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Assessing and improving corporate sustainability in the maritime industry

Case study with a maintenance, repair, and overhaul organization focus

International Business

Master's thesis

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In the face of climate change, increasing inequality and demanding societal expectations, the significance of corporate sustainability has heightened across all industries. The maritime industry, known for its high emissions, stands at the crossroads of responsibility and opportunity, as it seeks to balance operational efficiency with sustainable practices. Particularly, maritime maintenance, repair, and overhaul (MRO) companies are facing the need to reassess and enhance their corporate sustainability performance.

This master's thesis examines corporate sustainability within the context of MRO organizations operating in the maritime industry. The objective of this study is to gain a comprehensive understanding of corporate sustainability and its role for maritime industry MRO organizations, as well as to present methods and suggestions for improvement. The theoretical framework of the research consists of concepts related to corporate sustainability, along with multidimensional models that guide the strategic integration of sustainability into organizational processes.

The study was conducted as a commissioned work for a multinational maritime organization headquartered in Finland, with a specialization in MRO operations. The study employed a mixed methods case study approach, collecting data through semi-structured interviews and a survey questionnaire. Six experts in management positions within the commissioning company participated in the interviews. An anonymous survey based on the interview findings was then distributed more broadly among the organization's employees. The interviews were analysed using practices from thematic analysis, while the survey was analysed using descriptive analysis methods. By combining empirical findings with the theoretical framework, it was possible to provide both, theoretical and practical conclusions on the research topic.

The conclusions partially support previous research in the field of corporate sustainability. One of the key findings of the study is that MRO companies recognize the importance of corporate sustainability and strive to integrate it into their business strategies. Environmental sustainability and occupational safety are highlighted as important aspects of corporate sustainability to MRO companies in the maritime industry. Organizations are on the path towards more sustainable operations. However, the practical actions still often require further development. Challenges in the full integration and implementation of the corporate sustainability strategy underscore the need for stronger internal communication and sustainability training, to ensure that corporate sustainability strategies and initiatives are effectively ingrained in corporate culture and operations.

Using the commissioning company as an example, the research provides valuable information for MRO companies within the maritime industry, regarding the implementation of corporate sustainability. An important theoretical contribution of the study is the framework created to support organizations in assessing their level of corporate sustainability, creating and implementing a sustainability strategy, and thereby improving corporate sustainability performance. At the same time, the study presents managerial conclusions on practical means to embed sustainability into the daily operations of organizations.

Key words: Corporate sustainability, Maritime industry, MRO, Case study, Mixed methods

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Ilmastonmuutoksen, kasvavan eriarvoisuuden ja yhteiskunnallisten odotusten myötä yritysvastuun merkitys on korostunut kaikilla toimialoilla. Meriteollisuus, joka tunnetaan korkeista päästöistään, seisoo vastuun ja mahdollisuuksien risteyksessä hakiessaan tasapainoa liiketoiminnan tehokkuuden sekä kestävien toimintojen välillä. Erityisesti meriteollisuuden huolto-, korjaus-, ja kunnossapitoyritykset kohtaavat nyt tarpeen uudelleenarvioida ja parantaa yritysvastuutaan.

Tässä pro gradu -tutkielmassa tarkastellaan yritysvastuuta meriteollisuuden alalla toimivien huolto-, korjaus- ja kunnossapitotoimintaa (MRO) harjoittavien organisaatioiden kontekstissa. Tutkielman tarkoituksena on saavuttaa kattava ymmärrys yritysvastuusta ja sen roolista meriteollisuuden MRO-organisaatioille, sekä tuoda esiin keinoja ja ehdotuksia yritysvastuun parantamiseksi. Tutkimuksen teoreettinen viitekehys koostuu yritysvastuun käsitteistön määrittelystä ja moniulotteisista malleista, jotka ohjaavat yritysvastuun strategista integroimista organisaatioiden prosesseihin.

Tutkimus toteutettiin toimeksiantona suomalaislähtöiselle monikansalliselle meriteollisuuden organisaatiolle. Tutkimusmenetelminä tutkielmassa hyödynnettiin monimenetelmäistä tapaustutkimusta, jossa aineistonkeruuta tehtiin sekä haastattelujen että kyselyn avulla. Haastatteluihin osallistui kuusi toimeksiantajayrityksessä johtotehtävissä työskentelevää asiantuntijaa. Haastatteluiden pohjalta luotu anonyymi kysely suunnattiin laajemmin toimeksiantajayrityksen työntekijöille. Haastattelut analysoitiin temaattisen analyysin keinoin, kun taas kyselyssä analysointitapana hyödynnettiin kuvailevaa analyysiä. Yhdistämällä empiiriset löydökset teoreettiseen viitekehykseen oli mahdollista muodostaa sekä teoriaa että käytäntöä tukevia johtopäätöksiä tutkimusaiheesta.

Tutkimuksen johtopäätökset tukevat osittain aiempaa tutkimusta vastuullisen liiketoiminnan alalta. Keskeisenä johtopäätöksenä voidaan todeta MRO-yritysten tunnistavan yritysvastuun merkityksen ja pyrkivän integroimaan sitä osaksi liiketoimintastrategioitaan. Erityisesti ympäristövastuullisuus ja työturvallisuus nousevat esille tärkeinä yritysvastuun osa-alueina meriteollisuuden MRO-yrityksille. Organisaatiot ovat matkalla kohti kestävämpiä toimintatapoja, mutta käytännön toimet vaativat monesti vielä kehitystä. Haasteet yritysvastuustrategian täysimittaisessa integraatiossa ja implementoinnissa korostavat tarvetta esimerkiksi vahvemmalle sisäiselle viestinnälle ja vastuullisuuskoulutukselle, jotta yritysvastuustrategia ja -aloitteet juurtuisivat tehokkaammin yrityskulttuuriin ja yritysten toimintoihin.

Käyttäen esimerkkinä toimeksiantajayritystä, tutkimus tarjoaa arvokasta tietoa meriteollisuuden MRO-yrityksille yritysvastuun toteuttamiseen liittyen. Tutkimuksen tärkeänä teoreettisena kontribuutiona voidaan pitää viitekehystä, joka luotiin organisaatioiden tueksi yritysvastuun tason evaluointiin, yritysvastuustrategian luontiin ja implementointiin, ja näin ollen yritysvastuun parantamiseen. Samalla tutkimus tuo esille liikkeenjohdollisia johtopäätöksiä käytännön keinoihin, joilla yritysvastuu voidaan tuoda osaksi organisaatioiden päivittäisiä toimia.

Avainsanat: Yritysvastuu, Kestävyys, Meriteollisuus, MRO, Tapaustutkimus, Monimenetelmätutkimus

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1 Introduction

1.1 Background on maritime sustainability

As the world is rapidly approaching catastrophic temperatures, poverty across the globe is increasing and inequality flourishes, the future of humanity stands on thin ice. The climate crisis is deemed the most significant health risk that has ever threatened humanity, and tackling it requires action on all fronts. (Climate change and health 2021.) In 2015, the United Nations introduced the Sustainable Development Goals (SGDs) – a set of 17 interconnected goals, each focused on a specific target – as a universal appeal to act in order to protect the globe and sustain a prosperous future for all. (United Nations 2023.) History has shown that humankind is capable of the most creative solutions in troubling times. The SDGs, however, came with a deadline. The complex challenges of ending poverty, halting global warming, achieving universal primary education and clean energy should be solved by the year 2030. Now, halfway through the 2030 SDG agenda, the world is lagging behind in the fulfilment of the goals, and transformations are urgently needed. In pursuance of this, partnership across different sectors is called for. (United Nations 2023.) Business organizations are expected to do their share in tackling these challenges through corporate sustainability.

Sustainability is a multifaceted concept that stands on economic, social and environmental pillars (Boyer, Peterson, Arora & Caldwell 2016, 1; Waas et al. 2011, 1650). Incorporation of each dimension is needed to establish thriving and diverse communities for both present generation and generations to come (WCED 1987). The concern for sustainability in a corporate setting has increased significantly in the past two decades, as stakeholders are demanding greater transparency and accountability from businesses. (Meuer; Koelbel & Hoffmann 2020, 319; Rake & Grayson 2009, 395.) From a voluntary business initiative, over the years corporate sustainability has evolved into a prerequisite – the targets of sustainable development simply cannot be met without businesses aligning their operations with the objectives of sustainable development. (Meuer et al. 2020, 336.) By integrating sustainable business practices across all operations, firms can pursue growth and create long-term value for their shareholders, while increasing their reputation among stakeholders (Wilson 2003, 1; Bonini & Görner 2011).

The international maritime industry has a crucial role in contributing to global sustainability (Wang, Yuen, Wong, Li 2020, 1.; Benamara et al. 2019.) At present, global transportation is responsible for 2,5% of total CO2 emissions. Based on the carbon intensity regulations established by the International Maritime Organization (IMO), the industry needs to decrease its overall emissions by 50% by the end of 2050. (Birkert 2022, 23.) Having caused considerable emissions in the past, the industry that used to run on fossil-fuels is obliged to change and introduce new, environmentally friendlier practices (European Commission 2019). The whole industry is in the midst of a re-shaping transformation, where traditional modus operandi are being replaced by new ways of working, aligning with the IMO's targets (Pantouvakis & Vlachos 2020, 4). Increasing demand for shipping transport is projected for the future (Dominioni, Englert, Salgmann & Brown 2022, 2). Figure 1 shows the projected trajectory of maritime greenhouse gas (GHG) emissions under different scenarios.
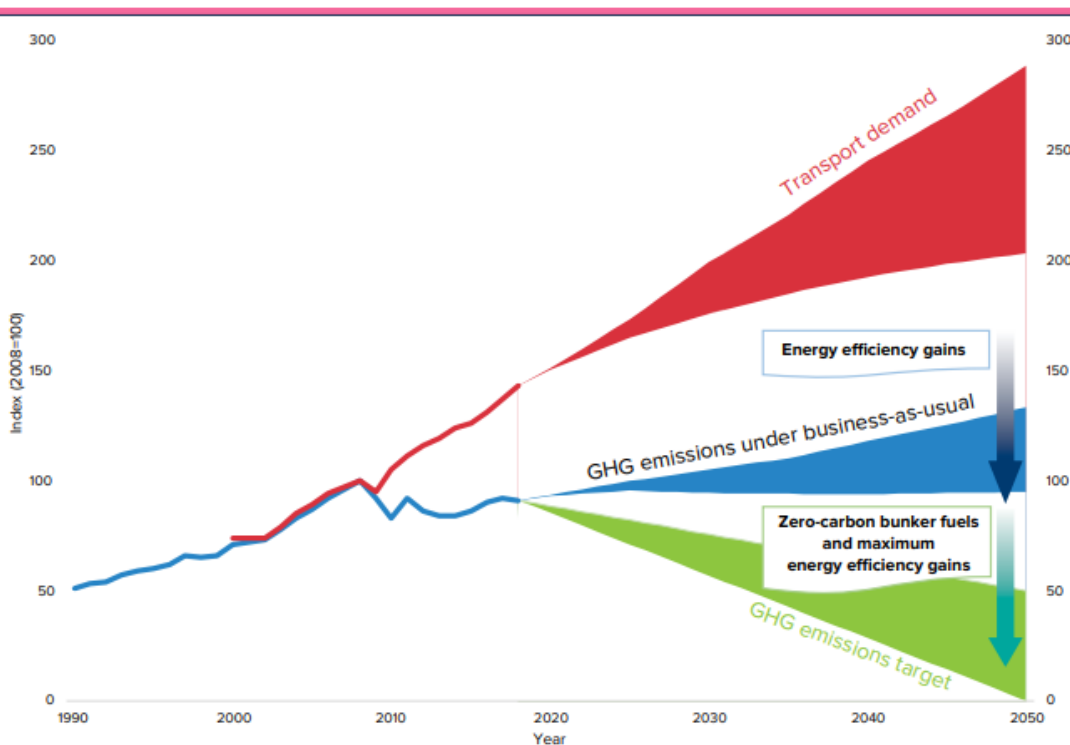
Figure 1 Historical trends and future projections for transport demand and GHG emissions in international maritime shipping 1990–2050 (Dominioni et al. 2022, 2).

Figure 1 depicts the historical and projected GHG emissions as well as transport demand from the international shipping industry. While the industry is committed to halving its GHG emissions in the near future, the transport demand is only increasing. Thus, strict

policymaking as well as green innovations, such as zero-carbon fuels and energy efficiency are needed to decarbonize the maritime industry and bend the curve towards the target level of emissions. (Dominioni et al. 2022, 1–3.)

The maritime industry is undoubtedly one of the most dangerous industries in the world. Ship collisions, oil leaks and piracy are just the tip of the iceberg when it comes to the threats businesses operating in the sector must be prepared for (IMO Maritime Safety 2019; IMO Maritime Security 2019). The industry is also faced with other challenges such as uncertainty and volatility in global demand and supply and substantial capital investments in physical assets. Businesses are striving towards an increasing level of sustainability without compromising efficiency and profitability (Wang et al. 2020). These challenges combined with the outside pressure to adopt more sustainable practices require special skills in managing the complex, ever-changing industry (Liu & Wang 2019, 348). However, scholars note that businesses operating in the maritime sector have been reported to take a more active approach in sustainability issues as opposed to other industries. (Bonini & Görner 2011.)

Sustainability is an exceedingly topical issue, and research focusing on organizations' role in sustainable development has grown extensively in the recent years and decades. (Cambrea & Tenuta 2022; Oliwa 2021) Today corporate sustainability can be viewed as an integral contributor to businesses' success. While existing literature explores sustainability in broad terms and acknowledges the importance of corporate sustainability, there has been little representation of sustainability in maritime technology and manufacturing organizations (Uhlmann, Bilz & Baumgarten 2013, 239.)

Particularly in industries with significant environmental impact, such as the maritime sector, there is an evident need to understand motivators, drivers and strategies through which organizations can improve their sustainability performance. There is a notable gap in literature regarding maintenance, repair and overhaul (MRO) organizations operating in the maritime industry. Most research focuses on MRO operators in the field of aviation. (see e.g. Ichou & Veress 2024; Vieira & Loures 2016; Lee, Ma, Thimm & Verstraeten 2008.) However, very little research on MRO organizations operating in any industry seems to have been conducted from a sustainability point of view (Khabir et al. 2020, 393; Uhlmann, Bilz & Baumgarten 2013, 239.) Thus, research addressing corporate sustainability in MRO-focused organizations within the maritime industry is difficult to

come across. This study aims to bridge this research gap by providing a comprehensive examination of corporate sustainability within a specific multinational maritime MRO organization, along with recommendations for improvement.

1.2   Purpose and structure of the study

The purpose of this study is to develop a thorough understanding of corporate sustainability, and describe, analyse and interpret its role in a global maintenance, repair and overhaul (MRO) organization operating in the maritime industry, while providing suggestions and means to improve. The thesis is carried out as commissioned work for a unit of a Finnish multinational maritime organization, specializing in the MRO field. Thus, the study proposes the following research problem:

- *How can corporate sustainability be improved within maintenance, repair and overhaul organizations operating in the maritime industry?*

In pursuance of deconstructing and achieving the purpose of the study, the research problem will be addressed through the following three sub-problems. Each sub-problem delves into a different aspect of the phenomenon under investigation.

1. What is the role and significance of corporate sustainability for maritime industry MRO organizations?

2. How can corporate sustainability be assessed and implemented within maritime industry MRO organizations?

3. How can maritime MRO organizations integrate sustainability principles into their processes to improve their corporate sustainability?

The first sub-problem investigates the significance of corporate sustainability, which refers to the relevance and importance of integrating sustainability practices into companies' operations. It will explore why sustainability matters to MRO organizations. The second sub-problem seeks to investigate corporate sustainability implementation, and how maritime industry MRO organizations actively incorporate sustainability considerations into their processes. Lastly, the third sub-problem explores and aims to identify opportunities for improvement within the current sustainability practices of MRO organizations. With all of the research problem, the main focus is on the commissioning maritime MRO organization, and the organization's specific context.

The thesis proceeds in a way that supports the reader in comprehending corporate sustainability as a broad concept that includes various dimensions and themes.

Throughout the study, corporate sustainability is tied to the MRO business focus. The study is structured as follows: The theoretical framework of the study will be presented following the introductory chapter. The sub-sections present different dimensions of corporate sustainability, such as integration of sustainability to a corporate strategy, and implementation of corporate sustainability as a business advantage. The last section of the theoretical framework provides a synthesis of the theory background, and introduces the initial framework of the thesis. Following this is the methodology part of the study, expressing the philosophical choices of the research, research approach, strategy and chosen methods for data collection and analysis. The fourth chapter presents a brief overview of the commissioning organization and its approach on sustainability, along with discussing the findings of the study. The fifth, concluding chapter discusses the theoretical implications and practical contributions of the study, along with expressing limitations of the research and offering recommendations for future research. Finally, the sixth chapter summarizes the focal points of the study in a concise manner.

While this thesis aims to comprehensively explore corporate sustainability within the maritime industry MRO organizations, it acknowledges some limitations. The scope of this study is primarily anchored within a singular organization, which could limit the generalizability of the findings. Additionally, while it could be extremely fruitful to extend the study to discuss the complexities and variances between MRO operations globally, the organization mainly studied in this thesis is based in the Northern Europe region. Particular emphasis is additionally placed on internal organizational perceptions of sustainability. Therefore, important opinions from external stakeholders, which are critical in shaping a holistic sustainability strategy, might be omitted.

1.3   Maintenance, repair, and overhaul as a research context

Servitization refers to the transition towards offering services complementary to just selling a product. After-sales services are characterized as a persisting link between the service provider and the customer. The market for these services is expected to grow and gain momentum in the next ten years, due to the rise of circularity and sustainable maintenance, making it an interesting research topic. Maintenance, repair and overhaul organizations (MRO) offer after-sales services, such as spare parts and accessories, maintenance and field service typically within the technology, maritime, aviation and automotive industries. (Gróf & Kamtsiuris 2021, 1322–1323.)

The aim of MRO services is to keep assets in appropriate condition and performance. MRO services can be performed for safety or economic reasons. The services are often conducted for safety reasons, due to the fact that the maintenance of assets is often mandatory to assure a safe use of the asset. The aviation and transportation industries especially rely on MRO for safety concerns. (Gróf & Kamtsiuris 2021, 1323.) MRO operators are a part of an extensive supply chain network, linking their operations closely with their customers and suppliers. (Palma-Mendoza & Neailey 2015).

Safety in the maritime MRO organizations is a typical concern, given the unique challenges posed by the maritime environment (Wang et al. 2020, 6). Safety risks experienced in the maritime industry include electrical malfunctions, mechanical failures, and corrosion for instance. Other maritime hazards include shipwrecks, piracy, illegal maritime trade or even terrorism. (IMO 2023.) All maritime safety risks consider the MRO sector as well, as MRO work is often conducted onboard vessels – this includes a broad variety of maintenance work, for instance. Effective MRO practices are needed for the mitigation of many maritime risks. Electrical and mechanical malfunctions could in many instances be prevented by scheduled maintenance and timely repairs. (Puisa, McNay & Montewka 2021, 1–2.) The MRO industry accounts for a dynamic research context due to its critical role as a facilitator of smooth operations within the maritime industry.

2 Improving corporate sustainability

2.1 Understanding the concept of sustainability

2.1.1 Defining sustainability

The emergence of sustainability as a concept can be traced all the way back to the year 1987, when the World Commission on the Environment and Development published their notable Brundtland Report, which introduced the idea of sustainable development and illustrated ways to achieve it in the future. Possibly the most widely acknowledged definition of sustainability derives from this report. (Vos 2007, 334–335; Kuhlman & Farrington 2010, 3436.) The essence of the definition is that the present generation's demands for development and needs should be met in a way that does not compromise or unfairly exploit the capability of future generations to meet their own demands for development.

The definition in itself encompasses the concept of 'needs', with specific attention to the necessities of the poor communities worldwide, which should be prioritized. Additionally, implied in the definition is the recognition that technology and social organization set constraints on the environment's ability to provide for the world's present and future needs. (WCED 1987.) Since the emergence of the concept, sustainability has been widely researched by scholars from different fields of expertise. This has prompted an array of terms, often slightly differing in emphasis. Sustainability and sustainable development, however, are habitually used interchangeably in literature. (Vos 2007, 335.)

2.1.2 Three pillars of sustainability

In literature, sustainable development is predominantly illustrated through the conception of three pillars of sustainability (Boyer et al. 2016, 1; Waas et al. 2011, 1650). These pillars describe the three main aspects of sustainability – environmental, social and economic, as demonstrated on Figure 2. For sustainable development to succeed, consideration of each dimension is equally required. It calls for balancing the trade-offs between goals that fall within the categories, without prioritizing any one aspect over the other two. (Purvis, Mao & Robinson 2019, 685.) Most often, the framework is portrayed as three interconnected circles, each representing one dimension.
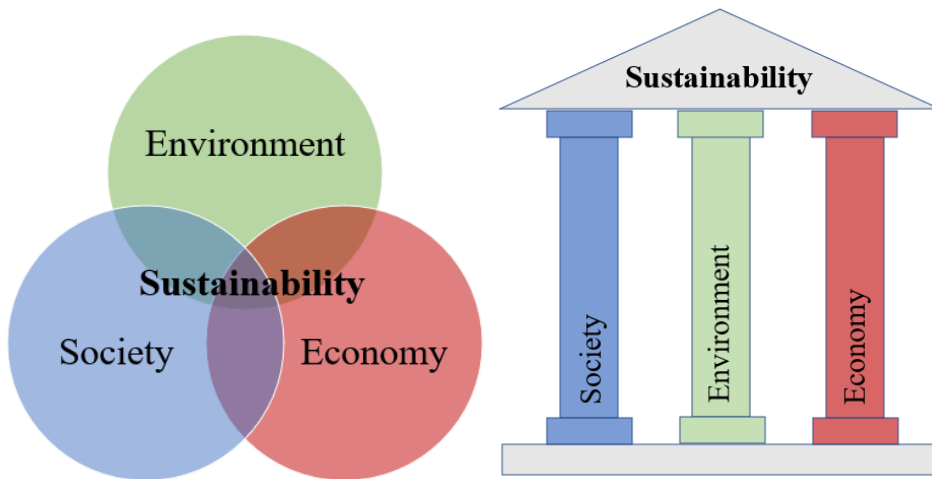
Figure 2 Three pillars of sustainability (Adopted from Purvis et al. 2019, 682 and Elkington 1997, 70)

All three areas overlap and become simultaneously considered in the intersection of the circles, demonstrating the balance needed to achieve sustainable development. (Waas et al. 2011, 1651.) Another frequently used model to depict sustainable development is to show them as literal pillars, balancing sustainability on top of them, as also shown on Figure 2 (Vos 2007, 335).

The simplest definitions of social sustainability focus on the productivity of livelihoods and the fulfillment of basic needs, such as food, safety, and shelter. Fair distribution of income, access to education and health services and adequate working conditions and decent salaries are also aspects of social sustainable development. A society must uphold a specific set of values to be considered sustainable. (Handy 2002; Crepaldi, Jones & Gancheva 2020.) Social objectives have gradually gained importance in the sustainable development discussion and have become more visible in the EU policy, for instance (Crepaldi et al. 2020). Within the United Nations Sustainable Development Goals (SDGs), seven out of the 17 goals are specifically aimed at addressing social issues. These goals seek to reduce inequalities, poverty, and famine while promoting health and well-being, quality education, gender equality, and the establishment of peace, justice, and strong institutions. (UN 2023.) Social sustainability can be realized through long-term investments in education systems and the maintenance of welfare states. (Steurer, Martinuzzi & Langer 2005, 271.)

Current socio-economic development megatrends, including globalization, have played a pivotal role in the rise of the social paradigm of sustainability. Today, there is a

widespread expectation for organizations to embrace broader responsibilities towards various stakeholder groups and the social contexts in which they operate. (Dunphy et al. 2014, 38–40.) However, the lack of social resources and the accompanying rise in crime rates may stem from economic decisions deemed 'rational' by traditional economic standards. Despite this, the social effects of firms should be comprehensively integrated into contemporary economic models. (Dunphy, Griffiths & Benn 2014, 13.) Currently, urgent actions are required as recent global conflicts have exacerbated inequalities and social issues. (UN GSDR 2023, xvii–xxi.) Some argue, that social sustainability can only be achieved through systematic community cooperation and a strong civil society. The level of cohesion in communities, along with cultural identity and diversity all play a crucial role in this. (Goodland 1995, 3.)

The notion of environmental sustainability has developed as a response to the growing environmental concern, and it advocates for sustaining natural resources and ecological balance for the generations to come (Daly 1990, 2). Following the Industrial Revolution, productivity and efficiency improved significantly, as manufacturing of goods shifted from private households into factories. At the same time, this technological progress unfortunately resulted in a drastic increase in global greenhouse gas emissions. (Martinez 2005, 404.) Subsequently, also urbanization and modern agriculture have had a role in polluting the land, water, and air all around the world, straining the already over-exploited natural resources. The culmination of this is global warming, which is progressing at an alarming speed. (Arora 2018, 1.)

Environmental sustainability is crucial for human welfare, as it focuses on protecting the natural capital humans need, while also ensuring that the environment's capacity is not overwhelmed (Goodland 1995, 3). While environmental sustainability stems from a human-oriented viewpoint, today it involves more and more ecological considerations, such as preserving the biodiversity and sustaining natural systems (UN 2023). Steurer et al. (2005, 271) identify three traditional issues of environmental protection that are often connected to environmental sustainability – resource exploitation, emissions, and environmental risks and damages. Each of these issues are caused by human activity. It is essential for humanity to adapt to the limitations of the biophysical world.

For environmental sustainability to be actualized, focus is needed on reducing risk of environmental hazards, responsible use of resources and protection of natural spaces,

environment, and biodiversity. (Goodland 1995, 3; Hansmann, Mieg & Frischknecht, 2012, 455.) Achieving environmental sustainability requires attention from governments, municipalities, non-governmental organizations, and individuals – additionally, more than ever, from businesses (Arora 2018, 2).

Economic sustainability entails the practices and strategies that ensure an economy, organization or community can maintain and utilize their resources in a responsible, but effective way (Goodman 1995, 3). The remarkable spurt in economic growth during the 19th century, that was driven by the emergence of steam engines and the rise of capitalism, fostered considerable changes in societal values and attitudes, while also imposing significant human costs. This situation prompted widespread questioning of the pursuit of growth as a societal objective. (Kidd 1992, 10.) Until these changes, economic development had been defined through the improvements in material well-being and increasing income (Arndt 1981). In the early 1970's a new philosophy often referred to as "no growth" gained momentum. This movement argued against economic growth – environmental degradation and pollution were listed as key reasons as to why economic growth should cease. (Kidd 1992, 10.)

Following the notion of sustainable development, economic sustainability calls for resources to be utilized in a way that does not compromise the ability of future generations to meet their needs. (Goodman 1995, 3; Svensson & Høgevold 2015.) The idea of sustainable economic development encompasses a range of values – and is often described through the concept of "maintenance of capital". This revolves around maintaining capital in order to ensure ongoing economic activities without diminishing the ability to continue those activities in the future. (Goodland 1995, 3.)

Additionally to the "no-growth" philosophy, in the modern times economic sustainability is often depicted through the concept of "green growth". Based on this philosophy, economic sustainability can be approached by focusing on transforming economic growth to be environmentally sustainable and resource-efficient. This can be achieved by adopting new technologies, while reducing the scale of resource-intensive products. The achievement of economic sustainability is desperately needed – this way it can be ensured that economic development is not pursued at the expense of the environment. (Jänicke 2012, 13–14.) The three dimensions of sustainability are presented concisely in Table 1.

Table 1 Three dimensions of sustainability

Social sustainability	The focus is on developing and sustaining societies, that ensure the well-being, fair treatment and participation of all its members. Important targets include reducing inequalities and meeting basic needs of people.
Environmental sustainability	Emphasis is placed on preserving natural resources and ecosystems to support the health and vitality of present and future generations. The balance between human activity and the carrying capacity of the environment is prioritized.
Economic sustainability	Prioritized the management and usage of resources to support economic growth and well-being, without compromising the ability of future generations to meet their economic needs. The focus is also on economic growth, which makes the innovation of sustainable technologies possible.

In order to achieve sustainable development, each of these dimensions should be simultaneously considered and balanced. The aspects should not be in conflict with one another, but support each other instead. Thereby, long-term vitality of the planet and well-being of humanity can be best fostered. (Waas et al. 2011, 1651.) The next sub-section discusses what has happened in the sustainability landscape since the emergence of the concept, and how the topic is viewed in today's world.

2.1.3 The evolution of sustainability

Over time, the views brought about on sustainable development in the Brundtland report have become more cultivated, and while the 1987 definition still holds its ground, the concept has evolved with the significance of the topic increasing. Today, the focus has broadened from just preserving natural resources to including many more issues. The UN's 17 SDGs represent the present state of sustainability well. They take a stand on social and humanitarian issues such as hunger, poverty and inequality. From an environmental point of view, the focus has shifted from climate change prevention to mitigation and adaptation, and preserving all life on land and below water. Additionally, the goals endorse circular economy, resilient and sustainable technologies and industrialization, green energy sources along with sustainable economic growth. (UN 2023.)

During the past few years, the world seems to have sailed from one crisis to another. First, the COVID-19 pandemic caused significant strain on the Earth, forcing governments and international political bodies to reprioritize their use of resources and issues under focus.

After that, various wars and conflicts around the globe have caused a rise in the cost of living all around the world. Additionally, in recent years, climate change has brought about ever-increasing numbers of extreme weather phenomena. (UN GSDR 2023, xvii–xxi.) With the uncertainty of the recent years, the implementation pace for some of the SDGs has been rather slow. In fact, the SDG progress trends between 2020 and 2023 reveal that some goals have actually taken steps back instead of moving forwards. This slow progress has made many areas of the world increasingly vulnerable during the recent crises, as inequality and poverty have increased. The current state of sustainability in the world calls for transformative changes and collective, long-term actions. In order to make these changes, collaborative initiatives across organizations, governments and industries are desperately needed. (UN GSDR 2023, 1–10.) The next section explores this, and presents sustainability in a corporate context.

2.2 Corporate sustainability

2.2.1 Defining corporate sustainability

Significant progress has been made since the days of Adam Smith and classical economics, when businesses were solely accountable for maximizing the profits of their shareholders – no matter the consequences. The shareholder value maximization perspective asserts that besides their contractual obligations, corporations are not responsible for increasing the welfare of the society or any of their stakeholders. (Bénabou & Tirole 2010, 2.) After the millennium, a growing attention on corporations' role within the sustainability discourse has been unfolding. Especially large multinational corporations have been under scrutiny due to the substantial impacts many of them are causing on both the environment and societies. (Lozano 2015, 32.)

Therefore, in the current global environment it has become a prerequisite for businesses to take part in initiatives beyond profit maximization to act in stakeholders' interest or enhance societal welfare. Activities adopted in pursuance of this are referred to as corporate sustainability (CS). (Kitzmueller & Shimshack 2012, 51.) Common CS activities organizations take part in involve investing in greener production processes, avoiding suppliers that utilize child labour, providing employee benefits, and organizing projects for social good – such as providing aid to disaster areas of the world (Liang & Renneboog 2017, 854).

It has been acknowledged that without the support of businesses, the demands of the 17 SDGs cannot be met. (Hockerts & Wüstenhagen 2010, 484.) By adopting CS practices, businesses aim to create long-term value for shareholders and stakeholders by incorporating environmental, social and economic considerations into their strategy – and through strategy into each level of the value chain. (Cambrea & Tenuta 2022; Kitzmueller & Shimshack 2012, 51.) Ramchandani and Singh (2022, 38) argue that only by achieving a holistic balance of three sustainability dimensions, can an organization be truly sustainable in its operations.

After the first waves of commotion around CS, it was often viewed as undesirable, and many corporations would not take action unless being legally obliged to (Liang & Renneboog 2017, 854). Over time, the views have fortunately changed, and today CS can be seen as a means to create value for businesses, by responsible investing for instance, as well as an opportunity to reduce costs (Boatright 2014, 136). Cost reductions are possible through waste reduction and product packages that use less materials. CS can also be viewed through the concept of shared value. Porter and Kramer (2011, 66) describe this as "Creating economic value in a way that also creates value for society by addressing its needs and challenges. Businesses must reconnect company success with social processes".

According to Meuer et al. (2020, 319–320) CS is increasingly regarded as an essential goal for organizations across industries. Still, prior research on CS has faced criticism for being ineffective in elucidating how corporations can commit to sustainable development. Authors see the criticism stemming from a lack of clarity surrounding the concept. They argue that an increased understanding of the concept of CS would enable more effective contributions towards sustainable development. From stakeholder and consumer point of view, it can be difficult to find reliable and current information of organizations' sustainability performance. (Meuer et al. 2020, 336.) This is backed up by Bergman, Bergman and Berger, (2017, 753) who argue that if understood better, CS could be a more useful tool in strengthening the link between businesses and society. This highlights the complexity and underdevelopment of CS. Further research and good examples set by influential organizations are warranted in order to promote sustainable development through corporate sustainability.

The concept of corporate sustainability originates from a more limited notion known as corporate social responsibility (CSR). CS should be viewed as a broader concept, covering a wider array of factors to be considered. (Oliwa 2021, 1.) This study will consider CS and CSR as complementary approaches to the same theory of sustainability (see Prado et al. 2020, 370; Tenuta & Cambrea 2022, 1; Oliwa 2021, 1.) In the next sub-section, the three dimensions of sustainability are discussed from a corporate context, to elucidate the vastness and broadness of the concept.

2.2.2 The three dimensions of corporate sustainability

"The only social responsibility of business is to increase its profits".

– M. Friedman, 1970.

While increasing profit and creating increased value for stakeholders continues to be viewed as the core purpose for any business, today organizations are considered to have other responsibilities towards the society, too. This is referred to as social CS. A business' purpose is no longer just to make a profit, but to make a profit in order to do something better. (Handy 2002.) When it comes to corporate sustainability, the social aspect stands for the activities businesses conduct in order to increase the well-being of their stakeholders and society – employees, customers, suppliers for instance, along with the broader community. In his famous book, Elkington (1997) emphasizes the importance of accountability and transparency especially in the context of societal sustainability. Organizations should report on their social impact transparently and in a standardized manner. Being transparent in this sense would allow accountability among stakeholders. (Elkington 1997.)

For businesses, social sustainability involves actions that may initially increase costs. An example of this would be improving employee conditions by offering compensated vacation time. These additional costs can often be compensated by benefits stemming from them. Businesses tend to take part in social sustainability by adopting these kinds of initiatives among employee well-being. These can include providing fair benefits, fair wages and career opportunities. Investing in employee well-being tends to improve workforce involvement and employee motivation, leading to positive effects on productivity, while building companies' reputational capital at the same time. Positive corporate reputations can lead to other opportunities as well, such as making companies

attractive employers for potential talents, and enhancing customer loyalty. (Becchetti, Di Giacomo & Pinnacchio 2008, 542–543.)

The social dimension of corporate sustainability also emphasizes external stakeholder engagement. Attending to different stakeholder groups', such as communities, investors, suppliers, or activist groups' needs, can aid in the creation of socially sustainable communities and cities. (Ramchandani & Singh 2022, 38.) Initiatives that businesses are known to take part in include community projects, such as investing in local infrastructure, offering internships or scholarships and supporting local businesses through partnerships. (Dunphy et al. 2014, 30; 244.) The focus being on the needs of both employees and external stakeholders highlights the wide range of the social aspect of corporate sustainability (Ramchandani & Singh 2022, 38).

In a corporate context, environmental sustainability can be defined as the corporate practices and plans that businesses adopt to decrease their negative strain on the natural environment. The environmental initiatives businesses tend to implement often revolve around policies, processes and products that reduce energy consumption and waste, adopting environmental management systems and promoting the use of ecologically sustainable resources. (Walls, Phan & Berrone 2011, 73; Ramchandani & Singh 2022, 38.) Today, companies have had to shift from a short-term approach and find new sustainable practices in order to meet long-term success without compromising the planet. (Ramchandani & Singh 2022, 38). To summarize, organizations embracing environmental sustainability need to focus on initiatives and practices that ensure the access of critical natural resources for the future generations (Ramchandani & Singh 2022, 38). In regard to the organizations operating in the maritime sector, among the top priorities in terms of sustainability is decarbonisation and the transition to carbon neutrality. Decarbonisation can be achieved by supporting the development and passage to alternative, ecological fuels, for instance biofuels such as liquefied natural gas (LNG) and ammonia. (Lloyd's Register 2018, 3; 18.)

In their quest of achieving sustainable business practices, businesses ought to think about their economic sustainability as well. Economic CS can be described with indicators such as cash-flow, shareholder value, profitability and liquidity. Steurer et al. (2005, 271) argue that a company can be considered sustainable only if it takes action in order to improve its competitiveness – thus, conducting strategic planning. The authors also emphasize that

a business can only achieve economic sustainability by fulfilling its financial responsibilities. These include paying taxes to governmental bodies, providing fair compensation to its employees and suppliers, offering adequate interests to its creditors, and eventually distributing dividends to its shareholders.

Interestingly, the economic aspect of CS is most frequently ignored by firms when defining and conceptualizing CS targets and actions. It is not uncommon to include economic considerations into a firm's sustainability targets, however, these considerations rarely concern actual macro-economic factors, such as economic growth, economic welfare or fair taxation. Often the economic factors considered in sustainability targets refer to possible economic benefits firms may gain when pursuing CS (e.g. profits, revenue growth). (Meuer et al. 2020, 31.) Further, economic sustainability can be viewed as encompassing the long-term strategy, viability and performance of an organization. From this perspective, businesses should engage in sustainability initiatives not only for social and environmental reasons, but as a strategic act in order to achieve long-term economic prosperity. (Svensson & Høgevold 2015.) Next, sustainability's significance to the MRO industry organizations is elucidated.

2.2.3 Corporate sustainability within the MRO industry

The safety concerns present in the maritime MRO industry are ongoing and require continuous action to improve safety across the industry (Wang et al. 2020, 6). Accidents are common, as MRO engineers often operate long hours in hazardous conditions with ship engines. In these conditions, both accidents and malfunctions are unpredictable but still common. It has been found that the root cause for MRO accidents is often in employee behaviour, and insufficient safety instructions. Safety leadership, communication and commitment play a key role in the formation of safety culture and atmosphere in organizations, and they also have an influence on employee safety behaviour. Safety should therefore be prioritized in organizations across the MRO industry, and employee safety should be embedded as an integral part in their sustainability strategies. (Adi, Eliyana & Hamidah 2021, 1, 13.)

The MRO sector has a significant role in promoting environmental sustainability in businesses. MRO organizations mainly operate within the transportation, maritime and aviation fields, where decarbonization and other emission reductions are especially emphasized. Due to the significant environmental impact of these industries, the

businesses operating in these fields are expected to be very proactive in regard to environmental measures in response. (Gróf & Kamtsiuris 2021, 1322–1323; Sarkis 2001, 682.)

In the maritime sector, where resources are expensive and core operations often unsustainable, a growing need for efficient and sustainable product use and extending of products' lifespan persists. This is where the need of MRO services is highlighted. (Uhlmann et al. 2013, 239.) The demand for products' after-sales maintenance and technical competence is increasing, all while sustainable fuels are being developed and brought out to the market. This brings another great challenge for the MRO sector. Organizations have to be ready for the switch to green fuels. This has to be taken into account in the product and service portfolios of businesses. (Uhlmann et al. 2013, 244.)

While the maritime industry and MRO organization operating within the sector are known to battle with numerous sustainability issues, such as the aforementioned emissions and safety concerns, they can be a part of the solution to these issues. The maritime industry can influence the implementation of the United Nations Sustainable Development Goals (SDGs) in a number of ways. (Wang 2020, 1–2.) The key responsibilities the industry has in regard to SGDs, are within the following SDGs:

- SDG 14: Life below water
- SDG 3: Good health and well-being
- SDG 8: Decent work and economic growth (United Nations 2023.)

Organizations operating within the maritime industry have a clear responsibility towards the oceans, marine lives and ecosystems of the world (UN 2023). This calls for certain concrete actions, such as equipping ships with systems that stop their impact towards the spread of harmful organisms and pathogens to the ocean. The responsibility also applies to the protection of coastal ecosystems and the restoration of coastal wetlands, for instance. Measures aimed at protecting marine biodiversity are also required and called for from maritime businesses. (Wang et al. 2020, 8.) SDG 3 aims to promote well-being and healthy lives (UN 2023.) The maritime industry can partake in this SDG by reducing pollution and ensuring the well-being of coastal residents and communities and enhancing employment in these areas (Wang et al. 2020, 2).

The industry is additionally responsible for providing decent and safe working conditions for their employees (Wang 2020, 2). This is an important component of SDG 8 (UN

2023). Other concrete measures for taking initiative towards achieving this SDG include ensuring occupational health and safety of employees and seafarers. This can be achieved by offering occupational health services, safety training, and risk assessments. (Wang et al. 2020, 6.)

The social and environmental aspects of sustainability are particularly highlighted in the maritime MRO industry. This stems from the hazardous working conditions along with the high-emitting nature of the industry. Safety risks are common in maritime operations, and efficient MRO practices are necessary in order to manage these risks. MRO and maritime industries also play an important role in pursuing the achievement of many SDGs.

As the focus transitions from understanding the principles of CS within the MRO industry towards the factors that drive organizations towards more sustainable practices, it becomes important to explore the motivators and key success factors that serve as the basis of this transition. The next section is dedicated to investigating the contributors that can push organizations towards these changes, providing insights into how businesses can align with the ever-evolving landscape of sustainability.

2.3   Drivers and assessment of corporate sustainability

Nowadays, organizations recognize CS as a crucial factor for long-term success in the business world. This has made understanding the motivations that drive businesses to adopt CS practices a necessity. (Ramchandani & Singh 2022, 34.) These CS drivers are often divided into internal and external categories (Schrettle, Hinz, Scherrer-Rathje & Friedli 2014, 76). Often, the external drivers tend to result in reactive actions, while internal drivers are known to stem from a more proactive standpoint. It is to be noted that researchers have identified countless motivators as to why businesses engage in sustainability activities. Some of the most integral and common ones are introduced in this study. In addition to introducing CS drivers, the importance of understanding how the organization's sustainability performance can be assessed should be recognized. Acknowledging where a company lies within their sustainability journey is crucial in identifying opportunities for improvement.

2.3.1 Internal drivers of corporate sustainability

One way to categorize the internal factors that drive companies to take on sustainability activities is by dividing them into three following groups: 1) strategy, 2) culture and 3) resource-based drivers (Schrettle et al. 2014, 76). The strategic drivers focus on the ways businesses integrate CS principles, such as vision, mission and sustainability targets into their core strategy. This means putting sustainability principles and goals at the core of a company's success. Achieving this level of integration is a significant challenge for many managers – however it has been recognized as an elemental part when aiming to increase the level of CS. (Etzion 2007, 641; Schrettle et al. 2014, 77.) This integration process can be reinforced by ethical leadership, which is considered another CS driver in organizations. Ethical leaders act in accordance with sustainable principles and values, and with their example, they can encourage others to do the same. Proactive, ethical leadership can have significant influence in shaping a firm's sustainable orientation. (Lozano 2015, 35; Schrettle et al. 2014, 76.)

However, other motivators are needed in addition to the efforts of the leadership. Businesses tend to adopt sustainable practices out of their self-interested reasons, and are more likely to adopt sustainable practices, when they see a direct benefit or an advantage to themselves. Thus, self-interest and perceived benefits are considered key motivators driving corporations towards higher engagement in CS. The perceived benefits can be tangible, such as cost savings or increased profitability, or intangible, such as brand value. (Wolf 2014.)

The cultural drivers stem from organizational culture – the values, beliefs and principles that guide an organization's operations and its employees' behaviour (Schrettle et al. 2014, 77). From a CS standpoint, cultural factors highlight a company's ethical principles and employee engagement from the basis for integrating sustainability practices in the organization. The cultural drivers include moral and ethical obligation, risk avoidance and demands from employees, for instance. (Ramchandani & Singh 2022, 36.) Schrettle et al. (2014, 77) identify additional cultural drivers, such as competitiveness, and a long-term attitude related to profits. Lozano (2015, 39) highlights employees' role in CS motivation – employees tend to be curious about sustainability activities of possible employers. Therefore, a company that is known to be a major polluter may turn away talent just because of this. On the contrary, firms that have integrated sustainability in

their core strategy and organizational culture can attract employees due to their activism in regard to CS.

In the resource-based view on CS drivers, the focus is put on the organization's resources and their effective and sustainable usage. (Lozano 2015, 35.) The emphasis is on economic benefits achieved due to saved resources, improved efficiency and innovation. Any company's ability to carry out successful CS initiatives and gain a competitive advantage depends on the quality and uniqueness of its resources. A resource-based view helps companies to understand how their internal resources, like technology, equipment and employee skills enable the development of CS strategies and their implementation. Thus, these internal resources are a key driver in promoting CS. (Schrettle et al. 2014, 77.)

2.3.2 External drivers of corporate sustainability

The external motivations that drive companies to adopt sustainable practices affect the decision-making processes of companies from outside. External drivers can either encourage or force businesses to adopt sustainability principles and implement CS initiatives. (Schrettle et al. 2014, 76.) Environmental policies and regulations issued by governments and other legislative bodies can be viewed as one of the most critical sustainability motivators for organizations. (Ramchandani & Singh 2022, 36; Lozano & Haartman 2018, 513.) Complying with environmental and social regulations, such as environmental policy reporting laws and regulations protecting employees is necessary for businesses, unless they are prepared to manage legal consequences and other negative effects for their corporate image. (Etzion 2007, 646.) Legislation and regulation shape companies' sustainability strategies significantly. This influence may have an effect on firms' growth and profitability. In industries where management faces personal liability for not adhering to environmental legislation, regulation appears to be a powerful motivator for CS. (Schreattle et al. 2014, 76)

Organizational values and norms were identified as internal drivers of CS (Lozano 2015, 39). Culture – as in societal values, norms and expectations of stakeholder groups represent another external, influential driver of CS (Schreattle et al. 2014, 76). As concrete activities, this could mean shareholder awareness on sustainability issues and their expectations from firms; pressure from the local community; NGO activism; along with collaboration with external parties. (Ramchandani & Singh 2022, 36; Lozano &

Haartman 2015, 514.) In general, the recently risen power of public pressure, driven by social norms and values, has become increasingly influential. It is crucial for businesses to recognize these societal values when engaging in CS efforts. (Schreattle et al. 2014, 76.) Additionally, market drivers that shape the market contexts in which businesses operate are influential in encouraging companies towards CS initiatives. (Lozano & Haartman 2018, 515).

Corporate reputation is defined by how stakeholders perceive a company's image and its commitment towards CS. Proactive sustainability strategies have been linked to a positive impact on corporate reputation, highlighting the importance of reputation as a sustainability driver. (Ramchandani & Singh 2022, 36.) Corporations are also prone to take on more initiative regarding sustainability to protect their brand image, and additionally as a reactive activity following backlash or negative attention to their actions. (Lozano 2015, 42.) Understanding the motivators that drive organizations to take on sustainability initiatives is highly important when assessing organization's sustainability performance. (Schrettle et al. 2014).

2.3.3 Assessing the corporate sustainability performance

After understanding what motivates companies to engage in sustainability, integrating sustainability considerations into organizations' strategy and operations is the next critical step moving towards long-term sustainable practices. This can also be referred to as assessing an organization's sustainability journey. By assessing how well organizations integrate sustainability principles, it is possible to identify their levels of development, opportunities for improvement and strategic gaps in relation to sustainability. A variety of assessment methods offer tools for understanding how organizations succeed in getting CS embedded into the heads and hearts of their employees. (Witjes, Vermeulen & Cramer 2017, 132.)

In this sub-section, three sustainability assessment frameworks that aim to assess the current state of a company's CS journey and guide it towards future sustainability targets are introduced. Willard's (2012, 20–21) framework of five CS integration stages aims to help organizations to understand where they are in their sustainability journey and guide them towards the next step. Every organization contributing to even one of the three aspects of sustainability can be placed on one of the stages. By implementing new sustainability initiatives or adopting new practices, businesses can move further up the

stages. Elkington (2002, 7) conceptualized the sustainability integration stages with his insect metaphor, which uses biological imagery to determine where an organization lies in its sustainability journey. Additionally, Dyllick and Muff's (2016) model of CS integration is built on four stages that describe the level of CS within a company.

Elkington's four stage model entailing four insect archetypes can be mapped to Willard's five stage conceptualisation. Dyllick and Muff's (2016) four staged model compliments the two other frameworks as well. The stages of sustainability integration are presented on Figure 3.
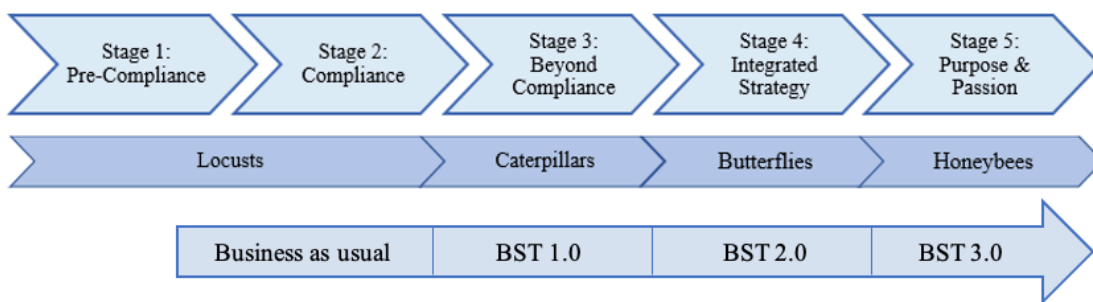
Figure 3 Stages of corporate sustainability transformation (Adopted from Willard 2012; Dyllick & Muff 2016 and Elkington 2002)

As is illustrated in the figure, each framework describes businesses' development path towards a deeper integration of CS. While the model on the top row of the figure (Willard 2012) focuses on the development stages and the transitions only, Dyllick and Muff's (2016) business sustainability (BST) framework on the bottom deepens the understanding of how sustainable business differs from traditional business trends. Elkington's (2002) insect model in the middle emphasizes the triple bottom line -balance of companies when moving up the stages. Together these designs complement each other and provide a comprehensive view of how organizations can progress towards true CS, as well as identify their level of CS at any given time.

Stage 1 is referred to as *Pre-Compliance* in Willard's model. In the insect metaphor, firms on the first and second stage are called *Locusts*. Firms on this stage in their sustainability integration process prioritize profit above everything else. (Elkington 2002, 8.) They might take shortcuts and try to avoid detection if engaging in unsustainable, potentially wrongful or exploitative practices. Organizations on this stage do not give consideration to sustainability and intently resist against regulatory initiatives associated with it. To remain in this stage is risky for a company's survival. (Willard 2012, 27–28.) In other

words, companies on this stage have an unsustainable business model (Elkington 2002, 8).

Stage 2, *Compliance* calls for firms to adhere to the law and regulations relating to labor, safety, health and environment. In Dyllick and Muff's framework, this aligns with the *Business-as-usual* stage. Firms on this stage tend to take a passive approach – reactive at most – to sustainability issues. They make sure to meet their legal obligations but do not pursue efforts above that. (Dyllick & Muff 2016, 163; Willard 2012, 27.) Sustainability initiatives beyond legal requirements are viewed as expenses rather than strategic investments (Elkington 2002, 8). Instead of proactively and systematically trying to integrate sustainability into the strategy and operations, stage 2 firms view sustainability efforts as last-minute projects without a deeper commitment to the cause. The underlying belief is that traditional economic concerns, such as securing affordable resources, optimizing processes and striving for a strong position in the market, are targeted to pursue financial gains, enhanced market worth or more generally, increased value for shareholders. (Dyllick & Muff 2016, 163.) In listings made of companies on these early stages of sustainability integration, for instance tobacco producers and mining companies are often represented. (Willard 2012, 27–28.)

Organizations that are on stage 3 on their sustainability journey are going *Beyond Compliance.* (Willard 2012, 27–28.) Elkington (2002, 8–9) referred to this stage firms as *Caterpillars*. The firms have the potential to move from a reactive approach to sustainability towards a more proactive approach – instead of only complying with absolutely necessary obligations, they are taking the initiative to actively drive sustainability efforts. Dyllick and Muff (2016, 163–164) call this stage *Business Sustainability 1.0.*

Firms on this stage are starting to recognize the risks and opportunities associated with environmental and social responsibility. Businesses may embark on a CS journey by adopting new cleaner, more efficient, eco-friendly practices and realizing the potential of reduced costs by making operational improvements while reducing their environmental impact. (Willard 2012, 27–28; Dyllick & Muff 2016, 163–164.) However, the primary strategy often still focuses on shareholder value maximization as a top priority (Elkington 2002, 8). They realize the potential that lies within social investments in reducing uncertainty, building positive relationships with stakeholders, enhancing corporate

reputation and ultimately increasing shareholder value. (Willard 2012, 27–28.) Regardless of the progress, sustainability initiatives are still not fully integrated into the strategy and core activities of the organizations. Instead, they are treated as isolated efforts that are often dealt with by specialized departments. Any impact is made through small-scale local efforts. Sustainability is not yet an imperative part of organizational culture. (Elkington 2002, 8–9.)

Stage 4, *Integrated Strategy*, describes companies that have managed to transform themselves into committed promoters of sustainable agendas. Sustainability is firmly incorporated into key business strategies which are implemented through clear action plans, and the organizations have found ways to capture added value from sustainability initiatives that benefit all stakeholders. (Willard 2012, 27–28; Elkington 2002, 9.) Dyllick and Muff's (2016, 164–165) framework names this stage as *Business Sustainability 2.0.* Businesses on this stage strive for a balance between the three pillars of sustainability in order to transform their CS aspirations into value. Thus, they have adopted a sustainable business model.

Instead of viewing corporate sustainability as risky and expensive, it is viewed as an opportunity. Stage 4 firms emphasize ecological efficiency, produce greener products and pay attention to the entire life cycle of their products. Ultimately these sustainability initiatives can lead to increased competitiveness. (Willard 2012, 27–28; Dyllick & Muff 2016, 164–165.) In the insect metaphor firms on stage four are referred to as *Butterflies*. According to the model, while butterflies have adopted sustainable business models, they are at risk of becoming less sustainable with growth and success. This can make them increasingly dependent on financial markets and corporate partners with less sustainable strategy. As it is extremely difficult for firms to reach the fifth stage of sustainability integration, most companies that are generally praised for their sustainability efforts in the media are on stage 4 – corporate butterflies. (Elkington 2002, 9.)

Firms that have reached the fifth and final stage have adopted sustainability as a part of their *Purpose* and *Passion* (Willard 2012, 7). Having reached the highest level of CS, businesses tend to approach CS from an "outside in-" perspective – this calls for focus on solving socially and environmentally crucial challenges, utilizing the organization's resources and sustainability knowledge in the process. In this stage, that is also referred to as *Business Sustainability 3.0,* sustainability is at the core of the organizations'

operations and CS is actively acted upon to create a positive impact. (Dyllick & Muff 2016, 165–166.) Elkington (2002, 10) described these companies as *honeybees* – they are driven by a passionate commitment to enhancing the well-being of the firm, its stakeholders, the society and the surrounding environment. Sustainability is strongly embedded into the firms' values and strategy, and it is implemented throughout the organization with dedication. (Willard 2012, 27–28.) Corporate honeybees are rare – not many firms have managed to embed sustainable practices and innovations in such a comprehensively integrated manner (Elkington 2002, 10–11).

While corporations do acknowledge the importance of sustainability, the challenges related to its integration in the strategic and operational level remain significant (Epstein & Buhovac 2010, 306). A significant reason lies within the complexity of sustainability – it is characterized by various pluralistic goals, uncertainty along with general influence of contextual factors. (Searcy 2009, 1057.) The sustainability assessment frameworks presented in this chapter can be helpful, as they form a practical approach towards understanding the various goals, uncertainties and contextual factors of sustainability (Dyllick & Muff 2016, 156). However, in order to reach higher levels of CS integration, aims and goals have to be transformed into actions. The following section deals with implementation strategies, along with methods and tools developed to help organizations implement their CS strategies in their day-to-day operations.

2.4 Implementing corporate sustainability

2.4.1 Success factors for corporate sustainability

Corporate sustainability has been a *cause célèbre* in a business setting for years, if not decades. Being sustainable is an important goal – a prerequisite – for companies in order to do good. (Meuer et al. 2020, 319.) Integrating CS to the core of the corporate strategy is crucial for CS development (Willard 2012). The next step is to translate the CS strategy into practice. However, despite this, to date very little attention has been paid to the process of CS implementation (Wijlens 2022, 18). Sustainability implementation is therefore still viewed as a complex, multidimensional challenge. (Engert & Baumgartner 2016, 822.) In this sub-section, actions and success factors that can aid in bringing CS strategies down to an operational level are analysed.

Successful implementation of a CS strategy begins with a *coherent organizational structure*. It is essential that the strategy is aligned with the organizational structure and processes, for strategy implementation to be successful. (Nathan 2010.) Sustainability is a multidisciplinary concept, and often in organizations, the sustainability functions are scattered around multiple entities or units. This can cause communication problems across entities. When the strategy, structure and processes fit together well, a more stable basis has been created for strategy implementation. (Engert & Baumgartner 2016, 828.) Rodrigues and Franco (2019) identified inadequate definition and design of strategy as a key barrier in CS implementation.

Organizational culture is another important facilitator of CS implementation (Nathan 2010). Organizational culture plays a key role in operationalizing CS strategies, as it forms the foundation on which companies' value, belief and practice systems build on. If CS principles are embedded in the culture of organizations, it can guide the behaviour of both employees and managers towards more sustainable practices. (Engert & Baumgartner 2016, 828.) Bonn and Fischer (2011, 11) note that organizational cultures, where sustainability is placed in the centre, boost a view that sustainability values are important to the business and can guide organizational behaviour. Cultural factors were also identified as motivators for corporate sustainability integration in an earlier chapter of this study (Ramchandani & Singh 2022, 36). This only reinforces organizational culture's importance as a CS promoter.

Like sustainability-centred organizational culture, also committed and visionary leaders can encourage the whole organization towards sustainability targets by leading by example. (Engert & Baumgartner 2016, 828.) Simas, Lengler and Antonio (2013) argue that *committed leadership* is crucial to the implementation of CS. They further note that approving attitudes of senior managers and responsible managers are necessary in actualizing CS strategies. Building from this, Rodrigues and Franco (2019, 10) identified that a strong culture for change management is necessary in implementing sustainability initiatives – this calls for flexible structures so changes are manageable and accessible throughout various processes. *Competent and motivated employees* are also mentioned as a key resource for companies in implementing CS strategies, as commitment from all actors in the organization is needed for a successful implementation of strategy. (Rodrigues & Franco 2019, 1.)

In order to implement CS, positive attitudes are also required towards voluntary sustainability initiatives and standards, such as UN SDGs and Carbon Disclosure Project (CDP). The aim of these standards is to ensure businesses take part in developing sustainable practices and improving the transparency and comparability of CS efforts. Sustainability standards offer businesses guidance as to what sustainability activities to drive within their operations, along with clear frameworks for reporting on their progress. This commitment often contributes to increased trustworthiness among stakeholders. (Klettner, Clarke & Boersma 2014, 158–159.)

Setting concrete and specific targets for CS efforts is critical for strategy implementation. This helps in identifying priorities and contributes to a better performance in the implementation process. (UN Global Compact 2023.) The characteristics of effective sustainability targets include measurability and time-boundness. Additionally, targets should be realistic. (Engert & Baumgartner 2016, 829–830; Klettner et al. 2014, 160.) After target setting, control systems to monitor the progress regarding the targets should be put in place (Rodrigues & Franco 2019, 10.) This management control can be carried out in many ways. Firstly, the set targets can be divided into short-term action plans, and a responsible person can be appointed to each target or even each action plan. This ensures that measures are taken towards achieving the targets, and the progress is monitored. Additionally, the development of targets can be monitored with indicators – for this, the targets have to be transformed into measurable indicators. (Engert & Baumgartner 2016, 829–830.) Indicators will be further elaborated in a later chapter.

Sustainability communication has traditionally been directed mainly for external stakeholders, and the primary channel for it has been companies' sustainability reports. However, especially the internal communication process is an important factor in CS implementation. The complexity and interdisciplinary nature of the concept of sustainability necessitates interaction and communication across teams and units. (Engert & Baumgartner 2016, 830.) Efficient communication is thus an integral part in successful operationalization of CS strategy (Rodrigues & Franco 2019, 11). The primary channels for internal communication in firms include meetings and intranet (Engert & Baumgartner 2016, 830).

For an effective execution of CS strategies, it is essential for organizations to establish both informal and formal systems to ensure internal and external accountability. The

informal systems stand for 'soft' systems, such as leadership and culture. Processes, performance measurement and sustainability management standards are referred to as formal, or 'hard systems. Achieving coherence between the informal and formal systems is critical for successful sustainability implementation. (Epstein et al. 2010, 306.) The informal systems were dealt with in this sub-section. The following two sub-sections focus on the formal systems.

2.4.2 Sustainability measuring

Companies are experiencing an accelerating pressure to communicate more openly and transparently with their stakeholders, who are becoming increasingly conscious of sustainability issues. Stakeholders demand more information on companies' activities regarding their efforts towards responsible business. Businesses can respond to this need by actively measuring their success within their CS initiatives. (Tate, Ellram & Kirchoff 2010, 19–20.) Due to the elevated focus in corporate sustainability, companies of all sizes and origins have been compelled to measure and assess their sustainable performance and their economic, environmental and social impacts generated (Tenuta & Cambrea 2022, 42).

While multiple tools to measure CS performance have been identified over the course of time, CS measuring still lacks a common language. (Tenuta & Cambrea 2022, 16.; Montiel & Delgado-Ceballos 2014, 127.) Although there seems to be a degree of consensus on how to measure the environmental aspect of CS, methods for measuring the other two aspects remain ambiguous. This does not prevent organizations from utilizing internal and external CS measuring tools and acquiring useful data regarding their sustainability – however, different providers using different criteria in their assessments can lead to challenges in objective evaluation and comparison of firms based on their sustainability efforts. Sustainability measuring involves the process of monitoring, measuring and assessing CS efforts in a broader sense. It often serves as an internal control function for companies. The key methods for sustainability measuring are briefly introduced in this sub-section. After this, the focus shifts to sustainability reporting standards and frameworks.

In CS literature, measuring firms' sustainability performance is often described through the use of sustainability indicators (Pranugrahaning, Donovan, Topple & Masli 2021, 2; Maas, Schaltegger & Crutzen 2016, 238). Key performance indicators (KPIs) are metrics

used to assess and measure the performance of an organization or a process. They are quantifiable data points that are specific, measurable and relevant to the objectives of an organization. KPIs are a key tool that guides corporate decision making, while enhancing the efficiency of corporate activities and supporting firms in achieving their strategic objectives. The adoption of KPIs allows firms to identify problem areas and track their progress. They can be composed from either financial or non-financial measures, and therefore through KPIs firms can track their progress in a multitude of various processes and goals. While they vary extensively depending on the operating industry and firm-specific objectives, their primary purpose is to provide stakeholders and managers with insights into the company's performance in key areas. (Marr 2012; Klimaitiené, Derengovska & Rudžioniené 2020, 218–219.) Examples of common environmental KPIs include carbon footprint, resource efficiency, energy-sourcing awareness and product-related recyclability (Krause & Arora 2020).

Sustainability, or ESG ratings are another way of assessing companies' performance and impact in relation to environmental, social and governance (ESG) factors. ESG ratings are used to evaluate and rate companies based on their ESG factors – in the assessment process, the corporation's performance and quality are considered from an ESG perspective, with the aim of identifying considerable sustainability risks for the corporation. ESG ratings aim to identify the primary ESG risks and opportunities that are facing both the company and its respective industry. The company is then assessed based on its various attributes, including its capability and preparedness to mitigate and manage potential risks; its exposedness to these risks and opportunities; the possible issues that could turn into unexpected costs in the long run, and the overall status of the company in comparison to its competitors in global markets. (MSCI 2023, 5–8; Thomson Reuters 2018, 3.)

ESG ratings make assessing companies' sustainability efforts possible both at a general level and also within any of the three dimensions of sustainability. Institutional investors, financial institutions, asset managers and various stakeholders are progressively turning to ESG assessments and ratings. They are used to evaluate company ESG performance, both over time and in comparison to similar companies in the same industry. Such evaluations frequently form the foundation of informal interactions and shareholder proposal-related investor engagement with corporations concerning ESG issues. (Huber & Comstock 2017, 1.) Generally, ESG assessments are based on public information about

companies – such as annual reports, sustainability reports or other self-disclosed reports by companies. (Refinitiv 2023; Thomson Reuters 2018, 4.)

ESG rating systems have faced criticism concerning their reliability. While ESG and sustainability reporting practices are becoming progressively more regulated, there are vast country and industry-level differences in reporting standards. This combined with the differences in ESG rating agencies' assessment criteria and the unclear standard for what constitutes a sustainable investment, the reliability of ESG ratings remains rather blurry. (Cambrea & Tenuta 2020, 81.) The next sub-section introduces sustainability reporting as a concept, and tools firms can utilize in pursuance of accountable and transparent reporting.

2.4.3 Sustainability reporting

Sustainability reporting is closely connected with sustainability measuring. Measuring sustainability performance is needed for sustainability reporting, which deals with the disclosure and accountability of firms' CS efforts. As an activity, it is aimed at stakeholders, providing them with important sustainability information. (Agama & Zubairu 2022, 32; Siew 2015, 181.) In addition to public corporations, sustainability reporting is conducted by various other actors too, for instance, governments and non-governmental organizations. (Buhr et al. 2014, 53.)

Sustainability reporting first emerged between the 1970s and 1980s as a voluntary initiative for companies to report on their compliance to environmental management. This was mainly a trend among large multinational corporations from industrialized western countries. The following decade saw a shift in the focus of sustainability reporting. In the 1990s, the trend was to report on occupational health and safety matters. Since the turn of the century, the focus has been on the triple bottom line approach, with companies encompassing the three main aspects of sustainability in their reports – economy, social and the environment. (Siew 2015, 181; Fifka 2013, 2.) Today, sustainability reporting is facing a new movement, promoting mandatory disclosure of certain sustainability information. Reporting is regulated with legislation – for instance, the European Union directive 2014/95/EU (2014) dictates that in situations, where a firm is required to report non-financial information, providing comprehensive explanations on its activities is necessary. This could include details on the company's environmental impact, GHGs, air pollution for instance.

Firms can communicate about their sustainability issues through various different channels (Buhr, Gray & Milne 2014, 53). While it may take many different forms, in its essence it involves the internal analysis and a public disclosure of a company's sustainability performance (Tenuta & Cambrea 2022, 42). Next, useful CS reporting systems are briefly introduced.

A sustainability report, or a CSR report, is a document compiled by businesses that provide information on their sustainability actions. Most often they follow the Triple Bottom Line -approach, and include sustainability data from the organization's economically, environmentally and socially responsible activities. These reports provide insight into the company's sustainability policies while usually demonstrating their direct commitments to common good. Sustainability reports promote a systematic approach to managing socially responsible actions, identifying potential future risks and opportunities, thus promoting a business's competitiveness while ensuring its sustainability long-term. The information included in sustainability reports is not meant solely for internal use – it also plays a significant role in shaping the decision-making processes of various stakeholders. (Moravcikova, Stefanikova & Rypakova 2015, 332.) Many companies are publishing sustainability reports voluntarily, but they are increasingly becoming mandatory and required by law. The format of the report remains free for organizations to choose. Some firms include their sustainability reporting in their annual report as a separate section, but again, a separate sustainability report is increasingly the approach companies tend to take. (Buhr et al. 2014, 53.)

Firms may administer their sustainability reporting as a part of their annual report. Alternatively, firms can submit an independent sustainability report. This seems to be an increasingly popular choice. (Ministry of Economic Affairs and Employment of Finland 2017.) Sometimes firms get accused of publishing sustainability reports that appear too enticing, instead of actually investing in the implementation of CS strategies. These stakeholder-deceiving practices are referred to as greenwashing. (Paetzold 2010, 44.) This means that a firm implies that its operations are sustainable and responsible by making false claims in order to appear responsible in the eyes of their stakeholders – all while their actual activities indicate the opposite (Friend 2009, 78). Some authors see that in order for a firm's activities to be regarded as greenwashing, the deceiving has to be done intentionally (Netto, Sobral, Ribeiro & Soares 2020, 10).

Over the years, there have been profuse attempts to establish a universally accepted and legally obligatory, standardized sustainability reporting framework. The Global Reporting Initiative (GRI) has arguably come closest to this objective. (Barkemeyer, Preuss & Lee 2015, 313.) The GRI is an international organization that has designed an extensive set of standards and guidelines for sustainability reporting. Their mission is to create a reliable and credible, standardized reporting system – this is what they have sought since the publication of their first set of guidelines (G1) in 2000. G1 was the first international framework for sustainability reporting. Ever since G1, the guidelines have been regularly updated. (Cambrea & Tenuta 2022, 43; Buhr et al. 2014, 62–63.) Based on a 2020 study conducted by KPMG, 73% of the 250 largest corporations in the world made their sustainability reporting through the GRI standard. In connection, 67% of the largest 100 corporations in 52 countries that report on their sustainability use the GRI standards (KPMG 2020). Thus, the GRI standards remain as the most widely used guidelines for sustainability reporting in the world (GRI 2022, 3).

The aim of the GRI standards is to aid corporations in enhancing their accountability and transparency, along with assisting organizations with communicating their sustainability initiatives and efforts in a global common language. For a business, the sustainability reporting process starts with them determining the topics best reflecting their sustainable impact, from social, economic and environmental aspects. A wide range of relevant topics are covered in the GRI standards – for instance biodiversity, employment and tax policies along with anti-corruption. (GRI 2022, 3–6.)

In addition to frameworks created solely for CS reporting or measuring, there are framework that are designed to do both. SMSSs, also known as the ISO-standards family for sustainability, are international standards designed for environmental management systems. They provide guidelines for organizations to operate according to the principles of sustainable development, and support firms to identify, manage and audit their environmental impacts. (ISO 2015.)

ISO 14001 is an international standard designed for environmental management systems. Its aim is to provide organizations with a framework to implement sustainability into management practices and minimize their environmental impact, gaining a competitive advantage and trust among the stakeholders. (ISO 2015; Bansal 2002, 125.) Developed in 1996, ISO 14401 promotes sustainable development through requiring that

organizations establish and maintain a management system that consistently diminishes their environmental footprint. (Bansal 2002, 125.) Tarí, Molina-Azorín and Heras (2012, 304–306) argue that the key benefits organizations can gain from the ISO 14001 standard include improved performance in regards to environmental performance, efficiency and profitability. Firms have reported about internal achievements such as cost reductions, increased productivity, improved internal procedures and improved employee morale, along with external accomplishments, like improved corporate reputation, increased market share and improved customer satisfaction.

However, contradictory statements remain. Bansal (2002, 122; 126) touches upon criticism that the standard has faced. Especially in its early years, ISO 14001 faced criticism from managers for not being cost-effective enough. A common cause for concern was also the fact that in-house environmental management systems were seen as serving the same purpose as the standard. Additionally, there is evidence that shows that the certification is most often obtained by firms already maintaining a positive reputation for sustainability in comparison to firms with a weak reputation in this regard. This implies that the certification standard does not appear to be successful in promoting or motivating sustainable activities. Some studies have also found no positive correlation between ISO 14001 and firms' financial performance. While there is sufficient evidence about benefits and positive impacts upon employees, operational issues and stakeholders, the relationship between ISO 14001 and financial performance remains ambiguous. (Tarí et al 2012, 307; Bravi, Santos, Pagano & Murmura 2020.)

Today, sustainability reporting is exceedingly important as organizations strive to demonstrate their commitment to sustainability. This section analysed various formal practices (as in methods and tools for sustainability measuring and reporting) for sustainability implementation. Table 2 summaries each method covered, and illustrates them in relation to each other.

Table 2 Overview of sustainability reporting and measuring tools and frameworks

Name	Overview	Example	Usage
Sustainability report	Document providing information on firms' sustainability efforts, often following the TBL approach	- Specified sustainability report - Part of an annual report	Reporting
Key performance indicators (KPIs)	Quantifiable metrics used to assess and measure performance of a firm or a process, providing specific, measurable and relevant data to guide decision-making and progress.	Tracking carbon emissions, resource efficiency, profit margin, customer satisfaction	Measuring
ISO 14001	International standard for environmental management systems, helping firms to implement sustainability practices and diminish environmental impact	Companies setting sustainability policies, monitor the execution and improve operations based on the results	Measuring & reporting
Global Reporting Initiative (GRI)	International guidelines for sustainability reporting, enabling organizations to communicate their sustainability efforts using a standardized framework.	A company sustainability report following the GRI standards	Reporting
ESG Ratings	Assessment of firms' ESG performance, providing insights into sustainability risks and opportunities.	ESG rating of a publicly traded corporation	Measuring

The methods described in this section can help companies in management, measurement and reporting of CS practices. By using these tools and methods together with the informal implementation framework presented in the previous chapter, organizations can create a holistic picture of their sustainability efforts and implement their sustainability strategy as smoothly as possible. The presented methods also provide organizations with knowledge and information to communicate their performance to various stakeholder groups transparently. The upcoming section presents the initial framework of this thesis, and serves as a synthesis of the theoretical framework.

2.5   Initial framework

The theoretical framework of this study delves into the concept of sustainability and its emergence, and investigates the motivators for CS along with integration and implementation of sustainable practices within the maritime MRO industry. The initial framework (Figure 4) presented in this section is constructed based on the concepts of CS identified in the theoretical framework. The framework aims to illustrate the factors proven to affect organizations' CS performance in an enhancing way, and highlight concrete action points. Ideally, the framework could be utilized in corporations to assist in operationalizing their CS strategy to achieve improvement in the field.
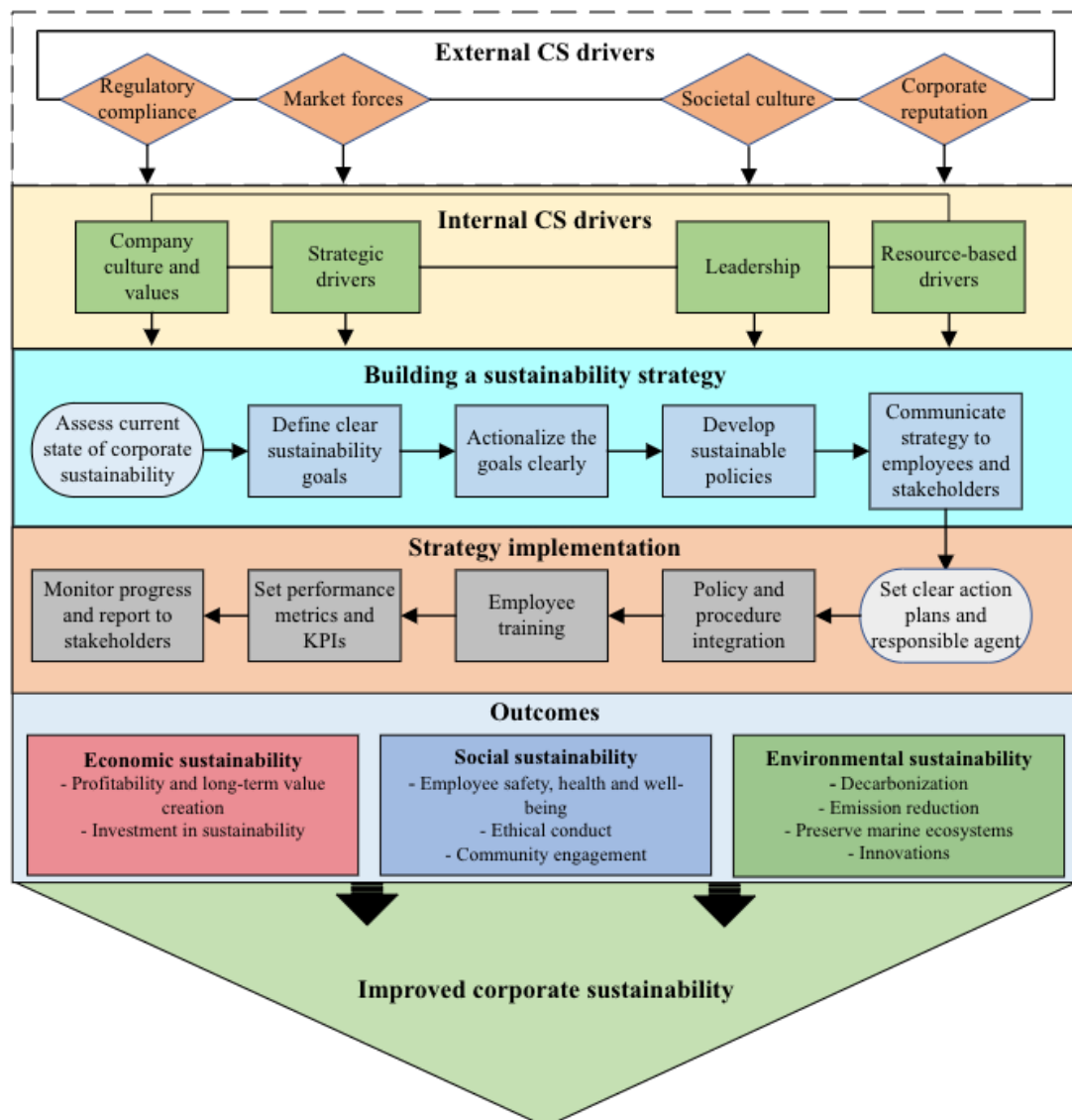
Figure 4 Initial framework for improving corporate sustainability

The initial framework of this thesis is constructed of elements contributing to enhanced CS performance, as identified by prior research. Within the scope of this thesis, the model outlines the key factors firms should be taking into consideration while organizing their sustainability agenda and endeavours. The framework aspires to be universally applicable across various industries, and to serve as a beneficial tool for enhancing CS. However, since this thesis addresses CS specifically from the perspective of maritime MRO companies, the framework has been tailored to be particularly suitable for the purposes of this sector.

The framework provides a structural approach to improving CS, by adopting a sequential design describing the process. At the top two levels of the model are the external and internal CS drivers, which are the motivators that drive organizations to employ sustainability initiatives. Businesses must respond to these factors in order to stay competitive. (Ramchandani & Singh 2022, 34.) The external CS drivers companies experience, such as regulatory requirements, market forces and societal expectations (Lozano & Haartman 2018, 513; Schreattle et al. 2014, 76), are outlined with a dashed line to illustrate the reality that businesses do not have much control on these factors.

However, external drivers affect the internal drivers, which is illustrated with arrows going down from the top level – the societal culture, legislation and market forces all have an influence on the internal culture and values of an organization (Schreattle et al. 2014). The internal CS drivers are mostly influenced by the organizations' own culture, strategic direction and leadership (Lozano 2015, 35). The placement of the CS drivers at the top of the model signifies their role as influential, core influences that can dictate the direction of a CS strategy.

The CS drivers act as motivators that push organizations towards wanting to integrate sustainability into their operations, and thus, build a CS strategy. This process consists of assessment of the current state of sustainability (Willard 2012), defining clear CS targets along with actionizing them, developing CS policies and practices and communicating the strategy (Rodrigues & Franco 2019). In the framework, this process is placed on the central level of the model, illustrating its role as a bridge between the CS drivers and CS implementation.

Following the arrows from the level dedicated to CS strategy building, the CS implementation phase is placed directly beneath it. For organizations, the process of CS

implementation involves multiple practical steps, such as setting KPIs and monitoring their progress, conducting employee training to increase CS awareness and actualizing CS policies and operations. (Tate et al. 2010; Klettner et al. 2014, 160.) The implementation process is depicted to occur from left to right – this describes a progression from objectives to tangible actions. Finally, the three dimensions of sustainability – the outcomes of the CS actions described in the framework, are positioned at the bottom of the model. They represent the desired outcomes of the implemented CS strategies, depicting how these operations can contribute to the overall improved CS in organizations.

Maintenance, repair, and overhaul services are an integral part of the maritime industry, where they ensure the safe and efficient use of transportation vessels. The initial framework for improving CS connects to the maritime MRO context especially through the internal and external CS drivers. Legislation, market forces and societal expectations help navigate the MRO organizations towards more sustainable operations. The MRO organizations have to be able to respond to these drivers by developing and implementing CS strategies, that especially emphasize the management of safety concerns, preserving marine ecosystems along with protecting the environment and promoting circular business models.

While navigating through the complexity of CS, MRO organizations need to understand what motivates them to engage in sustainability operations. Constructing a strategic framework, adopting both external and internal sustainability drivers, such as regulation and employee engagement, can be very beneficial. Externally, organizations need to keep up with the regulatory landscape, adapt to the expectations of society and use market competitivity to support sustainable practices. Internally, on the other hand, companies ought to focus on strategic thinking and building an organizational culture based on ethical conduct, along with using resources in a way, that prioritizes long-term success rather than short-term profits.

The conceptual framework for improving CS within the context of maritime MRO organizations (Figure 4) is thus a holistic one, where strategic integration, proactive ethical leadership and robust measurement, monitoring and reporting mechanisms are combined to foster a corporate culture of sustainability. By aligning their activities with the SDGs set by the United Nations, these organizations contribute not only to protecting

the planet's ecosystem, especially the ocean, but additionally to societal well-being, while driving sustainable economic growth. The next chapter will present the empirical research design applied to this study, while providing information about the methodological choices made in terms of data collection and analysis.

3   Methodology

This study adopts a mixed methods research approach and is conducted as a single case study. The data collection methods employed are semi-structured theme interviews and an email questionnaire. In this chapter, the empirical research process of this study is reflected upon, data collection and data analysis methods are justified, and the level of trustworthiness is evaluated.

3.1   Mixed methods approach

Research approach refers to the methodological approach selected for conducting the research (Hirsjärvi, Remes & Sajavaara 2018, 129–130). The choice intertwines with the research problems and the aims of the study (Maxwell 1996, 17). Often, the first choice for a researcher is the one between a qualitative and quantitative research approach (Hirsjärvi et a. 2018, 129).

Mixed methods research combines elements from both qualitative and quantitative research approaches in a single study. Aiming for a more thorough and balanced understanding of a research problem, it takes advantage of the strengths of each approach, outweighing some of the weaknesses in the process. (Johnson, Onwuegbuzie & Turner 2007, 123; Spratt, Walker & Robinson 2004, 6.) The approach provides researchers with the flexibility to thoughtfully combine elements from different research methodologies in diverse and adaptable ways (Spratt et al. 2004, 7). In the essence of mixed methods research is the sequential or parallel use of multiple research methods, and the overlapping analysis of their results. While the research approach is generally guided by pragmatic philosophical assumptions, it is perpetually influenced by the research questions proposed in the study. (Creswell 2009.)

According to Seppänen-Järvelä, Åkerblad and Haapakoski (2019, 332) mixed methods research has been considered particularly suitable for examining complex social phenomena and so-called *wicked problems*. Sustainability issues are seen as wicked problems by many scholars (see Brønn & Brønn 2018; Pederneiras et al. 2021.) The complex nature of CS – balancing between the pursuit of maximum profits, minimizing ecological impact and creating social good – poses a challenging equation for firms to solve. Thus, mixed methods research provides a suitable framework to investigate sustainability issues in a corporate context.

Qualitative research serves some of the purposes of this study well, since the study aims to deeply understand, not to seek statistical generalizations, but instead to understand the role that corporate sustainability plays within the case organization, deeply from the individual's perspective (Hirsjärvi et al. 2018, 160–162). The qualitative material consists of interviews conducted to executives and managers working with sustainability issues. The data includes the interviewees' personal thoughts on CS and their perspectives on the company's activities in the field of CS. This aligns well with the principles of qualitative research, as the purpose is to capture subjective and nuanced aspects of the interviewees' perspectives, and to understand the depth of the phenomenon, instead of providing generalizations. (Vilkka 2021.)

The quantitative part of the research has a complementary nature in response to the qualitative part. It aims for a deeper understanding of the state of CS in the case organization by gathering insights from a larger group. The quantitative data is collected from a larger sample, allowing for additional validity and generalizability for the results. This part of the research also provides triangulation to the study. With quantitative methods, the findings from the qualitative phase of the research can be confirmed, and a more nuanced and robust interpretation of them can be provided. (Teddlie & Tashakkori 2009.)

As opposed to solely choosing either a qualitative or a quantitative research approach, a mixed methods strategy was preferred due to its advantages compared to a single method. The method's elementary assumption proclaims that the combination of quantitative and qualitative research has the ability to provide a better understanding of research problems than either approach alone. Furthermore, mixed methods research allows the formulation of research questions that could not be sufficiently answered through qualitative or quantitative methods alone. While mixed methods do not eliminate the dichotomy between qualitative and quantitative research, it does not consider one method to be inherently superior over the other. (Teddlie & Tashakkori 2009; Sarajärvi & Tuomi 2019.)

In mixed methods research, the collection and analysis of data often happens either in parallel or sequential designs (Teddlie & Tashakkori 2009). As this study seeks to gain a comprehensive and deep understanding on the role of sustainability in the case organization, both in the level of integration and people's perceptions, a sequential mixed

methods research approach is employed. The sequential composition of this research is demonstrated on Figure 5.
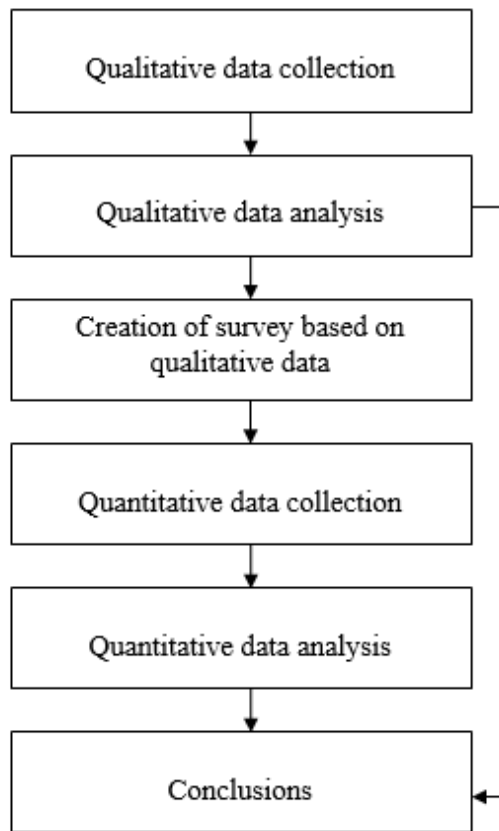
Figure 5 Sequential design of the empirical process

The sequential design of this empirical process refers to the style and order in which the empirical data of this research was collected and analysed (Teddlie & Tashakkori 2009). The qualitative data was collected first, and analysed immediately after, leading to initial conclusions. In the case of this study, the quantitative data could not have been collected parallel to the qualitative data, as findings from the qualitative data were needed in order to prepare for the collection of the quantitative data. After the collection of the quantitative data, data analysis was conducted. The results and conclusions from both data collection methods were then reviewed together and final conclusions were drawn from the whole material. In the next section, the research strategy chosen for this study is justified.

3.2   Single case study

Research strategy refers to the overall methodological solutions in a study. Similarly to the selection of individual research methods, choosing the research strategy depends on the research problems (Hirsjärvi et al. 2018, 134). Traditionally, research strategies have been divided into three categories, labelled as follows: experimental research, survey research and case studies (Robson & McCartan 1995, 40). This study adopts a single case research strategy.

According to Eriksson and Koistinen (2014, 1) a case study is a research strategy where one or several cases are examined, with the key objective being in defining, analysing, and providing solutions to the specific case or cases in question, (Hirsjärvi et al. 2009, 191) along with understanding the dynamics present within the case setting (Eisenhardt 1989, 534). Yin (2003, 13) defines case study as a research strategy that involves empirically examining a specific contemporary phenomenon in its real-life context, utilizing various sources of evidence. Case studies can be carried out through both qualitative and quantitative research methods, be aligned with various data sources, (Hirsjärvi et al. 2009, 191) and quite often combine data collection methods such as interviews and questionnaires (Eisenhardt 1989, 534). Therefore, a case study strategy is well compatible with the mixed methods approach of this research. However, Robson and McCartan (1995, 151) note that in mixed method research, case studies seldom feature a quantitative component with anything more than a minor role – as is the situation in this study.

Case study strategy was selected for this particular study because it enables the researcher to capture holistic and meaningful attributes of real-life events – such as organizational processes. It is also a suitable strategy for examining complex social phenomena, like sustainability. (Yin 2003, 1–2.) This choice was especially driven by the study's aim in delving into the corporate sustainability implementation and perceptions of an MRO-organization. The research problem aims to provide solutions solely in the context of the specific organization. Thus, a case study strategy is well justified.

In defining what constitutes a case in case study research, essential is the way in which the case can be defined and individualized. In early stages of case study research, a case was often a human, and in social studies, it is often a group of people (Yin 2003, 22). A case can also be a business operating in a specific industry, a country's economy, a

program or a process – possibilities are multiple. Case studies are generally contextual in nature, meaning that understanding of the nature of the case is sought in a predetermined context. Examples of possible contexts include cultural environment, a specific industry, or a political situation. Within this study, the case context was determined to be maritime MRO organizations, and more specifically, the commissioning organization. Identifying the case comes down to the formation of the research problems and should be guided by the aim of the research. However, it is common for the selected case to evolve during the research and analysis process, which is what happened during this research process. Therefore, the case may be reconsidered based on the discoveries made during data collection or analysis phases. (Yin 2003, 22–23; Eriksson & Koistinen 2014, 1–5.)

Case study research is divided into two categories: single-case and multiple-case studies (Yin 2003, 14). A single-case design is applied in this research. While a multiple-case study is often praised for its possibility to reach more compelling evidence and ability to provide further-reaching generalizations, the scope of this research supports a single-case design, as with a multiple-case design, a substantial amount of time and resources would be required. (Yin 2003, 46–47; Dubois & Gadde 2002, 557.) Although the challenge of generalization is acknowledged in this research, it does not hinder the achievement of our objective, which centres on description and understanding rather than on the construction of causal theories. A single-case study is a fitting strategy when investigating a "typical" or representative case. In this context, the aim is to explore and understand the conditions and circumstances of a common place or a situation. A typical case can be a common project among other projects; an ordinary company considered representative within its industry; or a typical neighbourhood – or in this study improving CS in a typical MRO organization context. The insights learned from these cases are presumed to be valuable in depicting the experiences of an average individual or institution. (Easton 1998; Yin 2003, 39–42.)

In the process of selecting cases, it is important that the selected case aligns with the theoretical framework and purpose of the study (Ghauri 2004). As the aim of this research is to understand and identify means to improve CS, this was deemed as a suitable basis for the research case. Thus, in this research, the case under investigation is the process of enhancing sustainability within the context of the case organization – a MRO-unit operating under a large, international maritime industry organization. This selection was guided by the research objectives that are closely linked to the case organization. The

commissioning organization can also be considered as a representative, typical context of an MRO-operator in the maritime sector, due to its operations and other characteristics being common within the industry. (Yin 2003, 39–42.)

3.3 Data collection and analysis

3.3.1 Operationalization and triangulation of the data

Sources of data can be classified into primary and secondary, based on whether the data is collected directly by from the source by the researcher, or is obtained from pre-existing sources that have been previously collected or published by others (Krishnaswami & Satyaprasad 2010, 86; Hirsjärvi et al. 2009, 186). This research is based on mostly primary data. In the context of business research, utilizing primary data sources is a common practice (Ghauri et al. 2020, 95). Some secondary data was also utilized in the study. This was mainly done to get familiar with the case organization and its processes.

In this study, two data collection methods were used complementary to each other. The data was collected in two phases. First, qualitative semi-structured theme interviews were conducted on case company executives and managers with a suitable background regarding sustainability issues. After this, based on the topics arisen from the interviews, a larger-scale quantitative survey questionnaire was sent to the case company employees. Additionally, secondary sources, such as company sustainability reports and websites were utilized by the researcher to get familiar with the organization and its processes before conducting the primary data collection. In order to guarantee the inclusion of all relevant themes and concepts in the data collection, an operationalization table (Appendix 1) was developed.

Operationalization in research proceeds from theoretical concepts towards their empirical equivalents. The aim is to create empirically measurable variables that are counterparts for the components of the theoretical concepts. (Eskola & Suoranta 2003, 75.) The operationalization table brings the research problems together with real-life, interview and survey context to ensure they are aligned and follow the purpose of the research. The table illustrates how the data collection methods aim to seek answers to each sub-problem of the study. An operationalization table was created to aid in formation of the interview questions (Appendix 2) and survey questions (Appendix 3), and to ensure that each question would serve a purpose in the study.

Triangulation is a term that often appears together with mixed methods. According to Eskola and Suoranta (1998, 69) triangulation involves the simultaneous use of various data, methods and theories in research. They propose that through triangulation, a mixed methods study can gain credibility and provide new perspectives to the research questions. The triangulation in this study is illustrated and presented on Figure 6.
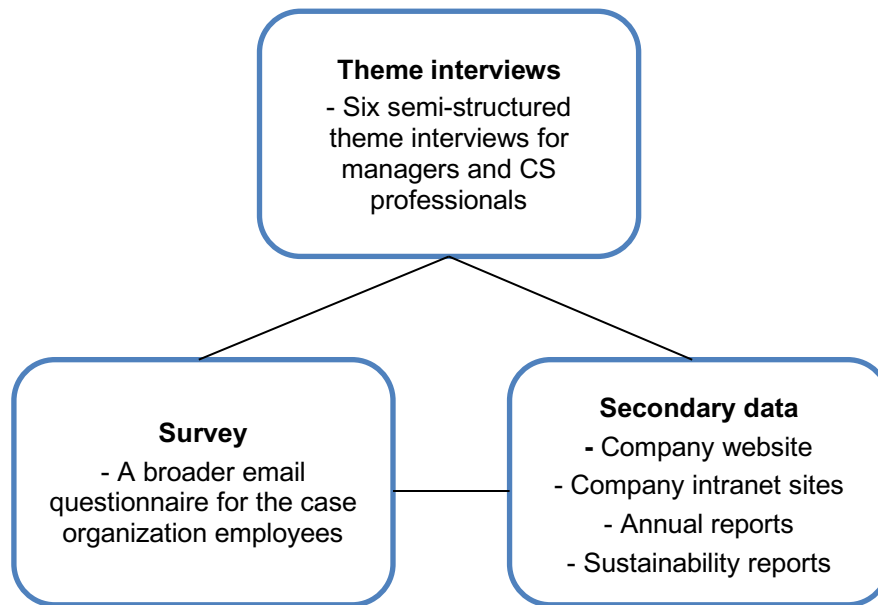
Figure 6 Data triangulation in the study

While the semi-structured theme interviews and the quantitative survey acted as the main data sources for this survey, secondary data was needed in the process of creating the interview and survey questions, and preparing for the research process. However, secondary material served a very minor, complementary role in the overall data, and it was not a planned data collection method. It can be regarded as a by-product of gathering information on the case organization, yet it contributes to the triangulation of the research.

3.3.2 Data collection: Semi-structured theme interviews

When interviews are chosen as a method for data collection, the researcher is expected to convey a realistic depiction of the interviewee's experiences, ideas, and thoughts (Hirsjärvi & Hurme 2014, 41). Interviews can be a highly effective method of data collection, when the purpose is to examine an individual's thoughts, perspectives, and experiences on a particular matter. The focus of the interviews in this study was to find

out the interviewees' own views and experiences on sustainability and the operations of the firm.

As Hirsjärvi et al. (2018, 160) explain, humans tend to interpret things and phenomena from their chosen perspective and based on their level of understanding at any given time. This often leads to various descriptions of the same phenomenon. The interviews allowed a deeper exploration of individual thoughts, perspectives and experiences regarding sustainability within the case company, and were conducted in order to gain a more nuanced, richer data, that could not have been achieved with quantitative methods alone. (Krishnaswami & Satayaprasad 2010, 5–7.)

Interviewing individuals allowed the researcher to gain a deeper understanding on the phenomena being researched through the interviewees' descriptions. In some cases, this is not possible through other methods of data collection. (Tuomi & Sarajärvi 2018, 85.) Other data collection methods were considered early in the research process. Gathering data from secondary sources, such as annual reports and sustainability reports from the case company was debated, however, it became evident that interviews would be more effective in gaining a thorough understanding on the role of sustainability within the case company. The secondary data sources were still utilized, but on a much smaller scale.

Semi-structured thematic interview was selected as a data collection method due to its nature to facilitate more targeted and clarifying questions and repetition, given the interview setting and verbal interaction. A semi-structured interview refers to a type of interview, where the interview questions and their order tend to be flexible in nature – they can be modified during the course of the research or even the interview. A theme interview proceeds according to themes selected beforehand. (Tuomi & Sarajärvi 2018, 87.) The themes, that the interview questions were based on in this study, are referenced in the operationalization table (Appendix 1). The themes were based on topics that are habitually referenced in CS research, where they have been found to be valid methods for examining CS performance. Further, a semi structured interview promotes open questions that allow the interviewees to talk freely and broadly about their personal experiences. A theme interview, however, is a semi-structured research method where the interview is thematized beforehand to fit the purposes of the research topic. (Hirsjärvi & Hurme 2014, 47.)

A typical characteristic for qualitative research is that data is collected from – often a predetermined sample – of humans, instead of using random selection. (Hirsjärvi et al. 2009, 164). With this study, the data sample was determined after careful consideration and evaluation of the options. The interviews were conducted during the Autumn of 2023. When selecting the interviewees, the aim was to find candidates with sufficient knowledge about sustainability as a concept, and the case company's operations and targets regarding sustainability. Ten people were contacted in the process. No response was received from three candidates, and with one candidate it was mutually agreed that they were not the right fit for the study. Thus, six candidates were interviewed for the study.

In order to gather diverse and broad perceptions, the candidates were selected from various organization levels and business operations. The interviewees were given the chance to get acquainted with the interview guide, containing the interview themes and questions (Appendix 2) beforehand. Because the interviewees had different backgrounds and were working with sustainability matters in various contexts, the interview questions were slightly modified for each interviewee according to their knowledge. However, most of the questions were asked using exactly the same wording for each of the interviewees, in order to maintain the analysability of the data. The interview details are presented on Table 3.

Table 3 Interview details

Description of position and expertise of interviewee	Time spent in organization	Duration of the interview	Interview language
Director / Field Service, QEHSS	25 years	56 minutes	English
Director / Regional	22 years	52 minutes	English
Vice President / Operations	28 years	43 minutes	Finnish
Manager / Sustainability	8 years	43 minutes	Finnish
Manager / Field Service operations	8 years	33 minutes	English
Manager / QEHSS	10 years	44 minutes	English

The interview details entail an anonymized identifier for each interviewee, along with a description of their expertise and an indicative position within the case organization. Any actual titles are not disclosed to maintain the privacy of the interviewees. Additionally, the table indicates the duration that each interviewee has worked for the case organization, along with the interviewee duration and language.

Due to the participants living in four different countries, the interviews were carried out via Microsoft Teams. The interviews varied in length based on the willingness of the participants to elaborate their answers and their knowledge regarding each topic. Some participants were notably more communicative than others – they were more prone to elaborate and provide examples. Same participants also demonstrated a greater personal interest towards sustainability. Even though the interview questions (Appendix 2) were handed out to the participants beforehand, this did not seemingly affect the content of the answers negatively – the answers did not appear rehearsed but rather spontaneous. Four of the interviews were conducted in English, and two in Finnish. A consent document (Appendix 4) demonstrating the use and storage of the data and asking for participants' permission was also sent to the interviewees beforehand by email. Permission to record the interviews was asked again at the beginning of each interview. Recording the interviewees allowed increased focus for the researcher (Patton 1989, 247) and shorter interviews in duration, as taking comprehensive notes was not necessary for the interviewer.

The point in the data collection process where new information no longer adds new knowledge in response to the research questions, is referred to as data saturation (Hirsjärvi et al. 2018, 182). Full saturation was not reached with the interviews due to the different background and position of each participant regarding sustainability. Nonetheless, a certain degree of saturation was achieved, at least in response to some interview questions. Based on this, the sample size was deemed sufficient.

3.3.3 Data analysis: Semi-structured theme interviews

Data analysis is a crucial phase in the research process, and its purpose is to derive meaningful insights, make informed decisions and draw conclusions from the collected data. During the analysis phase, the researcher begins to obtain initial answers to the set research questions and hypotheses. Data analysis involves multiple steps, such as revision, exploration, integration, thematization, transformation and drawing

conclusions. The exact steps of the process are dependent on the chosen analysis method. (Hirsjärvi et al. 2018, 221–225; Brannen & O'Connell 257.) The mixed nature of the collected data presented a specific challenge for combining and analysing the data in this study (Seppänen-Järvelä et al. 2019, 335). Mixed methods research often calls for multiple data analysis strategies, as the analysis methods for qualitative and quantitative differ from each other (Brannen & O'Connell 2015, 259). This study adopted *thematic analysis* as the analysis method for the qualitative data.

In the data analysis stage, qualitative data assumes a crucial role in interpreting, clarifying, describing, and validating quantitative results, as well as in grounding and modifying them. (Johnson et al. 2007, 115.) In this sequential mixed methods research, data analysis was carried out in two phases. Due to the semi-structured interviews being conducted first, they were also analysed first.

The analysis of qualitative data is often perceived as a difficult phase. Guidebooks on qualitative research highlight the multitude of options available for data analysis. This, along with the lack of strict rules contribute to the complexity of this stage. (Hirsjärvi et al. 2018, 224; Yin 2003, 109.) In case studies, where data is collected in multiple stages and through various methods, analysis is not confined to a single phase in the research process but occurs sequentially throughout. Data is, therefore, gathered and analysed partially concurrently. (Hirsjärvi et al. 2018, 223.) This research followed a similar sequential process. The actual analysis of the qualitative data in this study was carried out only after the data was preliminarily processed. This can also be referred to as data managing (Dey 1993, 78). One way to describe this process is through four steps: *transcription; data verification; data supplementation* and *organizing the data*. (Hirsjärvi et al. 2018, 221–222.) Similar guides have been established by many other authors (see Miles & Huberman 1995, 10–11; Tuomi & Sarajärvi 2018).

When dealing with verbal data, such as interviews or speeches, it is considered highly important to transcribe the data into written form when thematic analysis is carried out. Transcription refers to the process of converting audio files or spoken language into written form, word by word. (Braun & Clarke 2006, 88–89.) After each interview, the interview recording was first listened to, after which it was transcribed. Microsoft Word's *Transcribe* function was utilized in the process. After transcribing the interviews, the recordings and the transcriptions were carefully gone through again, to ensure the

accuracy of the transcriptions. Listening to the interview audio files as well as transcribing the data are excellent opportunities to familiarize oneself with the data – therefore it serves as the first step of data analysis (Maxwell 1996, 78).

According to Hirsjärvi et al. (2018, 222) the next step in the preliminary data processing is data verification. The collected data should be checked carefully in case of errors and deficiencies. Immediately after each interview was concluded, the recordings were gone through to assure that the audio was functioning well, and that the recording included the whole interview. In this stage, the data reduction was also begun. Data reduction refers to the actions of selecting, simplifying, transforming, or abstracting written data. It occurs throughout the data analysis process, in different steps. (Miles & Huberman 1994, 10.) The first step of reducing data was done in order to simplify the transcriptions – any non-essential parts of discussion were removed from the transcriptions. This included unnecessary filler words and repetition. During the data verification process, it was also checked that no interview questions were missed, and that sufficient replies were received to each question. In one instance, an important question had accidentally been left out by the interviewer.

After data verification, data supplementation was carried out. This is a crucial step when dealing with statistical or document data. With interviews, clarifying follow up questions can be asked during the interview; thus data supplementation is not considered as important. (Hirsjärvi et al. 2018, 222.) However, data supplementation was conducted in this study, due to the forgotten interview question. In this case, a follow up email, explaining the situation and setting the forgotten question, was sent to the interviewee. The interviewee replied with their thoughts on the question, and the answer was thus acquired.

The last step of the preliminary data processing was data organization. The measures taken to organize data can vary greatly depending on the research approach. (Hirsjärvi et al. 2018, 222.) Even with qualitative data, the organization phase can take multiple different forms – it can be described through the creation of codes and categories, or collating themes from the data, for instance (Vaismoradi, Turunen & Bondas 2013, 402). In this study, the data was first organized based on the categories earlier determined for the interviews (Appendix 1), that were based on the concepts introduced in the theoretical framework. Then, following Braun and Clarke (2006, 88), the processed data was studied

again, and the search for initial codes was begun. This meant keeping a list of interesting ideas emerging from the data, finding similarities between the interview answers, and grouping the ideas and similarities loosely together.

After the empirical data was processed and prepared, the actual data analysis was conducted. For the purposes of this thesis, thematic analysis was chosen as an analysis method. The purpose of the method is to extract themes relevant to the research questions from the research data (Eskola & Suoranta 1998, 174). Thematic analysis can be defined as "a method for identifying, analysing and reporting patterns (themes) within data" (Braun & Clarke 2006, 79). Thematic analysis is conducted by analytically examining written or transcribed material by breaking the text data into smaller units. It is a flexible analysis method that provides rich and detailed descriptions of the data. (Vaismoradi et al. 2013, 400.)

Braun and Clarke's (2006, 87) guide for thematic analysis was followed when conducting thematization. From familiarizing oneself with the research material and creating initial codes for interesting patterns, the analysis proceeded with categorizing similar codes into potential themes. The themes were processed and analysed further and then named after their defining content. During the process, the themes extracted from the data were constantly reviewed in response to the research questions and theoretical framework in pursuance of significant findings. After thoughtful consideration and analysis, three main themes were identified from the interviews: *significance of corporate sustainability, corporate sustainability implementation, and corporate sustainability improvement.* These themes were classified as the main themes guiding the findings of this study, according to the guide by Ruusuvuori, Nikander and Hyvärinen (2010).

After determining the main themes, the analysis process was continued by breaking down and organizing the material further into smaller groups dealing with similar topics. From these groups, sub themes were formed. Each sub theme falls under one of the main themes – in other words, the main themes are divided into sub themes. (Ruusuvuori et al. 2010.) Table 4 visualizes this process.

Table 4 Theme categorization

Main themes	Sub themes
Significance of CS	CS perceptions
	CS awareness
	Employee engagement
CS implementation	CS objectives
	CS initiatives
	CS strategy integration
	CS measuring and reporting
CS improvement	CS challenges
	Future of CS in the case organization
	Areas for improvement

As the table illustrates, nine sub themes were identified and categorized under the three main themes. The sub themes are: corporate sustainability perceptions; corporate sustainability awareness; employee engagement; corporate sustainability objectives; corporate sustainability initiatives; corporate sustainability strategy integration; CS measuring and reporting; challenges in corporate sustainability; future of corporate sustainability in the case organization, and areas for improvement.

3.3.4 Data collection: Questionnaire

After the interviews were conducted, the second phase of data collection was begun. The aim of carrying out a survey after the interviews, was to extend the data and findings from the interviews (Spratt et al. 2004, 6). A common challenge associated with interviews as a data collection method is the abundance of data gained – much of it irrelevant in many cases. To avoid needless data, the survey was adopted as another data collection method. It allowed for a larger sample size and a simpler, faster analysis method. A survey is a commonly used data collection method in quantitative research. It refers to the forms of questionnaires, interviews and observations in which data are collected in a standardized manner from samples of a specific population. In the realm of survey research, standardization refers to the practice of presenting exactly the same questions to all respondents in a uniform way, according to Hirsjärvi et al. (2009, 193). Creswell (2009) and Hirsjärvi et al. (2018, 195) identified some benefits connected to surveys. The advantage of survey research is typically considered to be in its capacity to collect a substantial amount of research data; a survey can include a large number of questions and

a large sample can be reached through it. The method is also exceedingly efficient, as new online tools for survey designing are continuously emerging.

In this study, the survey was conducted as a standardized questionnaire (Appendix 3). It was chosen with the efficiency of the method in mind. The qualitative part of the study did play a role in how the questionnaire was formed – the questions were formed based on what was found out from the interviews. The questionnaire was designed using Microsoft Forms, and it was sent to the employees of the case company by email. Another reason for choosing Microsoft Forms as the platform of the questionnaire was the fact that the data could easily be transferred into an analysable form. Additionally, the application could be used free of charge by both the researcher, as well as the participants. An important factor for the success of a survey is that the respondents have personal experience or at least sufficient knowledge about the survey topic in order to provide adequate responses (Hirsjärvi et al. 2018, 195). This was also sought in this study.

Creswell (2009) emphasizes the researcher's responsibility in creating the questionnaire – he proposes that a good form requires time, knowledge and consideration from its creator. Questions for a survey questionnaire can be formed in various ways. The most commonly used question types are open questions, multiple choice questions, along with scale-based questions. (Hirsjärvi et al. 2018, 199–200.) The questionnaire carried out in this study consisted of 21 questions (Appendix 3). All of these question types were represented in the questionnaire. With open questions, respondents are allowed to express themselves in their own words. The question type's benefits lie in highlighting the respondents' knowledge and emotions related to the topic. However, open questions require additional thoughts and time from the participants in response to the other question types. Therefore, they sometimes tend to drive respondents off. (Foddy 1995, 128.) The questionnaire included two open questions, both of which were marked as optional. Thus, many respondents left them unanswered.

Most of the questions in the questionnaire were multiple choice questions. This question type provides highly comparable answers and generates less diverse responses. Answers to multiple choice questions are easy to process and analyse. (Foddy 1995, 128.) Moreover, the survey included many scale-based questions. In this question type, a statement is presented – the respondents are then asked to choose how strongly they agree or disagree with the presented statement. The options usually form an ascending or

descending scale, formed of either 5-point or 7-point scale. (Hirsjärvi et al. 2018, 200.) With scale-based questions, the questionnaire assessed the respondents' knowledge on the sustainability efforts of the case company, for instance.

A link to the questionnaire was sent to 105 employees of the case organization. The selection process was conducted together with a representative of the case organization, in order to find the right people to contact. As the case organization of this survey is a regional branch of a business unit which is a part of a multinational company, there was no list containing all the employees of this unit and region. Therefore, the selection process was done by looking at organizational charts, and choosing suitable teams and employees for the purposes of this study. Due to the scope of this study, the contacted employees were from teams operating in Finland, Sweden, Norway and Denmark. A few individuals were based in other countries, but their respective teams mostly operated in one or the four Nordic countries mentioned.

The team leaders and managers were contacted first, to let them know about the questionnaire and the purpose of the thesis. After this, the employee email addresses were collected from the private network of the case organization, and the questionnaire link was sent to the employees. Some team leaders promised to promote the survey to their respective employees, in order to reach a higher number of participants. Out of the 105 employees the link was sent to, two email addresses sent an automatic response informing of a long out-of-office period. Three other automatic replies were received, informing of a short out-of-office period. These employees were counted as being reached by the email, making this a total of 103 employees.

Two reminder emails were sent in order to increase the number of responses to the survey. A total of 50 people answered the survey, making the response rate 49 percent. The questionnaire, along with all the emails and instructions surrounding it, were conducted in English. This choice was made because the respondents were from multiple different countries. Also, the common language of the case organization is English. No identifying information was collected from the respondents with the questionnaire. The anonymity was brought up in the initial contact email, and further ensured in the instructions of the survey.

The questionnaire began with four multiple choice demographic questions. With them, the respondents' gender and country of employment were inquired about, for instance. The gender distribution of the respondents is illustrated on Figure 7.

Gender distribution of respondents (N=50)
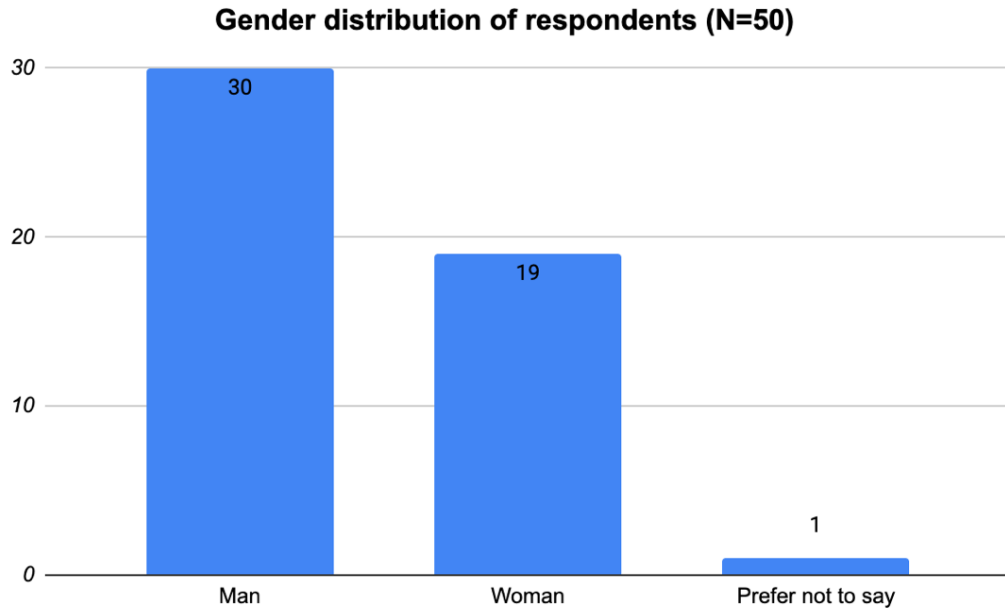
Figure 7 Respondents' gender distribution

The questionnaire responses revealed a diverse group of 50 respondents. Gender-wise, the majority of respondents were male (30). 19 women responded to the questionnaire, while one respondent wished not to disclose their gender. Geographically, the respondents were mostly spread around the Nordic countries, with the highest representation from Norway (19), followed by Sweden (8), and Finland (14). This is illustrated in Figure 8.

Distribution of respondents by country (N=50)
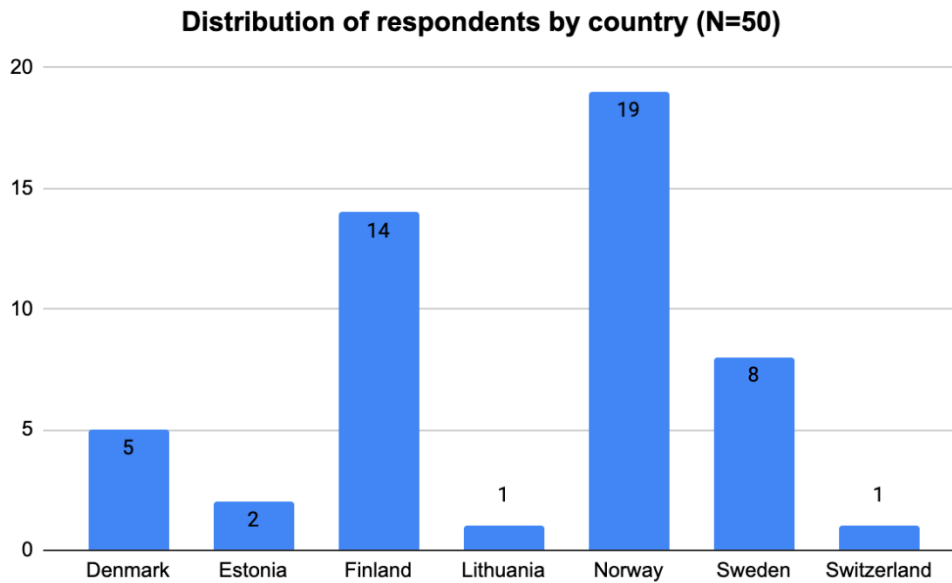
Figure 8 Distribution of respondents by country

Smaller numbers of responses were gathered from Denmark (5), Estonia (2), Switzerland (1) and Lithuania (1). This was anticipated, as the contacted teams were from the four Nordic countries. In regard to the respondents' business function within their organization, the largest number of responses was gathered from field service operations (30). Smaller representation was gained from field service workshops, technical services, field service resources, QEHSS, business control and parts. Additionally, there were five respondents that disclosed their business function to be something else not mentioned in the question.

3.3.5 Data analysis: Questionnaire

In the data analysis stage, quantitative data can aid in assessing the generalizability of qualitative data and providing additional insights into qualitative findings. Following the sequential design of the research, the quantitative survey was analysed only after the qualitative data. The data analysis was begun by conducting preliminary data processing for the survey. In this stage, the same framework was utilized as in the preliminary processing of the interviews. However, the first stage, transcription, is omitted when processing quantitative data. Therefore, the steps taken to conduct the preliminary processing were *data verification; data supplementation* and *organizing the data*. (Hirsjärvi et al. 2018, 221–222.) Answers from each survey form were checked in case

of inaccuracies or missing information, in order to verify the data. As expected, many respondents had left the open-ended questions unanswered. This did not lead to the rejection of any of the forms, as according to Hirsjärvi et al. (2018, 222) if a respondent has otherwise filled out a survey form carefully but left one section unanswered, it would be wasteful to discard such a document. No other inaccuracies or other reasons that would have led to the rejection of any form were found.

As the second phase, data supplementation was undertaken. While some of the answers, especially to the open-ended questions, sparked interest and more questions in the researcher, it was impossible to set up interviews for complementing the data, as the questionnaire was anonymous. Supplementation of questionnaire data is often done by chasing after respondents (Hirsjärvi et al. 2018, 222). After the initial contact, the sample were given two weeks to complete the questionnaire. After a week the participation was rather weak, and additional responses were needed. Thus, a reminder email was sent to the sample, kindly asking for increased participation.

Another reminder email was sent a week later, accompanied by a one-week extension to the participation deadline. These reminders were helpful in increasing the coverage of the questionnaire. The last phase of the preliminary data processing was organizing the data. Because the questionnaire was conducted using Microsoft Forms, the data was already in electronic form. The program organized the survey data automatically, and generated a report based on the results. The report was reviewed and exported to Microsoft Excel, where any further analysis was conducted.

The quantitative data obtained from the questionnaire was analysed using descriptive statistical methods. Quantitative analysis is often begun with descriptive analysis of the data – however, especially in survey research, descriptive statistical methods are often used as the main analysis method. (Alastalo & Borg 2010.) The focus was on summarizing the questionnaire data through easily interpretable tables and figures (Teddlie & Tashakkori 2009). This was achieved by calculating frequencies, percentage shares along with average values from the data (Alastalo & Borg 2010).

The aim of the survey was to explore the case organization's employees' thoughts about corporate sustainability and its current state at the case company, and probe about possible future focus points related to the case company's CS strategy. Descriptive statistics analysis was deemed sufficient, given the aim of the survey. The survey was designed to

provide specific answers, not to collect complex data. Comprehensive, in-depth statistical methods were considered impractical, as the target was not to formulate any causal theories. Additionally, with a small sample size (n=50) using extensive statistical analysis methods could have caused misleading or incorrect results. (Teddlie & Tashakkori 2009.)

The qualitative data obtained with the questionnaire (open-ended questions) was analysed using thematic analysis. For instance, with the question *'What does it mean to you for a business to be sustainable?'* responses were first read through. After this, initial coding was done by searching for recurring themes, along with defining differences from the responses. The codes were then refined further to compose themes, allowing the formulation of more specific generalizations and drawing conclusions. As the questionnaire was created based on the findings of the semi-structured interviews, it was natural to categorize the results according to the main themes and sub themes that emerged from the interviews. After conducting analysis on the gathered data, it is essential to consider the trustworthiness and reliability of research. In the next section, the presented methods are investigated critically, and the validity of the results is evaluated.

3.4   Evaluation of the research

This chapter evaluates the trustworthiness and ethics of this study. While academic research aims to avoid error, variation in the validity and reliability of results occur consistently. Thus, all studies should assess the reliability and validity of the research carried out. (Hirsjärvi et al 2018, 231.) Multiple methods for conducting data evaluation exist. Many authors have developed their own evaluation criteria for research trustworthiness, many of which are very similar to one another. (see Lincoln & Guba 1985; Patton 1989.) However different views and evaluation criteria regarding qualitative and quantitative research approaches and data exist. The dichotomy between qualitative and quantitative research methods has brought out contrasting views regarding the evaluation of research and issues of reliability in the results. Especially qualitative studies and methods have received criticism due to the ambiguity of the criteria evaluating trustworthiness. (Eskola & Suoranta 2003, 208.) Because this study adopts a mixed methods research approach, the trustworthiness of the qualitative and quantitative data are evaluated separately. (Creswell 2009.) After this, the ethical considerations of this study are discussed in a separate sub-section.

3.4.1 Trustworthiness: Qualitative data

Qualitative research methods can pose challenges in terms of validity and reliability. Qualitative data often leaves more room for interpretation as opposed to quantitative methods. In terms of data analysing, qualitative methods allow more flexibility, leaving more space for errors. Additionally, the researcher's past experiences and underlying assumptions are prone to have an effect on their analysis. (Eskola & Suoranta 2003, 208–209.) Data collected through interviews is considered to contain many opportunities for error. Error can be caused by both the interviewer and the respondent – for instance, the reliability of an interview may be undermined by the respondent's tendency to provide socially desirable answers. This makes data evaluation a critical step of the research process. (Hirsjärvi & Hurme 2014, 35.)

In this study, trustworthiness of the data is evaluated based on the criteria presented by Lincoln and Guba (1985, 289–331). The method calls for analysis of the *credibility, transferability, dependability* and *confirmability* of the research. The evaluation criteria are presented on Table 5.

Table 5 Evaluation criteria for trustworthiness, based on Lincoln & Guba (1985, 289–331).

Criterion	*Description*
Credibility	Focuses on the accuracy of the gathered data and can be used to evaluate the accuracy of the findings in correspondence with reality. Can be established through triangulation, for example.
Transferability	Refers to the extent to which the findings could be applied to other contexts. It involves the assessment of how well research findings can be generalized to a wider setting, beyond the conducted study's specific conditions.
Dependability	Refers to the consistency and stability of research findings. This stretches to different researchers and through time. Establishes that research data should be possible to reproduce, and the findings duplicated.
Confirmability	Pertains to the degree of neutrality in study findings, and the extent to which the findings can be confirmed by a third party. Implies that findings of a study should be logically aligned with the collected data, and are not affected by the researcher's or other relevant party's biases.

According to Lincoln and Guba (1985, 293–296), the credibility of a study refers to its internal value, and correspondence with reality. Credibility can be obtained through data triangulation or prolonged engagement, for instance. As has been established previously

in this study, triangulation refers to the simultaneous use of multiple data sources or outlets (Eskola & Suoranta 1998, 69). In this study, triangulation was achieved by collecting data from one sample with interviews, and another sample with a survey questionnaire. Additionally to this, secondary data sources, such as annual reports provided by the case organization were utilized in preparing for the study.

Prolonged engagement is another way of promoting a study's credibility. It refers to the researcher's long-term commitment to the subject of research in order to get familiar with the research context and the phenomenon under investigation. (Lincoln & Guba 1985, 301.) In this case, the researcher was quite familiar with the concept of sustainability beforehand, having conducted their bachelor's thesis on CSR-practices' influence on corporate responsibility. Additionally, having taken multiple courses regarding sustainability during their five years in university, it can be argued that the researcher had obtained a sufficient amount of knowledge on corporate sustainability. On the other hand, the MRO industry as a research context was rather unfamiliar to the researcher, and required a substantial time of studying from the researcher to become familiar with the sector. Having achieved this, it can be stated that the researcher has reached at least some degree of prolonged engagement with the topic of corporate sustainability.

Transferability of a study refers to the applicability of research findings to other contexts or situations, or extended beyond the scope of a specific research. A high degree of transferability indicates a higher level of trustworthiness in a study. According to the researchers, transferability of research can be ensured by presenting enough information on the scope, context, and participants of the survey. Doing this opens a window for other researchers to evaluate whether the findings could be transferred to other contexts. (Lincoln & Guba 1985, 297.) In this study, transferability was sought for by offering as much information about the case organization and the interviewees as possible, while still preserving the anonymity of both the organization and the participants. However, the narrow scope of the study is recognized, possibly resulting in a lower level of transferability.

By dependability, Lincoln and Guba (1985, 317) mean the reliability of the research, and the extent to which the findings of a study are consistent and reproducible over time. Researchers can express dependability by demonstrating that their research has been carefully conducted, allowing evaluation of the process from outsiders. This study aims

to promote dependability by being very transparent about the research process, and documenting every step, and any findings gathered in a detailed manner. Additionally, dependability can be established by carrying out an audit trail, consisting of a detailed description of the research process, entailing every step from the formation of research problems to presenting the rationale behind conclusions. (Lincoln & Guba 1985, 317.) This was aimed for by providing a detailed disclosure of the methodological choices made during the research process, along with justifying the conclusions with comprehensive reasoning.

Finally, the criterion that addresses the objectivity of a research is referred to as confirmability. Assessing confirmability calls for evaluation of the internal consistency between the data, data analysis, findings, and recommendations. It also entails the consideration of the objectivity and neutrality of the study, and whether researcher bias is present. (Lincoln & Guba 1985, 318.) Internal consistency was sought for by aiming to disclose as much information on the research process, research problems and the motivation for the study, in order to provide an opportunity for repeatability of the study. In response to researcher bias, it is recognized that the commissioned nature of this thesis may lead to a degree of underlying researcher bias. However, any biases are intentionally avoided by the researcher, as an objective study and findings are in the best interest of each related party.

3.4.2 Trustworthiness: Quantitative data

According to Hirsjärvi et al. (2018, 232) and Creswell (2009), the trustworthiness of quantitative research data can be examined through the concepts of external and internal validity, along with reliability. The quantitative data of this study was gathered through a questionnaire, consisting of multiple-choice questions, along with two open-ended questions. Validity in research refers to the degree to which it actually reflects or measures the phenomenon it is intended to study. Internal validity, in particular, allows accurate conclusions and causal relationships to be drawn from the data research data. In order for a study to be regarded as achieving high in internal validity, the study must have been designed and implemented in such a way that the impact of other explanatory factors, or disruptive variables, is minimal, or at least controlled. (Hirsjärvi et al. 2018, 231–232.)

Surveys, as a data collection method, have their weaknesses. As the questions have to be often designed for a large sample size, the data they provide is sometimes regarded as

superficial. Especially with anonymous questionnaires, it can be challenging to determine whether the respondents possess adequate knowledge about the researched issue. Additionally, there is a commitment challenge when it comes to surveys – it is difficult to determine if the respondents have answered the questions with care and honesty. (Hirsjärvi et al. 2018, 153.) These weaknesses were taken into consideration in the study, by carefully selecting the group for whom the questionnaire was sent with a company representative. In order to avoid the commitment challenge and increase the attractiveness of the survey, the questionnaire was kept rather short, and open-ended questions were set optional (Teddlie & Tashakkori 2009). Brief instructions were also included in the email sent to the respondents. These included a definition of sustainability, to remind respondents about the topic of the survey.

In this study, internal validity was considered by creating the questions of the survey questionnaire extremely carefully, in order to avoid misinterpretations or confusion. Additionally, in many cases a similar question was proposed twice, with a slightly different wording or viewpoint. As the survey collected the sample's answers anonymously, the responses can be regarded as trustworthy, in a sense that no obvious biases would be present. However, the researcher cannot guarantee the commitment, understanding, interest or time constraints of the survey respondents at the moment of taking the questionnaire. While the internal validity is regarded somewhat high throughout most of the data, the complexity of the survey topic should be highlighted as a factor that might bring the state of internal validity down.

External validity refers to the generalisability of a study – as in how well the findings of a study are generalizable or transferable to new contexts, situations, or groups of participants. It describes whether the phenomena investigated in the study can be possibly repeated under conditions extending from the scope of the original study. (Creswell 2009.) The survey in this study was intentionally created for a very specific audience – a specific case organization and its employees, and the questions inquired about the specific case organization's particular operations. This may have a negative impact on the external validity of the quantitative data. However, with slight modifications the survey could be applied to different corporate contexts, so a certain level of external validity can be argued to remain.

Last, reliability of a study examines the trustworthiness of the study from a reproducibility context. It refers to the level of consistency in how the research methods can produce the same results, when repeated in the same, or different situation, on similar research subjects. If a study has achieved a high level of reliability, its results can be viewed as stable, and not changing should the study be repeated. (Hirsjärvi et al. 2018, 233.) The detailed description provided of the research process is a factor contributing to increasing the reliability of the study. Nevertheless, the small sample size of the respondents, along with the response rate of 49% can be viewed as factors hindering this study's reliability.

In this chapter, the methodological choices and research process have been thoroughly presented, and the trustworthiness of the study has been evaluated, with the focus of justifying the choices made during the process, and enhancing the level of transparency of this thesis. In the next chapter, the focus shifts from methodology to the findings of this study.

3.4.3 Research ethics

A significant part of a research process involves the analysis of its ethical considerations. According to the guidelines on good scientific practices published by The Finnish National Board on Research Integrity (TENK) (2023), the fundamental principles of good and ethical scientific practice includes trustworthiness, reliability, ethicality and responsibility. These principles should be adhered to throughout the research process, to ensure the realization of good scientific practice. Other ethical research practices include the usage of data collection, research and analysis methods that are appropriate for scientific research and ethically approved. This justification has been conducted throughout the study, in previous chapters and sections. (TENK 2023.)

Most of the articles and books used as references in the theoretical part of the study were retrieved from the databases available for the users of Turku University Library. The articles used were firstly chosen with their suitability in mind, other factors considered were the reliability of the publisher and number of times the article had been cited before. The publishing year was also evaluated with each possible reference, to include accurate and topical information on the concepts under investigation.

To ensure ethical conduct and any biases, the commissioning organization is not named in this study. The interviewees and survey participants are also treated anonymously

throughout the thesis. This required anonymization of the interview questions, interview data and information about the case organization. This was done by reviewing and altering the materials wherever necessary. The survey questionnaire was conducted anonymously from the beginning. Each interviewee and survey participant were contacted by email, which explained the aim of the research and assured that the participation to the research would be completely optional and anonymous. Additionally, the interviewees were asked to sign a consent document (Appendix 4) outlining the handling and storage of data, before conducting the interviews. The content of the document was then further reminded to the interviewees in the beginning of each interview. Having thoroughly described and justified the methodological choices, along with data collection and analysis methods and the evaluation of the study, the attention is turned to the empirical outcomes that are the findings of this research.

4 Findings on corporate sustainability within the MRO sector

In this chapter, the emphasis is on explaining the findings of this research. Through the sub-problems introduced in the beginning of the thesis, CS's role and significance, CS implementation and CS improvement techniques are addressed from the context of the case organization, a MRO organization operating in the maritime industry. In the next section, a description of the case organization is provided. In the subsequent sections, the findings of the empirical study are introduced thematically.

4.1 Description of the case organization

This study was commissioned by a multinational Finnish technology organization operating in the maritime and energy markets. The organization has a strong presence in its field, and currently has operations in over 75 countries around the world. With its leading position in the market, the company has set ambitious sustainability targets and strategies to work towards its goals, one of the key focuses being the decarbonisation of the maritime industry.

The firm has divided its core operations into two core businesses, in accordance with the business sectors. The core businesses are further divided into several business units, each focused on separate functions. The company's organizational structure can be described as similar to a matrix organization. A matrix organization combines a traditional hierarchical organizational structure with some form of lateral relationships, such as authority, communication or influence. The matrix setup requires for company teams to report through two lines of command – in case of a geographical matrix, one line follows a functional unit, and the other one spans across a local business entity. This kind of dual structure facilitates both horizontal and vertical communication and decision-making channels within an organization. (Kuprenas 2003, 51–53.) The matrix structure in the commissioning firm (illustrated on Figure 9) combines functional units, and local country-specific governing organizations under each core business. Therefore, the teams and employees in the matrix are reporting to two entities – both to the unit management and the local entities' management. [1]

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[1] The information presented in this chapter is collected from the commissioning organization's website, annual reports, sustainability reports and other documents. The sources cannot be fully disclosed in order to maintain the anonymity of the commissioning organization.
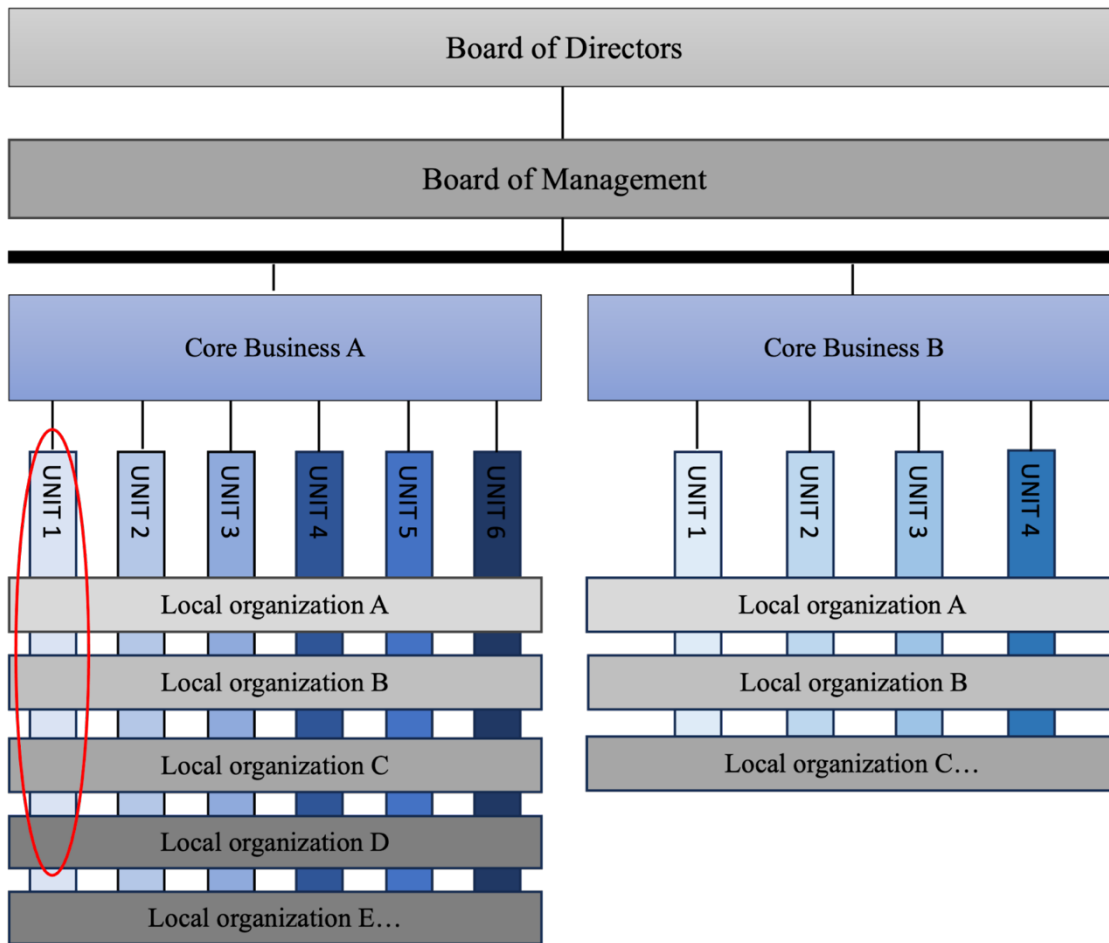
Figure 9 Organizational structure of the company, case unit circled in red

This study takes a closer look at a specific business unit branching from the commissioning organization. The unit is divided into five service regions located around the world in 49 different countries, and employs over 4000 people. Due to the rather narrow scope of this study, the research is conducted with the Northern European service region as a standpoint. Therefore, this study considers the business unit in its four local organizations (Finland, Sweden, Norway and Denmark) as the case organization. In Figure 9, the case organization is illustrated with a red circle.

The case organization specializes in providing maintenance, repair and overhaul (MRO) services, such as field service activities and spare parts, along with other technical services for customers in the maritime and energy industries. The organizational unit is divided in six functions: *logistics and supply management; product lifecycle management; field service operations; product sales and sales support; business unit development,* and *business control*. Further, the unit is responsible for delivering technical training for engineers, warranty services and organizing workshop and support

operations. Its goal is to offer high-quality services to the customers in every step of the logistics chain.

The case organization does not have its own strategy or sustainability agenda, but it supports the company strategy and sustainability objectives. Its sustainability approach is illustrated on Figure 10. In addition, it follows a unit-specific roadmap, the purpose of which is to bring the company strategy down to unit level. The corporation positions sustainability in the core of its strategy and purpose, aiming to enable sustainable societies through technological and service innovations. Sustainability actions are driven by the company's values – passion, performance and customer success. The stated goal for the case company in relation to sustainability is to achieve financial success while actively contributing to the improvement of the surrounding society. The company aims to take an active role in maritime decarbonisation by bringing out new sustainable solutions. The sustainability strategy also calls for maintaining high ethical standards and ensuring the health and safety of all employees.
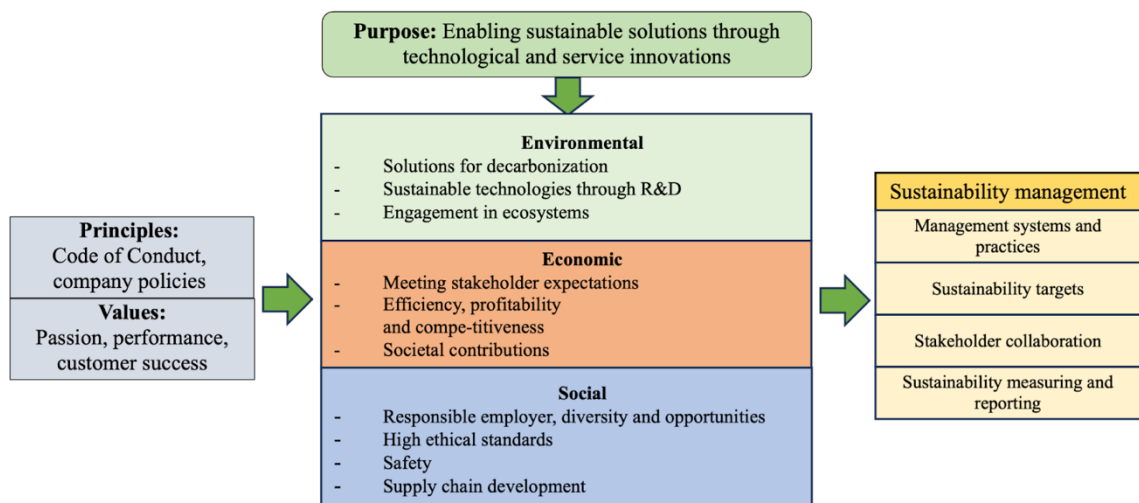
Figure 10 Sustainability approach of the commissioning company

As is illustrated in Figure 10, the company views corporate sustainability through the 'triple bottom line' lens – incorporating economic, environmental and social considerations into its sustainability strategy. When it comes to the corporation's environmental sustainability, the primary goal is to actively contribute to the reduction of emissions. The firm claims to contribute to climate change prevention and mitigation along with the preservation of marine ecosystems through providing advanced technologies and services. High environmental standards are strived for through research

and development, collaborative efforts, and partnerships throughout the company's operations. Additionally, the organization aims to assist its customers and society in meeting the increasingly tightening global environmental regulations and guidelines wherever possible.

Ethically, the organization maintains a Code of Conduct to guide its operations and stakeholder interactions. Emphasis is put on especially employee engagement and community well-being. The corporation is dedicated to being a responsible employer. This is aimed through providing employees with an engaging and fulfilling work environment and opportunities for personal growth. Additionally, the organization commits to strive for a safe working environment for its employees and contractors. These principles are important in achieving high ethical standards, however, enforcing these standards requires accountability and transparency from the firm.

The company recognizes that its economic sustainability motives are tightly interlinked with societal and environmental motives, with the firm aiming to meet shareholder expectations while benefiting society. This requires efficient, profitable and competitive company operations. The balance between sustainable and profit-making business operations is delicate, necessitating a critical look at how the company's economic aspirations align with its sustainability claims. Still, only by achieving good economic performance, can the organization establish a solid foundation for addressing the other two – social and environmental – dimensions of sustainability.

Within the organization, the realization of the sustainability strategy is monitored with different tools and practices that fall under sustainability management. Through stakeholder collaboration the organization ensures that the strategy is updated and serves various stakeholder groups as well as possible. By setting concrete sustainability targets and controlling their fulfilment, the strategy is operationalized and implemented. Lastly, by measuring sustainability through key performance indicators (KPIs) the company can assess their performance against set targets and identify areas of success and ones in need of improvement. Sustainability reporting pushes the organization towards transparency and accountability with their efforts towards sustainability. In the subsequent sections, the findings of the empirical research are presented thematically, and applied to the context of the case organization.

4.2 The significance of corporate sustainability

4.2.1 Sustainability perceptions

The exploration of sustainability perceptions within the case organization through both semi-structured interviews and a detailed survey, reveals a complex yet consistent understanding and prioritization of CS across different organizational levels. From the gathered data, it is evident that sustainability is perceived through a multidimensional lens, with social, environmental and economic aspects forming the core of the concept. Another frequently emerging dimension of sustainability was compliance. The sustainability definitions gathered from the interviewees included many aspects generally related to sustainability. Numerous themes emerged, and the multidimensional nature of the concept was reflected throughout the answers. It was the social and environmental dimensions that emerged most prominently, reflecting a collective recognition about the case organization's role in reducing emissions, decarbonization and protecting the planet, along with fostering a safe, and diverse workplace.

> Sustainability, for me, is to make sure that we are operating in such a way that we are safeguarding our planet to say it boldly. That we are doing things today that are not impacting the future negatively. Operating in a sustainable way is more than just reducing emissions or reducing footprint as such, it's also about diversity. It's about well-being. It's about health and safety. (Director, Regional)

The findings suggest that as expected, the perceptions on CS among the case organization employees vary a lot. Some respondents offered more detailed explanations on CS, incorporating many dimensions of the concept that research recognizes. When inquired about what it means for a business to be sustainable, most answers were rather short, consisting of one sentence. However, even these managed to encompass some considerations related to sustainability, along with highlighting the significance of the topic.

> It should be financially stable and able to generate profits over the long term. This includes responsible financial management and strategies that contribute to economic development. Businesses are expected to contribute positively to society. This includes treating employees fairly. (Respondent 8)

> It means I am in a good and responsible workplace. (Respondent 23)

Environmental sustainability stands out as a priority among the interviewees, with many highlighting the environmental efforts towards decarbonization and overall marine ecosystem protection as pivotal to their understanding of sustainability. This aligns with the survey findings, where a significant majority of respondents expressed a familiarity with sustainability concepts, particularly highlighting their concern and interest in environmental issues.

Within the case organization, social sustainability seems to be understood as encompassing especially diversity and safety concerns. Social sustainability also emerged as an important theme in the interviews. Diversity and employee health and safety are emphasized as integral priorities in the case organization's sustainability agenda. This was mirrored in the survey responses too, with participants demonstrating an interest in sustainability, with special focus on the social paradigm.

Economic sustainability was mentioned less frequently in the interviews and survey. Nonetheless, the dimension was recognized as vital, necessary part of pursuing corporate sustainability. Also, it was highlighted that without business value creation, a company cannot introduce new sustainable practices and technologies. This indicates an understanding of sustainability that extends beyond immediate environmental and social concerns. Figure 11 demonstrates the survey respondent's view of the importance of CS to the case organization.

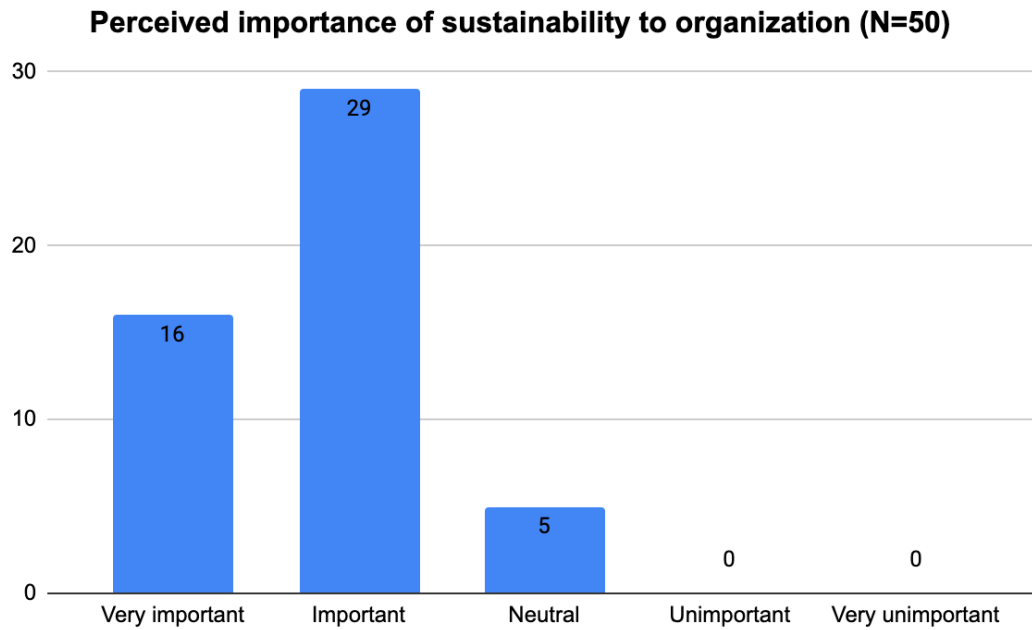**Perceived importance of sustainability to organization (N=50)**

Figure 11 Perceived importance of sustainability to the case organization

Based on the perceived importance of sustainability that was inquired in the survey, the majority of respondents consider sustainability to be an important or very important topic in the case organization. This emphasizes that sustainability is considered to be a major factor in the organization's successful operations across the organizations, not just within the perceptions of the management.

The findings highlight at least a general level of understanding of sustainability as a concept. A small group of employees appear to be highly committed to sustainability, while the majority recognizes the importance but do not feel as connected to it. As one of the interviewees noted, sustainability is high on the agenda within the countries the case organization operates in anyway, so with the survey, it could not be identified if the employees' general sustainability understanding is the resulting from their position within the case organization, their background or if it comes from an external source.

To summarize, the analysis of insights on sustainability perceptions gathered from both interviewees and survey respondents illustrates a consensus within the case organization: sustainability is seen as a fundamental strategic asset and an operational necessity. CS is comprehensively recognized to cover an extensive array of elements, initiatives, and objectives, with the organization's commitment to it being unmistakably clear. The prominence of environmental and social concerns has accelerated as important concerns

in the recent years, reflecting a coordinated movement towards these aspects in the company's sustainability endeavours. While economic considerations are recognized, at least at the moment they are not pursued as a priority. In the next sub-section, the findings on sustainability awareness will be presented.

4.2.2 Sustainability awareness

The findings gathered with the interviews and the survey questionnaire indicate a number of interesting similarities, but also differences, in the awareness and attitudes towards sustainability at different levels of the organization. Figure 12 illustrates the level of familiarity the survey respondents feel towards sustainability.

Perceived familiarity with sustainability (N=50)
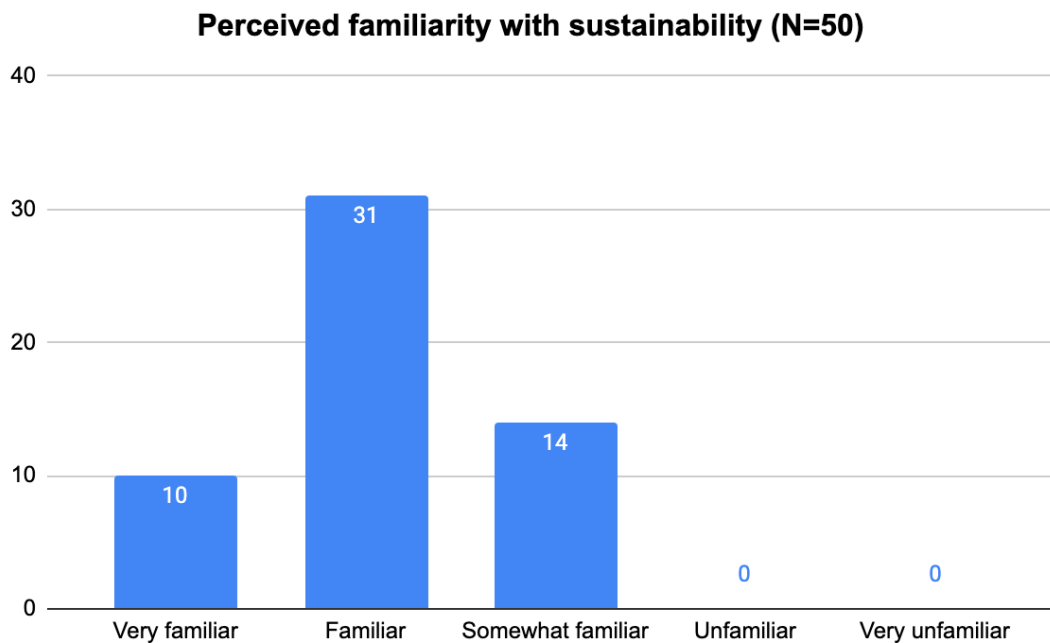
Figure 12 Respondents' perceived familiarity with sustainability

Survey results indicate that the majority of respondents, 62 %, reported being familiar with the concept of sustainability, and 28% reported being somewhat familiar with it. Respondents from Denmark in particular stressed that they were familiar or very familiar with the notion of sustainability. The majority of respondents who responded being 'somewhat familiar' with sustainability, were from Finland. Looking at the level of familiarity from the business function point-of-view, it was revealed that respondents working in Field Service operations felt the least familiar with the concept.

The interviews highlighted, that each interviewee reported having a high personal awareness on CS issues. For many, this was justified through their position within the organization as managers and directors. However, based on the interviews, the level of awareness varied considerably among the interviewees. Although each interviewee clearly possessed a level of understanding of sustainability, the emphasis of this understanding varied significantly from one interviewee to another. This was evident throughout the interviews. The interviewees had distinctly diverse perspectives on what CS entails and how CS measures are organized within the case organization. However, the different emphases in sustainability expertise brought diverse perspectives to the interviews, adding nuances and variation to the data.

While the interviewees were rather unanimous about the management's CS awareness, interview questions about CS awareness across the organization and from an employee viewpoint raised some contradictory findings. There was a consensus among the interviewees that while there is a general awareness on sustainability within the organization, the depth and interest in CS varies significantly among different teams and employees. The variation seems to stem from factors such as regional differences, work position and whether there is a direct impact of an employee's work on sustainability outcomes. Figure 13 points out the survey respondents' personal interest towards sustainability.

Respondents' personal interest towards sustainability (N=50)

Uninterested
4,0%

Neutral
16,0%

Very interested
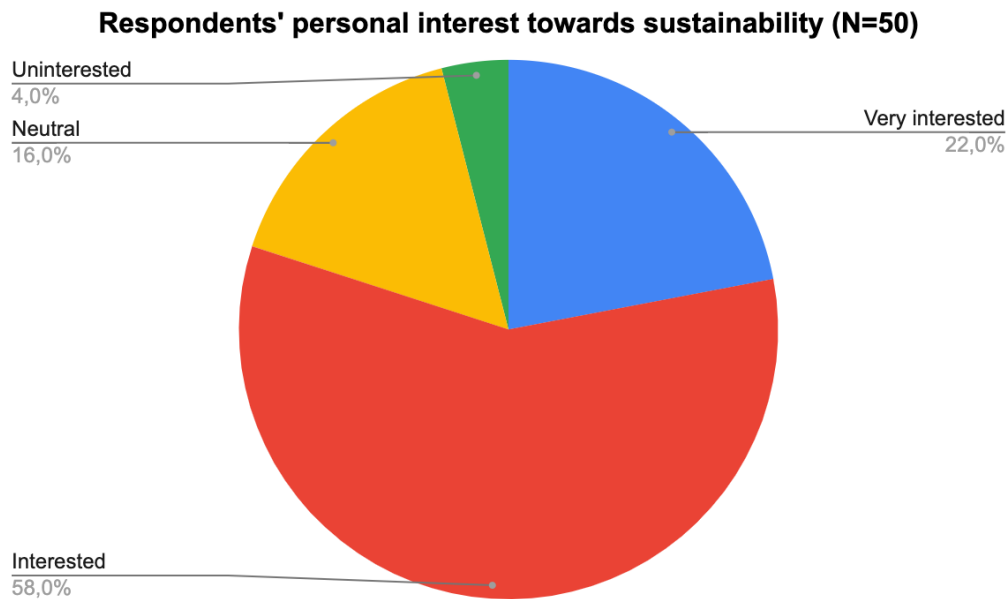22,0%

Interested
58,0%

Figure 13 Respondents' personal interest towards sustainability

Based on the survey, 58% of respondents stated that they were interested in sustainable development, and 22% described that they were very interested. This shows that the majority of respondents recognise and are interested in the importance of sustainable development. While 100% of the survey respondents indicated having at least some level of familiarity with sustainability, the responses throughout the survey reinforced the managers' understanding on the varying depth in sustainability awareness.

The interviews implied that the level of sustainability awareness in the case organization has significantly grown in recent years, transitioning from a minor concern to an important and highly visible strategic objective. This shift is largely attributed to a strategic renewal a few years ago, which placed greater emphasis on sustainability. A key factor in enhancing employee awareness of CS is the effective integration of CS targets with daily operations. There is a generally positive attitude towards sustainability within the organization, with employees across different levels being aware of the company's sustainability objectives, targets, and strategies. It was also pointed out that this positive attitude towards sustainability is also reflected in the broader cultural context of the Nordic countries, which were the focus of this study. In these countries, sustainability awareness and positive attitudes towards it are put on a high agenda, and issues related to sustainability are widely covered in the media.

However, it was noted that while general awareness on sustainability as a concept exists throughout the organization, the awareness of the organization specific CS agenda and initiatives seems to not be as high. Concerns were expressed about how well sustainability is understood and taken seriously within the operative teams of the case organization. The work position of employees was seen to significantly affect the understanding of CS. The managers role in increasing the awareness in the organization was also highlighted.

> That is a good question, I think not very well. For many this sustainability is something fluffy up there and something you need as a compulsory training. So, I think depending on where you are in the organization, for me, sitting in an office, dealing with these things on a more regular basis, I can relate to it quite easily. But of course, if you talk to people that are on board vessels, discussing with the clients, changing components, I'm not sure they are thinking the same thing. (Director, Regional)

> Our awareness comes from everything that we are provided from the top management – we have been introduced to the new strategy many times now. But in our daily business, it doesn't give us anything. (Manager, Field service operations)

To summarize, the findings suggest a high level of sustainability awareness within the management level of the case organization. Among the interviewees, this was reflected by a strong commitment to sustainability, both on a personal level and as employees of the case organization. The management level seems to be well-informed about CS principles and practices. Despite this, the findings show variation in how CS is understood and prioritized across different levels and teams in the organization. While sustainability is recognized as an important theme, the integration into the operational level may not be very high. This underscores the need to continuously improve sustainability awareness and engagement across the organization. The following sub-section describes the findings regarding employee engagement within the case organization.

4.2.3 Employee engagement

As was stated in the previous sub-section, the general attitudes towards sustainability were deemed as rather positive among the employees of the organization. However, whether employees demonstrate interest or engage in CS initiatives seems to be a theme where improvement is called for. In some cases, employees were described as highly interested and active in making suggestions to improve CS. This employee interest tends to align with their specific job tasks – initiatives that directly impact their job or offer operational improvements, are more likely to gain interest from employees. For instance,

solar panel installations and other practical, easily actionable and tangible sustainability efforts come from employees. The survey results support the findings of the interviews, as 86% of respondents felt that the case organization encourages them to participate in CS initiatives. Specifically the interviewees emphasized the importance of internal sustainability communication within the case organization, as a facilitator for employee engagement.

> I think if we can get the dialogue going and the discussion going, I think that's when we are really getting somewhere, and people are getting engaged around these things. (Director, Regional)

In the organization, the internal sustainability communication was described to be very vibrant and plentiful among the employees who show interest and commitment to sustainability. Line managers comment on sustainability concerns (mainly about safety, occasionally about environmental issues) through email. Additionally to this, there is plenty of information, news and articles about the sustainability initiatives and practices visible on the Intranet-service of the case organization. As the most important driver of internal sustainability communication, Microsoft Yammer, which is an internal social networking site, that allows employees to share information, communicate and collaborate within the networking environment, was mentioned. Within the case organization, there are active groups sharing information on sustainability issues. Yammer was regarded as a very powerful tool in promoting internal sustainability communication, as it reaches employees on all organizational levels and different units.

> I mean, it's one of the more powerful tools we have. There are environmental, health and safety channels, which are very active. So, there is a lot of input, which transmits a sense of taking care at the end of the day. People are interested at basically all levels. (Director, Field Service & QEHSS)

However, some of the findings suggest that the state of employee engagement is in need for improvement. It was implied that the focus on sustainability coming down from the corporate level is not always translating to interest and activity from employees at the operational level, as busy schedules and daily activities are taking over the employees' workdays. After mandatory tasks, there is not much time or room to think about CS, let alone plan ideas for a greener business. It was also noted that many employees working in the field and onboard vessels are hard to reach apart from their core tasks, due to their work being exceedingly mobile.

> I am looking at my team right now as I am saying this, and I can say this with one hundred percent certainty – they are not thinking about sustainability right now. We do not spend so much time on it in our daily routines. (Manager, Field Service operations)

Employee engagement regarding CS in the case organization is sought for with mandatory and voluntary sustainability training. The aim of these online trainings and courses is to increase awareness, attract interest and employee participation in relation to CS. The mandatory trainings ensure some kind of awareness, but not interest beyond mandatory requirements. The interviews indicate that while there are employees who actively participate in voluntary CS trainings, others may not. This is due to time constraints or operational demands, again, particularly with employees working in the field. To address this challenge, some offices have been able to introduce face-to-face CS training for technical employees with mobile job descriptions. These sessions have been highly effective in raising awareness and engagement. However, organizing these types of trainings can be difficult or even impossible for certain teams. The survey results suggest that 78% of the respondents had received some form of training or information about CS from their employer. This is an interesting find, because as it was established by the interviewees, the organization has mandatory sustainability trainings directed for employees. However, it was also found that despite being mandatory, these trainings do not always reach all the employees, especially those with mobile work schedules. Thus, this finding supports the employee engagement findings gathered with the interviews.

The findings suggest that further opportunities remain to enhance the employee engagement regarding sustainability, while some level of engagement has been reached. It is important to note that most of the negative responses to this question came from respondents working in Field service operations. Other functions that indicated receiving no training from their employer included HR, Field service workshops and Product management. Additionally, most of the negative responses to this question were received from Norway and Finland. However, the vast majority of all the respondents were from Norway and Finland, which can be a contributing factor to why most negative responses seem to come from these countries.

Additionally, concerns towards the accessibility of sustainability training were brought up. The corporate language of the case organization is English, and most training materials are in English. As CS concepts can be quite wide and complex, the training

materials can be difficult to understand to some with poor language skills. This concern has been addressed, as training materials are increasingly produced in all company languages. However, this still does not cover everything.

The findings on employee engagement reflect the structured efforts made in the case organization to educate and engage employees in CS issues. This suggests that the organization has taken a proactive approach to promoting CS. However, the effectiveness of these efforts varies across the organization, as was demonstrated in the interviews and survey. There are evident challenges regarding the topic, such as accessibility difficulty to educate field engineers. The next sub-section focuses on findings on CS implementation within the case organization.

4.3 Corporate sustainability implementation

4.3.1 Corporate sustainability objectives

Combining the findings about CS objectives from the interviews and survey questionnaire indicates that there is a consensus between the management and employees about the importance of certain CS themes. Differences emerged in how these CS objectives and targets are visible and realized in the day-to-day operations of the case organization. As the case organization is a unit of a larger corporation, there is a wider corporate strategy that is followed throughout the corporation. It was found that while the strategy is somewhat visible in the case organization, it is not as prominent or tangible as in other units of the corporation. In addition to following the corporate strategy, the case organization follows its own roadmap and action plan that support the strategy. CS efforts are represented as a part of the roadmap.

Another interesting finding is that despite the common case organization specific roadmap, sustainability issues seem to be implemented mostly by local entities. Discussion focusing on business unit sustainability implementation are extremely rare in the case organization. Instead, the focus is on CS at country level – including sustainable practices in office buildings, production, purchasing electricity and acquiring electric cars. This indicates that CS discussions within the case organization are organized more around legal entities rather than operational units.

When it comes to the CS strategy objectives that are seen as priorities within the case organization, the following topics emerged. Employee health and safety was raised as the top priority by the interviewees. It was emphasized that CS initiatives around health and safety are in the core of the case organization's operations. Embedded in the safety focus, an important target of minimizing work-related accidents and injuries was raised as an important objective, too.

> The ultimate goal is to minimize injuries – minimize people getting hurt, and minimize the severity of the injuries. So, I feel this is really a priority in our business unit and in general it is a priority for the whole organization. (Director, Field Service & QEHSS)

Additionally, decarbonization was highlighted as a central CS objective. The case organization's role in decarbonization is in new products and technologies developed to support the launch of sustainable fuels, for instance. In practice, this means engine refurbishment kits, and projects towards reducing the carbon footprint, for instance. The case organization is committed to the ambitious *Set for 30* climate targets. In 2023, the European Union implemented a series of proposals from the European Commission aimed at aligning the EU's policies on climate, transportation, energy and taxation with the objective of cutting net greenhouse gas emissions by at least 55%, in comparison to the 1990 levels, by the year 2030. (European Commission 2020.) The *Set for 30* target was highlighted many times in throughout the interviews.

The survey results highlighted that while the majority of respondents are aware of the CS initiatives of the organization, only 16% stated that they were highly aware of the CS objectives (Figure 14).

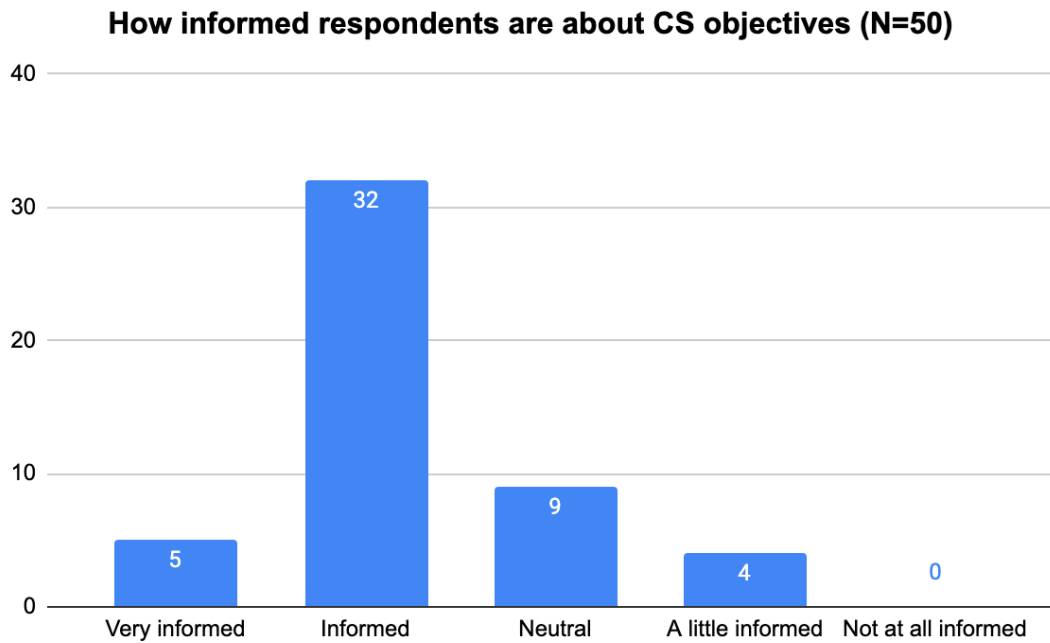**How informed respondents are about CS objectives (N=50)**

Figure 14 Employee awareness of corporate sustainability objectives

Again, 100% of the respondents from Denmark and Sweden indicated being informed or very informed, while with Norway and Finland there was more variation. Two respondents from Norway (11%) indicated being only a little informed. This was the same number with Finnish participants (10%). 64% of Finnish respondents responded with being informed or very informed, while with Norwegian respondents this percentage was 68%.

A deficiency with sustainability targets in the case organization also emerged in the data. The findings show that at unit level, the roadmap entails clear safety and quality targets. However, in terms of environmental objectives, the only concrete unit level environmental objective in the case organization is for every employee to complete an online course for decarbonization training. This shows that the case organization seems to struggle with establishing clear environmental targets. The interviewee also noted that environmental targets seem to be often created from a compliance point of view, as opposed to genuine, actionable objectives. However, other environmental sustainability objectives are set and monitored by the local entities. While environmental objectives were many times raised as very important, the actual objectives that are being pursued seem to generate confusion. This may be due to the multi-level organization of CS issues in the commissioning organization.

To summarize, while the overarching corporate strategy is acknowledged, its presence and tangibility vary across different units of the organization. The case organization follows its own roadmap and action plan incorporating CS considerations, yet sustainability issues tend to be managed more at a country level, as opposed to unit level. Safety and decarbonization emerged as key CS targets of the case organization. Next, the focus will shift from CS targets to concrete initiatives that are being pursued within the case organization.

4.3.2 Corporate sustainability initiatives

The findings demonstrate the case organization's commitment to multiple concrete CS initiatives. The case organization is working on projects with the aim of developing conversion packages for customers to reduce emissions, for instance. Other projects within the fields of reducing carbon footprint, both for the case organization and its customers are also in the works. Achieving this would mean reducing work-related traveling in the case organization. Other key CS initiatives driven in the organization, that emerged from the data, are development projects and initiatives for new, greener fuels and engines that can burn eco-friendly fuels such as ammonia and hydrogen. Figure 15 illustrates the most important CS topics from the results of the survey.

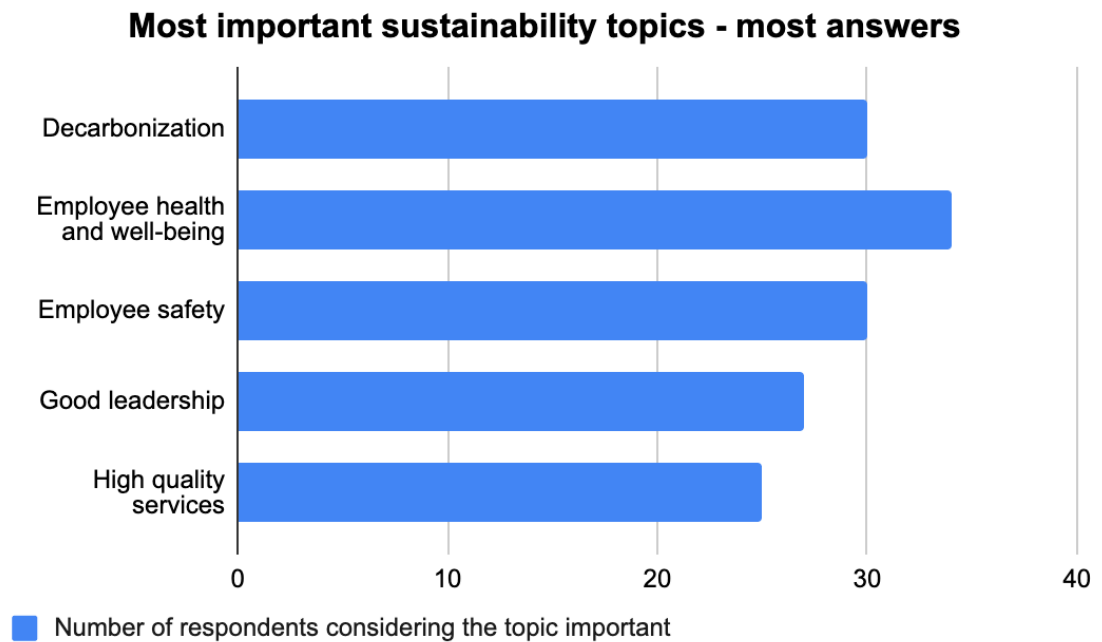**Most important sustainability topics - most answers**

Figure 15 Most important sustainability topics for case organization, according to the survey respondents

The survey participants were asked to choose what they viewed as the most important CS topics for the case organization, from a list of 12 different sustainability topics.[2] As the figure suggests, decarbonization; employee health and well-being; employee safety; good leadership; and high-quality services stood out as the most important sustainability topics in the survey. This reinforces the findings from the interviews, that highlighted a shared understanding on the top sustainability aspects within the case organization.

Some local, country specific sustainability initiatives also came up in the interviews. The case organization has organized annual events aiming to educate employees on sustainability. One of these revolves around safety targets and procedures. This is called *Safety Day*, and according to the interviewees, it has been a very popular event among employees. There are other local sustainability initiatives too, such as the purchase of green electricity, supporting employees in electric vehicle use, and reducing waste in the office buildings. Interestingly, only one interviewee raised HR policies as important initiatives that are being driven within the case organization. The focus was especially on promoting diversity.

> Yes, in my opinion. I think Set for 30 has been perhaps the most visible, and then, of course, on the HR side, they are quite visible. Here we can be anyone – whatever gender, religion, or skin colour you represent, you are welcome. I think that's quite positive. (Manager, Sustainability)

Interestingly, there were contracting opinions among the employees. Figure 16 presents the results regarding the least important sustainability topics for the case organization, based on the survey responses.

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[2] These topics were derived from either the case organization's strategy, roadmap or sustainability report, where they were mentioned as key sustainability topics.

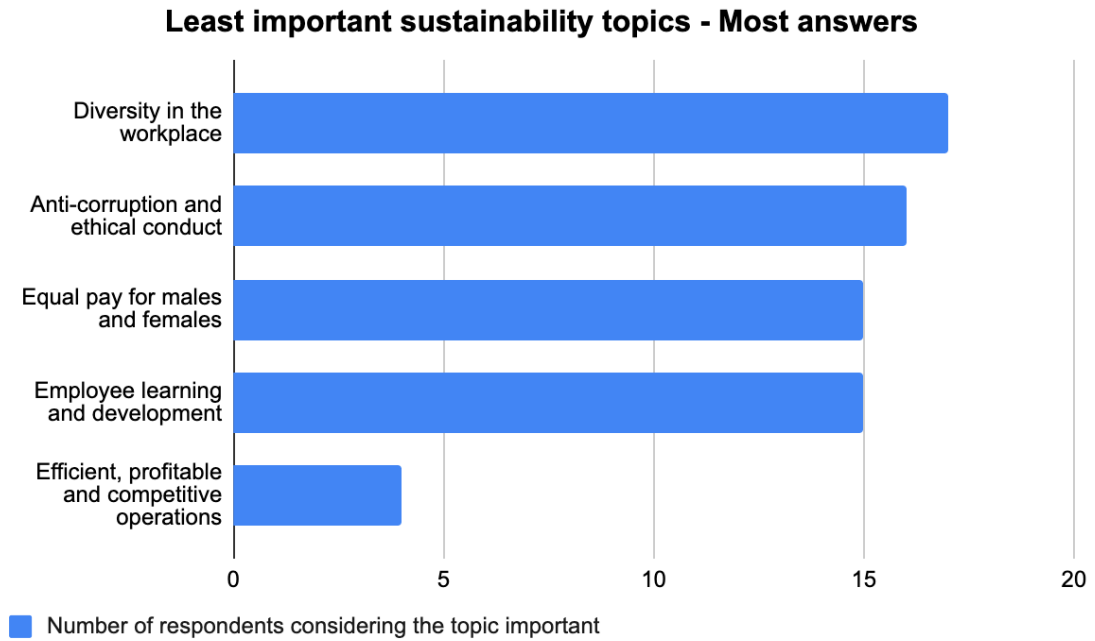**Least important sustainability topics - Most answers**

Figure 16 Least important sustainability topics for the case organization, according to the survey respondents

The chart shows that social sustainability topics are highlighted as being viewed as least important for the case organization. Top answers included diversity in the workplace; anti-corruption and ethical conduct; equal pay for males and females; employee learning and development and efficient, profitable and competitive operations. This suggests that social sustainability could be less critical in the case organization's sustainability roadmap, and thus less communicated to the employees. This could also be an indication of prioritization of operational aspects of sustainability over social issues.

The findings suggest that in the case organization, sustainability-related initiatives often originate from business opportunities or operational needs rather than a direct intention to implement corporate sustainability. Moreover, it was noted that the drive behind many of these initiatives is the pursuit of long-term operational efficiency, which can be seen as an aspect of economic sustainability.

In conclusion, the existence and importance of CS initiatives is recognized, but challenges remain within the case organization. The sustainability initiatives considered most important are mostly focused on environmental sustainability, such as decarbonization and reducing emissions, or social sustainability, with a specific focus on health, well-being and safety. Employee training is also highlighted as an important factor in enabling

CS. However, the employees value social sustainability initiatives the least integral to the case organization, noting that diversity and equality still leave a lot to be desired. The economic considerations of sustainability are often behind some of the sustainability initiatives, while no direct topics related to economic sustainability were identified. Moving forward, attention turns to understanding how these sustainability efforts are integrated to the operative level in the case organization.

4.3.3   Corporate sustainability integration to operations

Discussing the operationalization of the sustainability targets, and the strategic objectives' alignment with operational level, the findings suggest that while the principles are partly aligned, there are challenges in implementation and visibility at the operational level. According to the interviews, there is a partial consistency between the corporate level strategy and the operational level sustainability goals.

> One hundred percent. Yes, absolutely. We are extremely precise about that. Yes, it has been broken down in a way that, first, there is a high-level strategy, and then what we always do is break it down in such a way that we get it down to a very concrete level, like at the operational level, what it means for me. In that, I would argue that we are even at the forefront. (Vice President, Operations)

Other interviewees partly agreed, but were more subtle in their answers. Challenges in strategy implementation and visibility at the operational level were identified. The clarity of the strategy is highlighted in the context of clearer goals, such as safety. When it comes to more intangible objectives, it is not so well connected with operative action plans. The strategy is described to become 'a bit blurrier' as the strategy is broken down into operational level, at least in some areas. Thus, operationalization of the strategy has not been widely advanced throughout the organization. It was expressed that employees and managers who are directly involved in strategy development find it very well aligned with operations – however, the operationalization is not promoted widely in the case organization. These findings are backed up by the survey data, as shown on Figure 17.

To what extent are sustainability practices integrated into the operations of your department?
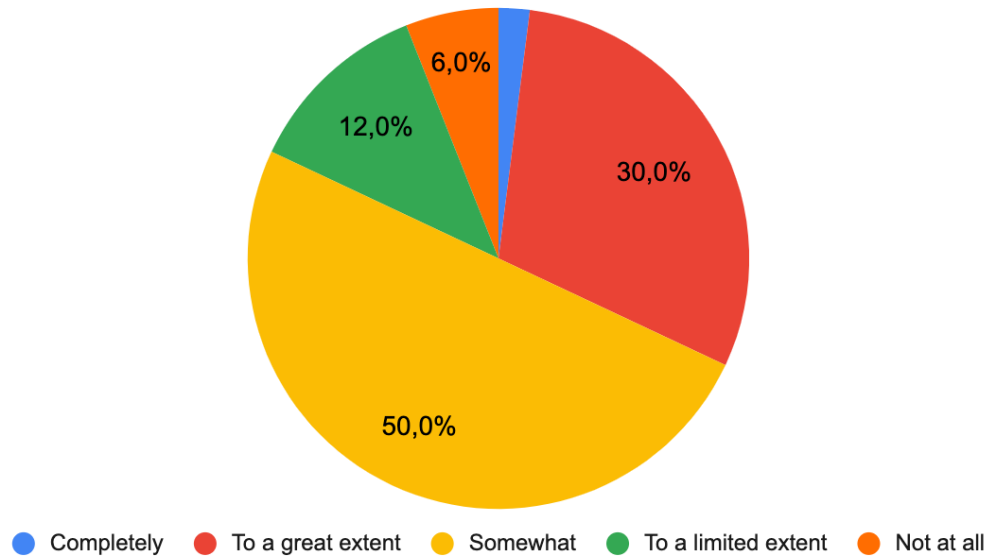
Figure 17 CS integration into operations according to the survey respondents

Half of the respondents perceived CS to be somewhat integrated to the operations at their respective department of the case organization, while 30% responded that the CS is showing in operations to a great extent. However, 18% of all the respondents perceived sustainability to be integrated into operations only to a limited extent, or not at all. Additionally, 70% of the respondents find CS being visible in the case organization's daily operations. The remaining 30% felt the opposite. This indicates that while there is some integration of sustainability practices within the organization, there is variability in the level of integration across various departments and teams.

The CS themes where the organization is perceived to perform well align with many of the themes mentioned in the interviews: decarbonization, service development and a strong commitment to safety are highlighted in both the interviews and the survey. Figure 18 illustrates the survey data on these CS themes.

The CS themes case orgnization is performing well in - Most answers
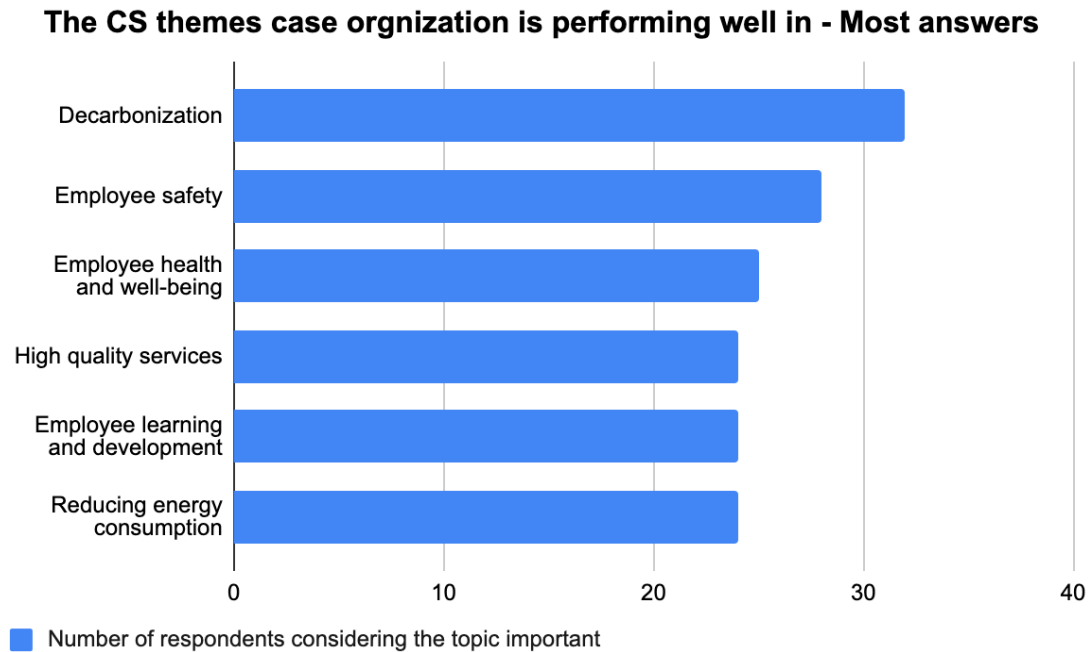
Figure 18 Sustainability themes the case organization is performing well in, according to the survey respondents

Decarbonization, development of services and a strong safety focus stand out as important CS themes in the minds of both the interviewees and questionnaire respondents. Employee training is also highlighted as an important factor in enabling CS. Reducing energy consumption emerged as a new theme, and it can be seen to stem from the commissioning organization's strong focus on the energy industry.

In summary, it can be stated that although the CS strategy of the case organization is partly aligned and CS practices are somewhat integrated into the organization's operations, there are still challenges in strengthening the connection between strategy and operations. It could be beneficial for the case organization to focus on developing and clarifying these processes and ensuring that the objectives and initiatives of CS are understandable and implementable across all levels of the case organization. The next sub-section presents the findings regarding CS measuring and reporting in the case organization.

4.3.4 Corporate sustainability measuring and reporting

The findings indicate that within the case organization, there is a strong focus on tracking employee safety and health, utilizing indicators such as the TRIF-index and LTIFR.

TRIF-index, which stands for the total recordable injury frequency, is a safety performance measurement indicator that measures the occurrence of workplace injuries and illnesses over a specific period of time. It is used by businesses to track their safety performance and identify incentives for improvement. Another safety indicator that is being tracked by the case organization is LTIFR, referring to lost time injury frequency rate, which indicates the number of lost time injuries occurring in a workplace per one million hours worked. These reflect the organization's dedication to measuring safety performance and identifying opportunities for improvement.

When it comes to environmental matters, the case organization specific emissions are raised as a measured indicator. Additionally, the case organization is currently working on introducing a new index for sustainability tracking – for awareness regarding environmental sustainability issues. Some indicators tracking employee awareness are implemented already – for instance a decarbonization training program that is mandatory across the organization. However, a lack of specific environmental KPIs was highlighted.

Concerns have been raised regarding potential biases in how corporate sustainability, particularly environmental efforts, is being measured in the case organization. It was expressed that the measures conducted do not always reflect the true environmental impact of a company's operations. The importance of genuinely understanding and improving environmental impacts instead of only complying with reporting standards was emphasized.

> In a way, what you measure is what you get. (Manager, Sustainability)

While sustainability reporting within the organization tends to occur at the legal entity level, with KPIs influencing the corporate sustainability report, there is a noted interest in enhancing unit-specific CS measurement and reporting. It was highlighted that while the care organization unit does not do much reporting, CS KPIs are being tracked by the local entities, including paper usage; energy consumption; and the number of electrical vehicles.

> If it's direct – how we are being sustainable, then you have to measure the emissions we cause when we serve our customers. So that is sending service engineers around the world. Or locally in electric cars or whatever. And then it's spare parts – how they are shipped around the world. We don't really… I don't think we measure that. (Manager, Field service operations)

When it comes to sustainability reporting, it was found that next to none unit level reporting is done based on sustainability efforts. Again, CS reporting is primarily conducted at the legal entity level. The country specific organizations monitor KPIs, which is reflected on the corporate sustainability report of the corporation. Development projects for enhancing the amount of unit-level CS reporting have been initiated, but work remains to be done.

> I think it's almost necessary. If we don't report at the unit level, it will also be difficult to report at the business level. We report the CO_2 emissions from our workshops, but what is not reported is the emissions we cause when traveling and such. There has been talk about it, and soon it might even be possible, but we need to obtain that information from different airlines and such before we can use it as a tool to guide our operations. So, partly, what we can report, we report now and work around it, but it doesn't cover our entire business unit at the moment. (Director, Regional)

> It's at the corporate level, and then we go through what different functions are doing in various forms, but not in the annual report. I don't see what benefit there would be. We have a QEHSS function, for example, that is certainly a good organization where we can go through this. And we have a structure where we have these business reviews once a month, and now we don't, but in the future, it would certainly be good that we could also report once a month per unit. There is a lot to be developed in the reporting aspect as well. (Vice President, Operations)

Additionally, in the case organization, the ISO standards have a role in structuring CS measuring and reporting. Based on the interviews, the case organization's certifications against ISO 9001 (quality management), ISO 14001 (environmental management) and ISO 45001 (occupational health and safety management) were highlighted. These certifications guide the case organization in their CS efforts, setting a framework for implementing and improving CS measures. Additionally, the impact the company is currently making in CS has been recognized: the commissioning company has been listed in the Dow Jones Index as one of the top 100 most impactful companies for many years.

Despite the current challenges in CS reporting, there is a general consensus that the organization's sustainability efforts do get reflected in the broader corporate sustainability reports. Furthermore, CS is acknowledged as a key element in shaping the organization's competitiveness and appeal to new talent, with economic sustainability also considered through long-term value creation tied to ESG considerations. Whether the case

organization should disclose more on their CS operations in the commissioning organization's sustainability reports, brought out contradictory views.

> It's at the corporate level, and then we go through what different functions are doing in various forms, but not in the annual report. I don't see what benefit there would be. We have a QEHSS function, for example, that is certainly a good organization where we can go through this. And we have a structure where we have these business reviews once a month, and now we don't, but in the future, it would certainly be good that we could also report once a month per unit. There is a lot to be developed in the reporting aspect as well. (Vice President, Operations)

To summarize, the case organization emphasized tracking employee safety and health through indicators such as TRIF and LTIFR. Environmental sustainability is being monitored, with the main focus on emissions, yet the need for more specific environmental KPIs is recognized. Concerns regarding biases in CS measuring and reporting, especially within the environmental aspect of CS. Despite the lack of unit-level CS reporting to the corporate level, most interviewees believe that the CS efforts of the organization are reflected in the corporation's annual report and sustainability report. After discussing all the findings relating to CS implementation in the case organization, it is fitting to focus on the next theme, which is CS improvement. These findings will be presented in the following section.

4.4 Corporate sustainability improvement

4.4.1 Challenges in corporate sustainability

Some evident challenges regarding CS integration and implementation emerged throughout the interviews. Many interviewees recognized at least a slight gap in aligning the CS objectives from the corporate strategy down to the operational units, and the day-to-day activities. Effective communication of CS targets and initiatives to all teams and employees across all levels of the organization was perceived as difficult. Transforming strategic targets into tangible operational actions and measurable outputs remains a challenge within the organization, while improvement has been made according to the interviewees.

Linked to these, there were repeatedly expressed concerns from an operational, technical team perspective. It was found that teams working in technical tasks on a very operative level, may feel rather unconnected with sustainability. The interviews suggest a shared

experience in these teams, that relates to the lack of control regarding CS – they highlighted that even if excellent CS ideas were to emerge among these teams, the implementation could be impossible due to the stiff communication between organizational levels, and the inflexible guidelines governed from higher levels.

Challenges in operationalizing corporate sustainability (CS) strategies were apparent, particularly regarding employee awareness and engagement with CS training programs. Difficulties stemmed from issues such as the accessibility of training, language barriers, and the mobile work schedules of field service engineers. This indicates that while the overall importance of CS is communicated and understood across the organization, some initiatives and details are not effectively reaching all employees.

Additionally, challenges were noted in the realm of sustainability reporting. Concerns were raised about the accuracy and reliability of some KPIs monitored within the case organization, and the lack of structured and comprehensive indicators that would encompass more aspects of sustainability. There was also clear confusion as to which indicators are monitored by local entities, business units or the core business operating above the business unit, the case organization is a part of.

The majority of the survey respondents perceived the case organizations is currently performing well or adequately in terms of CS, indicating a positive overall perception. However, the CS topics in need of improvement based on the survey respondents are illustrated on Figure 19.

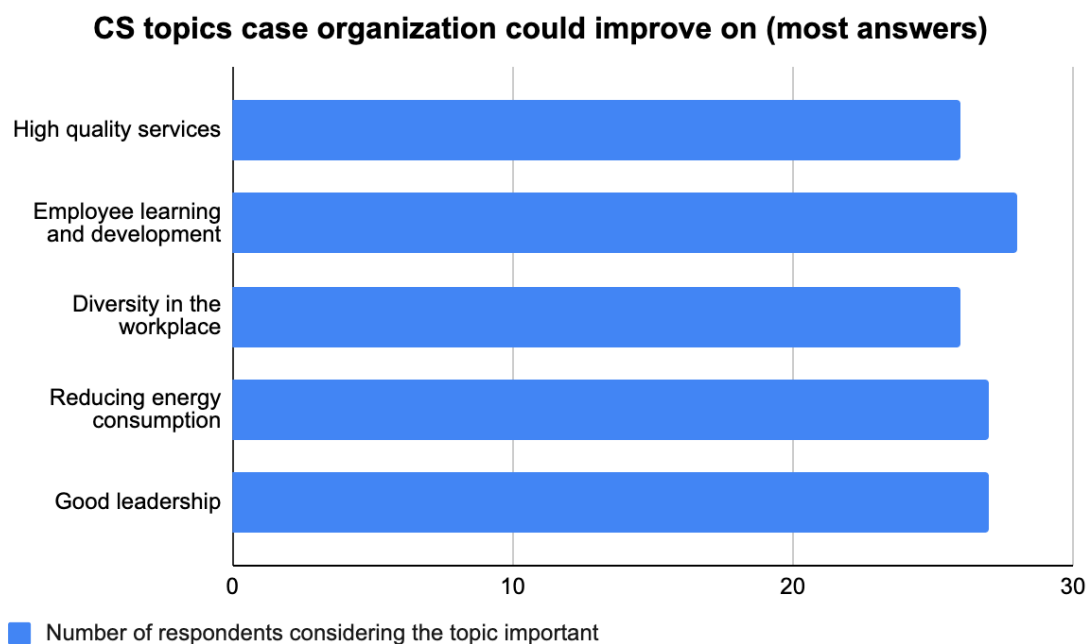**CS topics case organization could improve on (most answers)**

Figure 19 CS topics the case organization should improve, according to the survey respondents

Based on the survey, more actions may be needed in order to promote diversity, employee awareness, reducing emissions and good leadership. Many themes, such as employee awareness and development regarding the quality of services came up as targets for development in the interviews, too.

While the case organization has made progress in CS in the recent years, interviews and surveys reveal challenges in aligning CS objectives with day-to-day operations and effectively communicating these across all levels. There are also concerns about the reliability of sustainability reporting and the implementation of CS initiatives, particularly in technical, more operative teams. Survey data suggests areas for improvement, such as diversity and emission reduction. Overall, the organization shows a positive stance toward CS but recognizes the need for clearer strategies and better integration of sustainability practices. The next sub-section presents the findings in relation to CS improvement, and the views for future in the case organization.

4.4.2 Future of corporate sustainability in the case organization

The interviews inquired the participants about the points for improving the level of CS in the case organization going further. The potential for CS improvement within the case organization was recognized widely. Several areas for improvement were identified.

There was a shared opinion about emphasizing the importance of environmental considerations in CS agenda, raising awareness and understanding regarding sustainability in the case organization. Additionally, many interviewees suggested improvements on measuring and reporting, particularly in making CS efforts more tangible and linking them to clear targets. The survey data on whether improvement regarding CS is called for in the future is demonstrated on Figure 20.

Do you think your organization should do more in terms of sustainability? (N=50)

No
6,0%

Yes
94,0%
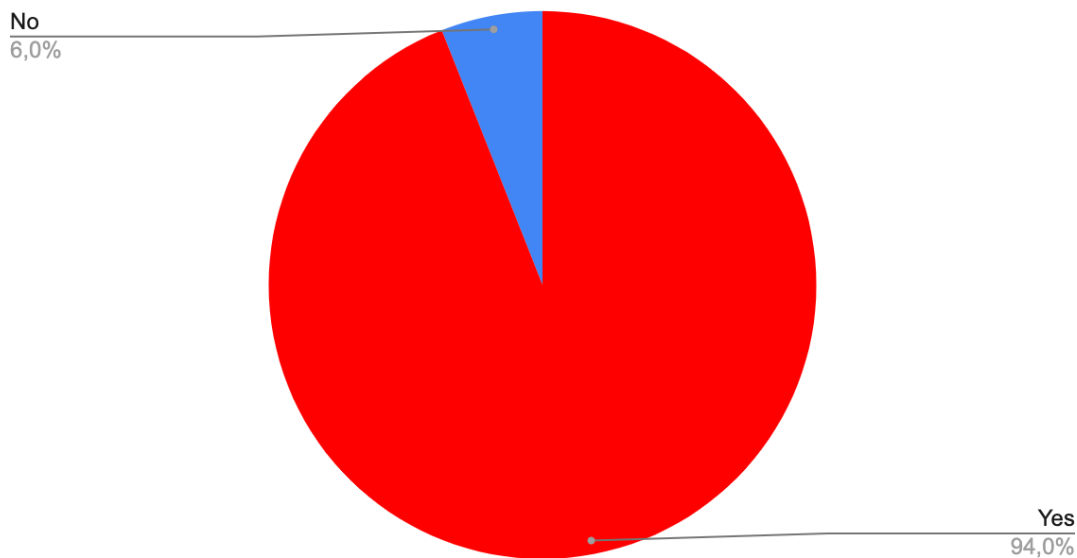
Figure 20 Employee perspectives on organizational commitment to sustainability

The responses were rather unanimous, with 94% of the respondents answering *yes* to this question. An even further integration of safety into the CS targets, roadmaps and KPIs was emphasized in the interviews. Focusing on measurable impacts especially in terms of employee health and safety was suggested as another point for improvement in the future. This indicates a perceived desire for new indicators measuring safety and well-being. The focus on these topics was emphasized through the tangibility and clarity of the goals, and the immediate impact made if implementing change. Technology and innovation were also raised as key focus points for CS improvement. The need for new green business areas was emphasized in order to stay competitive in the global market. The future of carbon neutral fuels and preparing for their wide implementation with upgrading packages was also seen as a driver for CS improvement for the case organization.

Investing in operational efficiency is another key area that is seen as contributing to CS improvement. This means reducing emissions by reducing traveling to work sites. This could be achieved by developing more efficient repair processes where malfunctions could be fixed without a presence on a work site. Automatization of processes was also mentioned in response to operational efficiency. Finally, the interviewees were asked if they thought there were possibilities for the case organization to improve its CS efforts in the future. Five out of six respondents were very optimistic, seeing CS improvement as not only probable, but possible and even necessary. It was expressed that without continuous improvement related to CS, companies cannot survive.

> Of course. We are at the beginning of the journey. It's the best moment. So now we can improve a lot. But it requires investment. (Manager, QEHSS)

However, one of the interviewees did not view that there are possibilities for the case organization to do better in terms of sustainability, at least unless there were substantial changes implemented from an upper organizational level, due to the nature of the operations of the case organization unit revolving around traveling, and the general high emissions of the industry.

> I don't think we can ever stop traveling around the world. So unless someone dictates we have to spend more money to buy lower emission flight tickets, for example. So, until that time, we cannot improve. I don't think so. Because we also have a target to serve our customers, so you have to travel out there. If we don't, then we cannot operate. (Manager, Field Service operations)

Based on the findings, a significant potential for CS improvement is recognized in the case organization, with emphasis ranging from CS target operationalization to focusing on the development of new, green technologies. Raising CS awareness across the organization and enhancing understanding of CS practices were also identified as important areas for development. While most respondents were optimistic about the possibilities for CS improvement in the future, one highlighted operational constraints regarding CS, highlighting that CS improvements cannot be made, unless dictated so from a higher-level or organization. Now that all the relevant findings of the empirical research have been reviewed, a concluding synthesis of the key finding follows. The following chapter links the important findings with CS theory, along with conducting comparison between the CS approach (section 4.1) and operations in practice.

4.5 Discussion on key findings

4.5.1 Significance of corporate sustainability for the case organization

The findings indicated that there is a general understanding of sustainability within the case organizations, with a strategic priority placed on environmental and social aspects. Sustainability is understood as a multidimensional concept by both managers and the employees of the case organization, and it is perceived to encompass environmental, social and economic aspects, as recognized by the literature (Elkington 1997, 70). Boyer et al. (2016, 1) highlight the complex nature of the topic by stating that establishing a definition for sustainability that would encompass each dimension of it is very difficult. There was considerable variation in the depth and width of the CS definitions and perceptions communicated by the participants of the study.

When it comes to sustainability awareness, management showed high levels of awareness, while operational employees exhibited varying degrees of sustainability understanding and awareness, influenced by factors such as job role, regional differences and the direct impact of their work in relation to sustainability. This gap highlights the need for more comprehensive and widespread education on corporate sustainability within the case organization. While much is done already in order to increase CS awareness across the organization, more attention could still be given to the topic. For companies to reach the top stages of sustainability integration, company-wide sustainability awareness is integral (Willard 2012).

Social and environmental considerations regarding sustainability appear to be much more represented in the CS effort of the case organization, as opposed to the economic aspect of sustainability. This is rather typical especially in the middle stages of a firm's sustainability journey. (Willard 2012, 27–28; Dyllick & Muff 2016, 163–164.) While economic sustainability was less emphasized, it was still recognized as essential for introducing sustainable practices. Interestingly, the economic dimension of sustainability is proven to be most often ignored by firms, when communicating on their sustainability endeavours. (Meuer et al. 2020, 31.)

The majority of employees participating in the study expressed familiarity and at least some level of interest with the concept of CS. The findings suggest, that while there is mostly a positive attitude towards CS among employees of the case organization, actual

organization-wide engagement is lacking. Schrettle et al. (2014, 77) emphasize the importance of open organizational culture in engaging employees towards CS agendas. The case organization seems to encourage participation in sustainability agendas, yet the actual reach of such agendas is limited. It was emphasized by multiple interviewees, that especially employees working in more mobile or field roles are hard to reach and provide training to in terms of CS. This was also highlighted in the survey, as only three of the 50 respondents were from business functions employing field service engineers and other mobile workers. Therefore, it can be argued that the current engagement strategies the case organization is employing, such as online training and information distribution, are not highly effective. Bringing together like-minded employees has been proven to foster employee engagement and employee-originated CS initiatives in organizations. This can be done through internal communications channels, for instance. (Engert & Baumgartner 2016, 830.)

Comparing the actualization of the case organization's sustainability approach (section 4.1), the empirical study indicates that although the case organization emphasizes the three dimensions of sustainability (Figure 10) at the core of its strategy and objectives, the findings suggest that the economic aspects of CS are receiving less attention in practice. The CS principles communicated externally by the corporation, such as the emphasis on decarbonization and ethical standards, seem to match the strong sustainability awareness at the management level, but challenges arise when trying to implement these principles among operational levels of the case organization. For instance, employees reported deficiencies in the social aspect of CS in the case organization.

To summarize, the significance of CS practices is understood as an integral part of strategy across the organization. CS is understood to be a necessary priority, integral to the operations and future of the company and the planet. The results mirror the theoretical framework's emphasis on multidimensionality of CS (Waas et al. 2011, 650) and the importance of integrating sustainability into the core corporate strategy (Etzion 2007, 641).

4.5.2 Corporate sustainability implementation

The interviews revealed a strong awareness regarding CS strategy and targets within the management level, with safety and decarbonization as top priorities. These same priorities

were emphasized in the previous literature regarding MRO sustainability, and as key targets for the maritime industry in the UN SDG agenda. (IMO 2023; Puisa et al. 2021, 1–2; United Nations 2023). However, a gap was noted in the visibility and prominence of the corporate strategy and CS objectives within different business units and functions. Survey results complemented these findings, indicating that while most employees are aware of CS initiatives, a significant minority lacks full awareness of the CS targets and objectives, particularly in areas like social sustainability. Rodrigues and Franco (2019, 11) emphasize the importance of sustainability communication as a key facilitator of successful operationalization of a CS strategy. A committed, proactive leadership could also aid in improving the CS awareness and commitment throughout the organization (Simas et al. 2013).

Interviewees acknowledged the alignment of high-level strategy with operational practices, but also noted challenges in making the CS strategy tangible at the operational level. The survey supported this by showing that only 70% of respondents see CS integrated into daily operations at any level, yet this opinion is not is not uniform across all countries and functions. Achieving high integration of CS strategy and operations very important for a successful sustainability journey. The integration between CS strategy and operations can be implemented through operationalizing the strategy into clear action plans. (Elkington 2002, 9; Willard 2012, 27–28.)

When it comes to sustainability measuring and reporting, in the interviews, the implementation and use of specific safety indicators like TRIF and LTRIF was emphasized, as was the intention to track emissions more comprehensively. Critique directed to the existing measures emerged, especially for not fully capturing the environmental impact of the case organization. This issue of incoherent CS measurement is recognized widely in organizations (Montiel & Delgado-Ceballos 2014, 127). A possibility for biases in CS measuring and reporting was also brought out. A balanced, comprehensive measuring of all sustainability dimensions is crucial for assessing the achievement of CS initiatives, and ensuring transparency and accountability of CS practices (Tate et al. 2010, 19–20; Tenuta & Cambrea 2022, 42). It should be noted, that the interview questions regarding CS measuring and reporting did not receive very comprehensive responses. The survey did not directly address CS measuring and reporting, however, the emphasis on decarbonization and safety aligns with the

interviewees' focus on environmental and social objectives regarding the same very topics.

Comparing the external CS communication of the commissioning organization to the empirical findings, it was found that the case organization's overall CS strategy and objectives support the development of innovations and services to enhance the level of CS. However, the findings reveal that these objectives are not as visible or understood across all operational units of the organization.

Both interviews and surveys identified challenges in operationalizing CS strategy, with technical teams feeling disconnected from CS initiatives. This disconnection may contribute to the uneven integration of CS into daily operations as noted by survey respondents. There is also a noted challenge in how CS initiatives are implemented, with more focus on local, country-level initiatives as opposed to consistent, case organization unit wide approach. This might lead to inconsistencies in sustainability practices across the organization. A coherent organizational structure, as well as clear and actionable CS goals are key facilitators of CS performance (Nathan 2010; Klettner et al. 2014, 160). Lozano (2015) highlights that in the future, CS will increasingly call for real actions and accountability as opposed to just talk. This is where integrating the strategy well within the operative level comes in important.

4.5.3 Sustainability improvement

When it comes to sustainability improvement, the interviews underscored a desire to re-evaluate environmental priorities and enhance the tangibility of CS initiatives and practices. Recurring themes regarding the case organization's future CS practices included new innovations, particularly in the fields of green technologies and operational efficiency, while remaining competitive and reducing emissions. Decarbonization was also seen a big target going in to the future, as the interviewees see there is still lots of work to be done regarding this objective. However, these enthusiastic future scenarios are shadowed with operational constraints, particularly relating to the case organization's travel-intensive core business operations.

The survey findings support the insights gathered from the interviews, indicating that while employees recognize the case organization's current efforts in CS as good, they believe that room for improvement persists. The areas for improvement in the future that

were brought up in the survey were social issues, such as increasing diversity, promoting equal pay between males and females, ensuring employee growth and focusing on ethical leadership. Working on these issues could benefit all stakeholders and facilitate a transition for the organization to a higher level of sustainability integration, as Willard (2012, 27–28) and Elkington (2002, 8–9) suggest. Environmental issues were also identified, and the survey respondents emphasized the need for further reducing energy consumption in the future.

While the external CS communication and approach of the commissioning organization describes their strong commitment to always improving and developing new sustainable solutions, the operational limitations of the travel-intensive business operations of the case organization unit pose challenges to achieving emission reduction objectives, calling for the exploration and adoption of new, creative, sustainable operating models.

To summarize, the future of the case organization should involve a comprehensive revised strategy to boost CS. This includes setting specific environmental goals, strengthening social sustainability efforts, and improving leadership involvement in CS activities. Also, updating how sustainability is measured and reported is advised for better accountability and transparency. Furthermore, the company should look into creative ways to lessen its carbon impact while still maintaining high service standards.

Based on the findings gathered in the study, when evaluating the case organization's current performance in terms of CS, based on Willard's (2012) five-stage framework, the case organization can be seen to be somewhere in between the stages three (Beyond compliance) and four (integrated strategy). The organization has begun to adopt proactive sustainability efforts, like focusing on decarbonization, and has set ambitious sustainability targets. The understanding and prioritization of sustainability across different organizational levels suggest that the organization recognizes the risks and opportunities associated with environmental and social responsibilities. These are characteristics of organizations on stage three of the sustainability conceptualization. (Willard 2012, Dyllick & Muff 2016.)

Stage four characteristics, where the case organization can be seen to fit according to Willard (2012) and Dyllick and Muff (2016), include CS being integrated into key business strategies and the organization is looking to gain value from sustainability initiatives that benefit all stakeholders. The commitment to sustainability is demonstrated

by the case organization's ambitious goals for maritime decarbonization and the integration of sustainable practices into the service offerings.

5   Conclusions

5.1   Theoretical contributions and managerial implications

The purpose of this study was to describe, analyse, and improve the role of corporate sustainability within the maintenance, repair and overhaul organizations operating in the maritime industry. To find solutions to this main research problem, it was divided to three sub-problems. The findings of this study offer theoretical contributions to MRO organization research and to the paradigm of CS. The theoretical contributions and managerial implications of this study are discussed in this section.

The importance of CS has been increasingly emphasized in recent years within multiple industries. Additionally, it has become a crucial concern for governments, regulators all while becoming a mainstream topic in the media. CS is especially critical within maritime sector, where emissions are considerable and employee safety, along with other social issues are everyday concerns. (Wang et al 2020, 1.) In this study, an initial framework for enhancing organizations' CS performance (Figure 4) was developed by drawing from existing literature on CS motivators and success factors along with CS assessment, implementation, measuring and reporting tools and frameworks. In this section, a revised version of the conceptual framework is presented, with a clearer focus on aiding the case organization in their CS journey.

The revised conceptual framework (Figure 21) builds on the initial framework. By employing findings from the empirical study and linking them with existing literature, and then connecting them with the principal organization and industry-specific factors of the MRO case organization, the revised conceptual framework aims to provide a clear and actionable roadmap for MRO organizations – especially the case organization – to organize their CS initiatives and objectives in a way that can lead to improved CS. All the alterations made from the initial framework are highlighted with a red line for clarity.
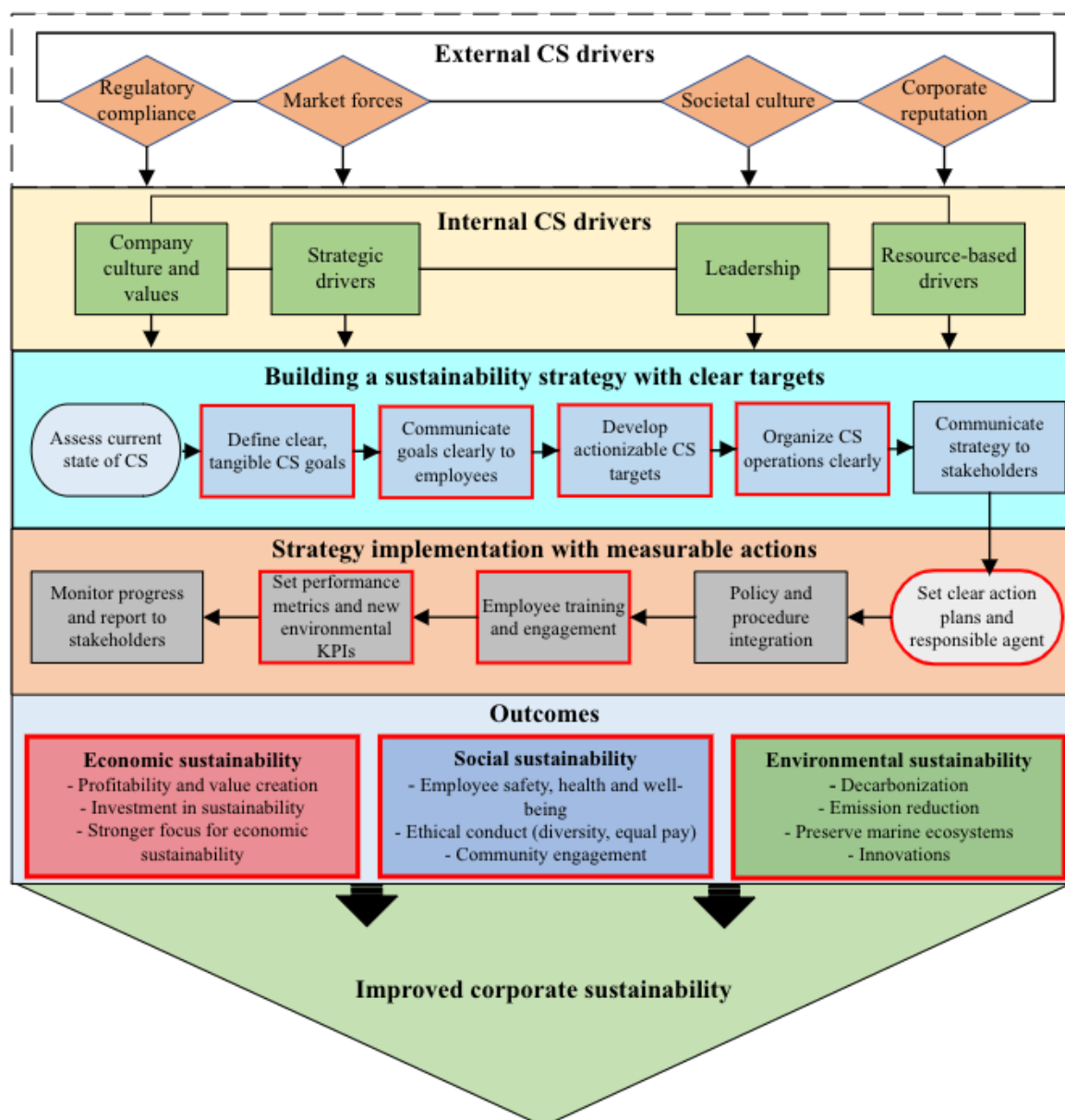
Figure 21 Revised framework for improving corporate sustainability

Prior literature highlights the importance of external and internal CS drivers in facilitating CS activity in organizations (Friedli 2014, 76). The insights gained from the empirical part of the study reinforced this, as the interviews brought about similar ideas of CS drivers as were mentioned in the literature. Examples of these include regulatory compliance, societal culture, leadership and company culture. The findings further highlight the weight of CS drivers in affecting CS performance. However, as the findings did not reveal any new insights regarding the topic, the two top blocks on the framework reserved to CS drivers were left untouched in response to the initial framework.

The process of building a CS strategy was edited the most in the revised conceptual framework. Instead of making pivotal changes, specifications could be a more fitting word. In literature, key phases and factors in CS strategy building include evaluating the current state of sustainability, establishing objectives, formulating CS policies and effectively communicating the strategy across the organization and to the stakeholders. (Willard 2012; Rodrigues & Franco 2019). Some of these processes were recognized in the empirical study, however, many of these processes seemed to have gaps in their implementation. Therefore, the adjustments made in the revised framework are specific action points for the case organization established based on the findings. Similar modifications were made on the strategy implementation process in the framework, as based on the prior literature and empirical findings, the case organization could refine some of these points.

The sustainability outcomes in the framework were also refined to fit the context of the case organization better. The previous theory on CS encompasses three integral categories: society, environment, and economics (Elkington 1997). In line with this three-part model, the case organization recognizes sustainability as a complex and multifaceted concept that encompasses these dimensions, validating the literature that describes sustainability as encompassing a broad spectrum of aspects (Boyer et al. 2016, 1). The study's findings highlight the prioritization of social and environmental dimensions within maritime industry MRO organizations, specifically employee safety and decarbonization, as critical to their sustainability endeavours, which aligns with current literature emphasizing the importance of these themes (Gróf & Kamtsiuris 2021, 1322–1323). However, in order to achieve a truly holistic balance of the sustainability dimensions, more focus on economic sustainability is warranted.

The thesis explores the role and significance of CS within maritime MRO organization. The findings mostly cooperate with the theoretical framework, and the complexity of the concept. The most prevalent frameworks regarding corporate sustainability view it encompassing three categories – society, environment and economic (Elkington 1997). This is the case in the case organization, too. The views also imply that sustainability is understood as a complex, multifaceted concept that includes multiple aspects (see Boyer et al. 2016, 1.)

The social and environmental dimensions are given the most considerations, with employee safety and decarbonization given top priority in the case organization. The theory also emphasizes these two themes as imperative in MRO organizations' sustainability endeavors (Gróf & Kamtsiuris 2021, 1322–1323). This emphasis indicates a shift towards increasingly holistic sustainability practices within the industry, reflecting the complex nature of sustainability as recognized by the theoretical framework.

The thesis also examines the ways in which corporate sustainability can be assessed and implemented within maritime industry MRO organizations. The theory suggests that this process should begin with aligning the CS strategy with the organizational structure and processes to ensure successful implementation (Nathan 2010). The integration of CS into the core corporate strategy is crucial for the development of CS (Willard 2012), and the following steps are emphasized for effective implementation in the MRO maritime context.

The organizational structure should be coherent with CS strategies and the organizational culture should embed CS principles. (Engert & Baumgartner 2016, 828; Nathan 2010). An organizational culture centred on sustainability values promotes behaviours in line with CS objectives (Bonn & Fischer 2011, 11; Ramchandani & Singh 2022, 36). The results of the study support these propositions. It was established that a supportive organizational culture is viewed as an important factor contributing to CS. The results of the study indicate a gap in how the CS endeavours are organized in the case organization. This caused confusion regarding the ownership of CS initiatives. A more coherent structure can be seen as a solution to promoting CS more effectively.

Engert and Baumgartner (2016, 828) as well as Simas et al. (2013) emphasize the role of visionary and committed leadership in steering organizations towards their sustainability targets, as leaders play a critical role in the successful implementation of CS strategies by showing example, and modelling sustainable practices. The results of the study found a link to leadership being seen as an integral part in promoting CS. However, at least in the case organization there is a call for stronger ethical leadership.

The theory also recognizes engaged and motivated employees as vital resources for implementing CS strategies (Rodrigues & Franco 2019, 1). Employee engagement, along with employee competence at all levels of organizations is needed for effective implementation of sustainability targets. The findings suggest that engaging employees

in sustainability initiatives is seen as important in the MRO organizations, however, this has not been fully achieved. Employees show interest in CS operations in every level of the case organization, and recognize the case organization's proactiveness in fostering a corporate culture where employees could engage in CS.

When it comes to sustainability measuring and reporting, the theory suggests that MRO maritime organizations should set specific targets to guide their sustainability efforts. This can be done by adhering to various sustainability standards, such as ISO 14001. (Silva et al. 2020, 1; ISO 2015.) This is supported in the findings, as the case organization recognizes this imperative, and is certified against multiple sustainability related ISO standards. The theory also suggests the establishments of management control systems and the use of KPIs in monitoring corporate performance in key sustainability areas. (Rodrigues & Franco 2010, 19; Krause & Arora 2020.)

In conclusion, this study places CS at the heart of maritime MRO operations. Revised to fit the context of the research topic and MRO industry insights, the revised conceptual framework provides a clear path to improving sustainability performance within the case organization, and possibly with other MRO focused organizations as well. The conclusions of the study stress the importance of balancing environmental sustainability and employee safety and well-being, that should increasingly complemented with economic sustainability considerations. This comprehensive framework, together with the practical managerial implications guide MRO organizations towards a future where sustainability is integrated into every aspect and operation of the business. The next section discusses the limitations of the study, as well as brings up suggestions for future research regarding sustainability within maritime MRO organizations.

5.2 Limitations and suggestions for future research

This thesis investigated the role of CS within the maritime sector MRO organizations, along with identifying methods to improve sustainability processes. The study succeeded in its objective of providing a comprehensive framework on factors contributing to firms' sustainability, which can be followed to examine and improve the level of CS. Nevertheless, the study has its limitations.

A significant limiting factor within this study is that the empirical data and insights provided have all come from a single maritime MRO organization. While the findings

could potentially be applied to other similar maritime MRO organizations, there may be problems – particularly with companies differing in size or scope. Some of the aspects of the study could potentially be generalized, such as the important CS targets or topics. However, this points out an excellent potential for further research, which is highly called for within the scope of maritime MRO organizations.

Some geographical variation in the data was provided by the local teams of the case organization. Participation to the empirical study was recorded from Finland, Sweden, Norway, Denmark, Estonia, Switzerland and Lithuania. However, since all of these countries are geographically positioned in the Northern Europe, the study was conducted from an European context. While the commissioning corporation operates globally, the CS policies, objectives and implementation methods described in the study could look very different in other countries. Additionally, as the internal and external CS drivers are highly culture-specific, the findings could have varied highly if the study had been carried out with a different geographical scope. Another suggestion for further research lies here – it could be fruitful to conduct a similar study from another geographical viewpoint, and carry out comparisons between countries or country clusters. Finally, the limited sample size of the empirical study is considered a limitation. It could be viewed to cause a small-sample bias, which can limit the generalizability of the results to a larger research scope.

For the future, there could be multiple fruitful directions to take the CS research of maritime MRO organizations. Expanding from the scope of this study, to incorporate a broader array or organizations from various geographical regions or sectors within the maritime industry could offer comparable insights. This, along with a larger sample size could enhance the generalizability of the findings and the repeatability of the research. The final section of this study summarizes the research process in a concise manner.

6 Summary

This study's main objective was to investigate ways to enhance CS performance in maritime MRO organizations. The sub-objectives of the study explored the significance of corporate sustainability in the maritime MRO industry; CS assessment and implementation along with CS strategy integration to the operational level of MRO organizations. The theoretical framework shed light on the concepts of sustainable development and corporate sustainability, and introduced related frameworks, such as the three dimensions of sustainability. Furthermore, the theory part illustrated driving factors of CS in organizations and clarified the CS journey and assessment in firms. CS implementation was also explored, and success factors along with common tools and frameworks relating to CS measuring and reporting were discussed. The MRO context was carried on throughout the literature review. The theoretical framework was synthesized to form the initial framework of this thesis – a process flow chart describing the CS factors facilitating CS improvement.

The thesis was conducted as a commissioned work. The research adopted a mixed methods approach, and was conducted as a single case study. The empirical data was collected with qualitative semi-structured theme interviews, and a quantitative survey questionnaire. Data analysis was conducted in two parts – the qualitative data was analysed with thematic analysis, while descriptive analysis methods were employed in the analysis of the quantitative data.

The findings of the research suggested a partial alignment with prior literature, highlighting social and environmental considerations of sustainability as the most important within the maritime MRO sector. This is manifested through CS targets often focusing on employee safety, and decreasing carbon emissions, for instance. CS was recognized as playing a significant role in the strategical level of the case organization. Areas for improvement were identified in the organization of CS operations and implementing the strategy in a more operational level. The initial framework was revised and the case organization's MRO focus was employed within the framework, resulting in a CS improvement framework, designed in response to the gaps that were identified in the case organization's CS strategy and practices.

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Appendices

Appendix 1 Operationalization table

Research problem	Sub-problems	Themes	Related interview question(s)	Related survey question(s)
How can corporate sustainability be improved within maintenance, repair and overhaul organizations operating in the maritime industry?	What is the role and significance of corporate sustainability for maritime industry MRO organizations?	Sustainability perceptions	1, 2, 4	6, 9, 12
		Sustainability awareness	5, 6, 8	5, 11, 14, 16
		Challenges	3a, 3b	15
	How can corporate sustainability be assessed and implemented within maritime industry MRO organizations?	Sustainability objectives	9b, 14	10, 13
		Sustainability assessment	9c, 10	17, 18
		Sustainability implementation	7, 9a, 11	10, 13, 15
	How can maritime MRO organizations integrate sustainability principles into their processes to improve their corporate sustainability?	Sustainability activities	11a	7, 8, 19
		Measuring and reporting	12, 13, 13a	-
		Improvement	15	14, 17, 20, 21

Appendix 2 Interview guide

Introduction & background	- Could you briefly introduce yourself and share a bit about your professional background? - What is your current title? - How would you describe your awareness on corporate sustainability related matters in the context of the case organization?

Concept of sustainability	1. In your own words, how do you perceive sustainability?
	2. How is sustainability perceived in the context of the case organization?
	3. From your perspective, what are the main challenges the case organization faces in achieving sustainability objectives?
	    a. Has the organization experienced any challenges?
	    b. How did you move forward?

Significance of corporate sustainability	4. What does sustainability mean to the case organization? 5. How would you describe the overall attitude towards sustainability related matters in the case organization? 6. How aware do you think your colleagues and team members are about the case organization's sustainability efforts and objectives? 7. Are there any company provided sustainability training/awareness programs directed for the employees? If so, can you describe them? 8. Do the employees demonstrate interest towards sustainability issues? How? a. Who is interested?

Strategy and implementation	9. Are you aware of the case organization's sustainability strategy and sustainability objectives?
	    a. How are the objectives implemented within the case organization?
	    b. Are the employees aware of them?
	    c. What are the most important targets in context of the case organization?
	10. Are the targets aligned on strategic and operational levels?
	11. How is sustainability implemented within the case organization?
	    a. Examples of sustainability initiatives?

Measuring and reporting	12. What are the key sustainability indicators that the company tracks? 13. Does the case organization measure or report on sustainability performance on unit level? a. If not, how are the unit's actions reflected on the corporation's sustainability reports?
Future	14. In your opinion, what sustainability targets should the case organization focus on in the future? 15. Could the case organization improve its level of corporate sustainability in the future? How?

Appendix 3 Survey questions

1. **What is your gender?**
   a. Man
   b. Woman
   c. Other
   d. Prefer not to say
2. **In which country are you currently working in?**
   a. Finland
   b. Sweden
   c. Norway
   d. Denmark
   e. Other
3. **In which business function do you work?**
   a. Operations
   b. QEHSS
   c. Resources
   d. Technical services
   e. Workshops
   f. Business control
   g. Parts
   h. Other
4. **How long have you been working for the case organization?**
   a. 0-5 years
   b. 6-10 years
   c. 11-15 years
   d. 16-20 years
   e. More than 20 years
5. **How familiar are you with the concept of sustainability?**
   a. Very familiar
   b. Familiar
   c. Somewhat familiar
   d. Unfamiliar
   e. Very unfamiliar
6. **How would you describe your personal interest in sustainability?**
   a. Very interested
   b. Interested
   c. Neutral
   d. Uninterested
   e. Very uninterested
7. **Which sustainability topics do you consider to be the most important for the organization? Please pick 1-5 most important topics.**
   a. Decarbonization
   b. Equal pay for males and females
   c. Diversity in the workplace
   d. Anti-corruption and ethical conduct
   e. Employee safety
   f. Reducing energy consumption
   g. Employee health and wellbeing
   h. Products that are ready for zero carbon fuels
   i. Efficient, profitable and competitive operations
   j. High quality services
   k. Employee learning and development

8. **Which sustainability topics do you consider to be the least important for the organization? Please pick 1-5 most important topics.**
   a. Same options as in question 7
9. **How important do you feel sustainability is to your organization?**
   a. Very important
   b. Important
   c. Neutral
   d. Unimportant
   e. Very unimportant
10. **Have you received any training or information about sustainability from your employer?**
    a. Yes
    b. No
11. **How aware are you about the organization's sustainability objectives and targets?**
    a. Very aware
    b. Aware
    c. Neither aware nor unaware
    d. Unaware
    e. Very unaware
12. **What does it mean to you for a business to be sustainable?**
13. **How informed do you feel about the company's sustainability initiatives and targets?**
    a. Very informed
    b. Informed
    c. Neutral
    d. A little informed
    e. Not at all informed
14. **Is sustainability daily visible in your organization? (In speech, operations, policies)**
    a. Yes
    b. No
15. **To what extent are sustainable practices integrated into the operations of your department?**
    a. Completely
    b. To a great extent
    c. Somewhat
    d. To a limited extent
    e. Not at all
16. **Do you feel that your organization encourages employees to participate in sustainability initiatives?**
    a. Yes
    b. No
17. **How well do you feel your organization is currently doing in terms of sustainability?**
    a. Excellently
    b. Well
    c. Adequately
    d. Fairly
    e. Poorly
18. **Do you think your organization should do more in terms of sustainability?**
    a. Yes
    b. No
19. **In what sustainability areas is your organization performing well? Please select 1-5 most important.**
    a. Same options as in question 7
20. **Which sustainability topics do you think the organization could improve on?**

    a.   Same options as in question 7

21. Is there any additional feedback, suggestions or comments you would like to provide regarding sustainability at your organization? (Optional)

Appendix 4 Consent document

Turun yliopisto
University of Turku

CONSENT BASED ON INFORMATION

29.8.2023

Assessing and improving corporate sustainability in the maritime industry -research forms the master's thesis research of Elina Koski, a student at the Turku School of Economics. In connection with this, Koski conducts interviews aimed at exploring the role of corporate sustainability and the achievement of corporate sustainability goals within ████████████ business unit. Pursuing sustainability and responsible business is a particularly important task for companies in order to mitigate the effects of climate change in time. ████████████ is committed to acting as responsibly as possible in its strategy. It is important to clarify the role and implementation of sustainability at all levels of the organization.

The research interviews will be conducted in the autumn of 2023 and 3-6 people will be invited to participate. Interviews will be 45 minutes to 1 hour in duration and will be recorded with the interviewees' permission. Participation in the interview is completely voluntary and participants are allowed to withdraw from the study and cancel their participation at any time during the process, without having to give a reason for cancellation. Withdrawing during the process will not cause any damage, and any data collected will be destroyed in a week's time from withdrawing.

Individuals are not mentioned identifiably in the thesis report. The researcher handles all data confidentially and uses code names, in order to ensure full anonymity for individuals and companies. The code key to any identifying information is in the possession of the researcher only. All interview material is stored pseudonymized in the University of Turku online database, which can only be accessed by the researcher, who is committed not to disclose any confidential or personal information to outsiders. The student will destroy the pseudonymized (non-identifiable), transcribed interview material after the master's thesis has been graded.

The results obtained from the interviews will be utilized in seeking opportunities and means to promote corporate sustainability in ████████████ operations. In addition, the research results will be published in the master's thesis. If the material is used more extensively in scientific publications, the consent of the interviewees will be separately requested.

The participants may experience sharing of personal information with the researcher as risky. However, I emphasize that the safety, identity, privacy, health and well-being of participants will be considered and protected in all phases of the research, and that the researcher is committed to adhering to good scientific practices and high-quality research ethics.

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For additional information on data protection at the university, please contact: tietosuoja@utu.fi

Turun yliopisto
University of Turku

I have been invited to participate in an interview for the master's thesis project **'Assessing and improving corporate sustainability in the maritime industry'**. I have familiarized myself with the above explanation and have received sufficient information about the research and collection, processing and storage of data carried out in connection with it. The contents of the study have also been explained to me orally and I have received satisfactory answers to all my questions regarding the study. I have had enough time to consider my participation in the study.

I understand that participation in this study is voluntary. I have the right to withdraw from the study at any time without giving any reason.

By my signature, I confirm that I will participate in the study described in this document.

_____   _____
Signature   *Date*

_____
Name in capitals

Consent received

_____   _____
Signature of receiver of consent   *Date*

_____
Name in capitals

Two identical copies of this document have been made, one of which will be kept in the researcher's archive and the other will be given to the participant.