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Gothenburg Port Authority

Sustainability assessment of a port

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MARITIME MANAGEMENT

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Cover:
[Overviewing photo of Port of Gothenburg (Gothenburg Port Authority, 2018a)]

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Summary

Sustainable development is an urgent issue of high significance for modern societies. Ports around the world as well as part of the local societies also deal with sustainability issues. The sustainability work performed by each port needs to be assessed and report. For this the sustainability report can be used. In this master thesis, a sustainability assessment of the Gothenburg Port Authority has been conducted aiming to investigate the link between organisational structure and the sustainability work performed in the organisation. The sustainability report of the Gothenburg's Port Authority has been used as a tool to assess the organisation's sustainability work. The two methods chosen for this report have been a literature review regarding sustainability assessments and indicators as well as a series of interviews to get a better understanding of the organisation. The study is limited to sustainability work performed by ports and more specifically the Gothenburg Port Authority. The produced results show that the organisational structure has an impact on the sustainability work. The format of the sustainability report also needs to develop further to become a useful tool for future strategic decision-making processes. Additionally, the organisation's identity has an impact on the sustainability report. The results have been analysed and discussed and suggestions have been proposed for future improvements to the Gothenburg Port Authority.

Preface

We want to thank out supervisor Edvard Molitor and Daniela Fjellman at the Gothenburg Port Authority and our supervisor Anna Nyström Claesson at Chalmers for their great support during the work with this thesis. We would also like to thank all the people who were interviewed for sharing their time and thoughts with us; it is the foundation of this report and has given us great insights in the organisation. We are also grateful to everyone else working at the Gothenburg Port Authority for their warm welcome of us as students which made our time at the office a great experience. Finally, we would like to thank our friends and family for cheering us on and supporting us throughout the process.

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Introduction

Sustainable development and an understanding of the organisation's environmental impact is an increasingly important competitive factor for all organisations to ensure a license to operate. This also applies for the shipping industry. A common definition of sustainable development with a broad political consensus is presented in the Brundtland report "*…development that meets the needs of current generations without compromising the ability of future generations to meet their needs*" (Bond & Morrison-Saunders, 2011; World Commission on Environment and Development, 1987). A way for organisations to guide them towards sustainable development is sustainability assessments, which consist of a variety of tools. Many organisations disclose their progress in sustainability reports; the most common format is to follow the Global Reporting Initiative (GRI) guidelines.

To regulate and control emissions is hard given the nature of the shipping industry. Allocating the emissions is a true challenge since ships are trading worldwide while ports are nodes within transportation systems. Within the port area different modes of transportation operate and various industrial activities take place. It is essential to measure factors related to environmental, social and economic sustainability to ensure the overall port sustainability (Sislian, Jaegler, & Cariou, 2016). Ports and cities have developed in symbioses through history and have worked as drivers for the local and global economy. After World War II, the development of transport solutions has created increased traffic congestions and pollution leading to a higher negative environmental and social impact for local societies. Simultaneously, the positive impact from the ports has been reduced since rail and road transportation compete with the shipping and port industry.

Port sustainability can be divided into the triple bottom line concept: people, planet and prosperity. Due to their location ports have a significant environmental impact such as air and water pollution. In the marine environment the coastal areas have the richest biodiversity and are also the most sensitive areas (Andersson et al., 2016). Ports are also the areas where most of the shipping activities are conducted which are contributing to the port's environmental impact. Many people are employed by a port, both directly and indirectly (Gothenburg Port Authority, 2017) and ports are also closely interlinked with international trade. This results in a close correlation between ports and industries conducting international business.

Another interesting challenge is how ports handle the mixture of demands regarding sustainability assessments both by authorities and various stakeholders such as shipping industries. Authorities may have high sustainability demands while the shipping industry sustainability work is not as developed (Sislian et al., 2016). There is a gap in the existing research investigating of the linkages of how organisational structure in ports enables sustainable value creation and how the municipality as an owner influence the sustainability work.

The aim of this master thesis is to fill this gap by investigating how sustainability work and sustainability report within a port be used as a part of a sustainability assessment. Further the aim is to investigate the link between the organizational structure and the activities performed in the port to understand how they enable sustainable value creation.

For this the following research questions have been formulated:

1. What are the criteria to make sustainability assessments credible and applicable for strategic decisions, e.g. learning in the organisation, transparency, accountability etc.?
2. How can organisational structure influence sustainability work?
3. How can sustainability work add value for a port?

Sustainability work performed by ports is the focus of this report and to answer the research questions the Gothenburg Port Authority has been used as a case. The main method has been to conduct interviews within the company. Further, the sustainability report has been evaluated based on a literature review of relevant sustainability indicators for a port.

Literature

The literature in this area is broad and diverse, covering different aspects and perspectives. For this master thesis an extended literature review focusing on the areas of sustainability assessment and its applications on port environment has been conducted. In the end of the chapter the Gothenburg Port Authority, which has been chosen as a case, is presented.

Sustainability Assessments

Sustainable development is an area constantly gaining attention, following the public concerns for resource depletion and related issues (Bond & Morrison-Saunders, 2011). A tool used to achieve sustainable development is sustainability assessments (Bond & Morrison-Saunders, 2011). The field of sustainability assessments is wide and consists of a wide range of practises with variations in terminology. One simple definition of sustainability assessment is given by Bond, Morrison-Saunders, and Pope (2012) "*any process that directs decision-making towards sustainability*".

Development of Sustainability Assessments

Sustainability assessments are a type of impact assessment, considered to have been developed out of environmental impact assessments and strategic environmental assessments. However, there is not a linear development where they singularly have developed and then transformed, rather a simultaneous development with influences from other fields such as natural resource management (Bond et al., 2012). As the field of sustainability assessments are constantly developing there is not yet any commonly accepted understanding of what is included in the concept or standard practices. Bond et al. (2012) suggest that the development of sustainability assessments is in its initial stage. Therefore no methods or approaches have yet been proven to work well.

Bond et al. (2012) suggest that the following aspects should be considered when evaluating the quality of the sustainability assessment: sustainability imperatives, addressing sustainability, managing trade-offs, pluralism and learning. Sustainability imperatives relate to the sustainability assessment process ability to influence decisions. Addressing sustainability is to ensure that relevant issues are addressed, including interaction effects between social, economic and environmental issues, and that it should not only mitigate the effect but create positive incentives. Managing trade-offs relates to the transparency towards stakeholders regarding the decision-making process. Pluralism describes the importance of adopting the sustainability assessment in context; each sustainability assessment should be tailor-made. Learning is important since sustainability assessments are constantly developing. This can be achieved by public engagement and follow up of successful and failed implementation (Bond et al., 2012). Through learning knowledge is created, and individual assessment can contribute to this. Cash et al. (2003) discuss knowledge system for sustainable development. In their work they suggest that the information in assessments needs to be credible, salient and legitimate to have effect. They further argue that three functions are needed to transform the knowledge into action. These three functions are communication, translation and mediation. The function is also deeply linked to the information; for example, bad communication often results in information which is either non-salient or non-credible since the parties collaborating cannot communicate. Cash et al. (2003) also conclude that it takes time to build knowledge systems, they suggest that the minimum time to create a knowledge system for sustainability is a decade and it is important to learn from practical experience.

Further Bond et al. (2012) believe that sustainability assessments will develop and become more systems-based, intergenerational, and collaborative. This includes integrated evaluation of social, environmental, and economic consequences. These three aspects are brought as the triple bottom line concept by several researchers, for example Sislian, Jaegler, and Cariou (2016), Hahn and Kühnen (2013) and Laszlo (2013). The term triple bottom line was introduced in 1994 and has since then been

used to make organisations more sustainable and enlighten their impact beyond economics. The concept has also been developed as its adaptation has spread and it is also commonly known as the three Ps: People, Planet, Profit/Prosperity.

Both short-term and long-term consequences must be included in a sustainability assessment and it is desirable to involve stakeholders throughout the process (Bond et al., 2012). Stakeholders are generally divided into two groups, primary and secondary. Primary stakeholders are customers, employees, investors and suppliers. Secondary stakeholders are communities and non- governmental organisations (NGOs). The environment can be categorized both as a primary and secondary stakeholder, depending on how dependent the organisation is of its resources. Further, the environment is usually referred to as a mute stakeholder since it can't speak its mind, however NGOs usually speak on its behalf. By engaging stakeholders, the organisation can understand which issues are important and make adoptions to the assessment. In the long term it can also help influencing the activities in becoming more sustainable. According to Hahn and Kühnen (2013) high diversity of stakeholders relates to the success of an organisation making the decisions needed to address the essential issues.

Sustainability Assessment Tools

The development of sustainability assessment tools happens rapidly and the number of tools available is constantly increasing as demand grows and research develops. Ness, Urbel-Piirsalu, Anderberg, and Olsson (2007) have identified three main categories in which current sustainability assessment tools can be divided. The tools can be used to describe the past or predict the future, the focus can be on product level or policy level and have different levels of integration between environmental, social and/or economic aspects. The tools are then categorised in three groups: product-related assessment, integrated assessment and indicators/indices (figure 1). Product-related assessments focus on production and consumption of goods and services and the flow of resources and impacts, one example being life-cycle assessments. Ness et al. (2007) criticise the product related assessments for weaknesses in their integration and advocates the use of various tools simultaneously to achieve the best result, for example ecological and economical life cycle analysis of the same product simultaneously. Integrated assessment tools are characterised by a predictive focus and are used primarily to support decisions in terms of policies, one example being risk assessments.

According to Ness et al. (2007) indicators are usually used to measure economic, social and/or environmental progress; quantitative in nature and favourably aggregated into an index. Further they discuss that indicators should be simple, quantifiable, have a wide scope and measure trends. The essential role of indicators in sustainability assessments is also discussed by Meadows (1998) who points to the importance of a significant consideration of which indicators to include. Though, indicators are rarely objective, they are usually based on values. An indicator does not need to be a number, it can also be a sign, a colour, a symbol or similar. Indicators are part of the sustainability assessment, even if other types of information such as the organisation's mission and vision or how they address different issues also plays a vital role. The indicators are also dependent on the information system and they need to be continuously improved upon Meadows (1998). Ness et al. (2007) also mentions that many of the non-integrated indicators are published in different reports. When organisations use indicators to monitor sustainable development, too many indicators can make it hard to use the information in evaluating their performance (Krajnc & Glavič, 2005). Further, indicators need to be comparable; this is usually accomplished by some sort of normalization risking that key information requested by some stakeholders is not shown.

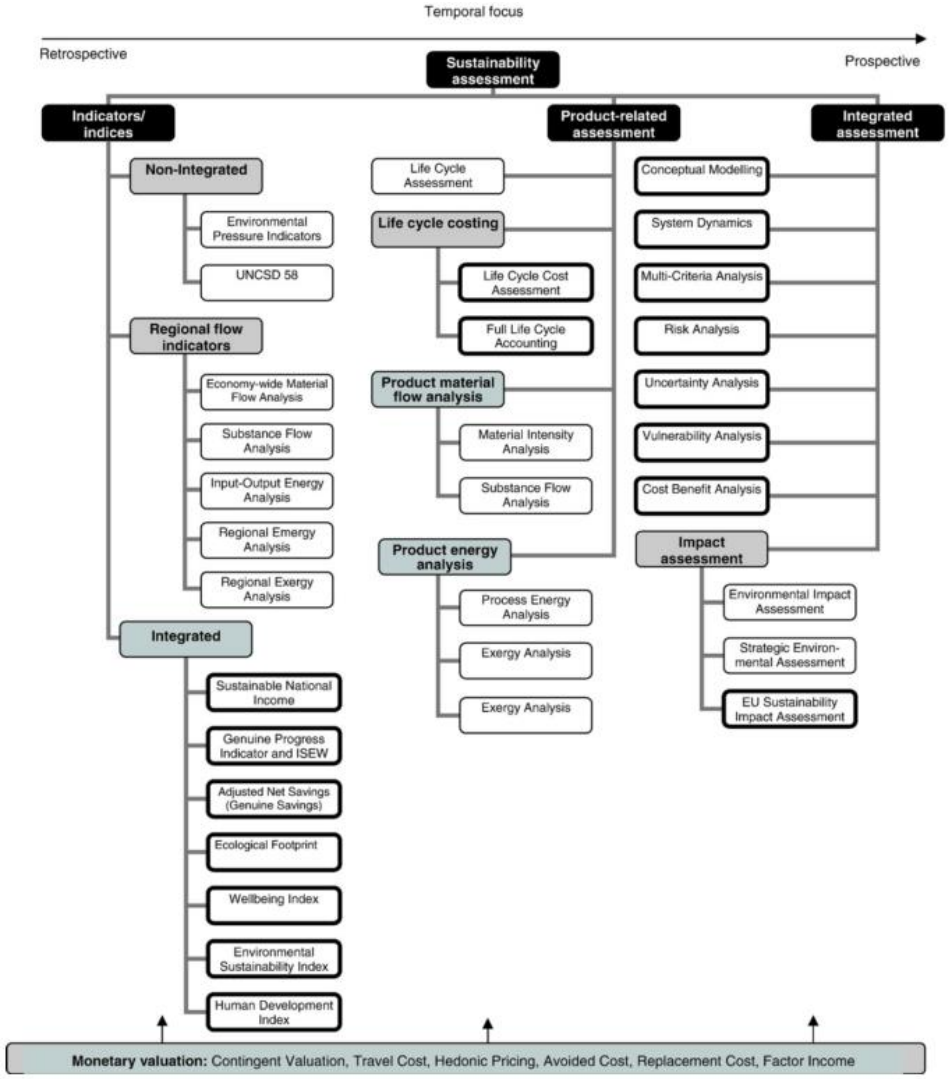

Figure 1: Map over sustainability assessment tools (Ness et al., 2007, p. 500)

UN Sustainable Development Goals

One way to work with indicators is to use the Sustainable Development Goals (UNSDGS) or Agenda 2030. These goals were announced by United Nations and there is an international agreement on the adoption of a set of goals for future international development. The goals were created to celebrate UN's seventieth anniversary, and the aim was to make them inclusive enough to be able to include everyone in the world. In 2015 the goals were accepted by all countries who promised to work with the fulfilment of the goals. The understanding that every county has its own special characteristics allows for different approaches to reach the goals. The Sustainable Development Goals includes 17 goals with 169 indicators connected to them. These goals will be monitored and evaluated between the years 2015 and 2030. UN (2015) provides numerous aims for the goals, such as inequality both in terms of poverty and gender, good health, good resource management, climate change and many more (figure 3). Organisations and nations should work with all goals where their activities can have effect. The goals consist of several sub-goals and by measuring the organisations performance in these matters and using them to identify indicators, important impact in factors for sustainable development are monitored.

Figure 2: UN Sustainable Development Goals (UN, 2015)

Sustainability Reporting

It is important for organisations to sustain the economic, social and ecological base which act as the foundation for its business, and often the triple bottom line approach is used (Hahn & Kühnen, 2013). For companies this is usually done through sustainability work or corporate social responsibility CSR work which according to Hahn and Kühnen (2013) are two concepts which can be considered so aligned that they can be treated as the same. A common way for organisations to communicate sustainability information is through sustainability reports (Hahn & Kühnen, 2013). In those reports organisations usually translate indicators into something quantifiable in economic, environmental or social term that can be disclosed (Krajnc & Glavič, 2005). Jones, Comfort, and Hillier (2016) claim that sustainability reporting does not only disclose indicators and present how the company perform against its environmental and social goals. It can also contribute to sustainable development and should be considered vital in the communication with stakeholders.

General Trends in Sustainability Reporting

From 2017 the demand to perform sustainability assessments is regulated by an EU directive enforcing companies to conduct a sustainability assessment and include it in their annual report. This regulation is valid for companies fulfilling at least two of the following prerequisites; more than 250 employees and net sales exceeding 350 MSEK or 175MSEK in assets (Normative, 2017). Several companies already conduct sustainability reports on a voluntary basis for reasons such as improving the company's reputation, signal competitiveness and motivate employees (Hahn & Kühnen, 2013). The most common form of voluntary disclosure of information is the Global Reporting Initiative (GRI) (GRI, 2017).

According to Hahn & Kühnen (2013) voluntary reports performed by companies provide organisations with the opportunity to experiment with how to disclose information and how to start a learning process. Within the field of sustainability reporting internal information is used for decision making. This is referred as sustainability accounting. Further the externally disclosed information is referred to as sustainability related reports. Previously these reports focused on one or two specific areas, such as the social area or the environmental area but the trend is that they try to include a broader spectrum, so

called multidimensional reporting. These attempts to create a fully holistic view of the organisations sustainability work is referred to as integrated reporting. It is common that financial reports are separated from the sustainability report and Hahn and Kühnen (2013) argue that very few sustainability reports therefore can be considered fully sustainable since they have an inherent compartmentalization and miss out the interlinkages. The interlinkages in sustainability reporting are important since they enable the investigation of synergies between the triple bottom line dimensions.

Global Reporting Initiative - GRI Reporting

The GRI standard is a commonly used framework in organisations to structure the sustainability report. The guidelines for the standard are made available online, free of charge, by the non-profit organisation GRI. The organisation is international and was founded in 1997 and is situated in the Netherlands (GRI, 2017). The first version of the GRI standard was published in 2000 and the standard has been continuously developing since. The development is achieved in collaboration with partners of the GRI organisation and stakeholders such as governmental agencies, foundations, businesses, investors etc. The current version of the GRI standard, G4, is updated with the purpose to improve the credibility factor. The main objectives of GRI G4 is to be user friendly, improve technical quality, harmonize with other standards, improve guidelines on materiality issues and provide preparedness for making an integrated report (Jones et al., 2016). GRI G4 also have sectors specifying disclosures, that are constantly developing, with indicators for more focused reporting adapted to certain industries. The sector disclosure guidelines cover the oil industry, real estate and airports, (GRI, 2018).

Hahn and Kühnen (2013) describe the GRI guidelines as the standard among others for sustainability and non-financial reporting. The GRI guidelines are providing a framework regarding concepts, language and metrics. The reasons why the GRI standard have had such success are numerous, for example first mover advantage, stakeholder development, sector sensitivity continues improvements, materiality driven approach and comparability (Jones et al., 2016). With an increased focus on materiality, the hope with the GRI G4 guidelines was to increase the relevance and thereby increase their credibility. Materiality relates to the importance of measuring relevant issues. According to Jones et al. (2016) a way to achieve this is to ensure that the report focus on the material issues and discuss how the organisation deal with them, the impact they have and their boundaries. Further they should describe how the material aspects were defined. One way for organisations to identify materiality issues is through stakeholder involvement, for example interviews with clients, investors and other stakeholders.

There are some problems with the GRI standard, Dingwerth and Eichinger (2010) investigate whether reporting according to the GRI guidelines direct organisations to more sustainable decisions and increased transparency. To direct organisations to more sustainable decisions Dingwerth and Eichinger (2010) identified comparability between sustainability reports as an important factor, since comparability is necessary to evaluate the performance. Further they claim that comparability was one of the main reasons for creating the GRI guidelines and not the absence of sustainability reports. In their findings Dingwerth and Eichinger (2010) criticise GRI for failing in the attempt to make the scheme comparable and user friendly, taking away the ability for GRI to empower change in an organisation.

Dingwerth and Eichinger (2010) also identified transparency as an important aspect in GRI reporting since it influences the accountability of the organisation and describes legitimate issues of interest to other organisations. They further describe the interpretation that transparency does not have a value on its own but should be viewed as a mean to achieve economic, social and ecological sustainability. They conclude that GRI does not increase transparency enough to make a substantial change, and if GRI fails to increase the transparency it will no longer provide any value, which risks reducing the necessity of the entire reporting system. Other critique against the GRI guidelines is brought up by

Hahn and Kühnen (2013) who discuss that the economic indicators in the GRI are rather few and general and rely on regulatory financial reports to provide more detailed economic information.

Sustainable businesses

Goals and indicators influence the organisation and should be integrated in the company's strategy and business model. Sustainable business models and strategies to create sustainable value is extensively discussed in the literature (Bocken, Short, Rana, & Evans, 2014). The term "sustainable" in a business context has for a long time been related to remain profitable over time, whereas in social and environmental terms. It has been related to legal compliances and associated with the cost of doing business (Laszlo, 2013). This has created a confusion among CEOs who do not see the strategic advantages in social and environmental sustainability, at the same time as research shows that companies that succeed in these areas have a better overall performance. Similar viewpoints are presented by Hart and Milstein (2003) who claim that to many managers sustainable development, including economic, social and environmental concerns is mainly a cost adding and regulatory issue. Laszlo (2013) discuss that alignment between the organisations strategies activities and integrated measures are important to achieve sustainable business.

Changing Context for Businesses

The changing competitive context is addressed by Laszlo (2013) as one of the reasons for the increased importance of social and environmental matters for companies. Today a lot of a company's value is invested in the brand and the organisation is dependent on intangible resources such as goodwill, human capital and innovation capacity (Laszlo, 2013). This makes the organisation vulnerable to negative publicity which risk damaging the reputation and brand name (Laszlo, 2013). Simultaneously the technological development with internet, YouTube and within media increase the risk of exposure and force the organisation to be more transparent, even for those part of the business that is conducted in remote locations. The improved communication also makes the competition global since it is possible to see what companies in other parts of the world do (Laszlo, 2013). The global aspect is described by Hart and Milstein (2003) who connects it to sustainable development as a global challenge and therefore states that the business drivers to solve the issues also must be global.

Sustainable Business Models

Bocken et al. (2014) use business models as a tool to understand how sustainable value is created in a company. A business model can be used to understand how a company creates value, includes strategies and information about customers competitors and how to differentiate the company and its value chain (Bocken et al., 2014). The literature about sustainable business models is extensive with a variety of definitions, Bocken et al. (2014) use a business model with three main elements: value proposition, value creation and deliver and value capture. Further they discuss the need for a sustainable business model to not only include the economic value in the proposition but also measurable ecological and social value.

To transform a business model to become sustainable Bocken et al. (2014) uses the terminology "*business model innovation for sustainability"*. Research shows that such transitions tend to be massive including the company, stakeholders, a change of product and the company's way of conducting business. The change drastically improves the impact on environment and/or society. There are three types of business model innovations: defensive, accommodative and proactive. In defensive business models focus is on risk and cost reduction. In accommodative business models there is modification of the internal processes, to include environmental and social aspects. In

proactive business models a total redesign of the way the company does business is done, to create sustainable value (Bocken et al., 2014).

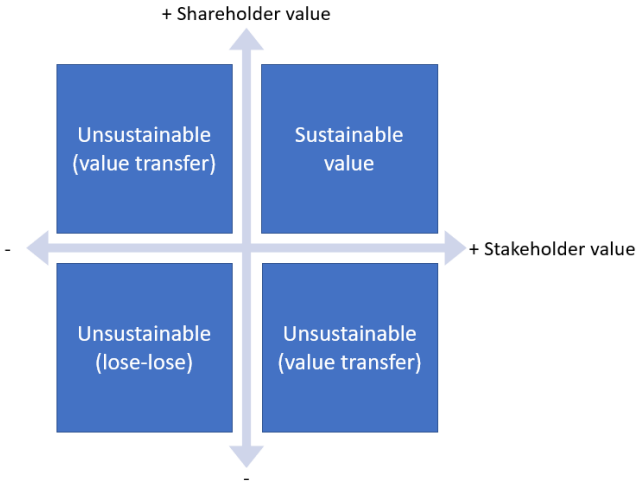

Figure 3: Sustainable value creation (Laszlo, 2013, p. 113)

Further, three main types of business innovation are described by Bocken et al. (2014), technological, social and organi-sational. Within each group of business inno-vation different sustainable value archetypes have been identified. For example, the "adopt stewardship role" which is a social innovation characterised by the engagement of stakeholder well-being. In practise this can include programs for employee welfare, community development, biodi-versity protection etc. Another example is "re-purpose" an organisational innovation where the company changes its objective to create social value and profit is secondary. This is usually called social enterprises where the main objective charac-terised by social mission, generate positive outcome for society, recognise the entrepreneurial function and be competitive through planning and management.

Creating Sustainable Value

Sustainable value is created when both stakeholder and shareholder value is added simultaneously, otherwise it is merely value transfer or a lose-lose situation (figure 3) (Laszlo, 2013). In the upper left quadrant value is transferred from stakeholders to shareholders and only shareholders benefit from the transfer. Historic examples are manufacturers of asbestos and current issues are carbon dioxide and toxins in plastics. This quadrant is usually characterised by low cost strategies and outsourcing. The bottom left quadrant is a lose-lose situation where there is no value create neither for stakeholders nor for shareholders. An example is genetically modified crops which was a failure for the company due to lack of understanding customers' needs as well as NGO's power which made the product impossible to sell. In the bottom right quadrant value is transferred from shareholders to stakeholders, including philanthropy activities that might be unrelated to the business, for example charity or donations. Environmentalists tend to pressure companies into this quadrant and perceive environment and charity investment. The top right quadrant is where sustainable value is created for both shareholders and stakeholders. To this end products create value through their properties such as less toxins, recyclable, etc. without higher prize to consumer. Laszlo points out that this requires innovation and redesign of processes.

Business Strategies to Create Sustainable Value

Another approach on how to make environmental investments profitable for shareholders is described by Reinhardt (1999). The five approaches identified are: differentiating products, managing competitors, saving cost, managing environmental risk and redefining markets. The approaches can assist managers to realize that environmental concern is not only an issue but also an area with great possibilities. However, it is important to keep in mind that the circumstances in each case need to be taken in to consideration and that these approaches are not necessarily profitable for every firm. Further, Reinhardt (1999) mentions that the importance of long term perspective in choosing environmental strategy, since the strategy that maximizes short term cash flow is likely to also be short lived and to not generate long term profit.

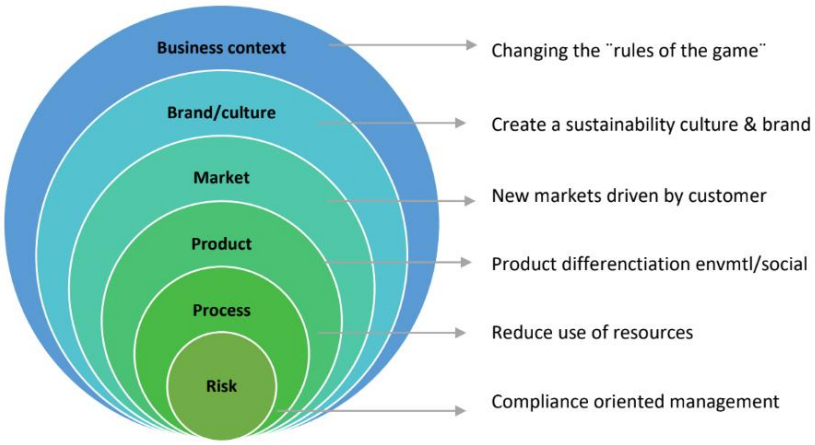

Figure 4: Six Levels of Strategic Focus (Laszlo, 2013, p. 115)

Similar to the approaches created by Reinhardt (1999) are Laszlo's six levels of strategic focus. Laszlo (2013) discuss how they represent different business strategies (figure 4). The first level is risk mitigation, including avoidance of penalties. Second is process and cost reduction, for example reducing energy consumption, this is usually one of the first steps companies take. Third step is product differentiation, experience from companies working with sustainable product shows that customers prefer green products for as long as it does not influence any other aspects of the product, such as prize. Forth is new markets, which usually includes technology invention. Fifth is enhancing corporate image, this both attract employees and customers. Sixth level is to change the business context, where the company starts to influence legislation.

Activities to Create Sustainable Value

In the framework created by Hart and Milstein (2003), sustainability activities were organised according to if they created value today or in the long term and if they were mainly internal or external activities (figure 5). This gives four quadrants. The lower left quadrant is focused on cost and risk reduction with an internal focus. Their aims are typically short term such as quarterly earnings. The drivers related to this quadrant are related to industrialisation, including consumption, pollution and waste which influence climate, biodiversity and ecosystem functions. The lower right quadrant is focused on legitimacy and reputation. It is also short-term perspective but include outside stakeholders such as suppliers, customers, NGO's and media. In a globalized world, transparency and responsiveness are important since information flows are constant and NGO's and other stakeholders participate in setting environmental and social standards. The upper left quadrant focuses on internally developing technologies and achieving skills which can be sold in the future "*The creation of shareholder value thus depends upon the firm's ability to creatively destroy its current capabilities in favour of the innovations of tomorrow*" (Hart & Milstein, 2003). Drivers are innovation and technological change, where development is rapid within many fields such as genomics, biomimicry, nanotechnology, information technology, and renewable energy (Hart and Milstein, 2003). These are areas that could reduce the human footprint and drastically reduce environmental impact. The upper right quadrant focuses on the company vision and provides a convincing plan for future growth, it can be achieved by new technologies or by entering new markets. New markets refer to the markets in developing countries where the organisations product can help poor people to a better quality of life. The drivers in this quadrant are about social development and wealth for the rapidly growing population on earth; however, this must be in a different way than wealth creation today, to avoid an ecological collapse. In order to maximize the shareholder value Hart and Milstein (2003) claim that a firm has to perform well in all four quadrants simultaneously to create sustainable value, only performing in one or two is considered sub-optimal.

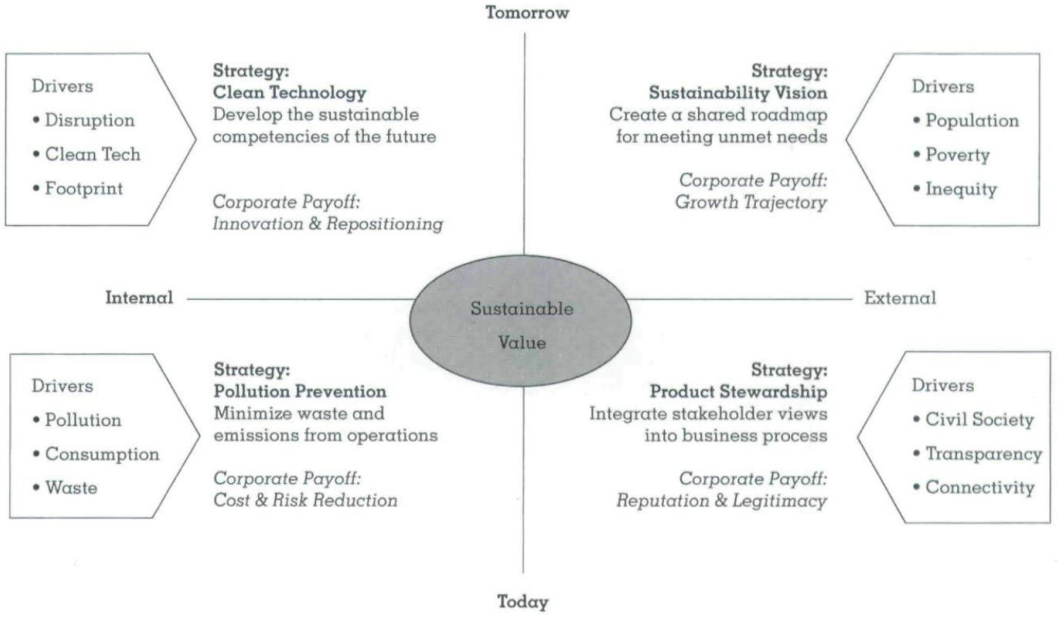

Figure 5: Sustainable Value Framework (Hart & Milstein, 2003, p. 60)

The Greening of Organisations Enabling Sustainability Strategies

As mentioned by Reinhardt (1999) every company is contextualized which influences its strategies. Miller and Serafeim (2014) mention the company's nationality, industry and characteristic as some of the areas which has been researched to investigate their effect on a company's sustainability work. Developing the ideas of organisational context to integrate sustainability strategies with focus on the role of a Chief Sustainability Officer (CSO) is discussed by Miller and Serafeim (2014). In their findings they identify three steps that firms usually go through in their greening process (figure 6). Initially, compliance is the focus and the phase rarely include any coordinated strategy. In the second step, the focus is on efficiency and impact mitigation. This step usually elaborates more on the strategies that focus on internal improvement deriving from existing structures. The third step is transformational change and innovation, where strategies become integrated in the business model of the company. These results closely relate to how Laszlo (2013) describe the organisational process to become sustainable. The greening process often starts with implementing a management system to monitor the resource use (Laszlo, 2013) combined with goals to reduce resources and energy use (Miller and Serafeim, 2014). In the third step integration is a key to achieve success with the sustainability work. If sustainability is implemented in the core business activities with internal support from employees and stakeholders, it will create a positive impact in every part of the company from branding to reduced cost and waste (Laszlo, 2013).

The study by Miller and Serafeim (2014) shows that the likelihood of the title and the function of the sustainability responsible manager to be CSO increases in the later steps of sustainability adaptation. An organisation in the third step rarely allocates the responsibility for sustainability to the CEO or to the board; it is more likely that the board has a sustainability committee. Also, the authority of the CSO seems to increase for companies in later stages where the CSO is more likely to answer direct to the CEO or board.

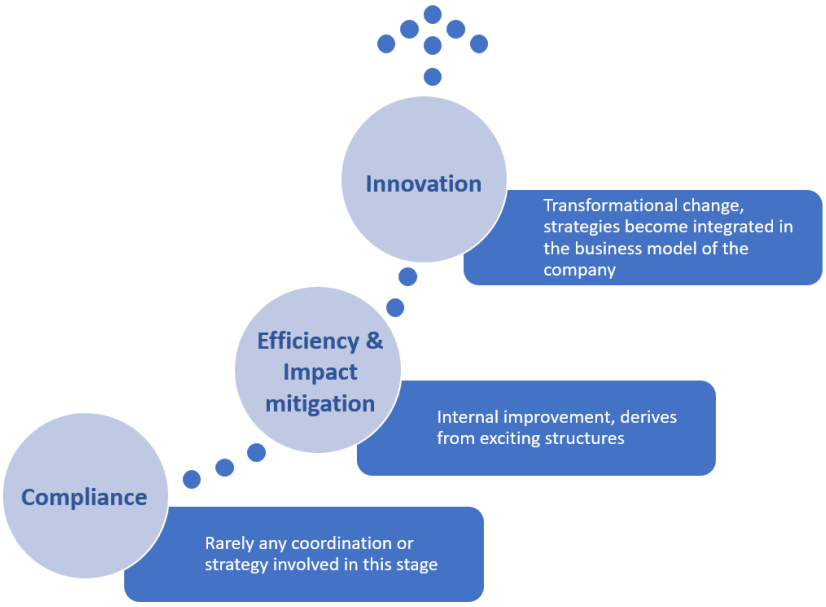

Figure 6: Organisational structure enabling sustainability strategies

Sustainability in Ports

Port sustainability is commonly divided in the triple bottom line concepts, Economic, Social and Environmental. It is essential to measure all three categories simultaneously to have a better understanding of the overall picture (Sislian et al., 2016). Ports as part of the global transportation system ought to perform in a sustainable way aiming to minimize any negative impact they may have either on local or global level.

Definition of a port and port activities

Ports are a major hub in the logistic network and connect industries with buyers or suppliers in other parts of the world. This makes them closely interlinked with international trade through the correlation between ports and industries conducting international business (Sislian et al., 2016). A port's competitiveness depends on the port's authority to provide access to infrastructure and other services of high quality. Some of the services, according to EU regulation 2013/0157(COD), provided by ports are listed in table 1 (European Council, 2017).

Table 1: List of port services

Service	Action
Bunkering	Providing fuel, lubricants, spare parts, fresh water and provisions to the vessels
Cargo handling	The activity of moving cargo on and off ships, trains, trucks etc
Mooring	The procedure of safely attaching a ship to a fixed or floating object
Passenger services	Services provided to facilitate the customers moving on and off the ships
Collection of ship-generated waste and cargo residues	Service used to collect all garbage and waste generated on board during voyage
Pilotage	Navigational assistance to take the vessel safely to berth
Towage	The action of towing a vessel, usually using tugboats

Sustainability in Ports and the Municipality

Ports are independent organisations shaping their own business model, business idea, vision and mission. As part of the local municipality, ports should aim to create sustainable value within the company as well as for the municipality. Ports are often integrated parts of the cities and support the local economy as well as the global trade. After the World War II, the advantages that ports provided to the local society have been counterbalanced by various negative impacts such as traffic congestions and pollution. Furthermore, there is a competition between the city and the port whether the land in the coastal areas should be used for residential purposes or for port activities. The local benefits of having a port in a city differ across the globe. In Europe the geographic factor is highly rated and mainland logistic is an important focus point (Xiao & Lam, 2017) while this might differ in other locations.

How sustainable port development relates to port-city plans is investigated by Schipper, Vreugdenhil, and de Jong (2017) by using the triple bottom line approach or as in their terms People, Planet and Prosperity. For a port to gain a "social licence to operate" Schipper et al. (2017) point at the integration of an eco-system approach and port extension plans. These should meet or exceed traditional operational demands and prepare the port for a change to a more sustainable way of working. The municipality and the country where the port is located influence the port's goals in many ways. As part of the city, ports must act according to the municipality's objectives as port's activities can influence them. Therefore, ports must report to the local authorities about their activities and their goals.

Sustainability Assessments of Ports

Ports have also started to perform sustainability assessments especially in European ports since they need to comply with the European guidelines. A method for sustainability assessment in ports is suggested by Laxe, Bermuez, Palmero, and Novo-Corti (2017). They suggest the use of synthetic indexes, which are aggregated indexes, normally used in economics. Further they discuss that the three dimensions of sustainable development might not be sufficient for sustainability assessments in ports. They argue that the triple bottom line should be complemented by a fourth aspect, the institutional dimension.

Further attempts for sustainability assessments in ports are performed by Hakam (2015) who introduce the use of a Conceptual Intelligent Framework in Nordic Container Ports. This analytical tool use multiple variants and the TBL approach to measure ports sustainability performance. This research is focused on Nordic container ports and uses the Triple Bottom Line approach. Another approach has been taken by Peris-Mora, Orejas, Subirats, Ibáñez, and Alvarez (2005) who used stage diagrams and systemic models to identify environmental indicators relevant to ports. Discussing environmental indicators, Saengsupavanich, Coowanitwong, Gallardo, and Lertsuchatavanich (2009) perform an environmental performance evaluation by using the ISO 14001 standard. Shiau and Chuang (2015) use a rough set theory, which is a computer-based mathematical model, and social construction of technology to find port sustainability indicators. The author used the triple bottom line approach to sort the indicators derived from the model.

Sustainability and Environmental Initiatives for Ports

There are several organisations working with promoting sustainability or environmental work within the port sector, two of them are European Sea Ports Organization (ESPO) and World Ports Climate Initiative (WPCI). World Ports Sustainability Program (WPSP) originates from the World Ports Climate Initiative (WPCI) that was introduced in 2008 by the International Association of Ports and Harbours (IAPH) in collaboration with regional port organisations. This initiative provides a base for

the sustainability work that takes place in ports worldwide aiming for the implementation of the UN's sustainable development goals (Port Strategy, 2018).

ESPO's initiative, Ecoports, is the main environmental initiative among European ports. It was initiated in 1996 and became fully integrated in ports at 2011. Ecoports consist of two tools, a Self-Diagnosis Method (SDM) and a Port Environmental Review System (PERS). The aim is to create practical tools for ports' environmental managers to use in their everyday work. The aim is further that environmental performance will improve by collaborations and knowledge sharing between ports. To be a part of the knowledge sharing network a port must complete the SDM, where the main environmental risks and priorities are identified and add to the shared knowledge. PERS in known as "*the only port sector specific environmental management standard*" (ESPO, 2018) and it incorporates other environmental management standards such as ISO 14001 with the necessary adaptation to port specific business.

WPCI consist of 55 ports that have negotiated an agreement to reduce their greenhouse gas emission in accordance with the UN's sustainable development goals. The goals with the collaboration is to promote information sharing, establish a framework for CO2 footprint inventory and management, establish Environmental Ship Indexing and increase support for this measurement (WPCI, 2018). Apart from working with the Environmental Ship Index WPCI also has a toolbox: IAPH tool box for port clean air program. Since GRI does not have sector guidelines for ports, ESPO (2018) developed the initiative and tried to identify environmental indicators related to the port sector. ESPO (2018) has been a part of the Port Performance Indicators, Selection and Measurement (PPRISM) project where 14 indicators have been identified and which were considered relevant and feasible to port sustainability (ESPO, 2012).

The Gothenburg Port Authority as a Case

The Gothenburg Port Authority has various roles; acts as port authority, has the responsibility for the majority of the infrastructure and acts as a terminal operator. The Gothenburg Port Authority is the largest port in Scandinavia with more than 40million tonnes of goods handled on a yearly basis and with a turnover of 742 million SEK. The port has 130 direct connections to the world. It has 70% of the Nordic industry within a reach of 500 km and 70 goods trains calling the port each day. The port employs about 8.000 people directly and about 14.000 people indirectly. The company Gothenburg Port Authority currently has 126 direct employees working at the headquarters in Gothenburg (Gothenburg Port Authority, 2018b).

The port area is scattered in the estuary of Göta-Älv where most of the operations are located on the island Hisingen. There are also a few smaller terminals located on the mainland closer to the city centre (figure 8). In the figure below, the purple areas illustrate the port area & buildings. The different terminals are operated by different terminal operators. The different terminals are shown in the map; on Hisingen, Torshamnen (1) is an energy terminal operated by the Gothenburg Port Authority; the RoRo-terminal (2) operated by Gothenburg RoRo terminal; the container terminal (3) operated by APM terminals; a second Ro-Ro terminal (4) operated by Logent Port and Terminals; the last terminals on Hisingen (5) is energy terminals operated by the Gothenburg Port Authority (Gothenburg Port Authority, 2016). On the mainland, the ferry terminal Majnabbe (6) operated by Stena Line; a cruise ship terminal Stigbergkajen (7) operated by the Gothenburg Port Authority; the ferry terminal Masthugskajen (8) operated by Stena Line (Molitor, 2018).

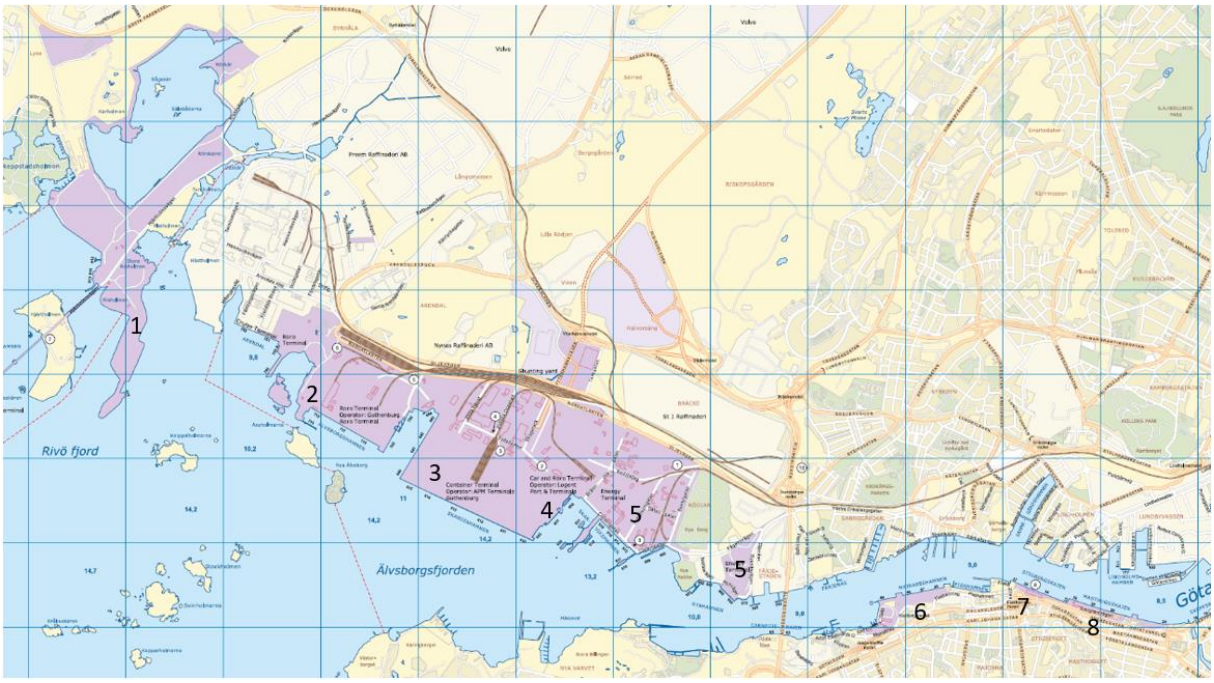

Figure 7: Map over Port of Gothenburg (Gothenburg Port Authority, 2018a)

The Gothenburg Port Authority published their first sustainability report in 2012 and started to follow the GRI G4 guidelines in 2015 (Gothenburg Port Authority, 2017). In conjunction with their work to adopt their sustainability report stakeholder dialogues were arranged to map their interests. The stakeholders identified by the Gothenburg Port Authority are (Gothenburg Port Authority, 2018b):

- Owners
- Customers: Shipping lines, freight forwarders, cargo owners, railway operators, tenants
- Employees
- Terminal operators
- Suppliers
- Public agencies
- Society and general community: The local community, residents, trade organisations, politicians and media

The Gothenburg Port Authority Owners' Directive, Vision and Mission

The Gothenburg Port Authority is owned by the City of Gothenburg and the port board is selected by the city and has a saying in all decision-making processes. The owner directive from the Board of Port of Gothenburg (2011) states that the Gothenburg Port Authority should *"be the obvious freight hub for sea transports in Scandinavia"* and by that generate growth, occupation and long term sustainable development in Gothenburg. Further it should enable the city's plan to become a national logistic centre by providing infrastructure, conduct national and international marketing and strategic collaborations. The directive also mentions export, import the Baltic region and the railway infrastructure. It also regulates the outsourcing of the RoRo and container terminal to external operators and highlights the importance of collaboration within these agreements. In the same paragraph the responsibility to act as the port authority is stated. The company's economic development is regulated as well as the goal to fulfil the environmental goals set by the City of Gothenburg.

From the National Environmental goals, the owner directive states that the Gothenburg Port Authority should work with 12 goals that the city of Gothenburg has chosen to work with (Göteborgs stad, 2018). These goals are adapted to the local settings (Molitor, 2018) and integrated in the Gothenburg Port Authority's environmental plan (table 2).

Table 2: Integration of City goals in the Gothenburg Port Authority

City of Gothenburg Environmental Goal	**Gothenburg Port Authority Integration**
Reduce Climate influence	CO_2 within company and cluster Reduce resource use
Clean Air	Reduce air emission from shipping
Only Natural Acidification	Reduce air emission from shipping
Toxin Free Environment	Reduce resource use
No overfertilization	
Living Lakes and Waters	
High Quality Ground Water	
Living Coast and Archipelago and Coast with Sea in Balance	(Biodiversity and noise – in broad interpretation)
Rich Agriculture Landscape and Multitudinous Wetland	
Living Forests	
Well Built Environment	
Rich Flora and Fauna	

Operations and Activities in the Gothenburg Port Authority

The Gothenburg Port Authority acts as an autonomous organisation within the municipality. The organisation sets its own goals and strategies as well as a set of core values that govern Gothenburg's Port Authority mind-set and practices. The four core values for the Gothenburg Port Authority are: cooperation, sustainability, innovation and reliability (Gothenburg Port Authority, 2018b).

The city's goals that the Gothenburg Port Authority should develop the city as a logistic hub put challenges on the port. A challenge is to maintain and expand the port's infrastructure and also provide opportunities for importing and exporting companies and the companies operating within the port to do business (Gothenburg Port Authority, 2018b). By addressing this challenge, the port is creating a platform where shipping, rail and road transportation can meet and create an intermodal chain to transport goods. The Gothenburg Port Authority aims to be a close to the market organisation with the ability to understand its customers' needs. This motivates the organizational structure which is mainly business area oriented with several supporting activities (Kårestedt, 2018). The port's two business areas are 'Business area Energy & Cruise' and 'Business area cargo'. This structure supports the

sustainability views, both with existing environmental questions but also company's future decisions with question such as "what we want to be" and "what our owners want us to be".

The three key activities for the port are infrastructure, marketing and acting as port authority, according to internal documentation. At present, an important activity is to establish new partnerships and external collaborations. Nowadays most of the passengers and cargo freight is not handled by the Gothenburg Port Authority but by external terminal operators. An exception is the energy port where the Gothenburg Port Authority is still the terminal operator. The different roles of the port, such as landlord/infrastructure port and the terminal operator role set a challenge on the Gothenburg's Port Authority organisational strategies and goals. In the owners' directive, marketing is one of the key activities for the port aiming at a bigger market share for the port, locally and globally.

Another role, according to the owners' directive, is the Gothenburg Port Authority to lead by example, which means that the Gothenburg Port Authority should give incentives and provide guidelines for companies operating within the port area to act in a more sustainable way. The Gothenburg Port Authority has so far taken steps through internal pressure to be the forerunner in the port industry and recently the city is also adding pressure by setting higher goals. The value chain activities of the Gothenburg Port Authority are presented (figure 8) indicating the activities that the port performs. The port's main activities are land-based infrastructure, warehouse/transshipment, port terminals and port calls.

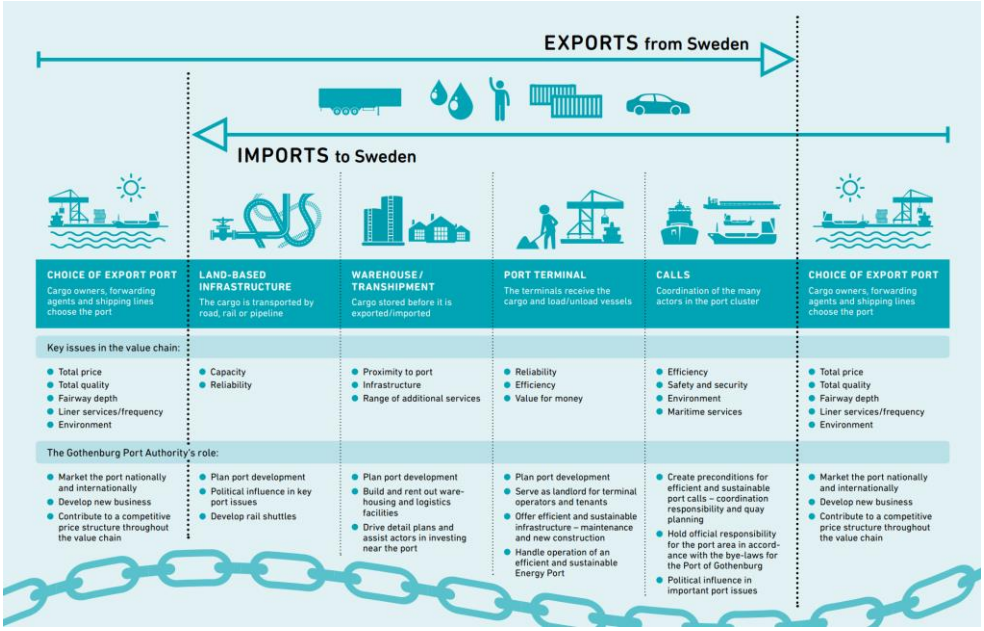

Figure 8: Value chain activities in the Gothenburg Port Authority (2018b)

Timeline of Greening Activities in the Gothenburg Port Authority

A timeline of the greening process in the Gothenburg Port Authority has been constructed based on the sustainability report and internal documentation. It is worth mentioning that throughout the years the actions taken by the port were not only based on internal driving forces but also on external pressures.

Table 3: Timeline for the Gothenburg Port Authority greening process

YEAR	***ACTION***	***DRIVING FORCE***
1989	Onshore power supply – low voltage	Stena Line
1990 1997		
1998	Environmentally driven tariffs First rail shuttle for container goods	Agreement with Swedish ports, ship-owners and maritime administration (fairway dues) *No info*
1999		
2000	Onshore power supply – high voltage Green bunkering – regulations to reduce the risk of oil-spill during bunkering operation	Stora Enso *No info*
2001	Vapour recovery system	Regulation & permits
2002		
2003		
2004	Electrical rail track - connect the port with the Swedish railways	All rail track became electrical
2005	Investment (1,5 billion SEK) in fairways and cranes to the container port	*No info*
2006		
2007		
2008	Project leader in World Ports Climate Initiative to inspire ports the world over to offer vessels quayside power supply LNG project to make it available as fuel in the docks	Internal driving force SECA
2009		
2010		
2011	Financial compensation for vessels using cleaner fuel More onshore power - connects more vessels & frequency change	Internal driving force Stena Line
2012	Publish their first annual Sustainability Report LNG collaboration with Port of Rotterdam	*No info* Internal driving force
2013	Apply to build wetland pool to restore natural environment	Internal driving force & collaboration with ornithologist
2014		
2015	Discount of Port tariffs based on fuel/environmental adaptation used by vessel Start working with adapting SR to GRI G4 standard	SECA Follow "the trend"
2016	First SR according to GRI G4 is produced for the year 2015 LNG bunkering, first tanker vessel in Sweden	Follow "the trend" DIRECTIVE 2014/94/EU on the deployment of alternative fuels infrastructure
2017	LNG bunkering operation simultaneous as loading	DIRECTIVE 2014/94/EU on the deployment of alternative fuels infrastructure

Contextualising the Gothenburg Port Authority

To understand the context in which the Gothenburg Port Authority operates, three additional ports are presented in this study. These ports are the Port of Vancouver, the Port of Los Angeles and the Port of Rotterdam (table 4). The port of Rotterdam is located in the Netherlands and is the largest port in Europe. It was the busiest port in the world until 2004 and had been so for over 40 years (Port of Rotterdam, 2017). In the Canadian southwest coast is located the Port of Vancouver, which is the largest port in Canada. The port's aim is to facilitate the movement of passengers and imported and exported products. The Port of Vancouver has established trading relationships with 170 economies worldwide (Port of Vancouver, 2018). The port of Vancouver's definition of a sustainable port "A sustainable port delivers economic prosperity through trade, maintains a healthy environment, and enables thriving communities through collective accountability, meaningful dialogue and shared aspirations" supported by their vision is leading their way to a more sustainable future. The port of Los Angeles, located 20 miles south of Los Angeles city in the San Pedro bay, is enabling the movement of both passengers and cargoes. The port of Los Angeles handled in 2017 the biggest volume of cargo in its 110-year long history with a value of $284 billion. Various details related to these ports are presented in table 4. The various cargo areas that each of these ports handles operations in are presented in table 5 (Port of Los Angeles, 2018; Port of Rotterdam, 2018).

Table 4: General port data

	Port of Gothenburg	**Port of Rotterdam**	**Port of Vancouver**	**Port of Los Angeles**
Largest port in	Scandinavia	Europe	Canada	USA & North America
Tonnes of goods handled (in millions)	40	461.2	142	198.1
Turnover (in millions)	742 SEK	675,4€	$24 200	$284
No. of employees (both direct and indirect)	22 000	181 220	115 300	1 600 000
First published sustainability report	2012	2012	2011	2008
Standard used for sustainability report	GRI	GRI	GRI	*Last report covers 2014*

Table 5: Port cargo handling

	Port of Gothenburg	Port of Rotterdam	Port of Vancouver	Port of Los Angeles
Bulk/Dry bulk		●	●	●
Liquid bulk	●	●		●
Container	●	●	●	●
Ro-Ro	●	●		
General cargo		●		
Automobiles	●		●	●
Breakbulk			●	●
Cruise/Ferry	●		●	

The goals of the three cities vary but can be grouped into more general categories (table 6). In the table below, every dot indicates a goal that the city has in this category; for example, City of Gothenburg has three goals that are related to the water category. In the appendix 5, a full list with all the goals used by each city is listed. The goals of all these three ports are influenced by the goals that the municipality around them is setting since they must comply with the local regulations as part of the city.

Table 6: Cities' sustainability goals for contextualisation

	City of Gothenburg	City of Rotterdam	City of Vancouver	City of Los Angeles
Water related goals	●●●		●	●
Air related goals	●	●	●	●
Green Energy / less fossil fuels		●●	●	●
Waste			●	●
Energy efficiency / energy savings		●●●		
Climate impact/ global footprint	●●●●		●	●●
Urban environment	●●●	●●●	●	●●
Buildings	●		●	●
Mobility in the city		●●	●	●
Economy related goals		●●	●	●

Contextualised Sustainability in Missions and Visions

For the four above mentioned ports, their mission and their vision are presented in table 7. It is obvious that all these ports are aiming to create value for the surrounding societies and to deliver value to their customers. In their vision three of them are aiming to become the most sustainable port globally taking into consideration all three aspects of the triple bottom line. The Gothenburg Port Authority is the only port that does not include the word "sustainability" in its vision.

Table 7: Mission and Vision of different ports

Gothenburg Port Authority	
Mission	*"To boost the business community both locally and nationally and create competitive benefits for Nordic industry"*
Vision	*"The Gothenburg Port Authority shall be the obvious freight hub for sea transport in Scandinavia"*
Port of Rotterdam	
Mission	*"To create economic and social value by working together with customers and stakeholders to realise sustainable growth in a world-class port"*
Vision	*"We continually improve the port of Rotterdam to make it the safest, most efficient and most sustainable port in the world. We create value for our customers by developing logistics chains, networks and clusters, in both Europe and growth markets worldwide. As an enterprising port developer, the Port Authority is the partner for world-class clients. In this way, we are also strengthening the competitive position of the Netherlands"*
Port of Vancouver	
Mission	*"To enable Canada's trade objectives, ensuring safety, environmental protection and consideration for local communities"*
Vision	*"To be the world's most sustainable port"*
Port of Los Angeles	
Mission	*"We deliver value to our customers by providing superior infrastructure and promoting efficient operations that grow our port as North America's preferred gateway"*
Vision	*"We are America's Port® - the nation's #1 container port and the global model for sustainability, security, and social responsibility"*

Method

In this chapter the method used for this study will be described. The chapter will be divided in three parts: the Theoretical Perspective, the Data Collection and the Data Management. In the Theoretical Perspective part, a brief background of the method theories used in this study is presented. The method used to collect the data for the study will be presented in the Data Collection part followed by the Data Management part describing how the data has been sorted and arranged to enable a logical sequel.

This study is limited to investigate the sustainability work in ports and the Gothenburg Port Authority is the company used as a case to study. Thus, this should be considered a momentary picture of the state of the organisation during spring 2018. The study focuses on the alignment between their sustainability strategies and their actions and if the indicators they measure are relevant.

Theoretical perspectives

The method has been inspired by grounded theory and sustainability assessment method. Grounded theory is a qualitative research approach where the researcher collects data and by commenting the data, that might appear scattered, creates theory. The sustainability assessment has been done with focus on relevance of indicators and to what extent the disclosure of information in the company's sustainability report contributes to decision making. Different strategies for the company to enable sustainable value creation are also investigated.

Grounded theory

Grounded theory aims to fill the gap between the grand theory and empiric research (Alvesson & Sköldberg, 2008), it is a qualitative research method developed by Glaser and Strauss who published *The Discovery of Grounded Theory* in 1967 (Alvesson & Sköldberg, 2008; Glaser & Strauss, 1967). In grounded theory focus is on theory generation rather than verification without opposing the verification. The theory generation is done by identifying patterns, commenting and interpreting apparently scattered data in to theory. The empirical data is often collected through interviews discourse analysis, pattern identification and then organised in to analytical patterns. The process is often inductive, which means that the amount of data in a certain direction make sense.

Sustainability assessment through sustainability reporting

The sustainability assessment has been conducted by investigating how the sustainability report published by the Gothenburg Port Authority is used to guide decisions to achieve sustainable development. This has been done in two steps, first by comparing indicators which have been discussed by researchers as important for sustainable development in ports. Then it has been compared to the indicators disclosed by the Gothenburg Port Authority. The aim has been to understand if the aspects are relevant in the report by evaluating their salience, credibility and legitimacy. The second step has been to through interviews investigating how the information in the sustainability report is used in the organisation to guide decision making. This included an investigation of the organisational rationale which was investigated by question regarding the company's activities and strategies both generally, regarding sustainability and environmental.

Data collection

The data collected for this study was both primary and secondary. Primary data was collected through semi-structured interviews with employees of the company. Secondary data was gathered from literature, company's documents, both internal and published online, and sustainability reports. For the primary data the setup of the interviews will be described first and second how the data for the Hart map was collected. Regarding secondary data the external sources will be described first, research material and web material and last the collection of internal documents will be described.

Literature search

To find literature on sustainability assessment in general and sustainability assessments focusing on ports a literature search was conducted in three different data bases, web of science, Google Scholar and Summon, using the keywords: sustainability assessment and port sustainability, Sustainability assessment in port*, CSR port, port sustainability indicators, GRI for ports. From the search result the articles published in journals with maritime focus, including sustainability indicators and using a triple bottom line approach were selected, review articles were prioritized. Based on these articles, new articles were found using the primary articles reference material. The literature on value creation was based on scientific articles found in the same databases as above, using the keywords of value creation, sustainable value, business model, sustainable business model and combination of those.

Industry specific information and initiatives have been given during supervision with the external supervisor, Edvard Molitor as well as internal documents. Using the provided information, such as name of the organisations, as starting point further information was searched for online. Information from the Gothenburg Port Authority has mainly been gathered through sustainability reports, the web page, supervision meetings with Edvard Molitor and Daniela Fjellman and internal documentation provided by them. For this study the Gothenburg Port Authority's sustainability reports for the years: 2012, 2014, 2015, 2016 and 2017 has been used, additionally a printed brochure which was produced as a short version of the report when the port started to report according to GRI G4 2015. The information regarding the ports presented and described in this study was collected from their homepages online, in combination with their sustainability reports published online. For ports of Rotterdam, Vancouver and Los Angeles the latest version of their sustainability report was used.

Other company documents were used as well as all the available documentation regarding the process to create a sustainability report according to GRI G4, this included documents such as minutes of meetings, presentations used at meetings, both internally and from the consultancy firm used and questionnaires sent to the consultants and their answers. Further the business plan and environmental plan was reviewed. The GRI indicators for the Gothenburg Port Authority were collected from their sustainability report for the year 2017. The collection of all available GRI indicators was done using the GRI guidelines (2015) which was found by a google search with the words: GRI guidelines.

Interviews

Primary data was collected through interviews with employees involved in the sustainability reporting for the Gothenburg Port Authority. The interviews were semi structured with the aim to provide a deeper understanding of the sustainability assessment and reporting process performed within the organisation. For the interview five main categories covering a variety of sub areas ware created, the categories were:

- Personal introduction
- Introduction to the Sustainability Reporting work
- Process

- Application
- Port Activities & Strategies

From this a checklist was created to use during the interview to ensure that all relevant aspects were discussed and as a guide of which questions to ask. There was no strict formulation of all questions. The checklist consisted of the main categories and under each category all the sub-categories were listed. The checklist consisted of two columns; one containing the checklist points and the other space to note feelings, for example giggling or hesitations (appendix 1). This checklist was used for all interviews except the interview with the CEO, whose questions were more focused on understanding the strategies and organisational structure of the company in the context of the sustainability report and sustainability work (appendix 2).

At the end of each interview the informants were shown a map based on the examples by Hart (2011). The map was modified (appendix 3) from the original to fit the Gothenburg's Port Authority activities and the informants were asked to discuss or rate the activities performed. They were given the opportunity to talk about the map, write and make drawings on the map to explain their thoughts. The reasoning behind the use of the map based on Stuart L.; Hart and Dowell (2011) was to expand the discussion a bit further and to give us the opportunity to understand how the informants view the company's activities.

The interviews were conducted during the period 9th of March 2018 – 12th April 2018 at the Gothenburg Port Authority's headquarter office. They were conducted in English, and it was two interviewers and in most interviews one informant. In two interviews there was two informants, in the first case it was an employee retiring and he's successor, in the second case it was requested by the informant invited for interview to bring in the resigned previous sustainability report responsible. The names, the titles and the departments of the people interviewed are presented in the table 8. The interviews were planned for 30 minutes with additional 15 minutes for those with two informants. They were recorded, in agreement with the informant by both the interviewers in the room. During the interviews the arrangement was that one interviewer asked the questions while the other took notes.

Table 8: List of people interviewed, including title and department

Department	**Title**	**Name**
CEO-Office	CEO	Magnus Kårestedt
Business Area Cargo	Senior Manager Market Intelligence	Viktor Allguren
Business Area Energy & Cruise	Environmental Engineer (retiring) Environmental Engineer	Bjorn Sigström Jenny Gwes
Business Area Energy & Cruise	Fire and Security Engineer	Lisbeth Billstedt
Business Support	HR Specialist	Anne Mari Fagerström
Business Support	Work Environment Coordinator	Lars Samuelson
Business Support	Vice President Business Support	Malin Collin
Business Support	General Manager Procurement	Eva Sande
Finance and Controlling	Business Controller	Julia Christensson
Marketing Communications Business Support	Promotion & Exhibition Manager Sustainability Report responsible	Susanne Hansson Susann Dutt (resigned)
Port Development	Environmental Controller	Daniela Fjellman
Port Development	Senior Manager Environment	Edvard Molitor

Data management

The process used to manage the collected data will be described in this sector. Regarding the primary data the management of the data relating to the questions asked is described first and then the handling of the data regarding the Hart map. For the secondary data, the management of indicator is described first, second how the organisational structure has been identified by using internal documents.

Managing data collected through interviews

From the available recordings for each interview, the one with the best quality (no interruption, clearest sound etc.) was transcribed. Based on the transcription and the notes from the interviews, the text was cut to key aspects of the answer. If there were some feeling related aspect such as pauses or language problems these were noted in the notes column. An analysis sheet, including all the answers received, was then used to create the results. To ensure the anonymity of the informants the answers from the interviews were merged into quantifiable categories and then the answers were presented in diagrams or similar. For questions that the answers were interesting to present, the interview order was randomized to limit the possibility to identify the individual answer to the informants, as this is not including in the aim of this study.

The four-field framework mapping of sustainability activities provided by Hart & Milstein was analysed further by drawing lines in two Hart maps. Both outcomes were based on information gathered by listening to the answers and looking at the notes from the interviews. In the first map, the lines were drawn by the interviewers in the map to symbolise the weighting of the answers given by the informants. For the second map, before drawing the lines the interviewers interpreted the answers received. This step was done individually by the interviewers and then all shapes was merged in to the same map, this was done to minimize the risk of being biased by the others interpretation.

Managing indicators form the literature search

From the literature search a selection of articles was used to identify indicators relevant to port sustainability. The indicators were sorted into sub-categories to be ale to identify similar indicators; indicators with synonymous names where re-named so they all had the same name. The indicators were further categorised based on their impact to local, regional or global. The indicators disclosed by the port were matched with the GRI guidelines (2015). If an indicator could be linked with the other triple bottom line categories, this was noted. Each table consisted of various information related to the indicators such as: the indicator itself, the author or authors mentioning it, sub-category, local, regional or global level of impact, GRI indicator measuring it, if any and interlinkage with the other tipple bottom line categories. From these tables an assembled list of indicators was created. From this assembled list the GRI indicators disclosed by the Gothenburg Port Authority were identified and listed.

To find relevant indicators to measure in the future for the Gothenburg Port Authority the result from the assembled list of indicators were connected to the value chain in the Gothenburg Port Authority, which was presented in their sustainability report of 2017. Through dialogue indicators matching with the Gothenburg Port Authority's value were identified. To understand the organisational structure internal documents have been used, such as the business plan and owner directives. This was complemented by an interview with the CEO.

Results

In this chapter the result that occurred from the literature review regarding the indicators following a presentation of the results arisen from the interviews and the map with the sustainability activities will follow.

Indicators

The literature search resulted in 7 articles and a total of 186 indicators. Of these indicators it was 68 environmental indicators, 52 social indicators and 66 economic indicators. The literature chosen to find indicators is shown in table 9 below including: author, keywords and journal of publication:

Table 9: Articles including indicators author, keywords and journal of publication

	Author (year of publication)	Key words	Journal
I.	Hakam (2015)	Conceptual Framework, Sustainability Performance, Nordic Container Ports, Prototype	Journal of Service Science and Management
II.	Laxe, Bermuez, Palmero, and Novo-Corti (2017)	Sustainable development, Synthetic indicators, Ports, Spain	Marine Pollution Bulletin
III.	Peris-Mora, Orejas, Subirats, Ibáñez, and Alvarez (2005)	Environmental indicators, Environmental management system, Port management, ISO 14001, EMAS, Environmental impact	Marine Pollution Bulletin
IV.	Saengsupavanich, Coowanitwong, Gallardo, and Lertsuchatavanich (2009)	Environmental performance indicators ISO14001 Port state control Industrial port and estate Thailand	Journal of Cleaner Production
V.	Shiau and Chuang (2015)	Port sustainability indicators, PSIs, social construction of Technology, SCOT, Keelung Port	Maritime Policy & Management
VI.	Sislian, L., Jaegler, & Cariou, P. (2016)	Port sustainability, Ocean's carrier network problem, Review of literature	Research in Transportation Business & Management
VII.	Vanelslander (2016)	CSR, Seaports, Innovation, Company goals	Social Responsibility Journal

Environmental Indicators

All the articles included in the literature review contained environmental indicators, and the most frequent environmental indicators, mentioned in at least 4 articles, are: Waste, Air Pollution, Energy Consumption and Noise Pollution. These indicators have a local, regional and global impact. However, looking at all the 8 indicators, local impact is most frequent and is applicable for all indicators. Two indicators are only mentioned in two articles, accidents and management. Overall it seems to be some level of consensus regarding environmental indicators with only small variations between the articles in what is important. However, there is no indicator which is discussed in all articles (table 10).

Table 10: Articles referring to specific environmental indicators; indication of impact level

Environmental Indicator	***Included in article***	***Impact level***
Accidents Oil, Chemical, Hazardous Spills	I; IV	Local
Air Pollution Greenhouse Effect (Carbon Footprint) Odour Pollution Dust & Particles	I; III; IV; V; VI; VII	All
Energy Consumption Electricity Fuel Renewables	I; II; IV; V; VII	Global / Local
Ground Efficiency in ground use Impact Soil Pollution	I; II; III	Local
Management Environmental Training & Initiatives Economic Behaviour of the PA in Environmental Issues	II; VII	Local
Noise	I; III; VI; V	Local
Marine Pollution Dredging, Disposal Water Pollution Wastewater Treatment Alteration of Marine Environment (Coastal to Sea Floor) Ballast Water, Bilge, Sludge (Ship Discharge) Quality of Waters Water Consumption	I; II; III; IV; VI	Local/Regional
Waste Creation Disposal Recycling	I; II; III; IV; V; VII	Local / Global

Social indicators

All the articles but Peris-Mora et al. (2005) include social indicators, the most frequent social indicators, mentioned in at least 4 articles, are: Training, Accidents, Accident Prevention and Employment. These indicators have a local and regional impact. However, looking at all the 6 indicators, local impact is most frequent and is applicable for all indicators. Equality as an indicator is only mentioned in two articles. For the combined indicators there seems to be some consensus in the articles regarding which areas are important, even if none of them is brought up in all articles. But if the sub indicators are taken in to consideration the result is a bit more spread and six of them is only mentioned in one article (table 11).

Table 11: Articles referring to specific social indicators; indication of impact level

Social Indicator	***Included in article***	***Impact level***
Community impact Volunteer Activities by Employees incl. Social Action Liveability in the Area Surrounding the Port Port Yearly Investments per Investment in the Region Internship and Training Places Local Suppliers and/or Providers	I; II; VI; VII	Local / Regional
Employee satisfaction Happiness of Employees (incl. Nuisance Complaints) Labour Structure (Union Members & Leave possibility) Employee Turnover	I; II; VII	Local
Employment Direct Contribution	I; II; VI; VII	Local
Equality Gender Age Nationality Experience	II; VII	Global / Local
Training	I; II; VI; VII	Regional / Local
Safety Accidents Incl. Environmental, Fatalities, Injured Accident Prevention (Plans, Near-Accidents, HSE) Cargo (Dangerous Goods, IMO Containers etc.)	I; II; IV; V; VII	Local

Economic indicators

The articles by Peris-Mora et al. (2005) and Saengsupavanich et al. (2009) do not include economic indicators, the most frequent economic indicators, mentioned in 3 articles, are: Financial, Services and Efficiency. These indicators have a local and regional impact. However, looking at all the indicators, local impact is most frequent and is applicable for all indicators. The other tree indicators: Community Impact, Labour Expenditure and Operations these are only mentioned in one or two articles and when it comes to the sub indicators 11 are only mentioned in one article. Generally, the consensus that has seemed to occur in some extent regarding the ecological and social indicators seems to be weaker regarding the economic indicators. The fact that two articles regarding sustainability indicators do not discuss economy is also noteworthy.

Table 12: Articles referring to specific economic indicators; indication of impact level

Economic Indicator	***Included in article***	***Impact level***
Community Impact R&D	II; I	Regional / Local
Efficiency Energy Water Waste Transports Cargo Handling Efficiency	I; V; VI	Local
Labour Expenditure	I	Local
Financial Liquidity, Solvability, Turnover Capital Investments Revenue (Split in Relevant Subgroups) Capacity Level and Structure of Investments Purchased Materials and Dangerous Products Sustainable Products/Services/Suppliers Value Generated and Productivity Return on Investment	I; II; V; VI; VII	Local
Operations Time (incl. Waiting- Service-, Lead Time) Efficiency in the Use of Port Area/Soil Occupation Ship Visits	I; V	Local
Services Facilities Customer Satisfaction/Complaints Passengers (Visits, Floor Area, etc.) Supplier Performance & Training Level	I; II; V; VI; VII	Local / Regional

Indicators disclosed by the Gothenburg Port Authority

The Environmental indicators identified in the literature search is matched with GRI indicators and compared with the disclosed GRI indicators by the Gothenburg Pot Authority (table 13). There are certain indicators missing from the GRI guidelines such as noise. Although, the indicator 'Noise' is not disclosed in the Gothenburg Port Authority sustainability report (2018b), the indicator is measured according to internal documentation. The Social indicators identified in the literature search match with GRI indicators and compared with the GRI indicators Gothenburg Pot Authority disclose (table 14). For all Social indicators the Gothenburg Port Authority mentions some indicators but they do not cover all the sub-indicators.

The Economic indicators identified in the literature search is matched with the GRI indicators and compared to the GRI indicators Gothenburg Pot Authority disclose (table 15). For the Economic indicators, three indicators were not found in the GRI guidelines. Regarding Community Impact it has not been found that the Gothenburg Port Authority discloses it in addition to their GRI indicators. They mention collaboration with schools and university but no higher level of research and development. The sub-indicators connected to efficiency are disclosed under other areas but not as economy according to GRI (2015). For Labour Expenditure, it is mentioned in the sustainability report as one of their most significant costs, but no figures are disclosed. Some of the sub-indicators, such as operations indicators, could be considered to be included in GRI indicators with a generous interpretation. They are not really matching and therefore their dots are white in the table. A full list of the indicators disclosed by the port in their latest sustainability report is presented in Appendix 6.

Table 13: List of Environmental indicators disclosed by the Gothenburg Port Authority

Environmental Indicator	***GRI indicator***	***GRI indicator disclosed by the Gothenburg Port Authority***
Accidents		
Oil, Chemical, Hazardous Spills	●	●
Air		
Pollution	●	●
Greenhouse Effect (Carbon Footprint)	●	●
Odour Pollution		
Dust & Particle		
Energy		
Consumption	●	●
Electricity		
Fuel		
Renewables		
Ground		
Efficiency in ground use		
Impact	●	●
Soil Pollution	●	●
Management		
Environmental Training & Initiatives	●	●
Economic Behaviour of the PA in Environmental Issues	●	●
Noise		
Marine Pollution		
Dredging, Disposal	●	
Water Pollution	●	
Wastewater Treatment	●	
Marine Environment	●	●
Ballast Water, Bilge, Sludge (Ship Discharge)	●	
Quality of Waters	●	
Water Consumption	●	
Waste		
Creation	●	●
Disposal	●	●
Recycling	●	●

Table 14: List of Social indicators disclosed by the Gothenburg Port Authority

Social Indicator	***GRI indicator***	***GRI indicator disclosed by the Gothenburg Port Authority***
Community impact		
Volunteer Activities	●	●
Liveability in the Area around the port		
Port Yearly Investments		
Internship and Training Places	●	●
Local Suppliers and/or Providers	●	
Employee satisfaction		
Happiness of Employees		
Labour Structure	●	●
Employee Turnover	●	●
Employment		
Direct Contribution	●	●
Equality	●	●
Gender	●	●
Age	●	●
Nationality	●	●
Experience		
Training	●	●
Safety		
Accidents Incl. Environmental, Fatalities, Injured	●	●
Accident Prevention	●	●
Cargo (Dangerous Goods, IMO Containers etc.)		

Table 15: List of Economic indicators disclosed by the Gothenburg Port Authority

Economic Indicator	***GRI indicator***	***GRI indicator disclosed by the Gothenburg Port Authority***
Community Impact R&D		
Efficiency Energy Water Waste Transports Cargo Handling Efficiency	*No economic GRI indicators regarding this indicator, however the efficiency areas are available but sub-indicators are discussed in other contexts.*	
Labour Expenditure		
Financial		
Liquidity, Solvability, Turnover	●	●
Capital Investments	●	●
Revenue (Split in Relevant Subgroups)	●	●
Capacity	●	●
Level and Structure of Investments	●	●
Purchased Materials and Dangerous Products	●	
Sustainable Products/Services/Suppliers	●	
Value Generated and Productivity	●	●
Return on Investment	●	●
Operations		
Time (incl. Waiting- Service-, Lead Time)	○	○
Efficiency in the Use of Port Area/Soil	●	●
Occupation	○	○
Ship Visits	○	○
Services		
Facilities	●	●
Customer Satisfaction/Complaints	●	●
Passengers (Visits, Floor Area, etc.)	●	●
Supplier Performance & Training Level	●	

Interviews

In total 14 people were interviewed during 12 interviews. The number of respondents slightly differs between the questions, either because the informants didn't provide any answer or they provided more than one answer. The results from the interviews are presented as background information and then each question separately.

Background of employees

The time the informants had worked in the port differs and the two most common time intervals are 3-6 years or more than 9 years. The informants have worked on average 6 years for the Gothenburg Port Authority (figure 9). The informants' experience of sustainability work prior to their current employment varies significant; 6 of the informants have previous experience working with sustainability prior to their job in the Gothenburg Port Authority and for 8 of them this is the first sustainability related employment.

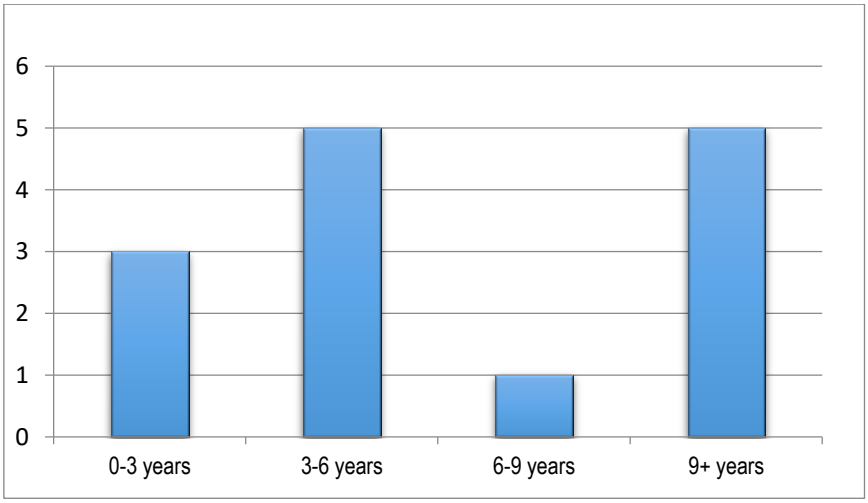

Figure 9: Informants working time in the Gothenburg Port Authority

Sustainability reporting

All informants have participated in writing texts or providing figures to the sustainability report. The question posed to each of the informant was related to the person responsible for the sustainability report in each department and the process followed, including data collection and analysis. The answer was followed by questions related to sustainability's report objective formulation and their thoughts regarding the audience of the sustainability report.

The pattern of collaborations identified during the interviews read as the informant presented in each row indicates the collaboration between the informant (or informants) for the sustainability report (table 16). A black dot indicates the collaborations clearly mentioned between different positions during the interviews, while the white dot indicates the collaborations that probably exist between departments. It is clear that there is a low level of collaboration between the different departments and also between different functions at the same department. The answers that stated collaborations between departments existed in connection to the sustainability report were positive although it would be desirable to increase the future opportunities for collaborations.

Table 16: Communication paths related to sustainability reporting

Title	Sustainability Report responsible	Senior Manager Market Intelligence	Environmental Engineer	Fire and Security Engineer	HR Specialist	Work Environment Coordinator	Vice President Business Support	General Manager Procurement	Business Controller	Environmental Controller	Senior Manager Environment
Interview 1	●										
Interview 2	●										
Interview 3	●									●	
Interview 4	●					○	○		○	○	○
Interview 5	●					●					●
Interview 6	●										
Interview 7	●										
Interview 8	●								○		
Interview 9	●										
Interview 10	●			○						●	
Interview 11	●										
Interview 12	●										

For the alignment of their work with sustainability reporting and other tasks they perform as part of their job description, more than half of the informants thought that the sustainability reporting work was aligned with their job description. None of the informants perceive the results in the report applicable to everyday work tasks. It is more perceived as a summary of what has been done.

The sustainability report's objectives are clear and relevant to everyone. The objectives were decided in internal company meetings, stakeholders' dialogue together with external consultants. Although agreeing that the objectives are correctly focused, all but two of the informants had the opinion that the format of the sustainability report was not the most appropriate one or that it should be improved. The other two informants did not at any point discuss the format of the report. There was critique against the format of the sustainability report but no one provided any specific suggestion for improvements.

In the answers received regarding the possibility to change the objectives of the report, three main patterns were identified. Those who think it is easy to change, in this group three different type of answers were identified, either that it was possible to change in the daily work, in meetings or the most common one that it is changed in consensus since it is a small company. The other two groups find it hard to change although adding to the existing structure is possible (figure 10).

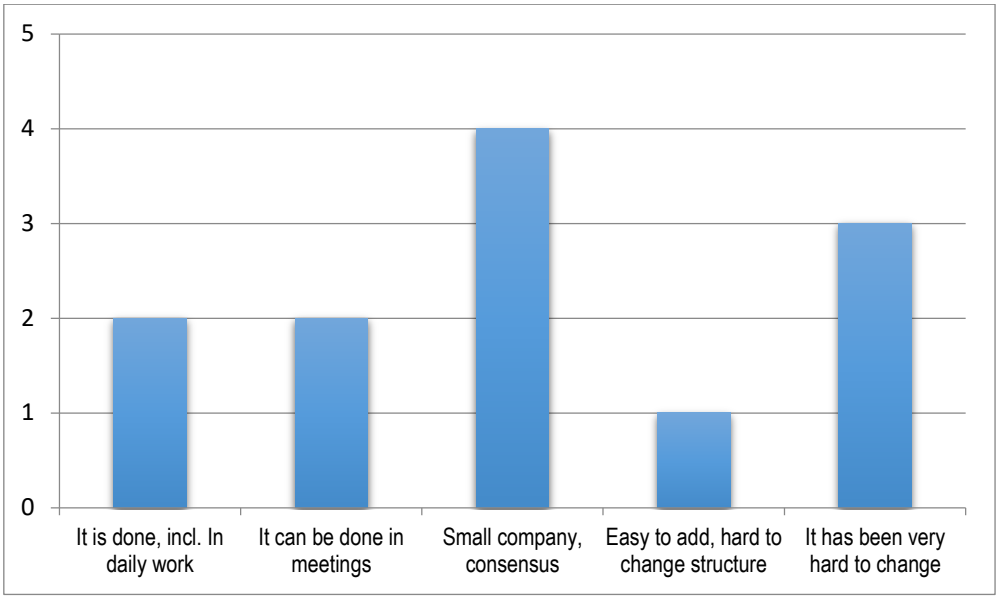

Figure 10: Informants opinion on influencing SR objectives

A question about the process regarding the sustainability reporting 10 informants discussed the general process. The answers show that the person responsible for the sustainability report was providing instructions and guidelines for the people involved in the sustainability reporting. The personal process that they followed was mentioned only after specifying the question. From the answers it seems that the interviewees are able to influence their own writing process.

Most informants seemed to struggle with the question regarding the anticipated receiver of the sustainability report was a lot of struggle trying to answer it. A clear answer regarding the step by step process they are following was not received by any of the informants; however, various process steps were mentioned by them. Reading through the interviews, these steps were sorted in a logical order and presented in table 17.

Table 17: Informants indicating the steps of the sustainability report process

Title	Decision for SR annually acc. to GRI	Introduction meeting	Dialogue about content	Instructions are given out / received	Individual production of text & data	Result sent to SR responsible	Correction of results	SR responsible owned the process
Interview 1				●	●	●		
Interview 2	●							
Interview 3				●	●			
Interview 4	-	-	-	-	-	-	-	-
Interview 5			●				●	
Interview 6						●	●	●
Interview 7		●			●			
Interview 8		●		●				●
Interview 9	-	-	-	-	-	-	-	-
Interview 10								●
Interview 11		●	●		●			
Interview 12		●		●	●	●	●	●

Most of the informants use data that they had collected through other work processes and other reports that they are fulfilling as part of their ordinary tasks, and then based on these data they produce a text to publish in the sustainability report. Two of the informants also looked at the sustainability report from previous year for inspiration. They also mentioned that they were trying to find different words to describe the same things. Five of the informants talked about how they analyse the data. This analysis, however, is not mentioned in the sustainability report. Some others think that not only the result but also part of the analysis should be included in the report. Informants' various personal processes (figure 11).

Figure 11: Informants presenting personal process followed for the sustainability report

There was no specific pattern identified regarding the person responsible for the data and text provided to the Sustainability report. The answers varied a lot among the informants and only one third mentioned that they had the responsibility for the sustainability report in their department. Full list of

the answers of who is the person responsible to provide the data and texts for the sustainability report is shown in the figure 12.

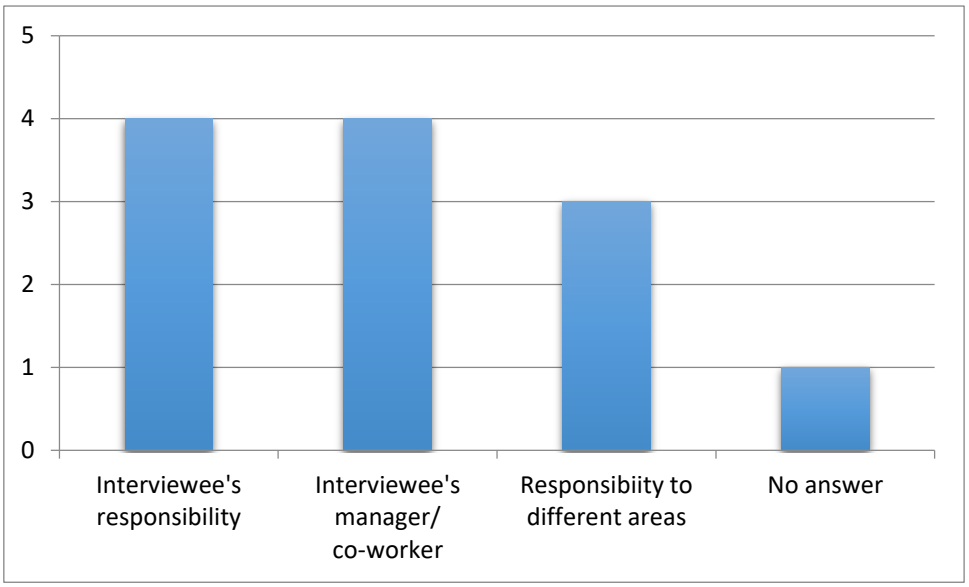

Figure 12: Person responsible for the sustainability report in each department

Next question was related to the process, and how it supports the sustainability work that takes place in the company and the results are shown in figure 13. It is worth observing that only one of the informants appeared to be positive that the report provides actual support for the sustainability work.

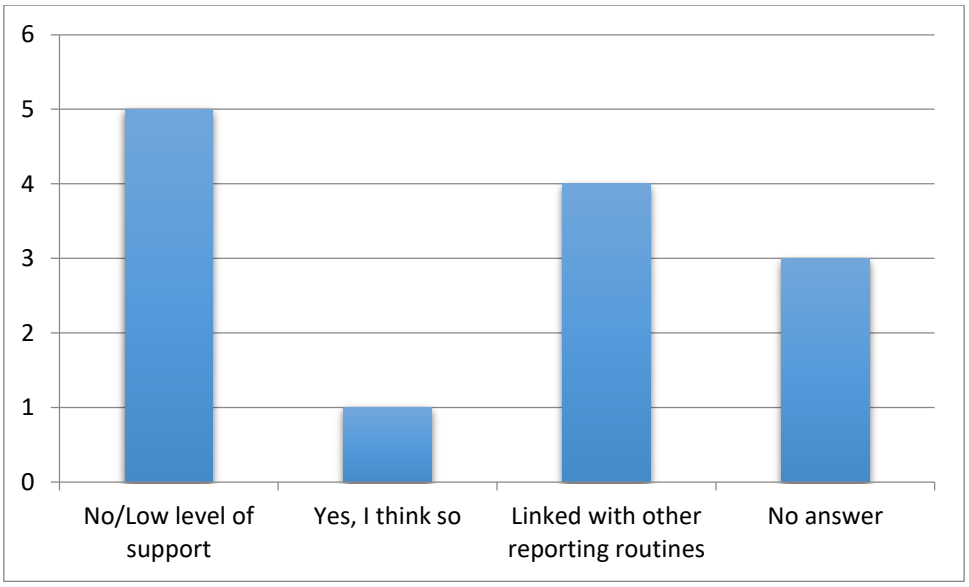

Figure 13: Level of support to the sustainability work for the sustainability report

Regarding the process followed while the sustainability report was outlined six of the informants didn't provide any answer. Then another five answered providing various answers; three of them pointed at a relation with other reporting, one informant said that they weren't involved. The last group is the two informants who previously were responsible for the report. The process was described as a general process written in the SR incl. stakeholders dialogue. Regarding the question of who was responsible to create the process, the identification of a pattern was impossible since only three of the informants provided answers.

Receivers of the sustainability report

The target group that the sustainability report is addressing is broad and diverse; citizens of the city, local authorities, shipping companies and employees. The spontaneous reaction of four informants when they were asked about the readers of the report was laughing or joking about it and most of them needed time to provide an answer. To make the variety of answers comparable they were grouped into students, new employees, other sustainability employees, politicians/owners, other stakeholders – such as public, people in meetings, companies in the energy port, customers, shipping lines, local society. Other informants said they did not know. Many of the informants expressed their hopes that people to whom the report is targeting are spending time to read it although no one could provide evidence for the people who actually read it. The informants expressed a hope that some stakeholders spend time to read the sustainability report. To differentiate between how certain the informants were regarding the readers the answers were classified in to "do", "maybe" and "hope" (table 18).

Table 18: Readers of the sustainability report according to the informants

Title	Students	New employees	Sustainability employees	Politicians/owners	Stakeholders	Don't know
Interview 1	*do*		*do*		*hope*	
Interview 2				*hope*	*hope*	
Interview 3	*do*		*do*		*hope*	
Interview 4		*maybe*			*hope*	
Interview 5	*do*		*do*			
Interview 6					*hope*	
Interview 7					*hope*	
Interview 8				*do*		•
Interview 9					*hope*	
Interview 10	*do*				*hope*	
Interview 11	*do*	*maybe*	*maybe*		*hope*	
Interview 12						•
Interview 13			*do*		*hope*	

Port activities and strategies

In relation to the port's product and services, the informants seemed to struggle to answer. A common reaction was to ask for clarifications since they were not sure about how to understand the question. Some of the identified difficulties are language barriers or difficulties grasping the question. As illustrated in figure 14, there were different perceptions about what the port was offering as services or products; even what the role of the Gothenburg Port Authority was.

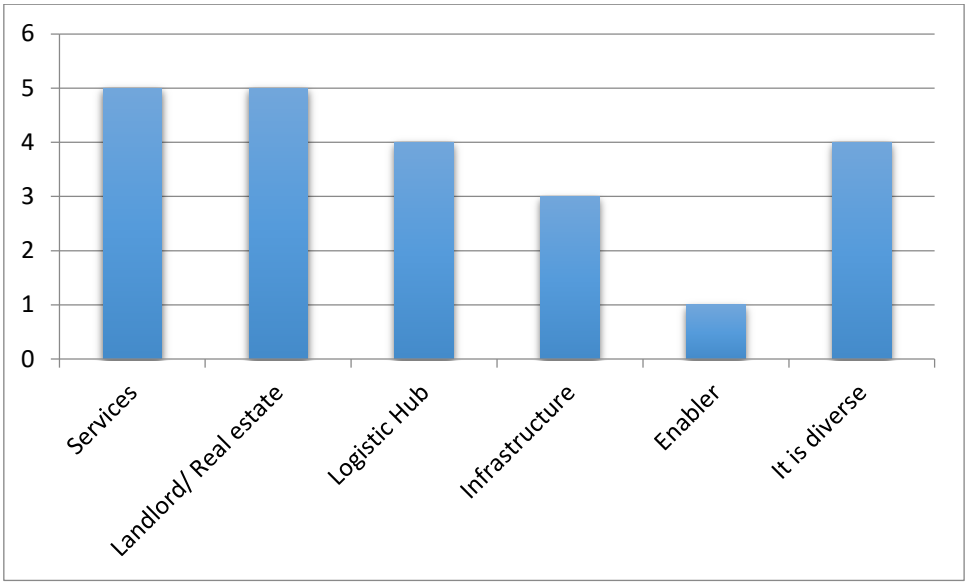

Figure 14: Informants' perception of the Gothenburg Port Authority's product

The informants agreed that it was neither the sustainability report that provided value to the Gothenburg Port Authority nor the work behind it. The sustainability work would have been conducted regardless of the report. The added value from the sustainability report was not clear, but was generally perceived as positive. The majority perceived that the report is not negative but almost no one could say that it actually is positive. Two informants used the report for information purposes regarding the Gothenburg Port Authority's activities. The same type of answers was received on the question of the Gothenburg Port Authority business strategy. Some of the informants needed time to answer and some emotions like laughing and giggling were recorded. Further the answers were diverse and categorized (figure 15).

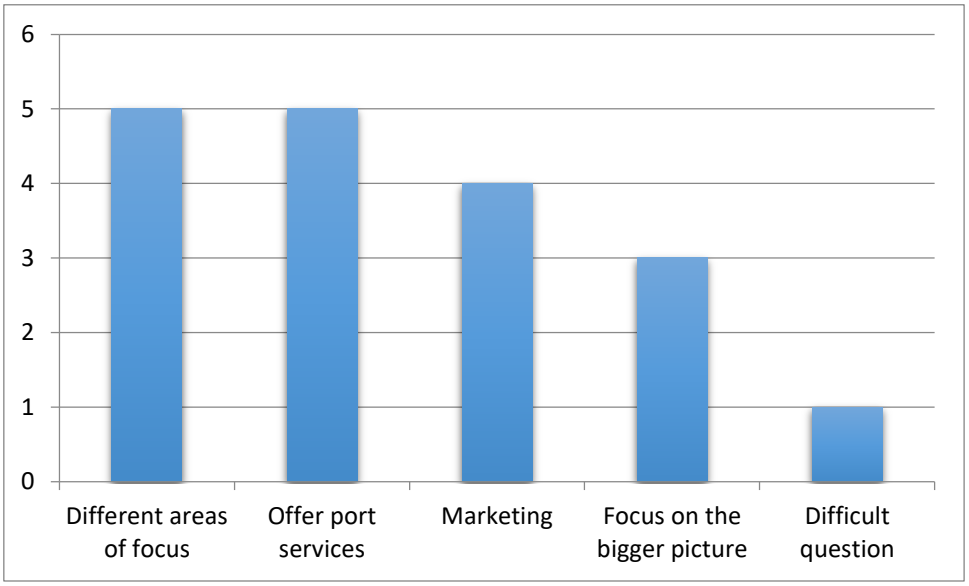

Figure 15: Informants' perception of the Gothenburg Port Authority's business strategy

The question following the port's business strategy was about the port's environmental strategy. This question seemed easier for the informants and three main patterns were identified. The first pattern was referring to the Gothenburg Port Authority being top port in the world, the second was related to the Gothenburg Port Authority being leader among other ports on environmental issues and the port's environmental impact formed the last. Magnus Kårestedt (2018) elaborate further on the

environmental strategy and discussed the transition in sustainability work with the following words: "*If you go back 15 or 20 years ago, it was more about talking and showing a green profile. Nowadays, it's more about doing things and showing that you have done things. It's more real now*." The answers regarding port's environmental strategy are shown in figure 16.

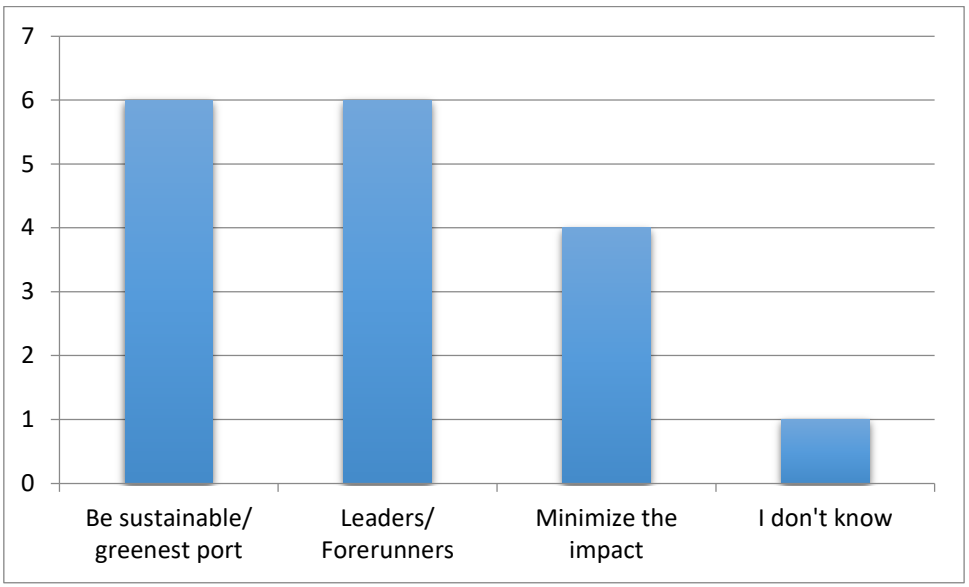

Figure 16: Informants' perception of the Gothenburg Port Authority's environmental strategy

Map of sustainability activities

The result of the Hart and Milstein sustainability activities map (figure 17) as it was done by the informants. The informants were asked to rank the statements provided in each quadrant depending on which of the statements were closer to the current situation or just comment on them. The result was that there was a lack of consensus within the company as informants did not agree while ranking or discussing the various activities. It is possible to see that their answers are very diverse.

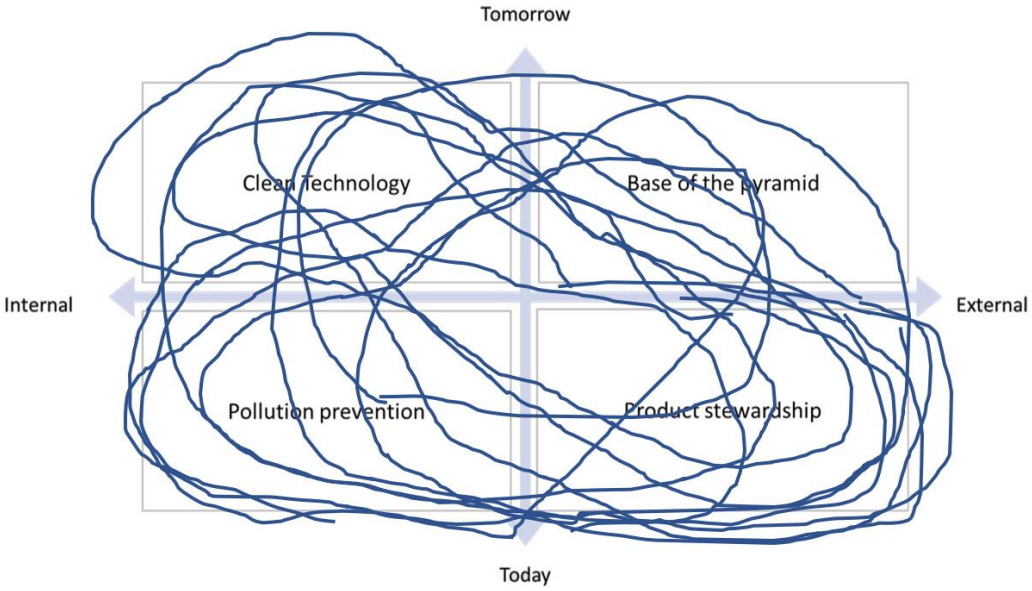

Figure 17: Informants' answers to Hart map

Analysis

In the following chapter, the results are analysed, it is divided in one part where the usefulness of the sustainability assessment for strategic decision making is discussed followed by a part where the relationship between the port and municipality is analysed. Third is an overview over value adding sustainability work in the Gothenburg Port Authority and last the organisational structures influence over the sustainability work is analysed.

Sustainability Assessment using the Sustainability Report

This study found that the sustainability report for the Gothenburg Port Authority is not used to assess the sustainability mainly because it does not guide decisions to sustainable development, which was prerequisite given in the definition by Bond and Morrison-Saunders (2011). Additionally, sustainability assessments need to be credible, salient and legitimate to have an actual effect and influence the decision making process of the company (Cash et al., 2003). One of the reasons for this is the objective of the sustainability report and that the employees at the Gothenburg Port Authority perceive it as a summary of the year that passed. There is also a problem to motivate the employees since they do not understand the audience of the sustainability report. Further the GRI format does not reflect on all relevant sustainability issues a port face. However, the Gothenburg Port Authority show high awareness regarding relevant indicators to measure which could be a solid foundation to create a sustainability report used for assessments.

Sustainability Report Objective

From the interviews this study identifies a conflict regarding how the objective of the sustainability report is decided, and a low level of motivation among the employees. Most informants think the objectives of the report are relevant. However, there is a low level of awareness regarding how the objectives were decided and mixed thoughts on how to change them. Some refer to the fact that the Gothenburg Port Authority is a small company and consensus is possible. However, the informants who tried to change them said that it is a goal hard to achieve; they stated though that it is possible to add a new area instead of modifying an existing one. None of the informants sees the results in the report as something to apply in their work; rather the report is a summary of what has been done. This probably create a low level of motivation for the employees to contribute to the sustainability reporting which is contradictory with Hahn and Kühnen (2013) assumption that companies can motivate employees by disclosing sustainability information.

Sustainability Report Audience

The results in this study show that there is a low level of understanding among the producers of the sustainability report who the readers are. The target audience is an area where the link between research and practise in sustainability reporting is weak. The idea that all stakeholders can be pleased with one well formulated report might not be as easy to realize in practice as in theory. From the interviews it is clear that the employees are uncertain about who the receiver of the information is. Jones et al. (2016) mentions sustainability reporting as a vital part in communication with stakeholders and that should present how the company perform against its environmental and social goals. The Gothenburg Port Authority has identified that its stakeholders are owners, customers, employees, terminal operators, suppliers, public agencies and society. These stakeholders are all primary stakeholders to the company but it does not appear to be addressed; instead it appears as the informants identify secondary stakeholders such as students as the main audience. The stakeholders do not seem to be communicated to the employees and they are not prioritized into primary and

secondary. It is also possible that this issue is connected to the critique from Dingwerth and Eichinger (2010) that the format of GRI is not comparable or transparent enough to meet all stakeholders' needs of disclosed information. Contradictory, Hahn and Kühnen (2013) claim that the diversity of stakeholders can act in favour of the organisation's success. In practise however, our result indicate that it is difficult to write the report covering the need from such a broad stakeholder group since they may require different type of information. Many of the informants expressed their hopes that people to whom the report is targeting are spending time to read it, although no one could provide evidence of who reads it.

Sustainability Report Format

This study indicates that the use of GRI framework for reporting in ports creates a conflict between the desire to have a comparable report and disclosing relevant indicators. Further there seems to be some communication gaps in the Gothenburg Port Authority regarding why the format has been chosen. This shows in the interviews where most of the informants discuss that they do not like the format of the report. However, GRI is a common way for ports to conduct sustainability reporting and comparability is one of the key functions for reports to drive sustainable development (Dingwerth & Eichinger, 2010). It seems reasonable for the Gothenburg Port Authority to use GRI as their report framework. This is strengthened by the fact that other ports use GRI to disclose their sustainability indicators. Based on the results regarding how indicators are used, it can be observed that some indicators are mentioned more in the literature than others. It is worth mentioning that the Gothenburg Port Authority considers some indicators of high value although this is not always in accordance with the research or the GRI guidelines such as the gender equality indicator. The Gothenburg Port Authority has high focus on these indicators. The reasoning behind this decision could be the location of the examined port, which reflect upon Ness, Anderberg, and Olsson (2010) thoughts that sustainability assessments should be adopted to the context they are performed in, for example country, and the interest of gender equality matters is high in Sweden.

Indicators in the Sustainability Report

The results in this study indicate that the Gothenburg Port Authority disclose relevant indicators and have awareness of indicators outside the scope of GRI standard. The use of relevant indicators contributes to make a sustainability assessment credible, salient and legitimate, which are prerequisites defined by Cash et al. (2003). In this study relevant indicators for port sustainability were identified and compared with the indicators used by the Gothenburg Port Authority in their sustainability report. The high frequency of matches between research and what the Gothenburg Port Authority disclose show that the port is focusing on relevant indicators. The GRI standard that has been applied by the port adds value to the sustainability report since it has a materiality approach and it improves the overall credibility of the report (Jones et al., 2016). As mentioned by Hahn and Kühnen (2013) voluntary reports provide organisations with the possibility to experiment with disclosure of information which can improve the learning within the company as well as improve the transparency level; leading to improved and more credible decision-making processes. The Gothenburg Port Authority following this path discloses at least one indicator for all the indicators found in literature. Additional GRI indicators could have been disclosed to cover more sub-indicators. Learning and transparency can be improved by public engagement as mentioned by Bond et al. (2012). The Gothenburg Port Authority conducted a stakeholder dialog which was beneficial for the sustainability work in the port, since it is a great way to determinate materiality issues as described by Jones et al. (2016). The stakeholder dialogues were however only done once, from the interviews it was clear that there are no new dialogues planned or any other follow up steps or continuation actions.

There are indicators regarding port sustainability which have not been found as GRI indicators such as Noise and Labour Expenditure. Noise is frequently mentioned in research but there is no GRI indicator

in the general guidelines, however looking at sector specific guidelines (GRI, 2018) it is possible to see that noise has its own indicator for airport specific disclosure. The Gothenburg Port Authority also mentions noise in their report which indicates that they have a higher level of understanding of the issue and not just follow the GRI guidelines. In terms of Labour Expenditure, the indicator is interesting since the absence of it could be connected to the critique by Hahn and Kühnen (2013) regarding the economic indicators who in their opinion are too general and few. Further, Krajnc and Glavič (2005) discuss the importance to not use to many indicators, since it might influence the possibility to follow up the performance and based on information received through interviews more analysis of the indicators was desired. This might indicate that the Gothenburg Port Authority disclose too many indicators. In general, indicators used to describe the sustainability work in the port are considered relevant and coherent with the literature, while the stakeholder engagement adds value in terms of transparency, credibility and materiality (Jones et al. 2016 & Bond et al. 2012). The missing indicator in the GRI framework might be one of the reasons there are so many other initiatives to create framework and help ports to disclose relevant indicators, such as ESPO.

Municipality Influence on the Sustainability Report

This study indicates that the Gothenburg Port Authority exceeds the demand of public reporting from the municipality's side and has high awareness of matters of interest within their own industry. The Gothenburg Port Authority discloses information according to the triple bottom line principle which is mentioned by Sislian et al. (2016) as a common way for ports to work with sustainability. They further mention that European ports are regulated to perform sustainability assessments. The criteria for companies enforced to conduct sustainability assessment are further described by Normative (2017). The Gothenburg Port Authority must comply with the European regulation simultaneously as they follow the rules and goals from Gothenburg city. Interesting though is that the demands from the City of Gothenburg use another set of goals and are not in line with the TBL. The municipality goals are local adaptations of the National Environmental goals. The result is diverse and scattered social indicators. Further the city's demands on working according to UN sustainable development goals are limited whereas the Gothenburg Port Authority clearly discloses how they work with these goals in their Sustainability report.

Organisation

In this study the organisational structure of the company has been examined as well as its influence on the sustainability work. A correlation between the structure of the organisation and the sustainability work performed has been identified, mainly focused on the process followed for the sustainability report produced and collaborations within the company. Further, the study acknowledges an internal lack of consensus around the company's identity and business strategies as different and sometimes conflicting roles must be fulfilled.

Influence on the Process of the Sustainability Report

The structure of the organisation is influencing the sustainability report itself; the main issues identified are some communication gaps, loose process steps including lack of feedback loops and not clear targeting for the sustainability report. According to Cash et al. (2003), this prevents a knowledge system to be created and results in a low level of learning within the company. Most people seemed to struggle with the question related to the process steps followed to fulfil the sustainability reporting and were tensed answering it. The employees' possibility to influence the sustainability report is in the beginning of the process. People involved mentioned that instructions were received with expectations and deadlines and then each of them delivered the requested material to the person responsible for the

sustainability. It appears as the employees contributing with texts have no influence on how their part is perceived in the whole report. From the answers a process map was created and presented in figure 18.

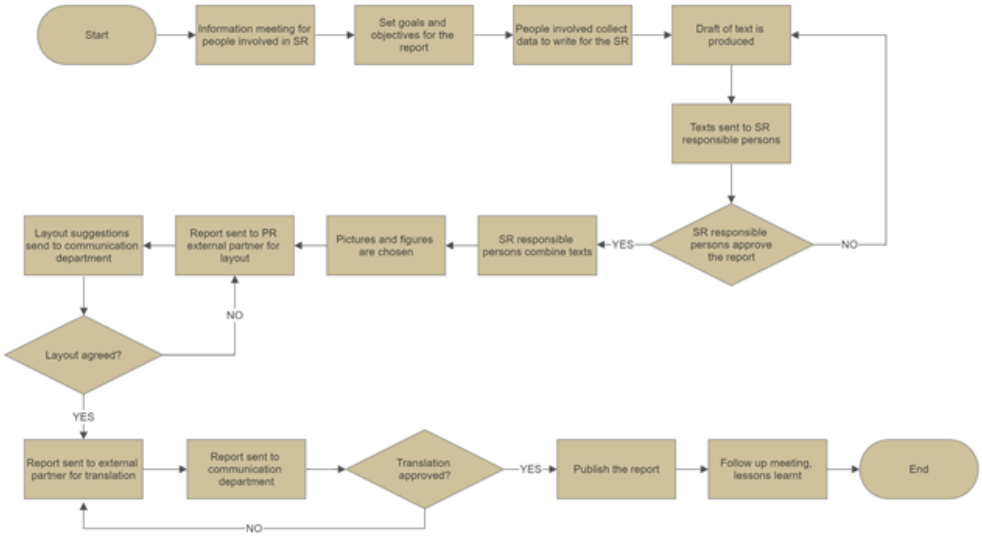

Figure 18: Sustainability Reporting Process in the Gothenburg Port Authority

Collaborations

Collaborations within the company both within departments but also between the various departments, as well as external collaborations are of great significance for the sustainability assessment of the company, according to information received through the interviews. Some of the informants mentioned collaborations within their department and few of them mentioned collaborations with other departments. Most of them seemed satisfied but many of them expressed further the need for stronger and established collaborations within the company. It is obvious though that the collaboration pattern is not clarified and that it could be improved and strengthened which is essential according to Bocken et al. (2014). There have also been informants mentioning collaborations with external partners of the organisation without providing any specific example though.

Integration of Sustainability

The Gothenburg's Port Authority has different roles. The goals and the strategies of each role are not always in line and sometimes can even create conflicts. Most of the terminals are handled by external terminal operators and the Gothenburg Port Authority is acting as the infrastructure provider and port authority; for the Energy port though remains the terminal operator. These different roles can cause confusion within the organisation as it makes it hard to identify one clear business strategy which is also supported by our results. Thus, clearly shaped roles and strategies are essential for the further development of the company.

Sustainability as a Core Value

The whole organisation shares the same core values regardless of the different roles. Sustainability is one of the core values for the Gothenburg Port Authority and it is integrated in many of their everyday tasks. It is not always evident that the sustainability work is integrated in everyday tasks. There is a risk that it becomes just an additional task that needs to be performed. Some of the informants

mentioned that sustainability is part of their regular task, but no specific pattern has been identified. The only clear alignment that can be extracted between employees' regular tasks and sustainability reporting is that the report is a picture of what happened during the year regarding the sustainability goals. It is crucial to understand how sustainability work integrates with everyday tasks and for a successful sustainability report it is desirable that it not only give a picture of the things that have been done but also set new goals for the future.

Sustainable Value, Strategies and Activities

This study shows that there seems to be gaps in the Gothenburg Port Authority preventing creation of sustainable value. These gaps relate to the understanding of what creates value, the activities and the strategies. Further, it shows that it is important for an organisation to understand its business strategies and communicate them to parties concerned. The importance of communication is discussed by Cash et al. (2003).

Sustainable Value Creation in the Gothenburg Port Authority

From this study it is unclear if the port understands what could create sustainable value for both stakeholders and shareholders. Sustainable value is according to Laszlo (2013) created when shareholders and stakeholders benefit simultaneously, for this an understanding of what adds value for these groups ought to be important. To understand how sustainable value could be created in the Gothenburg Port Authority this study investigated the owner directives, which indicate the type of activities the port should perform according to the owner to add value. To understand the stakeholders needs, the dialogues conducted with stakeholders in 2015 were investigated. But these seems to have focused on important sustainability issues and there is not explained if it also included dialogues regarding value. Based on the sustainability report and the internal understanding it is possible to map the stakeholders. The results of the interviews regarding the understanding of stakeholders though do not match fully with the stakeholders described in the sustainability report. Nor does the sustainability report itself add any value which shows in the answers from the interviews where none of the informants answered that they thought the report itself adds any value to the company even if they thought the sustainability work added value.

Some of the results in this study hint that the organisation has internal issues related to its structure, but the evidence for this from this study is too weak to make any firm assumptions. During the interviews the informants were asked about the Gothenburg Port Authority's product, there were 6 different answer groups identified. This indicates lack of clear answers among the informants. The diversity of answers might derive from the owner directive which also includes a wide variety of activities which the port should perform. Trying to adopt any of the strategies on how to create value related to the product such as others Laszlo (2013), Bocken et al. (2014) and Reinhardt (1999) seems impossible without the internal understanding of the product. Regarding the Gothenburg Port Authority's business strategy, the pattern of the answers was similar; with a wide range of answers and most of the informants pinpointed the different business areas of the port and their strategies. Regarding environmental strategy though the tension to answer was lower and most of the answers was in the same direction; this could indicate that the communication paths in this area are more established and well-functioning.

Alignment between Strategies and Activities for Sustainable Value

The low level of alignment between sustainability strategies and activities performed did not create sustainable value in the Gothenburg Port Authority. The gap between the activities indicates a less

developed sustainability work than the perceived strategy was identified. Sustainability related activities performed in the Gothenburg Port Authority were mainly conducted in the Product stewardship and Pollution prevention quadrant in the framework by Hart and Milstein (2003) (figure 19). An analysis was performed on the answers from the informants of where to categorize the activities performed by the Gothenburg Port Authority in the framework by Hart and Milstein (2003). The received answers were scattered, one reasons for this can be a lack of understanding of the map and some of the informants also asked for clarifications. Most of them agree that the Gothenburg Port Authority is allocating a lot of effort in Product Stewardship which means that they are mostly focus on the present. The next two areas where time and money are allocated are the Pollution prevention and the Clean Technology. Some of the informants indicated that port activities are within the Base of the pyramid area which further indicates a low level of understanding of the framework since their vision does not even include the word 'sustainability'. Even though, the informants were asked to rank the activities, most of them preferred to discuss the various areas mentioned on the map and provide us of their thoughts and comments. The diversity of answers could also relate to the different answers regarding the product of the Gothenburg Port Authority and a confusion of this among the employees.

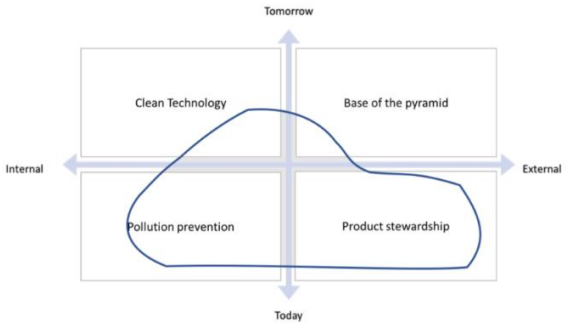

Figure 19: The authors' interpretation of the informants' answers

According to the Hart & Milstein map described above most activities take place in the product stewardship and pollution prevention quadrants (figure 20). From the answers in the interviews the Gothenburg Port Authority's sustainability strategies based on their activities were mapped according to Laszlo (2013) to be focusing on: risks, processes and brand/culture. From the strategies described by Reinhardt (1999) the approaches to save cost and manage environmental risks seems to align with the strategies in the port. Contextualising this with the three steps Miller and Serafeim (2014) discuss for a company to progress to become sustainable this indicates that the company is on the second stage. However, from the interview answers regarding the environmental strategy, there is a few answers that the strategy is to minimize the impact, which would align with this interpretation of the result. However, most of the informants' answers that the strategy of the port is to be sustainable/greenest, leaders/forerunners. This indicates a gap between the desired and communicated strategy in the Gothenburg Port Authority and the strategy identified through the activities performed by the port (figure 20).

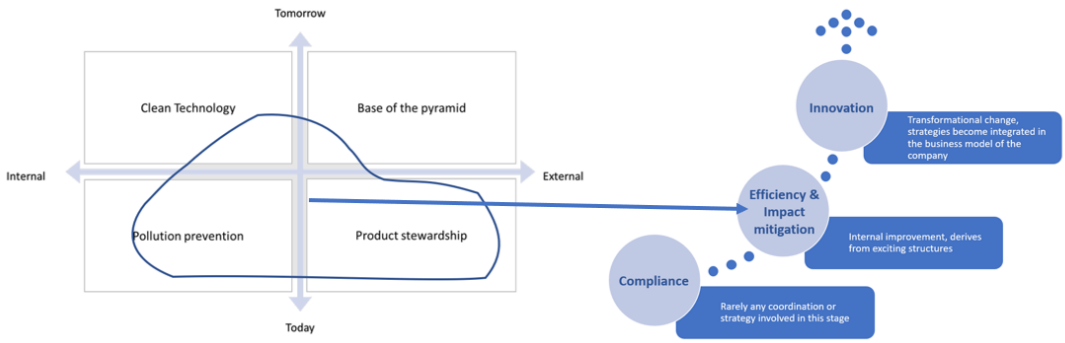

Figure 20: Gap between Strategies and Activities for Sustainable Value

Suggestions to the Gothenburg Port Authority

The suggestions for future work in the Gothenburg Port authority has been divided in to three parts: Sustainability Report, Business Strategies to Create Sustainable Value and Organisation. In the Sustainability Report part suggested indicators to monitor has been included and for the part suggesting Business Strategies to Create Sustainable Value two strategies will be described.

Sustainability Report

As previously mentioned the communication of sustainability assessments is of outer importance, for the Gothenburg Port Authority this work is done in their sustainability report, which has a format that is internally criticised, and where the understanding of the targeted external stakeholders is low. With the result from this report as starting point the Gothenburg Port Authority now have an excellent opportunity to reshape their sustainability report in a way that makes it clearer for the employees what is expected simultaneously as it is more appealing for their stakeholders to read.

Restructure the report

One suggestion is to restructure the report; it is important that it becomes something that the Gothenburg Port Authority stand for and reflects upon the organisation to avoid ending up in a position a few years from now where they once again are displeased with the format. Therefore, the suggestions of format provided next should only be seen on as suggestions or starting points for internal discussions. However, the process of sustainability reporting would benefit from clear feedback loops with routines on how to handle suggestions of improvement, both regarding content and format. Adding those feedback loops, employees have the possibility to influence the whole sustainability report. A more structured process could also help ensuring that the report format is up to date and continuous to improve.

Two versions of the report

Another way to progress with the sustainability report could be to split it in to two: one version which fulfil all the regulatory demands from authorities and GRI indicators, and a second which is more commercial where the information is rewritten in a way that makes information easily to access for a wide variety of stakeholders such as customers, local residents etc. Further, more sustainability information could be disclosed online on the company's webpage which might make it easier for stakeholders to find only the information they are searching for. This could also be combined with publishing of articles or newsletter through the year discussing issues brought up in the current sustainability report. To meet the diverse requests of information from the readers of the sustainability report who might desire parts or all information, a possibility could be to have different downloading alternatives, where the reader decides which areas that are of importance and these can be downloaded in a merged report customized for that occasion. This is technology that is already used by e-book providers where it is possible to only download certain chapters.

Indicators

Indicators are an important part of the sustainability assessment (Meadows, 1998) and there is a lot of literature on how to handle indicators within an organisation to assess sustainability. However, in this study, there seems to be a complexity; the Gothenburg Port Authority discloses many of the important

indicators discussed in the research. They could disclose more or focus on a deeper analysis of the indicators that they disclose to make sure that their development follows their goals. This issue is also brought up by Krajnc and Glavič (2005) who also mention that indicators need to be quantifiable and comparable. This contradiction has been identified in research but could still be further researched.

For the future work of the Gothenburg Port Authority, the authors of this study have developed 5 integrated indicators which the port could use as foundation to monitor their sustainable development (table 19). The aim with these indicators has been to make them measurable, integrated and relevant by connecting them to the Gothenburg Port Authority's value chain.

Table 19: Suggested indicators for the Gothenburg Port Authority

Safety, Security and Reliability	
Accidents	Sum of Incident, Spills, Accidents Etc. / Ton of Cargo
Efficiency	
Land Efficiency	M2 / Net Sales
Energy Efficiency	(Electricity, In MWh + Fuel, Recalculated from L & M3 to MWh) / Net Sales
Labour Expenditure Efficiency	(Salary Cost + Training Cost + Insurance) / Net Sales
Environment	
Pollution Footprint	(CO_2 + SO_x + NO_x + VOC + Particles + Polluted Soil + Polluted Dredging Material, all in ton) / Net Sales
Social	
Employee Satisfaction Social Context	
Economy	
Profit & Growth (Increase of Cargo)	

Business strategies to create sustainable value and Organisation

Two future business strategies to create sustainable value for the Gothenburg Port Authority are identified and suggested. The efficiency and risk mitigation strategy is already well incorporated in the organisation while the strategy to develop the industry standard of sustainability reporting is not as far progressed, even though it has the potential to create great benefits for the organisation. In this area the Gothenburg Port Authority appears to be well developed. The strategies match well with what is the common sense thinking within the company and the suggestion is to continue working with this as a strategy to create sustainable value.

Develop the Industry Standard of Sustainability Reporting

The Gothenburg Port Authority has as previously mentioned many possibilities to improve how they communicate their work with sustainability through their reporting. The result from the Hart & Milstein map also shows that they highly value the collaboration with stakeholders and to be transparent and communicate how they work. Additionally, this study indicate that the Gothenburg Port Authority have a high level of awareness regarding relevant indicators for ports to measure. Bringing these factors together, it seems like the company possess everything needed to start creating a new industry standard for sustainability reporting. This strategy is discussed in different context by different authors. According to Reinhardt (1999) collaboration with companies in similar positions to create standards within the industry is a way to manage competition. Similarly, Laszlo (2013) discusses changing legislation as a strategy where the company itself participates in shaping its business context. Further, Laszlo discusses corporate image as a sustainable business strategy which both attract employees and customers; finding new ways to communicate their sustainability work, the Gothenburg Port Authority could also gain benefits mentioned in this strategy.

From the interviews the environmental strategy in the port seems to focus on being the greenest port or a forerunner. Adopting a leadership role in the creation of an industry standard for sustainability reporting seems like a great strategy to regain the internal drive with sustainability work, at the same time as it profiles the company as a forerunner. Earlier the pressure was internal but since the external pressure from the municipality has increased the operational context of the authority has changed. One possible way for this is to investigate the possibility for a port authority to act as a facilitator for the work with sustainability in the entire port cluster. This strategy could also be connected to the business model "adopt stewardship role" by Bocken et al. (2014), where further inspiration on how to gain value from this work ca be found. The new standard must not necessary be created from scratch, it could also be a great idea to be a part of a group creating industry specific GRI disclosures.

Organisation

The identified gap between literature and owners' directive regarding the port's operations creates confusion and scattered thoughts, including the main processes and the key services the port should provide. Beneficial for the company would be to identify a set of statements to clarify the organisation's identity as well as the goals and the processes within the organisation. The shaping of the organisations identity should be the outcome of an internal procedure, which then should be communicated both internally towards the company's employees and externally to the various stakeholders. At the same time, an effort should be made to influence the owners' directive by presenting and explaining the suggested strategies and the goals of the company, for this to be successful the internal work ought to be rather well in progress.

Another beneficial suggestion is to divide the organisation into more specified organisational units with the possibility to focus on goals and establish strategies. This could reduce today's complexity in the organisation different strategies. Having one organisation acting as a terminal operator and a second organisation in the role of landlord port combined with port authority responsibilities could assist to strengthen their position and shape more clear strategies.

Discussion

The outcomes of a qualitative method are highly depending on the competence of the researcher and are more subjective compared to the outcomes of a quantitative approach. The strengths and weaknesses of this study will be presented in the following chapter. The results from this study are not transferable, but the method can be used to conduct sustainability assessments in other ports. The method has been useful to find answers to the aim and research questions, and if the improvements suggested below are adopted it could work as a guide for other ports to assess their sustainability.

Literature

The two main issues to discuss in this chapter are the sustainability assessment literature and the indicators literature.

Sustainability Assessment literature

The literature search regarding sustainability assessment, reports and value creation has contained many articles, but since the field is enormous it is always possible to argue for what should be included and what should not. For this study the aim has been to give a general overview over this area and for that the literature chosen is considered relevant. On the other hand, it is acknowledged that the literature only covers a brief part of this field and it should in not be considered an attempt to provide absolute truths regarding any of the issues.

The choices of reference ports to contextualize port of Gothenburg could also have been done in a more scientific context. But since the purpose only was to provide the reader with a background it selection is considered sufficient in this study.

Indicators' literature

The sample of the literature chosen to investigate indicators in this study does only consist of 7 articles which is a small number which could influence the quality of the suggested indicators. On the other hand, many of the articles are review articles, so they are likely to cover most of existing literature and discuss the same indicators which increase the coverage despite the low number. This however, increase the risk that the same original article appears in several reviews. Since the method to conduct literature reviews to identify indicators has been used by several other researcher the method seems generally accepted and a useful method to investigate relevant indicators. Indicators can also be sorted based on their level of impact to local, regional and local. This categorisation is discussed by Sislian et al. (2016), however these aspects have not been discussed in all the articles used for this study which might have resulted in faulty interpretation of the level of influence for the different indicators.

Interviews

In this chapter the influence of the result based on the interviews reliability and validity, formulation of questions, structure and anonymization is discussed.

Reliability and Validity of Interviews

To increase the reliability of this study all the interviews have been recorded, the questions used are presented in appendix 1 and the audio files have been transcribed. All the above gives the opportunity for other researchers to conduct a similar study by shaping similar condition, to achieve results that can be compared. For the validity of the data and to avoid personal interpretation of the information received through the interviews both authors of this master thesis have been part of the data analysis and in case of not agreement between them, the informant was asked for clarifications.

The Formulation of Questions

The questions formulated for the interviews were open providing the informants the possibility to express their opinions and encourage them to discuss their points of view regarding the company's sustainability work. By semi-structured interview, the questions were directed towards the relevant subjects. At the same time the informants were flexible enough to elaborate on their ideas and provide us with details regarding information they think is of great significance. However, one should pay attention on the outcomes of this type of interviews as the answers include the informant personal opinion and preferences, which should be taken into consideration while analysing them.

During the interviews, a checklist to assure that all the important areas were discussed was used and some adjustments were made, based on the informants' prior answers. For the interview with the CEO, the interview questions were reshaped and were more focused on general sustainability questions and questions related to port's strategies and goals. The use of a checklist with very few pre-formulated questions could be reconsidered since it reduces the repeatability of the study. During the interviews it was identified that the questions regarding the sustainability reporting process generated many different answers, follow up questions and a general feeling that the informants did not understand the question. Further the answer frequency was very low in this question. Probably this indicates that the questions could have been improved to gain better answers, on the other hand the variety of the answers has also provided information which has been valuable to the study. Also, the question regarding environmental strategy in the company should have been reformulated to strengthen the connection with sustainability in total and not only environmental issues.

The Interviews' Structure

It can also be discussed if the outcome would have been different if the informants would have received the questions beforehand and in that way be able to prepare the answers, for this study however the spontaneity of the answers was valued over preparedness. However, considering the mapping of the company's activities this could maybe have been sent beforehand to give the informants time to read the map in peace and reflect upon their answers. The map inspired by Hart (2011) gave generally very scattered answers, and even if this is likely to reflect on confusion within the organisation it is also possible that the formulation of suggested criteria's in the different quadrants might have room for improvement to provide the informants with better information while giving the answers. The scattered answers could also result from the fact that this type of company faces difficulties to fulfil the forth quadrant as it is described by Hart and Milstein (2003). The gap between the informants' interpretation of the environmental strategy and the activities performed in the Gothenburg port Authority is an interesting aspect of this study which would benefit from further research where the activities in the port could be mapped instead of through analysis of interviews. This would minimise the different interference factors and provide a more reliable result.

Another issue that has been identified since the interviews were conducted in English, which was not the native language for the informants interviewed, was misunderstandings and use of incorrect words,

or even answers given in Swedish. Further, there were difficulties in communication and in some questions, clarifications were required or even reshaping the question.

Anonymizing the Answers

The anonymization of the answers has many benefits and is necessity to protect the informants' integrity and encourage them to share information. The negative consequence though is that it reduces the possibility to follow up one or more informants' individual answers. For this study that was considered a minor loss since there were only weak patterns discovered among the answers given by single informants which did not add any value to analyse or change the interpretation of the overarching result. For future studies however, it might be interesting to interview more people from different departments and investigate if there are any differences between their interpretations of the sustainability work or if it is perceived in the same way throughout the company.

Conclusion

The sustainability report used to communicate an organisation's sustainability work can be used as a sustainability assessment according to the research. According to this study there is a correlation identified between the organisational structure and the activities performed to create sustainable value. The widely defined audience as well as the format of the report are two issues that the organisation needs to observe. Additionally, the various roles of the Gothenburg Port Authority combined with the lack of the company's clearly shaped identity outline another gap that needs to be addressed.

Sustainability assessments are complicated procedures influenced by various parameters. One of these parameters is the disclosure of relevant indicators which fulfil the criteria of the sustainability report to be credible and applicable for the decision making process. The Gothenburg Port Authority discloses relevant indicators, the sustainability report produced is not used in the decision making as it is perceived as a picture of the past and its format is not commonly accepted. This study further indicates that using the GRI system for the sustainability report might create some issues which possibly expand beyond the company. The issues do not seem to relate only to the Gothenburg Port Authority but throughout the industry, and supplementary indicators are necessary to cover all relevant issues.

As an organisation, the Gothenburg Port Authority has its strategies and its core values. Their aim to become forerunners in the environmental field within the port cluster and their current activities do not align. If the Gothenburg Port Authority would like to evolve and lead by example, a solid internal base is required including the application of new technologies and the adoption of new incentives. This should then be communicated to external stakeholders who could strengthen the Gothenburg Port Authority's profile as a forerunner in terms of sustainability. Working on innovative solutions as a core value of the company and applying innovative solutions in existing problems is not an easy task but is a task that can position the company in the front of current trends.

This study indicates that the sustainable value creation in the Gothenburg Port Authority mainly relates to efficiency and risk mitigation. Leading the way to a sustainable future, the Gothenburg Port Authority should work on the organisational goals and strategies enabling sustainable development. Visualising the company, as they want it to become, can facilitate the engagement of the employees and ease implementation of processes and procedures to reach the goal to be a sustainable port.

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Appendix 1

Personal introduction o Would you like to start with an introduction of yourself? o Background o Role in the company? o Have you worked with sustainability before? o Sustainability career?	
Introduction to the Sustainability Reporting work o How are you involved in the sustainability reporting work? o How is the collaboration working with the other departments? o Who are working together? o Who are you collaborating with in your department? o Who are you collaborating with in other department? o Is the SR objective focusing on relevant issues? o How is your work with sustainability reporting aligning with your other tasks? o In which ways can you influence the objective of the sustainability report?	
Process o What is the process you follow regarding sustainability reporting? o data o collection o analysis o person responsible o How does the process support your SR work? o How was this process outlined/developed? o Who were involved in the process creation?	
Application o Who do you think read/use the SR? o How do you apply the results from the SR in your work?	
Port Activities & Strategies o What does the port sell? o How does the SR support the product/ those activities? o Business strategy o Environmental strategy	

Appendix 2

Personal introduction o Would you like to start with an introduction of yourself? o Background o How do you view sustainability?	
Port Activities & Strategies o What does Gothenburg Port Authority sell? o How does the Sustainability Report and/or SW support the product/ those activities? o Business strategy o Environmental strategy	
Port Organisation & Structure o Can you elaborate on the main process for Gothenburg Port Authority? o Can you give a brief background on the thoughts behind the organisational structure Gothenburg Port Authority has today? o Elaborate on the organisational structure regarding sustainability?	
Application o Who do you think read/use the SR? o How do you apply the results from the SR in your work?	

Appendix 3

tomorrow

Clean Technology When services are limited by existing infrastructure; we investigate how new disruptive technology can be used to improve our services. We aim to not be limited by our existing competence base in our development of new sustainable services.	Base of the pyramid? Our vision directs us towards the solution of social and environmental problems. Our vision focusses on finding new sustainable business ideas (like Volvo's new car subscription service).
internal	**external**
Pollution prevention We work with identifying the most significant waste and emission streams from our current operations. We lower costs and risks by eliminating waste at the source or by using it as useful input.	Product stewardship We aim to apply an extended view of responsibility (e.g. influence port's customers to act in a more sustainable way) regarding the services that we provide. We build reputation and legitimacy by engaging a broader range of stakeholders.

today

Appendix 4

Personal introduction	**ANSWERS**	FEELINGS
Background Role in the company? Have you worked with sustainability before?		
Introduction to the Sustainability Reporting work		
o How are you involved in the sustainability reporting work? o Who are you collaborating with in your department? o Who are you collaborating with in other departments? o How is the collaboration working with the other departments? o Is the SR objective focusing on relevant issues? o How is your work with sustainability reporting aligning with your other tasks? o In which ways can you influence the objective of the sustainability report?		
Process		
o What is the process you follow regarding sustainability reporting? (the general process for everyone involved) o Personal SR process o data o collection o analysis o person responsible o How does the process support your SR work? o How was this process outlined/developed? o Who were involved in the process creation?		
Application		
o Who do you think read/use the SR? o How do you apply the results from the SR in your work?		
Port Activities & Strategies		
What does the port sell? How does the SR support the product/ those activities? Business strategy Environmental strategy		

Appendix 5

City of Gothenburg	City of Rotterdam	City of Vancouver	City of Los Angeles
Local Water	Secure city's reputation as a mecca of green enterprise	Clean air	Reduce Climate influence
Local Solar Power	Eliminate dependence on fossil fuels	More green spaces	Clean Air
Energy Efficiency Buildings	Green building, design and construction	dry feet(flood management and stronger resilience)	Only natural acidification
Carbon & Climate Leadership	Encourage walking, cycling and public transportation	sustainable areas	Toxin free environment
Waste & Landfills	Create zero waste	energy savings for residents	no over fertilization
Housing & Development	Access to green spaces, urban forest	energy savings for entrepreneurs	Living lakes and waters
Mobility & Transit	Achieve a one-planet ecological footprint	industry as a source of heat	High quality ground water
Prosperity and Green Jobs	Best drinking water of any city in the world	benefits of wind energy	Living coast and archipelago and coast with sea in balance
Preparedness & Resiliency	Cleanest air of any major city in the world	the sun as a source of energy	Rich agriculture landscape and multitudinous wetland
Air Quality	Global leader in urban food systems	opportunities for clean technology	Living forests
Environmental Justice		stronger competitive position due to energy efficiency	Good built environment
Urban Ecosystem		frontrunner of the circular economy	Rich flora and fauna
Lively Neighbourhoods		development of the bio based economy	
Lead by Example		cleaner transport and logistics	
		Sustainable procurement	
		clean vehicle fleet	

Appendix 6

No.	*Disclosure title*	*Category*	*Gothenburg Port Authority*
G4-1	Statement from senior decision-maker	*General Disclosures*	●
G4-2	Key impacts, risks, and opportunities	*General Disclosures*	
G4-3	Name of the organization	*General Disclosures*	●
G4-4	Activities, brands, products, and services	*General Disclosures*	●
G4-5	Location of headquarters	*General Disclosures*	●
G4-6	Location of operations	*General Disclosures*	●
G4-7	Ownership and legal form	*General Disclosures*	●
G4-8	Markets served	*General Disclosures*	●
G4-9	Scale of the organization	*General Disclosures*	●
G4-10	Information on employees and other workers	*General Disclosures*	●
G4-11	Collective bargaining agreements	*General Disclosures*	●
G4-12	Supply chain	*General Disclosures*	●
G4-13	Significant changes to the organization and its supply chain	*General Disclosures*	●
G4-14	Precautionary Principle or approach	*General Disclosures*	●
G4-15	External initiatives	*General Disclosures*	●
G4-16	Membership of associations	*General Disclosures*	●
G4-17	Entities included in the consolidated financial statements	*General Disclosures*	●
G4-18	Defining report content and topic Boundaries	*General Disclosures*	●
G4-19	List of material topics	*General Disclosures*	●
G4-20	Explanation of the material topic and its Boundary	*Management Approach*	●
G4-21	Explanation of the material topic and its Boundary	*Management Approach*	●
G4-22	Restatements of information	*General Disclosures*	●
G4-23	Changes in reporting	*General Disclosures*	●
G4-24	List of stakeholder groups	*General Disclosures*	●
G4-25	Identifying and selecting stakeholders	*General Disclosures*	●
G4-26	Approach to stakeholder engagement	*General Disclosures*	●
G4-27	Key topics and concerns raised	*General Disclosures*	●
G4-28	Reporting period	*General Disclosures*	●
G4-29	Date of most recent report	*General Disclosures*	●
G4-30	Reporting cycle	*General Disclosures*	●

G4-31	Contact point for questions regarding the report	*General Disclosures*	●
G4-32-a	Claims of reporting in accordance with the GRI Standards	*General Disclosures*	●
G4-32-b	GRI content index	*General Disclosures*	●
G4-32-c	External assurance	*General Disclosures*	●
G4-33	External assurance	*General Disclosures*	●
G4-34	Governance structure	*General Disclosures*	●
G4-35	Delegating authority	*General Disclosures*	
G4-36	Executive-level responsibility for economic, environmental, and social topics	*General Disclosures*	
G4-37	Consulting stakeholders on economic, environmental, and social topics	*General Disclosures*	
G4-38	Composition of the highest governance body and its committees	*General Disclosures*	
G4-39	Chair of the highest governance body	*General Disclosures*	
G4-40	Nominating and selecting the highest governance body	*General Disclosures*	
G4-41	Conflicts of interest	*General Disclosures*	
G4-42	Role of highest governance body in setting purpose, values, and strategy	*General Disclosures*	
G4-43	Collective knowledge of highest governance body	*General Disclosures*	
G4-44	Evaluating the highest governance body's performance	*General Disclosures*	
G4-45	Identifying and managing economic, environmental, and social impacts	*General Disclosures*	
G4-46	Effectiveness of risk management processes	*General Disclosures*	
G4-47	Review of economic, environmental, and social topics	*General Disclosures*	
G4-48	Highest governance body's role in sustainability reporting	*General Disclosures*	
G4-49	Communicating critical concerns	*General Disclosures*	
G4-50	Nature and total number of critical concerns	*General Disclosures*	
G4-51	Remuneration policies	*General Disclosures*	
G4-52	Process for determining remuneration	*General Disclosures*	
G4-53	Stakeholders' involvement in remuneration	*General Disclosures*	
G4-54	Annual total compensation ratio	*General Disclosures*	
G4-55	Percentage increase in annual total compensation ratio	*General Disclosures*	
G4-56	Values, principles, standards, and norms of behavior	*General Disclosures*	●
G4-57	Mechanisms for advice and concerns about ethics	*General Disclosures*	
G4-58	Mechanisms for advice and concerns about ethics	*General Disclosures*	
G4-DMA-a	Explanation of the material topic and its Boundary	*Management Approach*	
G4-DMA-b	The management approach and its components	*Management Approach*	●
G4-DMA-c	Evaluation of the management approach	*Management Approach*	
G4-EC1	Direct economic value generated and distributed	*Economic Performance*	●
G4-EC2	Financial implications and other risks and opportunities due to climate change	*Economic Performance*	

G4-EC3	Defined benefit plan obligations and other retirement plans	*Economic Performance*	
G4-EC4	Financial assistance received from government	*Economic Performance*	●
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage	*Market Presence*	
G4-EC6	Proportion of senior management hired from the local community	*Market Presence*	
G4-EC7	Infrastructure investments and services supported	*Indirect Economic Impacts*	●
G4-EC8	Significant indirect economic impacts	*Indirect Economic Impacts*	●
G4-EC9	Proportion of spending on local suppliers	*Procurement Practices*	
G4-EN1	Materials used by weight or volume	*Materials*	
G4-EN2	Recycled input materials used	*Materials*	
G4-EN3	Energy consumption within the organization	*Energy*	●
G4-EN4	Energy consumption outside of the organization	*Energy*	
G4-EN5	Energy intensity	*Energy*	●
G4-EN6	Reduction of energy consumption	*Energy*	●
G4-EN7	Reductions in energy requirements of products and services	*Energy*	
G4-EN8	Water withdrawal by source	*Water*	
G4-EN9	Water sources significantly affected by withdrawal of water	*Water*	
G4-EN10	Water recycled and reused	*Water*	
G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	*Biodiversity*	●
G4-EN12	Significant impacts of activities, products, and services on biodiversity	*Biodiversity*	
G4-EN13	Habitats protected or restored	*Biodiversity*	●
G4-EN14	IUCN Red List species and national conservation list species with habitats in areas affected by operations	*Biodiversity*	
G4-EN15	Direct (Scope 1) GHG emissions	*Emissions*	●
G4-EN16	Energy indirect (Scope 2) GHG emissions	*Emissions*	●
G4-EN17	Other indirect (Scope 3) GHG emissions	*Emissions*	●
G4-EN18	GHG emissions intensity	*Emissions*	
G4-EN19	Reduction of GHG emissions	*Emissions*	●
G4-EN20	Emissions of ozone-depleting substances (ODS)	*Emissions*	
G4-EN21	Nitrogen oxides (NO_X), sulfur oxides (SO_X), and other significant air emissions	*Emissions*	●
G4-EN22	Water discharge by quality and destination	*Effluents and Waste*	
G4-EN23	Waste by type and disposal method	*Effluents and Waste*	●
G4-EN24	Significant spills	*Effluents and Waste*	●
G4-EN25	Transport of hazardous waste	*Effluents and Waste*	
G4-EN26	Water bodies affected by water discharges and/or runoff	*Effluents and Waste*	
G4-EN27	Impact mitigation	*NA*	●
G4-EN28	Reclaimed products and their packaging materials	*Materials*	

G4-EN29	Non-compliance with environmental laws and regulations	*Environmental Compliance*	
G4-EN30	NA	*NA*	
G4-EN31	NA	*Several*	
G4-EN32	New suppliers that were screened using environmental criteria	*Supplier Environmental Assessment*	
G4-EN33	Negative environmental impacts in the supply chain and actions taken	*Supplier Environmental Assessment*	
G4-EN34	The management approach and its components	*Management Approach*	
G4-LA1	New employee hires and employee turnover	*Employment*	●
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	*Employment*	●
G4-LA3	Parental leave	*Employment*	
G4-LA4	Minimum notice periods regarding operational changes	*Labor/Management Relations*	
G4-LA5	Workers representation in formal joint management–worker health and safety committees	*Occupational Health and Safety*	
G4-LA6	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	*Occupational Health and Safety*	●
G4-LA7	Workers with high incidence or high risk of diseases related to their occupation	*Occupational Health and Safety*	●
G4-LA8	Health and safety topics covered in formal agreements with trade unions	*Occupational Health and Safety*	
G4-LA9	Average hours of training per year per employee	*Training and Education*	●
G4-LA10	Programs for upgrading employee skills and transition assistance programs	*Training and Education*	●
G4-LA11	Percentage of employees receiving regular performance and career development reviews	*Training and Education*	●
G4-LA12	Diversity of governance bodies and employees	*Diversity and Equal Opportunity*	●
G4-LA13	Ratio of basic salary and remuneration of women to men	*Diversity and Equal Opportunity*	●
G4-LA14	New suppliers that were screened using social criteria	*Supplier Social Assessment*	
G4-LA15	Negative social impacts in the supply chain and actions taken	*Supplier Social Assessment*	
G4-LA16	The management approach and its components	*Management Approach*	
G4-HR1	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	*Human Rights Assessment*	
G4-HR2	Employee training on human rights policies or procedures	*Human Rights Assessment*	
G4-HR3	Incidents of discrimination and corrective actions taken	*Non-discrimination*	●
G4-HR4	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	*Freedom of Association and Collective Bargaining*	
G4-HR5	Operations and suppliers at significant risk for incidents of child labor	*Child Labor*	
G4-HR6	Operations and suppliers at significant risk for incidents of forced or compulsory labor	*Forced or Compulsory Labor*	
G4-HR7	Security personnel trained in human rights policies or procedures	*Security Practices*	
G4-HR8	Incidents of violations involving rights of indigenous peoples	*Rights of Indigenous*	

		Peoples	
G4-HR9	Operations that have been subject to human rights reviews or impact assessments	*Human Rights Assessment*	
G4-HR10	New suppliers that were screened using social criteria	*Supplier Social Assessment*	
G4-HR11	Negative social impacts in the supply chain and actions taken	*Supplier Social Assessment*	
G4-HR12	The management approach and its components	*Management Approach*	
G4-SO1	Operations with local community engagement, impact assessments, and development programs	*Local Communities*	
G4-SO2	Operations with significant actual and potential negative impacts on local communities	*Local Communities*	
G4-SO3	Operations assessed for risks related to corruption	*Anti-corruption*	●
G4-SO4	Communication and training about anti-corruption policies and procedures	*Anti-corruption*	●
G4-SO5	Confirmed incidents of corruption and actions taken	*Anti-corruption*	●
G4-SO6	Political contributions	*Public Policy*	
G4-SO7	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	*Anti-competitive Behavior*	
G4-SO8	Non-compliance with laws and regulations in the social and economic area	*Socioeconomic Compliance*	
G4-SO9	New suppliers that were screened using social criteria	*Supplier Social Assessment*	
G4-SO10	Negative social impacts in the supply chain and actions taken	*Supplier Social Assessment*	
G4-SO11	The management approach and its components	*Management Approach*	
G4-PR1	Assessment of the health and safety impacts of product and service categories	*Customer Health and Safety*	
G4-PR2	Incidents of non-compliance concerning the health and safety impacts of products and services	*Customer Health and Safety*	
G4-PR3	Requirements for product and service information and labeling	*Marketing and Labeling*	
G4-PR4	Incidents of non-compliance concerning product and service information and labeling	*Marketing and Labeling*	
G4-PR5	Approach to stakeholder engagement Key topics and concerns raised	*General Disclosures*	●
G4-PR6	Activities, brands, products, and services	*General Disclosures*	
G4-PR7	Incidents of non-compliance concerning marketing communications	*Marketing and Labeling*	
G4-PR8	Substantiated complaints concerning breaches of customer privacy and losses of customer data	*Customer Privacy*	
G4-PR9	Non-compliance with laws and regulations in the social and economic area	*Socioeconomic Compliance*	