminate the suppliers who fail to comply with the firm's code of conducts or requested standards, or a company collaborates closely with its suppliers in this common goal (Holloos et al., 2012). There has been a new stream of discussion about the partnership between buying companies and their suppliers to generate CSR initiatives (Huang et al., 2022). As a matter of concern, when a company locates its supply base in developing countries, it exposes to the risk of very scarce sources as the concept of sustainability in those markets has not strongly implemented (Reuter et al., 2010). Thus, there is a need to jointly develop strategic plans by both parties. According to Kumar et al. (2017), joint planning takes place to achieve various objectives, such as sharing similar strategic goals, demand to ensure quality and reliability, increase international level of the company, and sustaining competitiveness. With the introduction of sustainability goals, a company must adopt changes into their operational processes.

b) System to track social standards.

As the global supply chain has been extending and becoming very complex, it is challenging to keep track with social issues from suppliers and sub-suppliers (Klassen & Vereecke, 2012). Even social standards such as human rights, working conditions, safety, equality of employees can be conveyed to suppliers through the Supplier Code of Conduct, the compliance from suppliers still needs to be followed up and monitor closely (Huq & Stevenson, 2020). Zorzini et al. (2015) argue that transparency, traceability, and information exchange within supply chains are necessary to ensure suppliers' compliance and provide a fundamental to build trust. Thus, a company can establish a technical system which can help buyers to overcome this challenge. With the integration of blockchain, Internet-of-Things, and big data analytics, Venkatesh et al. (2020) believe that the company can potentially promote social responsibility and a greener supply chain by preventing data manipulation.

c) Plant visits

Grimm et al. (2016) suggest that site-visits could be a practice to ensure the suppliers' compliance to CSR standards even though its intensity recognized by procurement manager is not very significant. This implementation is often applied to suppliers who own factories or

production lines. Nonetheless, buying companies can come to suppliers' facilities to exchange knowledge and offer sustainability training at the premises (Klassen & Vachon, 2003).

d) Providing training and education.

Although *providing training and education* to suppliers is not always necessary, this initiative can be explained by the way that buying companies attempt to gain suppliers' support (Maignan et al., 2002) . The supplier development program is very common activity in manufacturing sectors because it enhances the intention of better serve buying companies in long term (Cole & Aitken, 2019). Moreover, such programs improve trust between parties. Beyond these benefits, the established partnership through supplier development program can improve satisfaction and commitment (Paul et al., 2010). These sustainable practices can be further spread within the industry. A company may organize some workshops and seminars in local regions to share their knowledge with the given suppliers.

e) Motivating CSR reciprocity

Luo and Zheng (2013) discuss the concept of CSR reciprocity where both buying and selling companies have strong profiles of sustainability. Either buyer or seller can expect the corresponding movement towards sustainability development from other parties in their supply chain. In other words, CSR reciprocity encourages members in the channel to resolve mutual concerns. Eventually, high commitment of CSR leads to a positive effect on B2B relationships throughout the channel. It is also emphasized that CSR reciprocity particular shows its benefit in highly competitive market where both buyers and sellers face a great pressure of new entrants, so they are likely to boost CSR strength to sustain the competitive advantage (Luo & Zheng, 2013).

4. Theoretical framework

Based on knowledge from existing literature, a theoretical framework is established to shape the conceptual foundation of a research study. Other than that, it provides a structured approach to form the relevant research questions. A well-defined theoretical framework allows the author to generalize research findings beyond the specific context of the study.

In this thesis project, the framework aims to connect available theoretical perspectives: CSR and sustainable procurement practices. CSR principle first extends its integration into sustainable supply chain management, to be specific sustainable procurement. Adopting the CSR concept in B2B setting from (Huang et al., 2022), CSR in procurement therefore encompasses four main components: responsible sourcing, responsible supplier selection, supplier governance, and buyer-supplier relationships. Furthermore, indicators in each component are developed as the following table. At the end, a theoretical framework (figure 5) is constructed.

- CSR practice indicators

CSR practices	Indicators	Description	Source
Responsible sourcing	Life-cycle analysis assessment (LCA)	By employing LCA, practitioners can gauge the combined effects linked to the movement of energy and materials within production systems	Ling-Chin and Roskilly (2016) (Lam & Lai, 2015) Jenssen and De Boer (2019)
	Reducing amount of packaging materials	Green packages strategy	Jozef et al. (2019) Lai et al. (2011)
	Sourcing from diversified-own suppliers	Purchase from minority companies, or women business enterprise suppliers	(Carter & Jennings, 2002, 2004) Leire and Mont (2010)

	Ensuring safety at suppliers' premises	Require suppliers to operate in a safe location	Carter and Jennings (2004) Leire and Mont (2010)
	Ensuring human rights	Ensure well-beings and working conditions for employees of suppliers	Carter and Jennings (2004) Leire and Mont (2010)
	Philanthropy	Contribute to communities by providing financial and educational supports	Carter and Jennings (2004) Leire and Mont (2010)
Responsible supplier selection	Engaging sustainable criteria in supplier selection process		Neumüller et al. (2016) Huang et al. (2022)
	Selecting shipping modes with sustainable carriers		Christodoulou (2019) Lister (2015)
Supplier CSR governance	Suppliers' assessment	Gathering information to evaluate and monitor the social and environmental performance of its supply base.	Jiang (2009)
	Certificate programs	Firms may inquire suppliers before entering a deal whether they are certified with some third-party sustainability proof or labels. Governance with code of conduct	Amundsen (2022) Cole and Aitken (2019) Koberg and Longoni (2019)

	Regular auditing	Executing an initial audit program and regular recertification	Walker (2016) Wang et al. (2022)
Buyer-Supplier partnerships	Joint planning activities	Sharing similar strategic goals, demand to ensure quality and reliability.	Hollos et al. (2012) Huang et al. (2022) Kumar et al. (2017)
	System to track social standards	Technical system that follows up the compliance of suppliers	Zorzini et al. (2015) Venkatesh et al. (2020)
	Plant visits		Grimm et al. (2016) (Klassen & Vachon, 2003)
	Training and education	Providing supplier development programs	Cole and Aitken (2019) Paul et al. (2010)
	Motivating CSR reciprocity	Encouraging other members in the network to resolve mutual concerns	Luo and Zheng (2013)

Table 2: CSR practice indicators

- Sustainable procurement framework



Source of "sustainable procurement" image: <https://sustainabilityadvantage.com>

Figure 5: Conceptual framework

RESEARCH METHODOLOGY

The following parts deal with the whole process of methodology of this research and justifications of how this study will be undertaken. It is crucial to construct a clear flow of the study in respond to the research objectives. Firstly, it is important to describe fundamental theories regarding research approach and research design formation. Secondly, a research strategy that sheds light on how the research questions will be answered subsequently. Thirdly, one of the most critical parts is data collection. Both primary and secondary data are used in this research because to conducting a study, building a theoretical framework from reviewing literature is an indispensable requirement, and data from real settings, on another hand, reveal the application and credibility of the given topic.

1. Research design

1.1 Research approach

The philosophy of a research approach explains how the research is linked to the theory. A defined approach supports the decisions regarding data collection method and analysis procedures (Easterby-Smith et al., 2008). According to Saunders et al. (2009), a research approach is either deductive or inductive. While conducting deductive research, one must reply on existing theories in a certain area and test them through one or multiple formulated hypothesis. Therefore, in this approach, literature plays an important role in the research process because authors must collect facts from secondary data which is already confirmed by other scholars. An inductive approach in contrast aims to provide insights in a relatively new research environment. This type of approach is particular helpful when one wants to investigate what is happening for the time being, recording the observations, confirming with expertise, and thereafter establishing theory(Saunders et al., 2009). Hence, it is common that an induction comes together with qualitative research where several in-depth interviews are conducted to gather information. Other than these two approaches, a mixed method between deductive and inductive in a single study can be possible (Whitehead & Schneider, 2007).

This research follows the deductive approach. The starting point of deductive aspects is a theoretical framework established through existing literature, then after a survey is built on that basis to explore judgments from experts in the maritime sector. Deductive approach is a common method to conduct research in supply chain and logistics fields (Spens & Kovács, 2006). As data is collected through an open questionnaire, this underlying research is executed

with *quantitative method* with the purpose of gaining specific observations and answering “*what*” questions.

1.2 Research purposes

Regarding the research purposes, Saunders et al. (2009) claim that in business fields, there are three major kinds of research, namely exploratory, descriptive, and explanatory.

To begin with, *exploratory research* is useful to assess a phenomenon that has been vague and uncertain in a specific setting. For that reason, an inductive approach is suitable to apply to this type of research as authors expect to establish new theories or knowledge (Saunders et al., 2009). Flexibility is the main advantage of an exploratory study because it is adaptable to changes during research period. To this type of study, either quantitative or qualitative method is compatible; however, it is common that authors execute single or several in-depth interviews with experts.

Secondly, *a descriptive study* is selected when researchers want to gain deeper insights on a solid theoretical foundation (Saunders et al., 2009). Such studies often try to answer *what, where, when, who* questions because researchers aim to describe a precise picture of events or situations (Zikmund et al., 2013). To conduct a descriptive study, the research problems should be structurally defined first, and their main characteristics are already known. Thereafter, authors will collect data according to this foundation of knowledge. This research can be conducted through either qualitative or quantitative methods.

Thirdly, *explanatory study* is an useful strategy to explain the causal relationships of events or people (Zikmund et al., 2013). By doing so, this research aims to answer *why* and *how* things have occurred. To conduct an explanatory research, authors often use case study or statistical surveys; therefore, it can be qualitative or quantitative methodologies coming alongside. (Saunders et al., 2009).

For the nature of this research, *descriptive study* is the most appropriate strategy because the author attempts to provide a description of a current situation and accurate information. This study does not aim to explain cause-and-effect relationships of Corporate Social Responsibility principles and a maritime company’s performance, but how these companies perceive CSR and sustainability in procurement functions at the strategic level. By doing a descriptive study, the author expects that its findings can lead to opportunities for further research.

1.3 Research strategy

Research approach and purposes provide a foundation to establish a research strategy. This part encompasses the plans that explain how the research questions will be answered. The choice of a suitable research strategy is also navigated by the research objectives (Saunders et al., 2009). Thus, there are several strategies to achieve the research's outcomes and each methodology is not claimed superior or interior than others. The research strategy links with either quantitative, qualitative, or combined methodology research plans. It is also argued that each strategy can be derived from one of the mentioned purposes and follow either induction or deduction. For instance, a survey is often used within a deductive approach by using a quantitative data set; meanwhile grounded theory is supposed to be best fit with inductive approach and qualitative data analysis.

In this given topic, because the research purpose follows deductive approach and presents as a descriptive study, *survey* is chosen to be research strategy. A questionnaire is a common method to collect numerical data in business and management research (Saunders et al., 2009). As each respondent is requested to answer a same set of questions, this methodology increases the efficiency of collecting large data to quantitative research, especially when the resource of funding and time are limited. Sekaran and Bougie (2016) discuss that a survey is useful when author knows clearly what is required in the research objectives. By collecting a decent amount of data, the gathered sample can represent characteristics of a population where the research outcomes will be revealed.

1.4 Process of the thesis

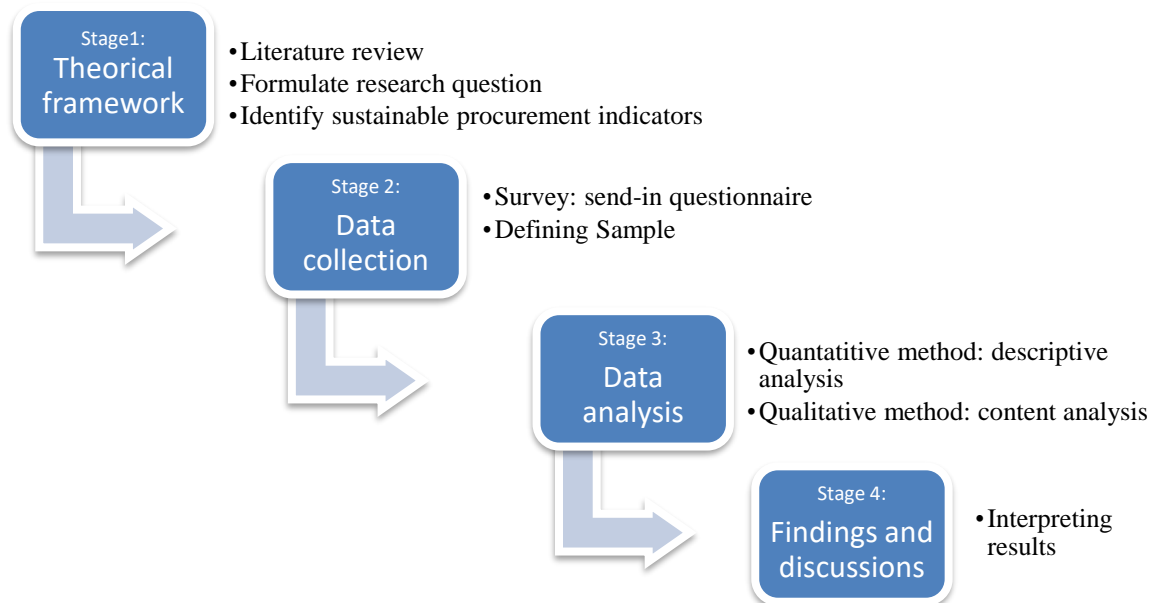


Figure 6: Process of the thesis

2. Research questions

“To what extent do maritime companies engage in sustainable procurement with CSR principles?”

In order to obtain outcomes for this research question, the author will approach step by step by answering four sub questions which are extracted from theoretical frameworks as follows.

Q1: To what extent do maritime companies engage in responsible procurement?

Q2: To what extent do maritime companies engage in responsible supplier selection?

Q3: To what extent do maritime companies engage in supplier CSR governance?

Q4: To what extent do maritime companies engage in buyer-supplier partnerships?

3. Sample

The scope of this research encompasses various stakeholders in the Norwegian maritime industry. This incorporates shipping companies, port authorities, maritime service business, environmental agencies, marine technical companies, and other institutions actively engaged

in fostering sustainable practices within the industry. Due to the industry's diverse landscape, the population is extensive, consisting of all firm sizes from large corporations to smaller enterprises actively participating in various maritime activities. There are 213 companies doing business in Norway maritime cluster (Klymenko & Halse, 2023).

For a population (N) of 213, a 90% confidence level, and a 10% margin of error (E), the sample size is defined as following formular:

$$n = \frac{N * Z^2 * p * (1 - p)}{(N - 1) * E^2 + Z^2 * p * (1 - p)}$$

Assuming a 90% confidence level ($Z \approx 1.645$) and a conservative estimate of $p=0.5$ (maximum variability), and a margin of error (E) of 10% or 0.10

$$n = 48$$

To achieve the research goal, the objects of data collection should meet two main requirements. Respondents must be involved in sourcing/procurement activities, and they must work in a maritime company. As this is quantitative research, the number of data is expected as many as possible. Because this thesis explores a functional activity at a firm-level, only one response from each company will be accepted.

4. Data collection method

Primary quantitative data will be collected through a questionnaire which is published and distributed online. Nettskjema is used as the tool to establish the survey. Saunders et al. (2009) suggest that with a limited number of questions and well-structured format, the survey can obtain a decent response rate. Moreover, respondents are likely to answer if the data collection process is held with confidentiality.

The data collection starts from 10th September 2023 to 30th October 2023 (50 days). There are 60 invitations and 13 received responses.

The rate of participation (based on 60 invitations) is 22.7%

The rate per expected sample (based on sample size of 48) is 27%

The data collection process is executed as table 3:

Methods	Number of sent invitations	Number of received participations
Send-in email through Linked In	40	3
Personal email	15	5
Others (phone calls, network)	5	5
Total	60	13

Table 3: Data collection process

4.1 Explaining the questionnaire

4.1.1 Types of questions

Frankfort-Nachmias and Nachmias (1996) discuss three types of questions in a survey: closed-ended questions, open-ended question, and contingency questions.

Closed-ended questions are constructed by the way that a list of answers is provided to respondents. Thus, respondents do not need to write down their own texts. Another format of this type is to select the degree that represents most closely to respondents' opinions. While closed-ended questions offer a quick and easy approach for informants and surveyors, they are supposed to be subjective by either forcing the option that might not a real answer from respondents (Frankfort-Nachmias & Nachmias, 1996). A closed-ended type is easy for analysis because it ensures the consistent of the answers.

Open-ended questions, on the other hand, do not offer any options to choose from. This type of questions leaves the freedom to respondents to present their views as well as language, and it is often used to record public opinion (Frankfort-Nachmias & Nachmias, 1996). The benefits of open-ended questions can be varied. Respondents can express their thoughts freely without limited choices. It is also useful if researchers want to clarify or explain further some statements in previous questions. The downside of open-ended questions is that they are difficult to analyze. To capture all aspects of the responses, researchers might have to establish a coding system to classify and extract answers (Frankfort-Nachmias & Nachmias, 1996).

Contingency questions are considered as closed-ended questions' format, but they play a role to a subgroup of informants (Frankfort-Nachmias & Nachmias, 1996). This type of question often comes after filter questions, such as Yes/No questions, or checking boxes where respondents are classified and moved to a subgroup to answer relevant questions to their previous choice. Thus, instructions should be provided to respondents if there are contingency questions in the questionnaire.

The following questionnaire is constructed with both closed-ended and open-ended questions according to several factors that determine the appropriateness proposed by Lazarsfeld (1993). This survey expects respondents to express their judgements on certain topics, therefore, closed-ended questions are mainly used to keep the consistence of the research answers. Addition to that, where the choices of answer are vastly varied or undefined, respondents can freely write their point of views. The author wants to ensure that there is room for respondents to mention all important information. Nevertheless, open-ended questions occupy a very limited number in the survey, and they serve as an extra explanation from previous statements. Moreover, because this questionnaire has the main theme to discover *the extent of sustainable procurement practices that have been applied in a company*, it is appropriate to construct the survey with closed-ended questions. It is also argued that closed-ended questions can increase the chance of communicating with respondents since the response itself is less revealing and easy to execute (Lazarsfeld, 1993).

4.1.2 Question format

There are different formats of closed-ended questions that researchers can use to categorize the responses. *Rating* questions are mostly constructed in this survey. One of the most common format in social research is five-point Likert style (Frankfort-Nachmias & Nachmias, 1996). The basic of Likert questions is to ask people how degree they agree or disagree about an issue. According to Allen and Seaman (2007), a Likert question should include at least five categories of response. The Likert style in this survey ranges from *null* to *five*. This choice gives an option to respondents to indicate that there are some procurement practices that their companies completely ignore or have never applied in the operations. The degrees of Likert style question in this survey are used to describe the *likelihood* and *agreement* of an event and they can be illustrated as follow:

Rating	Likelihood	Agreement
0	None/ not at all	Strongly disagree
1	Slight/bit	Slightly disagree
2	Somewhat	Uncertain
3	Quite/ Reasonable	Slightly agree
4	Moderately	Agree
5	Very great extent	Strongly agree

Table 4: Likert-Rating scale in the questionnaire Source: Saunders et al. (2009)

4.1.3 Content of the questionnaire

The survey is constructed according to suggestion from Saunders et al. (2012). The first page is the introduction of the questionnaire where the author describes its structure, how it can be completed, and justify the reason why respondents should participate in the survey. In the following pages, there are three parts.

The first section of the questionnaire includes 11 items referring to category questions which regard geographic area, company’s industry, and general opinions toward sustainable procurement concept. To begin with, there are five questions that aim to gain information about the respondent and his/her company. The next three questions start with “*to what extent*” format where respondents are expected to give opinions about their understanding of procurement, sustainable procurement, and sustainability. It is necessary to give readers the main themes of the survey. By doing that way, respondents can easily navigate the following parts of the survey. The next question is about current sustainability standards that the company possesses. Certification program is one of main practices of a company to sustainability development. This question is asked to collect such information. The last question of part 1 aims to explore within procurement perspective, what category of products is sourced with sustainable criteria.

The second section presents the main contents of the questionnaire where closed-ended questions are asked to rate the likelihood of different sourcing practices that a company has

been applying. There are 16 questions which relate to 16 indicators discussed in the literature part: sustainable sourcing, responsible supplier selection, supplier governance, and buyer-supplier partnerships. These questions are constructed with “*to what extent*” format in order to receive ratings from respondents.

The last section of the survey aims to collect primary qualitative data for the research. The question is based on research goal that expects respondent to put on extra opinions about “*what sustainable procurement practices that are useful to implement in maritime companies*”. The open-ended question allows respondents to freely write down their knowledge more in-depth. Nevertheless, too many open-ended questions might cause it time-consuming to code (Saunders et al., 2012). All the questions need to be answered before finishing the questionnaire (appendix)

4.2 Data collection process

It is recommended to assess the validity of the questionnaire by a pilot test (Saunders et al., 2012). Prior sending out the online form, the survey is shared with five people who are family and colleagues to test if there is problem to fill out the form and record answers. This step also aims to gain feedback from outsiders about the layout, language used, and how much time is consumed to finish it.

The questionnaire is sent by school email to individual contacts who have roles in procurement/sourcing at maritime companies. The author also calls some people in network to ask for their participation. Lastly, the link of questionnaire is posted on Linked In platform for thirty days with cover letter to reach out more respondents.

4.3 Data analysis method

4.3.1 Descriptive Statistics

In order to analyze Likert-type responses properly, the first task of a researcher is to define the measurement of each scale (Boone Jr & Boone, 2012) which ranges from 0 to 5 in this underlying study. Because in one hand, the extent of judgement is assigned to a number according to “greater than” expressions, in other hand, how much more or less is not implied, these Likert-questions are considered ordinal measurement type (Boone Jr & Boone, 2012). The type of data in this research is discrete data which takes on distinct and countable values. The authors also suggest that *Descriptive Statistics* is an appropriate approach to interpret these types of responses.

Descriptive Statistics is used with the purpose of summarizing and describing data. This method aims to provide insights for readers through a graphical representation which indicates specific characteristics of the variables or measurements (Fisher & Marshall, 2009). When working with quantitative approaches, it is challenging to extract individual data points because the amount of data is large. One should use a descriptive statistical approach to visualize data trends, or data patterns.

4.3.2 Analysis techniques

Discussed by Wilson (2014), descriptive statistics enables researchers to interpret data with different forms. Charts including bars and tables illustrate the trends of data. While bar charts are suitable to show the frequency of values, pie charts illustrate proportions and categories of the answers. Cooksey and Cooksey (2020) confirm that to ordinal data that indicate level of measurement, these two types of graphs are often applied. Microsoft Excel is the chosen tool to generate graphic and visual representation of the data.

4.3.3 Analysis approaches

There are various procedures and potentials that descriptive statistics methodology can offer. Because the surveyed objects of this thesis are companies in different industries, the responses yield a skewed distribution. *Mean* is used when one desires to define the average tendency; however, with ordinal data i.e., 0 represents *not at all* to 5 represents *very great extent*, there is no clear definition of what the average is. For example, if one answers 4: *great extent*, and another one answers 5: *very great extent*, it is not possible to interpret the meaning of the mean from 4 and 5. In this case, *mean* figures can be interpreted in the comparison amongst the average of rating points of different practices to gain the idea that which practices are implemented with the highest intensity. Besides, other appropriate ways to extract insights from the answers are using *standard deviation*, *median*, *mode*, and *frequency*.

In data distribution, *mode* is the most common value that appears. *Median* presents the middle value of the distribution. *Standard deviation* provides insights into the spread or dispersion of data points within a dataset. *Median* is useful with ordinal data when answers are ranked in ascending or descending order. Other than that, because *median* is less affected by outliers in the data set, this measurement can help to understand the tendency. *Frequency* tells the number of times that a value appears in the data set. To demonstrate *frequency*, ratio, rates, percentages are suitable analysis techniques (Kaur et al., 2018).

4.4 Ethical considerations

A researcher needs to be aware of ethical issues that could have impacts on the research process. Saunders et al. (2012) describes ethics as a behavior that guides the way the research is conducted and the consideration of the rights of those who become subjects of the study. The authors also discuss that ethics in doing research represent in different principles as follow:

Embrace respect for others. In the data collection phrase, a survey is sent out via private email. The questionnaire emphasizes that the participation is voluntary, and the surveyed objects have their own pace to answer the survey at their convenience.

Ensure the privacy of participants. Data privacy and management is a big topic nowadays; therefore, the survey does not mean to collect any personal information or identification of participants.

Taking confidentiality into account. This research maintains identification of participants anonymously.

Avoidance of harmful actions toward participants. The foremost goal of this research is to serve the studying purpose, therefore, there is no risk associated with the participation of the survey.

Integrity and accuracy. The author is firmly aware of truthfulness and creditworthiness of the research. Additionally, referencing is thoroughly used to avoid plagiarism and show respect to others' work.

FINDINGS

This chapter illustrates the findings of the conducted questionnaire. As the survey consists of three parts, the structure of the finding part will follow these orders accordingly.

1. Descriptive outcomes

1.1 Demographic information of the research sample

First of all, characteristics of the companies that participate in the research are demonstrated before going further to sustainable procurement practices. The main parts of the survey's outcomes will be categorized according to size and the company's sectors.

The survey was published from 10th September 2023 and closed by 2nd November 2023. After 7 weeks of data collection phrase, a total of 13 companies have participated in the survey. There are 11 companies that are Norwegian firms, and two Danish one but have offices in Norway. Those 13 respondents are working in Norway.

Amongst the participants, the majority are from marine technical field which is 9 companies in total. There are 3 companies in the shipping sector, followed by one in maritime business service and none of the port industry companies has answered the survey.

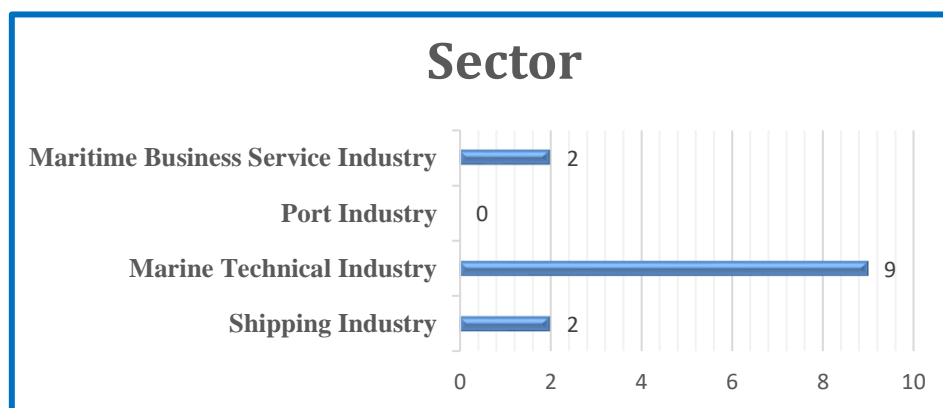


Figure 7: Demographic information of participants' business sector

Regarding company sizes, it is important to gain insights about what differences between large firms and smaller firms toward sustainable sourcing. There are only one marine technical company claims that it serves mostly Norwegian market, other 12 respondents have high international business profiles.



Figure 8: Demographic information of number of employees

There are 9 large-sized firms out of 13 companies participating in the survey. The number of employees is a common way to classify how big an enterprise is. To companies that have more than 250 employees, they can be defined as large-sized organizations. On the contrary, companies that employ up to 250 full-time personals are small or middle-sized enterprises.

1.2 Exploring strategic role of procurement in sustainability goal of a company.

Rating	Frequency	Percentage (%)
3 (Quite agree)	1	7.70
4 (Agree)	5	38.50
5 (Strongly agree)	7	53.80
Total	13	100

Table 5: Strategic role of procurement:

Most respondents suppose that procurement segment has a strategic role to sustainability development with 12 selections of 4 (agree) to 5 (strongly agree). There is only one answer with a somewhat agreed opinion.

1.3 How do surveyed companies align to sustainability goals?

Rating	Frequency	Percentage (%)
3 (Quite agree)	1	7.70
4 (Agree)	3	23.10
5 (Strongly agree)	9	69.20
Total	13	100

Table 6: Alignment to sustainability goals

When asked about how the company’s strategic plans are drawn to sustainability, most respondents believe that their companies do engage sustainability goals into business operations. There is one respondent who shows a weak sign of agreement with this question.

1.4 Does procurement function enhance sustainability development of surveyed companies?

Rating	Frequency	Percentage (%)
3 (Quite agree)	3	23.00
4 (Agree)	4	31.00
5 (Strongly agree)	6	46.00
Total	13	100

Table 7: Procurement enhances sustainability.

10 out of 13 respondents answer that their companies have some sustainable practices to support sustainability development, while there are three participants shows weak sign of the extent their companies have clear responsible sourcing actions, or the answers can be interpreted that procurement segment does not have significant contribution to sustainable development in their companies.

1.5 Sustainable certifications

Regarding sustainability standards or certification, there are 11 companies answering that they have obtained at least 1 certificate, two companies do not have any relevant standards.

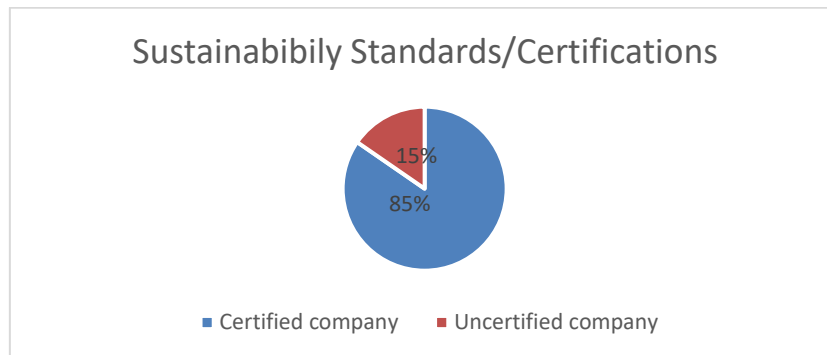


Figure 9: Certified companies

Within listed standards, ISO 14001 is the most popular system, followed by ISO 45001 and ISO 50001.



Figure 10: Certifications and sustainability standards

When asked to add extra information, one respondent from shipping company says that code of conduct is a more common mechanism used because standard systems are expensive. Nevertheless, they request their suppliers to obtain the quality standard development.

1.6 Sustainable procurement according to product categories

Purchasing’s portfolio is an important factor that defines the sourcing strategy of a company. In the question that aims to explore which categories/products that a maritime decides to engage sustainability criteria, all participants suppose that at least one category of products is sourced with a commitment to sustainable requirements. Strategic and leverage products are considered popular objectives that a company makes more effort and resources.

Categories	Frequency	Percentage (%)
Strategic items	10	76.90
Leverage items	8	61.50
Bottleneck items	6	46.20
Routine items	3	23.1
None	0	0

Table 8: Categories of product (a)

Industry	No	Strategic	Leverage	Bottle neck	Routine
Marine Technical Industry	9	6	6	4	3
Shipping Industry	2	2		1	
Maritime Business Service Industry	2	2	2	1	
Total		10	8	6	3

Table 9: Categories of product (b)

According to table 9, amongst 9 marine technical companies, 3 companies procure everything with sustainable criteria, while shipping and service companies do spend extra for routine category.

2. Findings of sustainable procurement practices

Moving further with the survey outcomes, the main part focuses on to what extent a company implements CSR in their procurement activities. Respondents answer the survey questions by rating 0 (not at all), 1 (slightly), 2 (somewhat), 3 (quite), 4 (moderately), or 5 (great extent). This section comprises four subsections discussing four different themes of CSR in sourcing activities.

There are 16 questions starts with “to what extent your company implement [*indicator*]”

2.1 Responsible purchasing

In this section, there is a total of six indicators corresponding to six questions about practices in responsible sourcing concept. This following table computes the summary of 13 responses.

Practices	Average	Median	Std.dev
Life-cycle assessment	3.38	3	1.55
Reduction of packaging material	3.15	3	1.21
Purchase from diversity-owned suppliers	3.36	4	1.03
Require fair compensation for workers of suppliers	4.23	5	1.53
Philanthropy	3.31	4	1.65
Strict safety standards for suppliers' employees	4.23	5	1.53

Table 10: Responsible purchasing practices

According to *table 10*, the *well-being* and *safety standards of suppliers* are the most focused amongst surveyed companies with an average rating of 4.23. Nevertheless, there is one company that claims they do not take these criteria into account at all. The next practices that have been implemented with high intensity are life-cycle assessment with the average rating of 3.38 and diversity-owned backgrounds of suppliers with 3.36.

To look further at industry characteristics, some descriptions of each segment are summarized in the following table.

Practices/ MARINE TECHNICAL INDUSTRY	Average	Median	Std.dev
Life-cycle assessment	3.67	5	1.73
Reduction of packaging material	3.2	3	1.2
Purchase from diversity-owned suppliers	3.78	4	0.97
Require fair compensation for workers of suppliers	4.33	5	1.65
Philanthropy	3.2	4	1.64
Strict safety standards for suppliers' employees	4.33	5	1.65

Table 11: Responsible sourcing in Marine Technical industry

To marine technical company, *life-cycle assessment* practice has higher level of intensity with 3.67 compared to the general average rating with 3.38. Most companies answer that they focus on this practice with the highest rating.

Indeed, respondents from the shipping and maritime service industry confirmed that their companies have a moderate implementation to life-cycle assessment. Maritime service industry does not show that they are aggressively engaged in sustainable procurement practices.

	Life-cycle assessment	Purchase from diversity-owned suppliers	Require fair compensation for workers of suppliers	Philanthropy	Strict safety standards for suppliers' employees
Shipping industry	2.5	3.5	5	3	4.5
Maritime Service Industry	3	3.5	3	4	3.5

Table 12: Average of rating from shipping and maritime service industry

Regarding responsible purchasing practices, 10 out of 13 (76.9%) participants believe that this should be the focus of sustainability development of a maritime company.

There are two actions that have mentioned from the responses can contribute to the firm's sustainability goal:

- Using recycled packaging
- CO2 emission assessment

2.2 Responsible supplier selection

During this part, respondents are required to answer two questions. The first question aims to explore whether the company formulates the supplier selection strategy or prioritizes CSR criteria during such a process.

Rating	Frequency	Percentage (%)
0 (Not at all)	1	7.67
2 (Somewhat)	1	7.67
3 (Quite)	1	7.67
4 (Moderately)	2	13.38
5 (Very great extent)	8	63.61
Total	13	100

Table 13: Responsible supplier selection (1)

Table 13 shows that 8 of 13 respondents confirm that their companies have great extent of the implementation of responsible supplier selection strategy, while one company says it does not embrace CSR principles when selecting suppliers.

Practices	Average	Median	Std.Dev
Embrace sustainable criteria in supplier selection process	4.07	5	1.55

Table 14: Responsible supplier selection (2)

The mean of implementing rate is 4.07, which means this initiative is moderately applied in maritime companies. Nevertheless, with Std.dev is 1.55, the answers are varied.

Regarding the question of whether the company considers shipping carriers with sustainable criteria. There are only 10 companies submitting answers to this question. 9 out of ten respondents provide positive answers, while one company says they do not have such practice. This is also the company having negative response to the first question of this part.

Does your company select shipping providers/carriers with sustainability criteria?

Number of submissions: 10

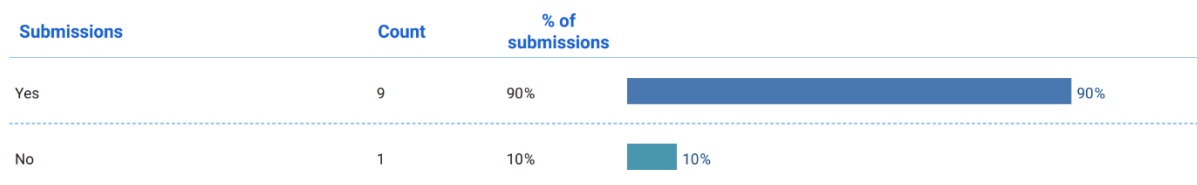


Figure 11: sustainable shipping provider

Like responsible sourcing practices, 10 out of 13 (76.9%) respondents perceive it as an important focus in sustainability development.

Regarding to this topic, some managers claim that a maritime company can implement the practices as follow:

Select suppliers and logistics providers who are environmentally focused.

Select suppliers that commit to sustainability.

2.3 Supplier governance

These practices in this subsection refer to the intention of a company to actively improve CSR principles of its suppliers.

Practices	Average	Median	Std.Dev
Collecting information to assess suppliers	3.92	5	1.65
Using certified programs and Code of conduct	4.08	5	1.55
Regular audit programs	3.85	4	1.34

Table 15: Supplier governance

Certification program and code of conduct seem to be the most common practices amongst surveyed companies. Nevertheless, it is shown that the other two practices are also popular and perceived as important initiatives to most companies in the survey.

7 out of 13 (53.8%) participants answer that supplier governance is the focus of sustainability development of a maritime company.

Some additional practices are confirmed by managers from open question are:

Require suppliers to follow strict requirements.

Code of conduct

2.4 Buyer-supplier relationship

Practices	Average	Median	Std.dev
Joint planning activities	3.38	4	1.71
Formal system to track social standards	3.31	4	1.65
Plant visit	3.08	3	1.93
Providing training/education	3.38	4	1.8
Motivating CSR reciprocity	3.46	4	0.97

Table 16: Buyer-supplier relationship

In general, practices regarding the cooperation between buyers and suppliers in the surveyed companies do not show significant intensity with a wide range of ratings. Amongst the above business practices, motivating CSR reciprocity is considered the most intensive practice that is implemented, while plant visits do not happen so often with the median of 3 and highest Standard Dev value. Joint planning and offering training to suppliers show similar importance and tendency.

8 out of 13 (61.5%) participants believe collaboration between buying and selling companies is the focus of sustainability development.

Regarding sustainable initiatives from managers, some opinions are recorded as follows:

- Having close cooperation with commercial partners
- Encourage suppliers to join sustainability programs.
- Create a network of sustainable business partners.
- Joint planning and partnership

2.5 Other findings

A summarized table of rating from respondents is constructed as follows.

	Average		
Responsible purchasing	3.61	Median	Std.dev
Mlife-cycle assessment	3.38	3	1.55
Reduction of packaging material	3.15	3	1.21
Purchase from diversity-owned suppliers	3.36	4	1.03
Require fair compensation for workers of suppliers	4.23	5	1.53
Philanthropy	3.31	4	1.65
Strict safety standards for suppliers' employees	4.23	5	1.53
Supplier governance	3.95		
Collecting information to assess suppliers	3.92	5	1.65
Using certified programs and Code of conduct	4.08	5	1.55
Regular audit programs	3.85	4	1.34
Buyer-supplier relationship	3.22		
Joint planning activities	3.38	4	1.71
Formal system to track social standards	3.31	4	1.65
Plant visit	3.08	3	1.93
Providing training/education	3.38	4	1.8
Motivating CSR reciprocity	3.46	4	0.97
Responsible supplier selection	4.07		
Responsible supplier selection strategy	4.07	5	1.55

Table 17: Summary of sustainable sourcing practices

According to table 12, there are four practices that have been intensively implemented in surveyed maritime companies. The practices that get most attention from managers are *fair*

compensation and well-being of suppliers 'employees, safety standards, certification programs/code of conduct, and supplier selection strategy. It's worth to mention that life-cycle assessment, reducing packaging material, purchase from diverse-owned suppliers, and exchange partners are the practices that have been applied by all companies in the sample, even their average ratings and median values are not significant.

Furthermore, while *supplier site visits, providing training, and joint planning activities* have the largest values of Std.dev; *Motivating CSR reciprocity, diversity, and reduction of packaging materials* have lowest Std.dev values. Finally, all practices are rated with the average above 3 which stands for *moderate extent* of implementation.

3. Analysis and discussion

This section aims to analyze the survey outcomes further and discuss the most remarkable findings with the direction defined from literature review part. To keep the research aligned with a deductive approach, similarity and differences of the findings will be reflected with existing literature.

The purpose of this thesis is to describe to what extent do maritime companies perceive and implement sustainable procurement practices. The research goals are achieved with the support from both secondary data extracted from scientific literature and primary data collected from a questionnaire. With a formulation of a theoretical framework, sustainable procurement is categorized according to four key practices: responsible sourcing, responsible supplier selection, supplier governance, and buyer-supplier partnership. These four concepts establish the directions to formulate four corresponding research questions and the background for the survey.

In the following parts, four research questions will be answers based on previous findings from the questionnaire.

3.1 RQ1: to what extent do maritime companies engage in responsible procurement?

To answer this research question, six indicators are considered to assess the implementation of surveyed companies. They are *life-cycle assessment, reduction of package material, purchasing from diversity-owned suppliers, philanthropy, human rights, and safety*. These measurement items show corporate responsibility in both environmental and social aspects.

With the final outcomes, the extent to which maritime companies implement responsible procurement is ranging from *somewhat to moderate (3.61)*. In addition, this practice appears as the most important principle to companies in relation to corporate responsibility development with 10 out of 13 (76.9% responses).

“Social indicators have greater extent of implementation than environmental ones.”

Responsible sourcing is an extensive practice dealing with green purchasing and social responsibility of a firm (Huang et al., 2022). From the findings, social elements which are *human rights* and *safety* are factors that managers put more effort into, compared to other measurements in the survey. Most surveyed companies suppose that their sourcing function requires suppliers to ensure safety and decent working conditions to suppliers' labor. While sustainability principle often implies toward resource preservation and environmental protection, the development of people's protection in their workspaces needs equal attention (Karakasnaki et al., 2023). Indeed, even though environmental practices such as LCA and reduction of package material are not put in comparison with social indicators in this survey, it turns out that companies generally implement social practices, i.e., require safety and decent working condition in greater extent. It can be explained that in maritime industry, *safety* is paramount due to the inherent risks associated with the operational activities (Froholdt, 2018). *Safety* is strongly enforced by regulations. The International Maritime Organization (IMO) has established a comprehensive framework to ensure the safety and security of shipping for example. The SOLAS (Safety of Life at Sea) Convention, a cornerstone of maritime safety, outlines specific safety standards for the construction, equipment, and operation of ships. Like the *safety* indicator, *human rights or well-being of employees* is the top implemented practice in maritime in response to sustainability. One participant gave feedback: *“it is not voluntary that a company considers human rights when sourcing or doing business with suppliers. It becomes law now”*. In fact, the Norwegian Transparency Act entered into force since June

2022 (DNV, 2022). The Act requires organizations to conduct human rights and social due diligence assessments within their company and across every tier of their supply chain (DNV, 2022). Multi-national companies including major players in the oil and gas, maritime sectors in Norway, are actively pursuing engagements with business partners throughout their supply chains. To demonstrate compliance, these companies are likely to secure assurances from their suppliers that affirm adherence to international standards concerning human rights and forced labor. In literature, there are two sides of argument in sustainability topics. On one side, scholars claim that social factors are neglected, compared to environmental elements in maritime settings (Karakasnaki et al., 2023). On the other side, many believe that social responsibility has been gaining more and more attention. With the support from this survey and emerging regulations, social aspects are the most concern during sourcing process.

Nevertheless, not all aspects of social responsibility development are equally implemented. *Diversity-owned supplier backgrounds and philanthropy* seems less common to be adopted by maritime companies. The extent of implementation is *somewhat*. The presence of these concepts in literature is not significant. Philanthropy can be described as the donation of a company to the local community under the financial or educational forms. From ESG reports of many maritime companies have shared their philanthropic activities. For example, Höegh LNG supports children from developing countries to secure their well-being and education (LNG, 2023). However, there is no connection of this concept with either buyer-supplier setting or sourcing function.

“Marine technical companies have significantly higher rates to a strict safety standard and LCA to other sectors.”

From previous research, it has been evident that while service companies value *diversity* factor from suppliers, other industries such as technical or manufacturing concern more about *safety and life-cycle assessment* practices. From the questionnaire outcome, it is confirmed that marine technical companies have significantly higher rates to a strict *safety standard* and *LCA* over maritime service companies.

However, it does not mean that the marine technical industry does not value *diversity* aspects. It shows these companies have implemented this practice to a slightly greater extent than both shipping and service businesses. It is worth mentioning that the numbers of companies

belonging to the two latter sectors are very small, therefore, we cannot draw a conclusion from this observation.

3.2 RQ2: to what extent do maritime companies engage in supplier selection process?

A sustainable supplier selection process is a strategic approach that organizations adopt to choose suppliers who align with their environmental, social, and economic sustainability goals. This process goes beyond traditional procurement considerations, incorporating criteria related to ethical business practices, environmental responsibility, and social impact (Luthra et al., 2017; Rashidi et al., 2020). Making decisions to acquire components and services for the company, purchasing managers find it is challenging to navigate the delicate balance between the imperative to secure goods and services at the lowest possible cost and the growing demand to align procurement practices with environmental and social sustainability goals (Goebel et al., 2012). From the findings, most respondents confirm that their companies have *very intensive extent* to incorporate sustainability principles into the supplier selection. In fact, sustainable supplier selection is not a novel concept but is widely discussed and applied as a part of companies' operations. However, the degree of resources that a company spends on building a strategy may differ. One informant said *"we must select the cheapest option, that is the rule. However, the selected company needs at least to satisfy some of CSR check lists that we have provided to them"*, meanwhile other manager claimed that *"this is a must-have practice and maybe the practice that our company implements to the greatest extent even we must pay more. It is the core of sustainability development in the supply chain I think."*

The process begins with the identification of sustainability criteria. The challenges here for managers are to establish a systematic method to evaluate multiple suppliers with numerous measurements involved.

"Transport providers are equally important as direct suppliers in sustainable supplier selection process."

Selecting shipping providers is usually discussed as a separate topic in sustainable supplier selection. From the survey, only 10 out of 13 respondents answered the relevant question and 9 of them confirm that the companies do take sustainability into account when they consider shipping modes and providers. The outcomes highlight the pivotal role of carriers in advancing sustainability performance throughout the supply chain. According to Colicchia et al. (2013), transport providers play a significant part in collaborating with their customers, such as shippers, to devise strategies for more environmentally sustainable logistics operations.

Therefore, to the companies that engage sustainability in their strategic agenda, sourcing sustainable shipping providers is not excluded. From qualitative data, an informant emphasizes that a company must select logistics suppliers who are environmentally focused.

3.3 RQ3: to what extent do maritime companies engage in supplier governance?

Supplier governance practices refer to the mechanisms that a company adopts to encourage its suppliers to improve corporate responsibility performance (Gimenez & Sierra, 2013). The extent that maritime companies implement these practice are *moderate* (3.95). With the arrival of ISO standards and code of conduct, companies can communicate better with their suppliers about the common goal, to both current and potential suppliers.

Certification and code of conduct are the most common practice considered by maritime companies. From another survey question, 85% of companies are certified with at least one or several sustainable standards. Therein, ISO 14001 – An Environment Management System, ISO 45001 – A Health & Safety Management System, ISO 50001 – An Energy Management System, and ISO 26000 – Guidance on Social Responsibility are the most popular standards respectively. ISO 14001 was introduced in 1996 and continuously updated to address the environmental issues (ISO, 2015). It becomes one of the most widely utilized standards across various industries, especially to businesses that are affected by environmental legislation (Nawrocka et al., 2009). This involves initiatives such as effective waste management and pollution reduction in organizations. Documentation of these processes is a prerequisite for certification and the ongoing maintenance of ISO 14001 certification, therefore, regular audits follow thereafter for the renewal of certification (Baek, 2017). Nawrocka et al. (2009) claim that ISO 14001 is a management tool for a company as it can provide knowledge of environmental work for internal stakeholders. Therefore, the adoption of this standard enhances the environmental focus between buyers and suppliers. Furthermore, it is challenging to assess the regulation compliance of suppliers, then some buying companies must use third-party service firm to audit these issues. Thus, a company will give preference to certified suppliers rather than who are not. Even though this certification is not the only criterion to satisfy customers, it shows an equal ambition levels to the customers that how a company wants to commit with environmental improvements (Nawrocka et al., 2009). The potential roles of certification programs are i) to manifest sourcing requirements to suppliers; ii) motivate suppliers to engage in sustainability development, iii) assist supplier selection process because it monitors and enforces the compliance of suppliers (Nawrocka et al., 2009).

3.4 RQ4: to what extent do maritime companies engage in buyer-supplier partnership?

To explore the answers to this question, five indicators are taken into consideration. They are *joint planning activity, formal system to track social standards, plant visit, providing training/education, and exchange partners*. The average rating scale from this practice is 3.32: *somewhat*, which means that the establishment supplier-buyer partnership is not aggressively implemented in maritime companies. Compared to other practices, this category does not stand out as a popular sustainability strategy.

“Collaboration in B2B context of maritime does not stand out amongst sustainability strategies”

The buyer-supplier partnership concept goes beyond the idea of supplier governance, which already involves collaboration amongst parties. When it comes to partnership, it entails long-term benefit and risk-sharing aspects. Partnership in general is a pivotal factor to achieve sustainability according to existing literature (Zarei et al., 2023). The topic is widely discussed, and many argue that a company needs support and cooperation from various stakeholders as pursuing a sustainable business demands tremendous efforts and resources (Lee & Lee, 2019). In the maritime industry, close collaboration is a common sign. For example, maritime companies engage in collaborative research and innovation endeavors. These partnerships often involve cooperation with research institutions, environmental organizations, and technology providers (Karagiannis et al., 2022). By pooling resources and expertise, companies drive advancements in sustainable technologies, including fuel efficiency, emission reduction, and eco-friendly ship designs (Kitada & Ölçer, 2015; Klymenko & Halse, 2023). These joint efforts enable the industry to stay at the forefront of environmental stewardship.

Amongst sustainable initiatives regarding buyer-supplier relationships, motivating CSR reciprocity is most intensively implemented by maritime companies. Addition to that, the answers from respondents do not deviate least from the average. Confirmed from literature, the effectiveness of CSR initiatives within a buyer firm may not yield favorable outcomes if the suppliers involved do not exhibit a comparable level of commitment to CSR implementation (Ağan et al., 2016; Yang & Jiang, 2023).

In contrast, *supplier site visits* are not taken much by the companies. The figures also show a big deviation across the responses, which indicates that while some companies consider visiting suppliers' premises as a regular activity to promote collaboration, some do not. Even though

some papers discuss that this action has impact on environmental and social development of suppliers (Klassen & Vachon, 2003; Modi & Mabert, 2007), these literature are pretty old.

Regarding *joint planning activities, providing education to suppliers, and system to track social standards*, the average rating is 3.38 and 3.31 respectively. These indicators have a wide range of deviations. Joint planning and training to suppliers are well-connected in respect of knowledge sharing between buyers and suppliers. These practices contribute to increase supply chain performance by achieving common goals and solving problems (Kumar et al., 2017; Uddin, 2022). These concepts nevertheless are not particularly discussed in how its effect on sustainability development or in the maritime industry. Fobbe (2020) claims that there is limited knowledge about contribution of organizational collaboration to sustainability efforts.

The low intensity of implementation of these practices turns buyer-supplier relationships to become the concept that is not well received in the survey outcome. However, referring to qualitative data from the respondents, there are many initiatives that describe deeply the idea of collaboration to promote sustainability in the network, for example: close cooperation with commercial partners, sustainability programs, sharing expertise with conferences and courses.

From the above points, suggested further research is to *explore the collaboration in the maritime network regarding its benefits and challenges to promote sustainability*.

3.5 Other discussions

This part attempts to discuss the findings that may not directly answer the research questions but can generate extra insights from the collected data for the topic.

First, survey outcome of sustainable criteria which are integrated according to purchasing' portfolio shows that in maritime companies, strategic, leverage, bottleneck items are sustainably sourced with the frequency of 10, 8, and 6 respectively. Routine or non-critical items are sourced with sustainable criteria from only 3 companies. This finding indicates a difference from prior research where the bottleneck item is excluded from sustainable procurement practices.

Marine technical companies show the engagement of sustainable criteria in all four categories of purchasing. As discussed in literature, a company often has distinct strategies regarding sustainability to each type of product depending on its capacity (Dabhilkar et al., 2016). Sjøgaard et al. (2018) justify that procurement decisions are always aligned with company's objectives. Thus, it may be worth considering further research that *how maritime companies can deal with the challenges of sourcing bottleneck items in a sustainable manner*.

Second, when all the indicators are put together, we can identify which initiatives are most implemented in maritime companies. Supplier selection strategy is the practice that is executed with highest intensity, followed by supplier governance, responsible sourcing, and buyer-supplier relationships respectively. Indeed, choosing suppliers who can align the same values with the focal companies is a straightforward business strategy. In the global context, a company needs to cope with multifaceted supply risks, product complexities, and competitive pressure from stakeholders (Liu et al., 2023). Having one or multiple qualified suppliers is not enough to sustain the competitiveness but it requires for continuous improvement afterward (Liu et al., 2023). Supplier governance comes to the place. The concept, as discussed, involves two approaches: supplier assessment and certain level of collaboration (Tachizawa et al., 2015).

It shows from the findings that even generally the main focuses of sustainability development of maritime companies are placed in supplier selection and supplier governance, but to each initiative, the intensity of implementation varies. For example, if we take individual indicators into consideration, certification programs, safety, and human rights have the highest rates of intensity. This observation leads to an assumption that not all indicators within the same

concept gain the same attention from managers. They tend to select individual initiatives that are probably most applicable for the companies to implement.

3. Challenges, limitations, and issues for further research

3.1 Challenges and limitations

The findings of this research also come with some following limitations:

Lim1: The number of collected surveys is not significant, which provokes the validity of the outcomes. Compared to the expected sample of 48, the responding rate only reaches 13 in total. Even though respondents represent big players in the sector, each company acts like a single voice only and they hardly speak for others. It is challenging to draw a general theme of sustainable procurement for the whole network.

Lim2: Most respondents are from the category of marine technology, shipyard, and offshore service companies. This makes sense because in these segments, sustainability has been developed more than other industries. There is a lack of answers from the port segment therefore this industry is excluded from the research objects. Other than that, the number of respondents from shipping and maritime service business are minimal. There is a challenge to make conclusions about their behavior towards sustainability in procurement.

Lim3: The methodology of this thesis also shows some limitations. Using surveys can be useful to collect data from multiple sources in a limited resource of time and budget, but rating scale is inherently subjective. The quantitative data even though can enable the author to identify pattern and trend of a phenomenon, however, it can cause confusion to respondents when selecting scales for contextual questions. There are at least three procurement engineers who gave feedback that it was a bit challenging for them to answer all the questions. Even though they are widely involved in the sourcing activities of the companies, they are not sure if there are specific requirements for suppliers in line with CSR principles. They believe that their companies follow sustainable goals and ensure corporate social responsibility but there are some departments who may know better than them about it as they believe.

Lim4: Procurement can be perceived as an indispensable segment in any companies where the upstream parts of companies' supply chains are managed, but its impact on strategic goals may significantly differ from sector to sector, from business to business. The main point is how its contribution to deal with innovation, nature of product/service, and international regulations. For example, procurement in shipping and port industry can be far more complex and multifaceted than maritime service companies, such as insurance, ship broker, or legal firms.

By taking many businesses into account in a thesis, the strategic role of this function can be either lessened or enlarged somehow.

Acknowledging these limitations from the course of this thesis, some further recommendations are proposed in the following part.

3.2 Issues for further research

As discussed in the discussions and limitation parts, there are several emerging insights that can be tackled in further research.

Because of the limitation of few responses in this research, a suggestion that comes first is to recruit more companies in future research. Additionally, trying to balance the number of participants in each sector and ensure a sufficient sample to demonstrate trends, characteristics, and tendency in a possibly classifiable manner. My next questions could be:

Explore the benefits and challenges of collaboration in the maritime network to promote sustainable development.

Case studies as the research methodology with exploratory approach to gain knowledge about how a company engages sustainable procurement. By such an approach, researchers can understand how a company generates sustainable initiatives and select practices that are most applicable to their objectives.

What are the best practices of CSR in either shipping, marine technology, maritime service companies, or port authorities in B2B context? This research can clarify the characteristics of the procurement segment in relation to sustainable development in certain sectors.

How maritime companies can deal with the challenges of sourcing bottleneck items in a sustainable manner?

CONCLUSION

1. Summary of the thesis

This thesis has conducted quantitative research providing information about how maritime companies implement sustainable initiatives in the procurement segment. With a deductive approach, this study starts with established theories about sustainable procurement with the engagement of CSR principles in B2B setting, and then tests them through the empirical collected data. By this part, four goals of this thesis will be examined.

Goal of the thesis 1: Describe the roles of procurement in sustainable development of a company.

This goal is achieved through strong support from existing literature. The procurement function plays a strategic role in advancing the sustainability of the supply network because it possesses a profound understanding of its suppliers' operations and has ability to exert influence over external organizations in the whole supply chain. Even though sustainable procurement in the maritime industry is hardly found in the research field, most maritime managers are convinced that this segment contributes to sustainability enhancement.

Goal of the thesis 2: a theoretical framework of sustainable sourcing

This goal is achieved by the extraction from relevant literature. First the concept of Corporation Social Responsibility is defined in B2B context with four components: responsible sourcing, supplier selection, supplier governance, and buyer-supplier relationships. There are sustainable indicators developed in these practices to construct the framework.

Goal of the thesis 3: explore what products/services that are sustainably sourced.

Strategic, leverage, bottleneck, and routine items are sourced with sustainable criteria. However, there are more companies that choose to procure bottleneck items sustainably over routine products. Nevertheless, this part is not intensively investigated in the current research.

Goal of the thesis 4: assess to what extent maritime companies engage in sustainable procurement activities in their operations.

Through outcomes from a questionnaire, it shows that 13 maritime companies participated in the survey have implemented all four sustainable procurement practices. In general, the intensity is somewhat. The order of the extent of each component is as follows: supplier selection (moderate), supplier governance (moderate), responsible sourcing (somewhat), buyer-supplier relationship (somewhat). Relation to this, collaboration is not intensively executed in the industry, which yields a difference from the outstanding role of organizational collaboration in existing literature.

Goal of the thesis 5: identify which practices appear as the most focused from managers' perspectives in maritime companies.

Social practices such as *safety at suppliers' premises, human rights and diversity-owned suppliers* are the ones that maritime managers demand most intensive from suppliers, even over the *environmental aspects* which are inherently central focus of the industry. Additionally, *certifications/code of conduct* and *life-cycle assessment* are implemented with high intensity in response to eco-friendly suppliers.

2. Contribution

The benefits of this research are multi-fold. Regarding theoretical contributions, the thesis attempts to connect relevant knowledge of CSR in B-2-B setting. A conceptual framework which compasses sustainable initiatives that a company can implement in sourcing activities to integrate sustainable development in its operations. This study elaborates the important role of procurement in sustainability effort and emphasizes that sourcing function is a good place to start working on the overall sustainable strategy. Through well-defined findings and limitations of the thesis, some further research is proposed.

Practically, this thesis provides an assessment of industry's sustainability efforts toward Corporate Social Responsibility factors regarding procurement activities. The findings come with some insights into what practices are executed by sourcing managers and what actions are neglected. This implies some potentials areas that a maritime company can focus on to adapt itself with its networks.

Appendix

Questionnaire: <https://nettskjema.no/a/357688>

THE ALIGNMENT OF SUSTAINABLE PROCUREMENT AND SUSTAINABILITY GOALS IN THE MARITIME NETWORK

Form ID : 357688  Open Close

View Form builder Codebook Settings Collect responses See results

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THE ALIGNMENT OF SUSTAINABLE PROCUREMENT AND SUSTAINABILITY GOALS IN THE MARITIME NETWORK

Page 1

Mandatory fields are marked with a star *

Dear Participants,

My name is Uyen Vu. I am a student at the University of South-Eastern Norway (USN), Faculty of Technology, Natural Science, and Maritime. I am dedicated to a master thesis that aims to explore the alignment between sustainable sourcing activities and the sustainability objectives of companies in the maritime cluster. To achieve the research goals, I would like to collect professional opinions from multiple participants who are engaging in sourcing/procurement roles in the sector. I kindly request your genuine answers to this survey, estimated to take **10-20 minutes to finish**.

The green transition and Corporate Social Responsibility (CSR) have become mainstream discussions in the maritime industry and its network. Among various sustainability practices, the sourcing department appears as an essential function that can promote the sustainable development efforts of a firm. Based on the reviewed studies, a sustainable procurement framework is outlined with four categories:

1. *Sustainable/Responsible purchasing*
2. *Sustainable Supplier Selection*
3. *Supplier Governance*
4. *Buyer-Supplier Relationship*

In the first part of this questionnaire, you shall provide basic information about your company. In the second part, you shall grade the statements with a 5-point Likert scale, in which **scale 1** represents **Not at all**, and **scale 5** represents **Intensive (or very great extent)**. Please indicate your judgment in all statements. Finally, there is an open question where you can briefly comment on the topic.

The main objective of this survey is to serve the study purpose by understanding the managers' perspectives towards sustainable procurement practices. Your participation is voluntary, and the collected information will be kept **strictly confidential**. The responses will be aggregated, therefore, it is impossible to trace individual information about your identity. My supervisor Associate Professor Marius Imset from USN approved this questionnaire and confirmed that there is no risk associated with the study.

Thank you so much for your cooperation. I truly appreciate it if you could pass the questionnaire on to those who have suitable expertise and interest in the study. Please do not hesitate to contact me in the email below in case of any queries. I would be happy to share the outcomes/summary of the findings when my thesis is complete.

Best regards,
Uyen Vu
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251223@student.usn.no

Supervisor : Associate Professor Marius Imset, Faculty of Technology, Natural Sciences and Maritime Sciences; Department of Maritime Operations.
Marius.Imset@usn.no

Mandatory fields are marked with a star *

PART 1: COMPANY PROFILE

In which country is the headquarters of your company located? *

Which segment of the maritime industry does your company operate in? *

- Shipping Industry (Transport of Passengers/
Transport of Freight)
- Marine Industry (Ship Building/Marine
Technology/Marine Renewable Energy/Offshore
services/Oil and Gas, Engineer, and
Mining/Technical Consulting)
- Ports Industry (Warehousing and Service/Port
Management/Stevedores, Cargo, and
Passenger Handling/Border Agency)
- Maritime Business Service Industry
(ShipBroking/Insurance, Legals, Finance
Services/Ship Management/Maritime
Consultancy)

For how many years has your company been doing business? *

- Less than 10 years
- 10 - 24 years
- 25 - 49 years
- >=50 years

How many total employees does your company employ full-time? *

- 1 - 50 employees
- 51 - 249 employees
- 250 - 999 employees
- >= 1000 employees

What is your management level? *

- Top-level/ Administrative Manager (COO/CEO/ CFO/ President/ Vice President/Board of Directors)
- Mid-level Manager (General/Regional/Division/Department Manager)
- First-line Manager (Supervisor/Team lead/Area Coordinator)
- Other

To what extent does your company's business correlate with maritime activities? *

0: Not at all - 5: Very great extent



Value

To what extent do you believe that procurement has a strategic role in the sustainability development of your company? *

0: Not at all - 5: Very great extent



Value

To what extent do your company's strategic plans align with sustainability goals? *

0: Not at all - 5: Very great extent



Value

To what extent does procurement enhance the sustainability development in your company? *

0: Not at all - 5: Very great extent



Value



Which Sustainability Standards/Certifications does your company have? *

- ISO 14001: An Environmental Management System
- ISO 45001 – A Health & Safety Management System
- ISO 26000 – Guidance on Social Responsibility
- ISO 20400 – A Sustainable Procurement Management System
- ISO 50001 – An Energy Management System
- ISO 37001 – An Anti-Bribery Management System
- ISO14064 – Greenhouse Gas and Climate Change Management System
- None of them

Please specify if your answer differs from the options above

Which category does your company procure/source with sustainability/green criteria? *

(Ref: Krajic matrix of strategic sourcing)

- Strategic categories (High-value and complex products provided by limited source of supply, e.g. IT system, high-tech components)
- Leverage categories (Products that are bought in massive volume and can be obtained from multiple choices of supplier, e.g. packaging)
- Bottleneck categories (Products that have low impacts on profit but require unique specifications; providers are scarce or monopoly)
- Non-critical categories (Non-critical items that can be easily obtained from plentiful providers in the market, f ex: office supplies, cleaning equipment)
- None of the above answers

PART 2: SUSTAINABLE PROCUREMENT PRACTICES

1. Sustainable/Responsible purchasing

This refers to a function that is involved in supply chain management activities to facilitate recycling, reuse, and resource reduction.

To what extent does your company implement:

A life-cycle analysis to evaluate the environmental friendliness of suppliers' products and packaging *



Value

Reduction of your packaging material *



Value

Purchase from diversity-owned suppliers *



Value

Require suppliers to provide fair compensation and ensure human rights at their working places *



Value

Donate to community organizations (philanthropy) *



Value

Demand suppliers having strict safety standards for their employees' working conditions *



Value

2. Responsible Supplier Selection

Socially responsible supplier selection is the capability of a firm to select suppliers that embrace Corporate Social Responsible (CSR) principles

To what extent does your company implement:

Embracing CSR principles into the supplier selection process as a normal operation *



Value



Does your company select shipping providers/carriers with sustainability criteria? *

- Yes
- No

3. Supplier governance

Referring to the improvement of the company's social and environmental performance by written principles/guidelines or standards (Codes of conduct)

To what extent does your company implement:

Conducting evaluative activities in the form of information gathered to assess and monitor their suppliers' environmental performance *



Value



Using certification program to certify quality, making inspections when receiving parts/products *



Value



Conducting regular audit programs to maintain environmental compliance conditions of suppliers *



Value



4. Buyer-Supplier partnerships

Referring to the buying-firm induced process of coordinated action over an extended period to achieve enhanced levels of sustainability in the supply chain for the benefit of both parties

To what extent does your company implement:

Joint planning activities *



Value



Formal system to track social standards *



Value



Plant visits to help improve suppliers' performance *



Value



Providing training and/or education to the suppliers' personnel *



Value



Motivating reciprocity to continue the cooperation and benefits from the ongoing relationship between buyer and supplier *



Mandatory fields are marked with a star *

Part 3: CONCLUSION

In your opinion, which category of procurement practice should be the main focus in the sustainability development of a maritime company? *

Responsible purchasing

Responsible Supplier Selection

Supplier Governance

Buyer-Supplier partnerships

In your opinion, what are useful procurement practices that maritime companies should implement to promote the sustainability goal? *

End of the survey,

Thank you!

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