



**MEASURING AND REPORTING SUSTAINABILITY IN AN ELECTRONICS
MANUFACTURING SERVICES COMPANY**

Lappeenranta–Lahti University of Technology LUT

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ABSTRACT

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Measuring and Reporting Sustainability in an Electronics Manufacturing Services Company

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Sustainability refers to development that meets the need for the present without compromising the ability of future generations to meet their own needs. The need for companies to address sustainability and responsibility in their business, operations and stakeholder communication has increased significantly in the recent years.

This Master's Thesis aims to provide an overview to the key concepts of Corporate Sustainability (CS) and Corporate Social Responsibility (CSR). The approach is stakeholder management, and the aim is to build a business case around engaging and reporting CSR activities.

The Thesis is built around a case study of an Electronics Manufacturing Services (EMS) company, that wishes to start measuring and reporting sustainability. The study presents a process for selecting a framework and proposes a scorecard ranking system for prioritizing the Key Performance Indicators (KPIs).

As a result of the framework selection process, Global Reporting Initiative (GRI) was selected as the framework. As the Sector Standards for EMS industry are at the time of writing not yet published by GRI, the scorecard ranking system aims to work as a temporary tool for selecting the most relevant Topic Standards, regarding the industry- and company-specific characteristics.

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Vastuullisuuden mittaaminen ja raportointi elektroniikan sopimusvalmistusyhteisössä

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Sidosryhmien kiinnostus liiketoiminnan vastuullisuutta kohtaan on kasvanut vuosi vuodelta. Tämä kehitys asettaa yrityksille paineita vastuullisuuden mittaamista ja raportointia kohtaan. Tämän diplomityön tarkoitus on esitellä vastuullisuuden avainkäsitteitä, sekä esitellä prosessi vastuullisuusraportoinnin viitekehysten valitsemiseksi. Lopuksi esitetään ehdotus raportoitavien aiheiden priorisoinnista.

Case-yritykseksi on valittu elektroniikan sopimusvalmistaja. Tavoitteena oli valita yritykselle ja teollisuudenalalle sopiva viitekehys vastuullisuuden mittaamiseen ja raportointiin, sekä luoda suositus raportoitavista aiheista. Viitekehyyksi valikoitui Global Reporting Initiative (GRI). GRI ei ollut vielä julkaissut alakohtaista standardia (Sector Standard) elektroniikan sopimusvalmistukselle, joten tämä diplomityö esittää score card -menetelmän, joka auttaa priorisoimaan mitattavat aiheet (Topic Standard), kunnes GRI julkaisee virallisen suosituksensa.

SYMBOLS AND ABBREVIATIONS

CDP	Carbon Disclosure Project
CDSB	Climate Disclosure Standards Board
CERES	Coalition for Environmentally Responsible Economies
COP	Communication on Progress
CR	Corporate Responsibility
CSR	Corporate Social Responsibility
EMS	Electronics Manufacturing Services
ESG	Environmental, Social and Governance
GRI	Global Reporting Initiative
GSSB	Global Sustainability Standards Board
IFRS	International Financial Reporting Standards
ISSB	International Sustainability Standards Board
KPI	Key Performance Indicator
NGO	Non-Governmental Organization
ODM	Original Design Manufacturing
OEM	Original Equipment Manufacturer
SASB	Sustainability Accounting Standards Board
SDG	Sustainable Development Goal
TCFD	Task Force on Climate-Related Financial Disclosures
UN	United Nations
UNGC	United Nations Global Compact
WEF IBC	World Economic Forum International Business Council

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1 Introduction

The general interest towards sustainability values has significantly increased in recent years. Sustainability has raised to the focus of attention among stakeholders (both financial and non-financial), legislators, media and public audiences. The role of sustainability as a source of competitive advantage is also being increasingly recognized in the corporate world.

This trend is causing companies pressure to engage in Corporate Social Responsibility (CSR) activities, as well as to invest in measuring, reporting and communicating sustainability to their stakeholder audiences. One might argue, that a public commitment to sustainability has already become a de facto requisite in the business world. This Thesis aims to answer the question “how to measure and report sustainability”. The goal is to present how sustainability measurement frameworks can be customized to suit dedicated industries, which is later applied on a case study example.

The Thesis first aims to provide an introduction to CSR. It examines the key concepts mainly from the stakeholder management and business case perspective. Later a case study is introduced, with the objective to introduce a sustainability measuring framework selection process and propose a method for prioritizing the topics to be measured and reported. The case company selected for examination is an Electronics Manufacturing Services (EMS) company. Electronics industry has increasingly become a subject of scrutiny on its sustainability performance. Electronics waste is recognized as a significant source of environmental impact, and sustainability of the global supply chains has been questioned. The stakeholder awareness and criticism has increased.

As a result of the framework selection process, Global Reporting Initiative (GRI) was selected as the sustainability reporting framework. As the Sector Standards for EMS industry are at the time of writing not yet published by GRI, the scorecard ranking system aims to work as a temporary tool for selecting the most relevant Topic Standards, regarding the industry- and company-specific characteristics. These findings are presented in Chapters 7 and 8.

2 Corporate Sustainability

This chapter aims to introduce the basic concept of Corporate Sustainability. It defines the key terminology and explains the main drivers and benefits why companies engage in sustainability activities. In the end of the chapter the United Nations Sustainable Development Goals are introduced.

2.1 Defining sustainability terminology

This chapter aims to define the terms sustainability, Corporate Social Responsibility (CSR) and Corporate Sustainability (CS). In addition, the concept of the Triple Bottom Line, or the 3P are explained in this chapter.

2.1.1 Sustainability

The World Commission on Environment and Development has defined sustainability as “development that meets the need for the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). This statement from 1987 has worked as a foundation and inspiration for a number of later studies as the field of corporate sustainability and social responsibility has advanced and expanded.

A modern approach to the idea of a sustainable corporation as formulated by Savitz & Weber (2006): “a sustainable corporation is one that creates profit for its shareholders while protecting the environment and improving the lives of those with whom it interacts”. Sustainable business creates win-win-win strategies, operating in ways that its business interests, environment interests and society interests intersect. (Savitz & Weber, 2006.)

2.1.2 Corporate Social Responsibility and Corporate Sustainability

Terms Corporate Social Responsibility (CSR) and Corporate Sustainability (CS) both refer to voluntary company activities that consider the social and environmental aspects in business operations and stakeholder interactions. The terms have evolved different routes in the past, but have grown so close to one another since, that they are often used as synonyms. (van Marrewijk, 2003)

If one prefers to make a distinction between those terms, Corporate Sustainability can be conceived as the ultimate goal, as defined by World Commission on Environment and Development in 1987: meeting the needs of the present without compromising the ability of future generations to meet theirs (WCED, 1987), while CSR constitutes as an intermediate stage where companies try to balance the Triple Bottom Line: the Economic, Social and Environmental aspects of sustainability, sometimes also addressed as the 3P (Profit, People, Planet). (van Marrewijk, 2003)

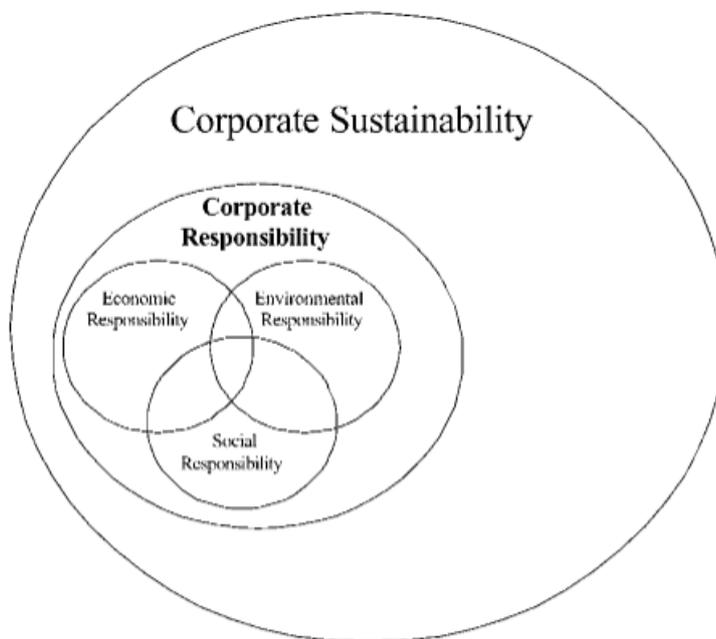


Figure 1: The relationship between CS, CRS and the Triple Bottom Line (Linnanen & Panapanaan, 2002). Corporate Sustainability can be considered an umbrella term that includes Corporate Responsibility, which is composed of Economic, Environmental and Social aspects of responsibility.

Figure 1 visualizes the relationship between CS, CRS and the Triple Bottom Line, as illustrated by Linnanen & Panapanaan (2002). CS can be understood as more strategic and proactive, while CSR's focus is more on stakeholders, thus making it more reactive in nature. The discussion about the dichotomy between CS and CSR continues. (Capaldi, 2015) In this study they are considered as synonyms.

2.1.3 The Triple Bottom Line and the 3P

The term and concept of the Triple Bottom Line has been first introduced by John Elkington. The core idea is that, besides of the economic value addition, corporations should consider also the environmental and social value they add – or destroy (Elkington, 1994). The 3P, 'people, planet and profits' is another formulation for the same concept (Elkington, 1997).

GRI (Global Reporting Initiative) defines the economic, environmental and social/people impacts in the following way. The organization's economic impact refers to the effects on economic systems at local, national and global levels. Some examples of mechanisms through which the organization affects the economy are for example its competition and procurement practices, or taxes and payments to the governments. The environmental impact refers to the impact to living organisms and non-living elements, such as water and ecosystems. The people aspect refers to the impacts on individuals and groups, such as communities, vulnerable groups or society, and human rights. (GRI, 2022)

Table 1: Typical measures for the aspects of the Triple Bottom Line (Savitz & Weber, 2006).

	<i>Economic</i>	<i>Environmental</i>	<i>Social</i>
Typical Measures	Sales, profits, ROI	Air quality	Labor practices
	Taxes paid	Water quality	Community impacts
	Monetary flows	Energy usage	Human rights
	Jobs created	Waste produced	Product responsibility
	TOTAL	TOTAL	TOTAL

Table 1 above shows some examples of typical measures for the economic, environmental and social aspects of the Triple Bottom Line, as exhibited by Savitz & Weber (2006).

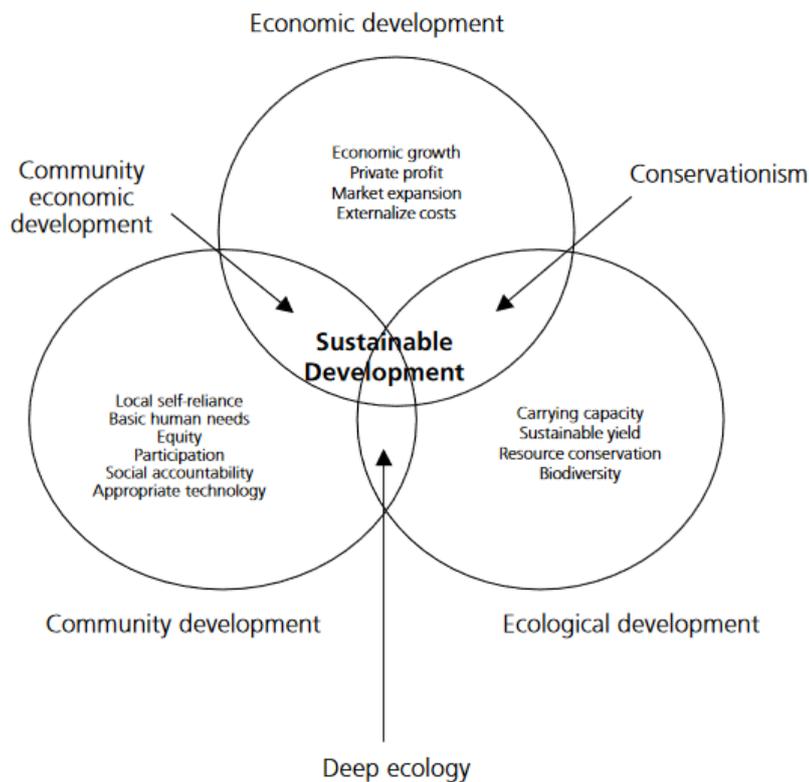


Figure 2: The interactions between ecological, economic and social (community) development. Sustainable development is where all three circles overlap. (Bell & Morse, 2003)

Figure 2 above illustrates sustainable development through examples of the content and interactions of the three aspects of the Triple Bottom line as three interlocking circles, as presented by Bell & Morse (2003). The Triple Bottom Line acts like a balanced scorecard, that elucidates the impact the company is making on its shareholders and society (Savitz & Weber, 2006). Sustainable development is the point, where all three (economic, ecological and community development) overlap.

2.2 The drivers and benefits of engaging CSR activities

Sustainability is closely related to the carrying capacity of our planet and therefore an existential question to our species. However, one can ask is there a business case to be made around CSR activities? Is there a measurable return of investment in CSR? Can carrying out both, the core business operations and their responsibilities to the broader society, improve the company's financial performance?

The debate about CSR as a business case has been going on as long as the concept has existed (Carroll, 2010). Nobel-prize winning neo-classical economist Milton Friedman suggested in the 1970's, that beyond making profits, firms have no social responsibility at all. He argued, that CSR actions devour value from stakeholders: if the CRS actions cause cost to the firm, they reduce returns to stockholders, raise the price to customers and lower the wages of employees. (Friedman, 1970).

However, the general attitudes have changed considerably since the 1970's, as our understanding of the world and the interconnectedness of its functions has increased. There are many good arguments why a company should engage CSR activities and gain tangible benefit from them. For instance, the stakeholder theory standpoint: demands of stakeholders present potential threats to the company (Kurucz et al, 2008). Investment in CSR activities can improve the company's relationship with the stakeholders, and this way help the company to secure the critical resources controlled by the stakeholders (Lin, Chang & Dang, 2015).

According to a study based on data from 310 Chinese listed companies (Long & Lin, 2018), there is a positive link between corporate environmental responsibility and corporate competitive advantage. The study finds that corporate environmental responsibility had positive impact on the company's resource acquisition and customer recognition. The additional resources came both from private stakeholder investments as well as government financial support. There was also a positive effect on customer relationships and customer recognition through brand awareness found. (Long & Lin, 2018)

2.2.1 The economic benefits of engaging CSR activities

The business-related benefits for engaging CSR activities can be organized into four categories: 1) cost and risk reduction, 2) gaining competitive advantage, 3) developing reputation and legitimacy, and 4) seeking win-win outcomes through synergistic value (Carroll, 2010).

1. Cost and risk reduction

It is in the economic interest of the company to keep up with the stakeholder demands through a threshold level of social or environmental performance (Kurucz et al, 2008). A pronounced commitment to equal employment opportunity policy and ecologically responsible practice improves employee morale and reduces employee turnover (Smith, 2005). Proactiveness can decrease the cost of complying with the current and future regulations, improve efficacy and lower operating costs (Berman et al, 1999). Positive community relationships may decrease the extent of regulation passed on the company and gain tax reliefs (Carroll, 2010).

2. Gaining competitive advantage

CSR can be utilized as a way to differentiate from the competitors. Strategically managing stakeholder demands and utilizing the opportunities affiliated with them is beneficial to the company (Kurucz et al, 2008). CSR initiatives improve brand loyalty (Pivato et al, 2008) and consumer patronage (Bhattacharya & Sen, 2004).

3. Developing reputation and legitimacy

Companies may engage in CSR initiatives for reputation and legitimacy reasons. It is in the firm's best interest to build a mutualistic relationship with the surrounding society, acting within the current system of shared norms, values and expectations. Reputation and legitimacy sanction the company to operate in society. (Carroll, 2010) A good reputation makes the company attractive to consumers, investors and employees. (Smith, 2003)

4. Seeking win-win outcomes through synergistic value

By engaging CSR activities, a company can create value for several stakeholders at the same time. Satisfying stakeholder demands and seeking profits are not mutually exclusive. The company can pursue their operations with the approval and support of their stakeholder environment. They may turn a social problem into a business opportunity and economic benefit. (Carroll, 2010)

At best, CSR activities and competitive advantage can create a mutually reinforcing virtuous cycle. For example, donating to education can over time improve the human resources pool available for the company, create wealth to the local community, increase the local quality of life and establish a steady customer base (Porter & Kramer, 2002). It has been envisioned,

that in the future the core activity of businesses is the creation of sustainable value – economic, social and ecological (Wheeler et al. 2003).

2.2.2 Long-term business success through sustainability

Sustainability can be considered as the common ground, where the business interests (those of the financial stakeholders) and the public interests (non-financial stakeholders) overlap. Savitz & Weber (2006) call this the sweet spot of sustainability. The sustainability sweet spot is illustrated in Figure 3 below.

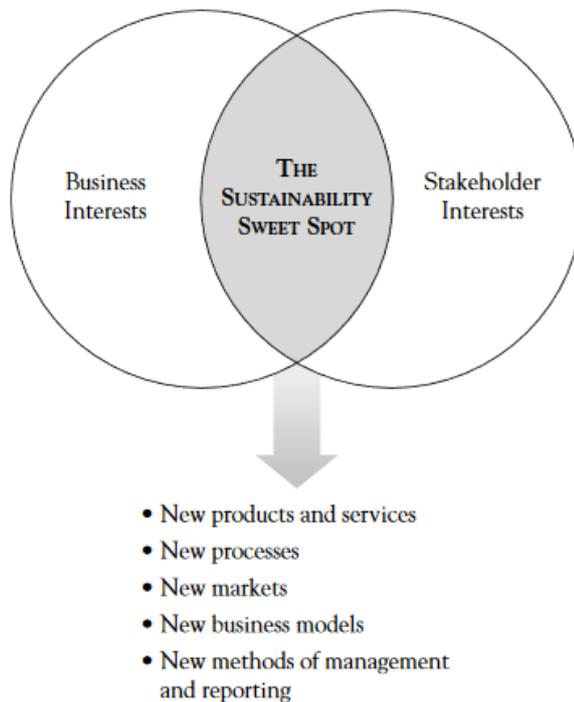


Figure 3: The sustainability sweet spot is the place where the business interests and stakeholder interests meet (Savitz & Weber, 2006). That is also a fertile soil for new business innovation.

To help companies find the sustainability sweet spot, Savitz & Weber (2006) have created a Sustainability Map matrix with profitability and social benefit as the axes. The sweet spot of sustainability is in the upper right quadrant of the matrix, and that is where companies should aim with their activities and business decisions. The Sustainability Map is displayed in Figure 4 below.

Profitability	+	-	+	+
	-	-	-	+
			Social Benefit	

Figure 4: The sustainability map. The northeast corner is the sustainability sweet spot, where the corporate interests and stakeholder's interests meet. The target should be to push the business activity towards that quadrant as much as possible. (Savitz & Weber, 2006)

Companies should create strategies how to push their business and operations into the northeast corner of the matrix. That is the target, that every business decision should steer towards. If there are business activities, that are profitable but not sustainable, maybe there are ways to make the activities more sustainable. (Savitz & Weber, 2006) There are many successful examples of such a turnaround, such as energy companies moving from coal-burning to renewable energy, or car manufacturers moving from combustion engines to electric cars.

Obtaining the sustainability sweet spot should offer long term advantages over the competitors. A business model built on, for example, utilizing a finite resource that causes pollution is not on a sustainable basis in the long run: either the resource or the public tolerance towards pollution will eventually deplete, leading to rising expenses. By strengthening instead of undermining the environment, the social fabric and the economy around it, the company builds up its long-term viability. (Savitz & Weber, 2006)

2.3 United Nations Sustainable Development Goals

The United Nations has adopted in their General Assembly in 2015 a sustainable development action plan. It was first published in the document “Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1)”. The plan has 17 Sustainable

Development Goals (SDGs) and 169 targets to be reached by year 2030. It is striving to be implemented by all countries and stakeholders around the world. (United Nations, 2015)

The plan seeks to address all the aspects of the Triple Bottom Line: economic, social and environmental (or: people, planet, and prosperity) (United Nations, 2015). The three aspects are considered intertwined and supporting each other: as explained by the UN, “ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.” (United Nations, 2022).



Figure 5: A visualisation of the 17 United Nations Sustainable Development Goals to be reached by year 2030 (United Nations, 2022).

The full list of Sustainable Development Goals can be found from Appendix 1. The 168 targets connected to them are listed in Appendix 2.

2.3.1 SDGs relationship to sustainability reporting

According to the KPMG Survey of Sustainability Reporting “The time has come” from 2020, the majority of both G250 and N100 companies connect their sustainability reporting to the United Nations SDGs. The number was 69% among N100 and 72% among G250

companies, that report sustainability. The trend between 2017 and 2020 has been rapidly increasing in all industries and countries addressed in the report. (KPMG, 2020)

The report deems the increased use of the SDGs to increased stakeholder pressure and improved understanding of the SDGs. As can be seen from Figure 6 below, the percentage of companies linking the SDGs to their sustainability activity varies by country and industry sector. Japan, Germany and France are the leading countries, with 96%, 94% and 78% of the G250 companies reporting sustainability utilizing the SDGs. Automotive, Oil & Gas and Technology, Media & Telecommunications are the leading industries, with 80%, 78% and 77% of the G250 companies that report sustainability also utilizing the SDGs. (KPMG, 2020)

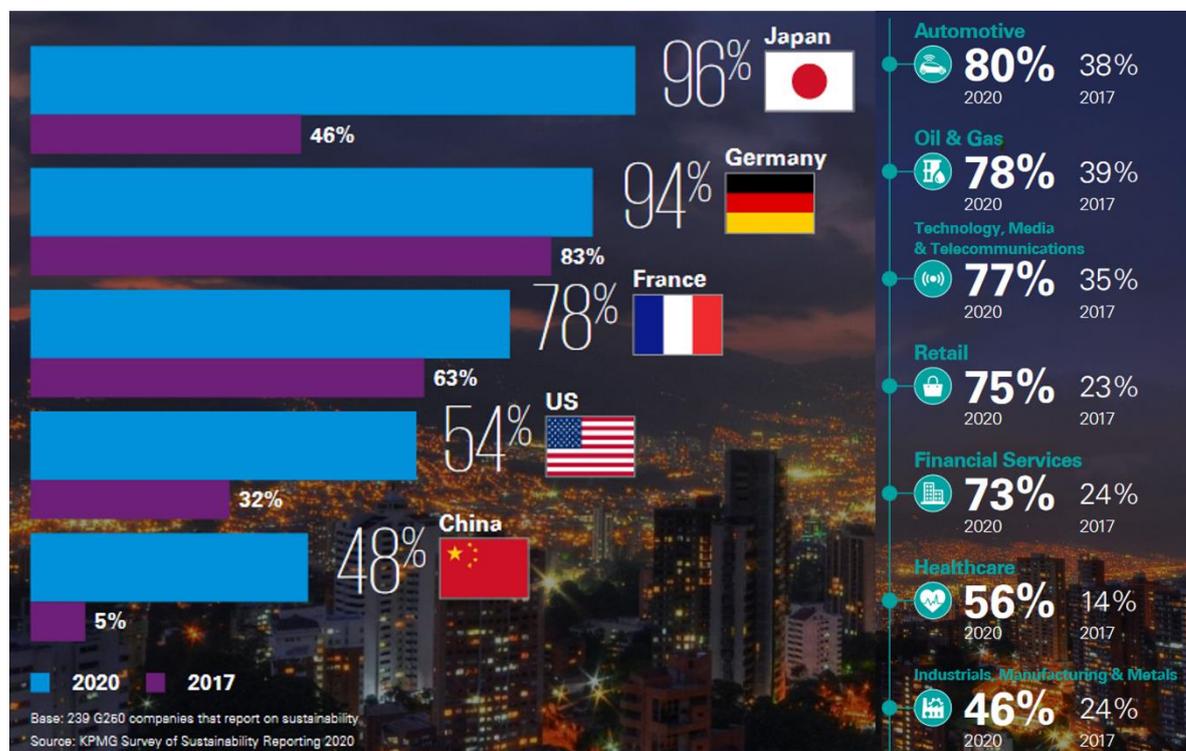


Figure 6: G250 companies that connect sustainability activity with the SDGs by country and industry sector (KPMG, 2020). In Japan 96% and in Germany 94% of the G250 companies that report on sustainability, connect the SDGs to their sustainability activity. The trend has been increasing in all countries and industries addressed in the report.

According to the survey, however, SDG reporting is perceived to be unbalanced and disconnected from business goals. Most frequently prioritized SDGs are the ones linked to economic growth, climate change and responsible consumption. According to the report, 56% of the G250 companies acknowledge the financial risks of climate change in their

reporting, and 75% of them have carbon emission reduction targets. The least prioritized goals are the ones linked to protecting biodiversity. (KPMG, 2020)

2.3.2 United Nations Global Compact

United Nations Global Compact (UNGC), depicted in Figure 7, is currently the world's largest corporate sustainability initiative with more than 12 000 businesses and 3 000 non-business stakeholders across 160 countries. UNGC was established in 2020 to promote companies to align their strategies and operations around ten universal principles in the areas of human rights, labour, the environment, and anti-corruption. (UN Global Compact, 2021)



Figure 7: The UNGC is composed of four priority themes: human rights, labour, environment and anti-corruption. (UN Global Compact, 2021)

The Ten Principles of the UNGC can be found listed below.

UNGC is built on Ten Principles, which are closely linked to the UN Sustainable Development Goals: the SDGs are to be considered as the destination, and the Ten Principles a vehicle employed by businesses, that advance getting there. To pursuit the target efficiently, the organization should select a set of priority issues to direct its focus, energy and resources into. (UN Global Compact, 2021) The Ten Principles can be found from Appendix 3.

3 Measuring Sustainability Performance

To understand the current sustainability status and whether the pursuit of goals is proceeding or not, it is necessary to measure it. Bell & Morse (2003) summarize the challenges of sustainability measuring into the following questions:

- What indicators do we use to measure sustainability?
- How do we measure them?
- How do we use them?

Sustainability literature has introduced a wide assortment of various indicators and indices (an index is a compound of indicators) for measuring sustainability development. The common approach is building a framework that covers the environmental, social and economic aspects. (Bell & Morse, 2003)

3.1 Key action steps for building a sustainability management system

Savitz & Weber (2006) introduce in their book “The Triple Bottom Line: Show Today’s Best-Run Companies Are Achieving Economic, Social and Environmental Success” a list of Key Action Steps for creating and implementing a sustainability management system. Sustainability performance measuring system is a part of the sustainability management system. The action steps adapted from Savitz & Weber (2006) are depicted in Figure 8 below.

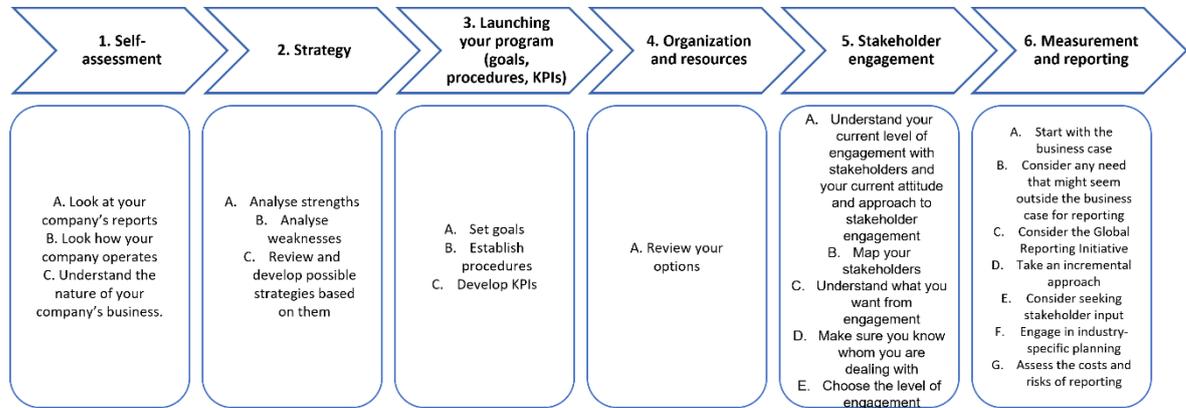


Figure 8: A framework for building a sustainability management system, adapted from Savitz & Weber (2006). The process has been partitioned into six parts, or Key Action Steps: 1. Self-assessment, 2. Strategy, 3. Launching the program, 4. Organization and resources, 5. Stakeholder engagement, 6. Measurement and reporting. In the original model by Savitz & Weber (2006), the 7th Key Action Step is Culture.

The model sets out how sustainability measuring is related to the overall sustainability management system. Key Performance Indicators (KPIs), and performance measuring and reporting are addressed in Step 3: Launching your program (goals, procedures and KPIs), and Step 6: Measuring and reporting. From the scope of this study, those are the most relevant steps, and will be further discussed in Sections 3.2 and 3.3.

3.2 Sustainability KPI selection process

This chapter takes a closer look at Key Action Step 3 of the sustainability management system building framework by Savitz & Weber (2006), as introduced in Chapter 3.1. The first thing to remember in Step 3: Launching your program (goals, procedures and KPIs) is to explore the GRI guidelines and other reporting frameworks, for example the ones that are in use at the competitors and in the operating industry. (Savitz & Weber, 2006)

‘Launching your program (goals, procedures and KPIs)’, can be divided into three parts:

- A. *Set goals.* The already existing business goals provide a good starting point. The next step is identifying the possible environmental, social and economic goals. They should be in alignment with the business goals.

- B. *Establish procedures*. Define what participants need to be involved, what needs to happen to achieve the goals, and modify or create the procedures needed.
- C. *Develop KPIs*. Identify and define all key terms related to the targets, identify how to measure the progress towards each goal (considering both leading and lagging indicators) and if possible, try to come up with quantitative measures. (Savitz & Weber, 2006)

3.2.1 Sustainability KPI criteria checklist

Criteria checklists for sustainability indicators are frequent in sustainability and performance measuring literature. As compiled by Bell & Morse (2003), the indicator should be at least:

- Specific (clearly related to the outcome)
- Measurable (quantitative)
- Usable (practical)
- Sensitive (must react to changes in circumstances)
- Available (the data must be accessible)
- Cost-efficient (acquiring the data should not be too expensive)

Guy and Kibert (1998) provide an alternative approach to the indicator selection criteria. They approach the topic through questions, that can be found from Table 2 below. In their list of criteria the possibility of qualitative indicators is not ruled out, but the general conception is that it is recommendable for the indicators to be quantitative (Bell & Morse, 2003).

Table 2: Criteria for selecting indicators for measuring sustainable development, as formulated by Guy & Kibert (1998). They approach the topic through eleven questions.

Criteria	Questions
Community involvement	Were they developed and acceptable by the stakeholders?
Linkage	Do they link social, economic and environmental issues?
Valid	Do they measure something that is relevant?
Available and timely	Are the data available on a regular basis?
Stable and reliable	Are they compiled using a systematic method?
Understandable	Are they simple enough to be understood by lay persons?
Responsive	Do they respond quickly and measurably to change?
Policy relevance	Are they relevant to policy?
Representative	Do they cover the important dimensions of the area?
Flexible	Will data be available in the future?
Proactive	Do they act as a warning rather than measure an existing state?

3.2.2 Guidelines regarding sustainability KPIs

The KPIs are critical tools in determining if the company is proceeding in pursuit of its targets or not. Savitz & Weber (2006) provide a third perspective to determining the KPIs. They have listed the following advice considering sustainability measuring KPIs:

- *The goals should advance the primary objectives of the business.* The KPIs should be in alignment with the characteristics of the business.
- *Aim for simplicity.* In an ideal case the goals support and reinforce one another. It is also recommendable to keep the number of goals small.
- *The goals should be clear and understandable.* The targets need to be specific. For example “no child labour” is too broad. A better approach would be to determine a specific age limit and plan how the policy will be enforced in practice.
- *Add sustainability aspects to already existing structures.* Whenever possible, the sustainability goals, procedures and KPIs should be incorporated into already existing goals, procedures and KPIs instead of handling them as a separate entity.
- *Define each term and measurement unit clearly.* The same words do not necessarily mean the same for everyone everywhere, so it is essential to be clear and consistent in all definitions regarding the goals, procedures and KPIs.
- *Aim to quantify the goals and KPIs.* The benefit of using numeric goals is their objectivity and verifiability.

3.3 Sustainability measuring and reporting development process

This section examines in further detail Key Action Step 6 of the sustainability management system building framework by Savitz & Weber (2006), as introduced in Section 3.1. They point out, that building a reporting practice for a company is often done in a backwards order: first the need to report is recognized, then programs are initiated to have something to report, and then being justified as a business case. Instead, the business case should be the starting point. (Savitz & Weber, 2006)

Savitz & Weber (2006) divide Step 6: Measuring and reporting, into seven parts:

- A. *Start with the business case.* There should be a business need or another reasoning for what is being measured and how it will be reported.
- B. *Consider any need that might seem outside the business case for reporting.* Understand why report, to whom and for what purpose.
- C. *Consider the Global Reporting Initiative.* Classify the indicators into three categories: strong, moderate and weak business need. Review the indicators: do you already have the data, can it be easily acquired or is it unattainable? Compare the data availability with the business case to decide how to proceed.
- D. *Take an incremental approach.* Start with the indicators with a steady business (or stakeholder) case and good data availability. When done, proceed to indicators with strong business case but no data available. Expand the measuring system every year until it covers all areas relevant to your business.
- E. *Consider seeking stakeholder input.* When procedure steps A - D are followed through to give a layout for the reporting strategy, it is time to heed the stakeholders' opinions. What kind of additional requests they might have, and how will you respond to them? If possible, consult the stakeholders in the reporting development process.
- F. *Engage in industry-specific planning.* Seek out for industry specific reporting recommendations, issues and guidelines for measuring and reporting specific Triple Bottom Line topics.

- G. *Assess the costs and risks of reporting.* Review the expense of reporting before committing to it: consider the difficulty of acquiring the needed data. Also consider the risk that the disclosed information could depict you in a bad light.

The objective in sustainability reporting should be integrated reporting, that includes both financial and non-financial information. (Savitz & Weber, 2006)

3.4 Setting targets to the sustainability indicators

Even if able to solve the indicator selecting dilemma, there is still an essential question left: What are we aiming for? There are two major approaches to this question, as wrapped up by Bell & Morse (2003):

1. A defined target for the indicator or index.
2. A defined direction for the indicator or index.

The most usual approach seems to be a defined target or threshold. It enables outlining the gap between the current state and the desired state. In some cases the ideal state may be zero, which would be very difficult to achieve in practice. In those cases, it still might be possible to define a target frontier, or to identify a threshold value beyond which the system is no more sustainable. Once a reference condition is set, it is easy to calculate the deviations from it. (Bell & Morse, 2003)

However, setting the reference condition for the sustainability measuring indicators is not always a simple task. Some have used a historical state as the reference point (a ‘historical reference system’) (Bell & Morse, 2003), but the rationale which year to choose as the baseline could be prone to subjectivity.

An alternative approach to the reference dilemma is benchmarking the system to an existing system that is assumed to be (at least more) sustainable (a ‘geographical reference system’) (de Soya et al, 1997) or reconstruct a reference condition that has not been seen yet (a ‘theoretical reference condition’) (Bell & Morse, 2003).

One should also be mindful in how to manage the deviations from the selected reference point. Focusing too much on the indicators that are on the “bad side” of the target could lead

to prioritization of those issues on the expense of topics that are deemed to be in better condition. (Bell & Morse, 2003)

4 Sustainability measuring frameworks

This chapter aims to provide an overview on the existing sustainability measuring frameworks. The frameworks introduced in this chapter have been recognized as well-known and backed up by credible organizations (Rogmans & El-Jisr, 2022). The first five ones (GRI, SASB, IIRC, CDP and CDSB) were also identified as the five major non-financial reporting organizations in the KPMG Survey of Sustainability Reporting in 2020. They serve as alternatives in the framework selection process introduced in Section 7.5.

4.1 Global Reporting Initiative

GRI (Global Reporting Initiative) is an independent non-profit organization, that provides standards for reporting sustainability. The GRI standards are currently the most used sustainability standards. (GRI, 2022b)

The GRI standards form a modular system that allow organizations to report the impacts of their activities to their stakeholders in a structured, credible and relevant way. There are three sets of standards:

- GRI Universal Standards, which apply to all organizations
- GRI Sector Standards, that are applicable to specific sectors
- GRI Topic Standards, which address specific topics. (GRI, 2022g)

The GRI Standards are elaborated in further detail in Chapter 5.

4.2 Value Reporting Foundation

Sustainability Accounting Standards Board (SASB) has identified the most relevant ESG (Environmental, Social and Governance) issues for 77 different industries, and published a set of industry-specific financial sustainability disclosures for them. The SASB Standards

focus on sustainability information that is most likely to affect the financial performance. The produced information is primarily targeted to investor decision-making. (SASB, 2022)

SASB was founded in 2011 as a non-profit organization with a mission to help businesses and investors develop a common language about the financial impacts of sustainability. The SASB Standards are currently being maintained by the global non-profit organization Value Reporting Foundation. Value Reporting Foundation was formed in 2021 when SASB and the International Integrated Reporting Council (IIRC) merged. (SASB, 2022)

Value Reporting Foundation continues to help businesses and investors develop a shared understanding of enterprise value. The Integrated Thinking Principles and the Integrated Reporting Framework by the IIRC as well as the SASB standards can be used either alone or in combination. (SASB, 2022)

4.2.1 SASB industry standards for Electronic Manufacturing Services & Original Design Manufacturing

SASB has created an industry standard that covers the Electronic Manufacturing Services (EMS) and Original Design Manufacturing (ODM). EMS companies provide assembly, logistics and after-market services for original equipment manufacturers (OEMs), while the ODM sector provides engineering and design services for original equipment manufacturers and may own significant intellectual property. (SASB, 2018)

The EMS and ODM companies produce goods for a wide range of sectors, but the products are hardware goods such as computers, consumer electronics and storage devices for consumers and businesses. The Electronic Manufacturing Services & Original Design Manufacturing industry standard does not include the design of the technology hardware products. There is a separate SASB Hardware Industry Standard to cover that area. (SASB, 2018) The SASB sustainability disclosure topics and accounting metrics can be found from Appendix 4.

4.3 CDP

CDP is a non-profit organization that helps companies, cities and governments in building a sustainable economy by measuring and acting on their environmental impact (CDP, 2022a). CDP encourages organizations to disclose their environmental impact. It scores organizations based on the information they provide in its annual reporting process (CDP, 2022b).

CDP has three programs targeted to three kinds of organizations: companies, cities, and states and regions. The main audience for the disclosures are the investors and customers (CDP, 2022c). CDP has three areas of focus: climate change, forests and water security. There are sector-specific questions for companies operating in high-impact sector. (CDP, 2022d)

4.4 Climate Disclosure Standards Board

The Climate Disclosure Standards Board (CDSB) was an international consortium of business and environmental NGOs, dedicated to advancing corporate reporting model that addresses natural capital as well as financial. CDSB would provide the companies a framework for integrating climate change and natural capital information in their financial reports. This would allow the investors a better understanding of the climate and environment related risks and opportunities. (CDSB, 2022)

However, since Jan 31st 2022, CDSB has been merged with the IFRS (International Financial Reporting Standards) Foundation to support the work of the newly established Inter-national Sustainability Standards Board (ISSB). (CDSB, 2022)

4.5 Task Force on Climate-Related Financial Disclosures

The Task Force on Climate-Related Financial Disclosures (TCFD) was created by The Financial Stability Board (FSB) to create disclosure recommendations to help investors, lenders and insurance underwriters in climate change related risk assessment. The disclosure

recommendations are built around four central topics: governance, strategy, risk management, and metrics and targets. The disclosure set contains 11 recommended disclosures. (TCFD, 2022)

4.6 World Economic Forum International Business Council

The World Economic Forum is a non-profit foundation established in 1971. It seeks to demonstrate entrepreneurship in the global public interest while upholding the highest standards of governance. Its philosophy is based on the stakeholder theory, which asserts that an organization is accountable to all parts of society. (World Economic Forum, 2022)

The World Economic Forum and its International Business Council (IBC) has published Stakeholder Capitalism Metrics, a set of ESG (environmental, social and governance) metrics and disclosures. It offers a set of 21 disclosures addressing the people, planet, prosperity and governance. It can be utilized by companies regardless of industry or region. The metrics help companies and investors to benchmark progress on sustainability topics. (World Economic Forum, 2021)

4.7 UN Global Compact Communication on Progress

The United Nations Global Compact (UNGC) is a leadership platform for the development, implementation and disclosure of responsible corporate practices. It reinforces companies to align their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption, and to help the progress of the SDGs. (United Nations Global Compact, 2019)

The Communication on Progress (COP) is an instrument to keep the stakeholders informed on the progress (United Nations Global Compact, 2019). The UN Global Compact COP is compatible with the GRI G4 Guidelines published in 2013 (The Global Compact & GRI, 2013). However, the G4 have been since replaced by GRI Sustainability Standards in 2016 (GRI, 2022c).

When moving from GRI G4 Guidelines to GRI Standards in 2016, some of the disclosures were revised, but majority of them, despite being re-numbered, remained unchanged or had only minor clarifications made. (GRI, 2017)

4.8 International Sustainability Standards Board

International Sustainability Standards Board (ISSB) is a standard-setting board established in late 2021. Its goal is developing a comprehensive set of sustainability disclosure standards that helps the investors and other capital market participants in understanding the sustainability-related risks and opportunities. (IFRS, 2022)

The establishment of the ISSB is a result of collaboration of several organizations operating on the field of sustainability reporting: the IFRS Foundation consolidated with the CDSB and the Value Reporting Foundation (which was established when Integrated Reporting and SASB Standards merged). (IFRS, 2022b)

In March, 2022, the IFRS Foundation announced a collaboration agreement with the GRI. The ISSB is working on an investor-focused set of sustainability disclosure standards, while the GRI has a multi-stakeholder approach. They intend to join each other's consultative bodies to support each other in the development process. The plan is to create an interconnected approach. (IFRS, 2022b)

On 31st March 2022 ISSB published the drafts for the first two proposed standards: the general sustainability-related disclosure requirement and the climate-related disclosure standards. The proposals are opened to feedback before finalization, which is planned to take place the end of 2022. (IFRS, 2022c)

4.9 Sustainability framework comparison matrix

Rogmans & El-Jisr (2022) categorize the seven sustainability reporting frameworks by the broadness of topics they address and their target audience. To help executives in selecting the most suitable sustainability performance framework to serve their purposes, they

introduce a matrix, in which they have placed the scope of reporting on one axis, and the audience on the other, as exhibited Figure 9 below.



Figure 9: The sustainability performance reporting framework matrix (Rogmans & El-Jisr, 2022). When choosing a sustainability reporting standard for an organization, it is important to consider the audience and scope of the reporting. The sustainability standards have been classified into four quadrants, based on their scope of reporting (narrow or broad) and size of the audience (narrow or broad).

Some of the frameworks focus only a narrow area, such as the carbon dioxide emissions, while some aim to cover the full range of ESG reporting requirements or all UN SDGs. The frameworks also aim to serve different target groups: some focus solely on investors, while others are addressed to broader stakeholder audiences, such as customers, employees and society in general.

5 Global Reporting Initiative

The previous chapter provided a short introduction to some of the current sustainability measuring frameworks, including GRI. This chapter aims to examine the GRI Standards in further detail.

5.1 The GRI organization

GRI is an independent non-profit organization, that provides standards for reporting sustainability. The GRI Standards are currently the most used sustainability standards. The headquarter of GRI is in Amsterdam, Netherlands. (GRI, 2022b)

GRI was founded in Boston, USA, in 1997 with the goal of building an accountability mechanism to ensure companies commit to responsible environmental practices. Later the scope was extended to cover also social, economic and governmental areas. The first version of the GRI Guidelines was launched in year 2000, being the first global sustainability reporting framework. The United Nations SDG framework was adopted to GRI in 2015. (GRI, 2022c)

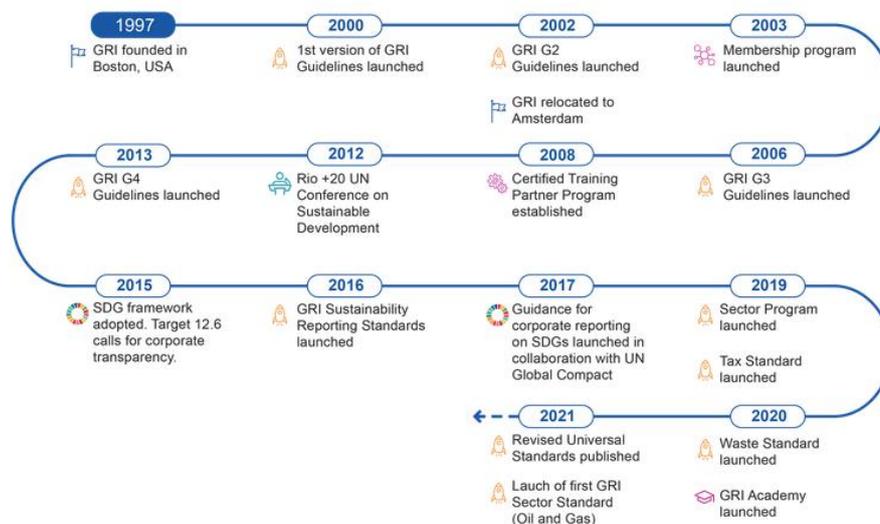


Figure 10: The history of GRI on a timeline (GRI, 2022c).

GRI has created a global presence through seven regional offices in European, North American, South American and Asian continents. They promote sustainability reporting and respond to the needs of local stakeholders at both regional and country level. (GRI, 2022d)

5.2 The GRI standards

The purpose of the GRI Standards as defined by GRI, is to provide transparency on how an organization contributes (or aims to contribute) to sustainable development. GRI uses the classical definition of sustainability development, established by World Commission on Environment and Development in their report, *Our Common Future*, in 1987: “development which meets the needs of the present without compromising the ability of future generations to meet their own needs”. (GRI, 2021a)

The GRI standards address the impacts the organization have on the economy, environment, and people, including the human rights, and how the organization manages these impacts. GRI provides tools and disclosures for consistent and credible sustainability reporting. They are created by Global Sustainability Standards Board, presenting a broad range of industry experience and technical expertise. (GRI, 2022e)

The GRI standards are designed as a modular system composed of three types of standards to be used together: Universal Standards, Sector Standards and Topic Standards. They can be used for sustainability reporting applied fully or partly. The structure of the GRI Standards is depicted in Figure 11 below. (GRI, 2022f)

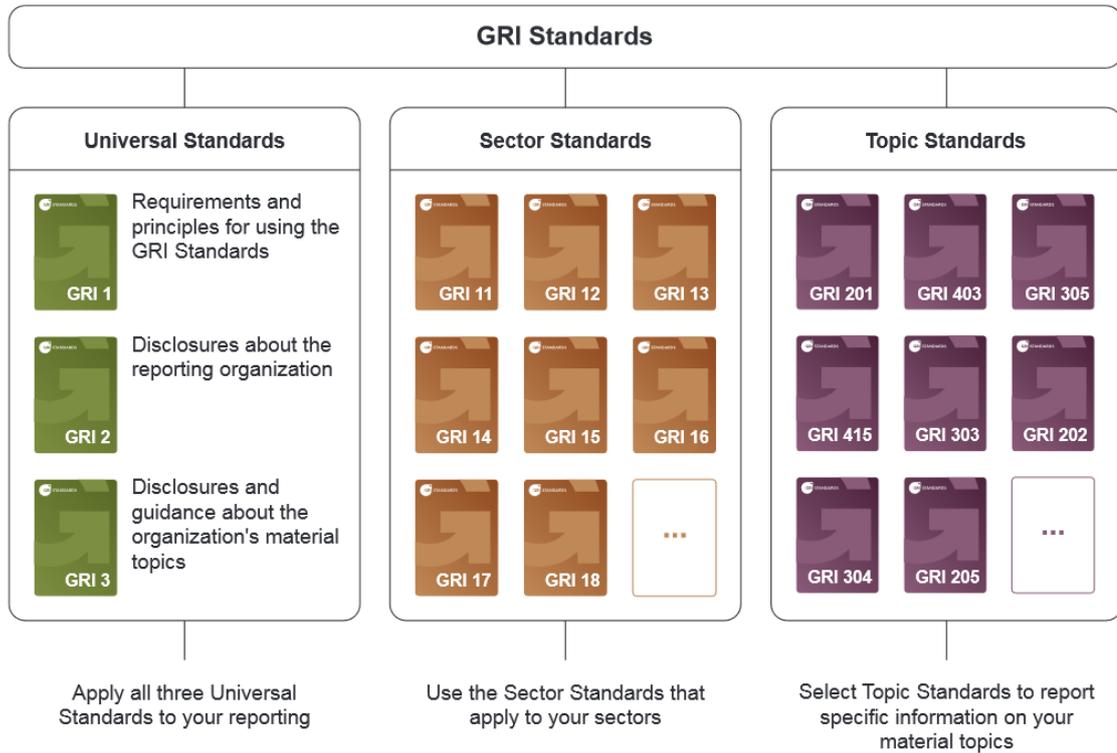


Figure 11: GRI Standards are composed of three sets of standards: Universal Standards, Sector Standards and Topic Standards. The Universal Standards are meant to be applied to all organizations. The Sector Standards have sets of standards designed for specific industries. The Topic Standards provide topic-specific disclosures for the organization to choose from. (GRI, 2022g)

A revised version of the GRI Standards have been published to become effective from January 1st 2023. GRI has published a guide, “GRI Universal Standards 2021 Frequently Asked Questions (FAQs)” to clarify what has been changed from the previous revision from 2016. (GRI, 2022b). GRI has also listed the changes and linkages between the Universal Standards from 2016 and the 2021 revision. (GRI, 2022i)

5.3 The sector standards

GRI has published industry-specific sustainability reporting disclosure recommendations at least twice: in 2016 with the 4th generation guideline package, GRI G4, and with the current Sector Program started in 2019. (GRI, 2022c) The Sector Program recommendations are designed to work in alignment with the reviewed Universal Standards that were released to public in 2021. (GRI, 2022a)

5.3.1 The Sector Program

GRI has started in 2019 a Sector Program that, when finished, will cover 40 different sectors. Sectors share common activities that affect the economy, environment and society. The sector specific standards aim to identify the most significant impacts of each sector, list the most critical disclosures and respond to the stakeholders' requirements. (GRI, 2022a) The development process of the Sector Program is depicted in Figure 12 below.



Figure 12: The development process of the Sector Program. Issues identified within the Sector Program drive development of Topic-Specific Standards. (GRI, 2019)

The Sector Program has been launched in 2019 (GRI, 2019). The 40 sectors are prioritized in the sector-specific standards development project, starting with the ones that have the highest impact, reflecting the seriousness of the impacts, the likelihood of their occurrence and the size of the sector (GRI, 2020). All sector standards are based on the revised GRI Universal Standards, published in 2021. (GRI, 2022a)

The Sector Program has so far launched the Sector Standard, GRI 11: Oil and Gas Sector 2021, and released drafts for coal, and agriculture, aquaculture and fishing, to expose them to public feedback and consultation. The next standard on the way is the mining sector. (GRI, 2022a)

Manufacturing and design of electronic products, including computers, mobile phones and their components, is included on the Sector Programs proposed agenda (GRI, 2020). If the sector standard development process goes due course, manufacturing and design of electronic products is on position 21 on the priority ranking list (GRI, 2022a).

At the time of writing in 2022, no estimation about the publishing date for the Sector Standards for Manufacturing and Design of Electronic Products has been announced by GRI. This lack of a Sector Standard places a challenge to reporting in accordance with the GRI Standards. The topic selection dilemma and a solution proposal will be discussed in Chapter 7.

5.3.2 GRI G4 Sector Disclosures

GRI G4 Guidelines published in 2013, while the first version of the GRI Standards were published in 2016. The G4 Guidelines had G4 Sector Disclosures developed for the following sectors (GRI, 2022f):

- Airport Operators
- Construction and Real Estate
- Electric Utilities
- Event Organizers
- Financial Services
- Food Processing
- Media
- Mining and Metals
- NGO
- Oil and Gas

The GRI G4 Guidelines have been replaced by the GRI Standards already in 2016, but as the development of the Sector Standards is still under progress, the GRI G4 Sector Disclosures that were developed for the G4 Guidelines may provide guidance which can be used in conjunction with the GRI Standards. (GRI, 2022f)

When GRI G4 Guidelines were updated to GRI Standards, changes were made to some of the disclosures were revised, but majority of them have their direct counterpart in the GRI Standards or has only minor clarifications made in them. (GRI, 2017)

5.4 The benefits of adopting GRI standards

Adopting the GRI Standards framework has several benefits. Some of them have already been briefly covered in previous sections. This section aims to summarize them in one place.

5.4.1 Reliability and relevance

- According to a survey by KPMG, GRI is the dominant standard for sustainability reporting. It is used by 67% of the of the N100 companies (n=3983 companies) and 73% of G250 companies (n=239 companies) that report sustainability. (KPMG, 2020)
- The GRI standards cover all aspects of the Triple bottom line: economy, environment, and people, instead of focusing only on one area such as the climate change. (GRI, 2021a)
- The GRI standards support integrating the United Nations SDGs into the sustainability reporting. (GRI, 2021b)
- Maintaining the standards is a dynamic process of continuous improvement. They are reviewed regularly to make sure they follow the best practices and respond to the stakeholders emerging needs (GRI, 2022j). A new work programme is set out every three years to keep them relevant and up to date. (GRI, 2022k)
- To help organizations to measure the most relevant things, GRI has launched a Sector Program that identifies the most significant impacts for each industry and reflects the expectations of the stakeholders. (GRI, 2019)
- Behind the GRI standards there is a credible board of experts and advisors, presenting a broad range of industry experience and technical expertise. (GRI, 2022e)

5.4.2 Benefits to the organization

- The GRI standards enable organizations to understand, measure and manage their impact to the world around them. (GRI, 2021a)
- The GRI standards help both the organization, as well as its investors and other stakeholders, to understand what the organizations are expected to report about. (GRI, 2021a)
- Using the GRI reporting framework provides the organization information that can be utilized internally in decision-making processes, target setting and policy assessments. (GRI, 2021a)

5.4.3 Suitability and scalability

- The GRI framework is scalable. They are design in a way, that allows any organization, private or public, regardless of size, type, geographic location or reporting experience, to utilize the GRI sustainability reporting framework. (GRI, 2021a)
- The GRI framework can be used for many types of cases and purposes. The standards do not set allocations, thresholds, goals, targets, benchmarks, or other indicators of good or bad performance. (GRI, 2021a)
- The GRI standards can be applied in sustainability reporting either fully or partly. (GRI, 2022m)

5.4.4 User-friendliness

- The industry-specific standards by the Sector Program help to identify and choose the most relevant measuring topics. (GRI, 2019)

- GRI provides a broad toolbox of guidance, information, training and support for the implementation and maintenance of the sustainability reporting system. (GRI, 2022l)

5.4.5 The connection to SDGs and UN Global Compact

The GRI Standards are aligned with the UN Sustainable Development Goals (GRI, 2022h). The connections from each SDG to GRI disclosures are pointed out in the report “Linking the SDGs and the GRI Standards”, updated in March 2021 (GRI, 2021b).

GRI and the UN Global Compact have been in alliance since 2010. The Ten Principles of the Global Compact are integrated in the GRI reporting system and GRI is the reporting framework recommended by the Global Compact (GRI, 2010). In other words, the SDGs, the GRI Standards and the Ten Principles of the UN Global Compact are mutually compatible and supporting (UN Global Compact, 2022).

5.5 How to use the GRI standards

The requirements and reporting principles of GRI 2021 have been published in the document GRI 1: Foundation 2021. They will become effective on January 1st, 2023. GRI recommends integrating sustainability reporting with financial reporting whenever possible. (GRI, 2022)

As explained in the previous section, the GRI standards come in three sets: the GRI Universal Standards, GRI Sector Standards and GRI Topic Standards. (GRI, 2022) The figure below illustrates the GRI Standards system and the order in which they should be implemented.

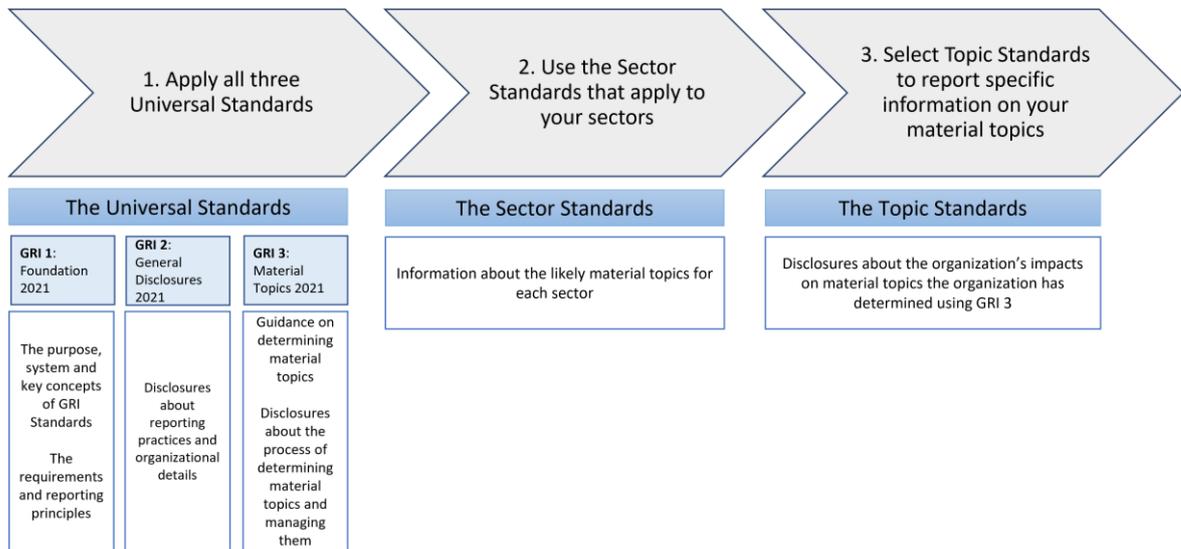


Figure 13: The implementation process and structure of the GRI Standards (GRI, 2022).

The Universal Standards make the foundation of the GRI Standards System and apply to all organizations. The Universal Standards are composed of three parts: GRI 1, GRI 2 and GRI 3. (GRI, 2022)

GRI 1: Foundation 2021 explains the basic principles that the organization wishing to report according to the GRI Standards must adhere to. The key terms and concepts are defined there. **GRI 2: General Disclosures** contains basic information about the organization to provide context and help to understand the impacts of the organization. (GRI, 2022)

GRI 3: Material Topics 2021 provides guidance that helps in identifying the material topics, and disclosures for the organization to report the about the material topic selection process, a list of the selected material topics and how the organization manages them. Material topics are the areas that the organization has its most significant impacts on. (GRI, 2022)

The Sector Standards contain information about likely material topics for different industry sectors. The organizations should use the Sector Standards' recommendations in when determining its material topics and disclosures to report. The Topic Standards provide disclosures to support the organization in reporting on the material topics it has identified using GRI 3. (GRI, 2022) At the time of writing, the GRI Sector Standards are still in progress and no estimation about the publishing date has been announced.

5.5.1 GRI reporting requirements

To report in accordance with the GRI Standards, all organization must adhere to all nine requirements. If the organization does not comply with all nine requirements, it cannot claim to have reported in accordance with the GRI Standards. The nine reporting requirements can be found below. They are explained in detail in GRI 1: Foundation 2021. (GRI, 2022)

1. Apply the reporting principles.
2. Report the disclosures in GRI 2: General Disclosures 2021.
3. Determine material topics.
4. Report the disclosures in GRI 3: Material Topics 2021.
5. Report disclosures from the GRI Topics Standards for each material topic.
6. Provide reasons for omissions for disclosures and requirements that the organization can not comply with.
7. Publish a GRI content index.
8. Provide a statement of use.
9. Notify GRI. (GRI, 2022)

5.5.2 GRI reporting principles

To ensure high-quality reporting, GRI has listed nine guiding principles. The principles can be found listed below. They are explained in detail in GRI 1: Foundation 2021, which also provides further guidance in applying them. (GRI, 2022)

- *Accuracy*. The information to be reported must be correct and sufficiently detailed.
- *Balance*. The information must be reported in an neutral way and serve a fair portrayal of the organization's impacts, both negative and positive.
- *Clarity*. The information must be presented in an accessible and understandable way.

- *Comparability*. The information must be selected, compiled and reported in a consistent way to enable comparing it relative to historical data and other organizations.
- *Completeness*. The provided information must be sufficient to enable an assessment of the organization's impacts during the reporting period.
- *Sustainability context*. The organization must report information about its impacts in the wider context of sustainable development.
- *Timeliness*. The information must be reported regularly and be available in time for decision-making.
- *Verifiability*. The information must be gathered, recorded, compiled and analysed in a way that its quality can be examined. (GRI, 2022)

5.5.3 Omission or inability to comply of a disclosure

If the organization can not comply with a disclosure for which reasons of omission are permitted, then it should provide an explanation (such as confidentiality) in the GRI content index. (GRI, 2022)

If unable to report a disclosure because the item, such as a process or a policy, does not exist, it can fill the requirement by reporting that it does not exist. It can explain why the item does not exist or state an implementation plan for it. It is not required to create the item, but it is required to report that it does not exist. (GRI, 2022) The permitted reasons for omissions are listed in Table 3 below.

Table 3: Permitted reasons for omission and required explanations (GRI, 2022).

Reason for omission	Required explanation
Not applicable	Explain why the disclosure or the requirement is considered not
Legal prohibitions	Describe the specific legal prohibitions.
Confidentiality constrains	Describe the specific confidentiality constrains.
Information unavailable/incomplete	Specify which information is unavailable or incomplete. When the information is incomplete, specify which part is missing (e.g., specify the entities for which the information is missing).
	Explain why the required information is unavailable or incomplete.
	Describe the steps being taken and the expected time frame to obtain the information.

5.5.4 Enhancing the credibility of sustainability reporting

Enhancing the credibility is highly encouraged by GRI and can be achieved through three options: internal controls, external assurance and stakeholder or expert panels. (GRI, 2022)

Internal controls are processes designed to strengthen the integrity and credibility of the organization's sustainability reporting. They can for example be a part of daily operations or take a form of an internal audit. If the organization has set up internal controls for financial reporting, it should consider applying them also to sustainability reporting. (GRI, 2022)

Disclosure 2-5 in GRI 2: General Disclosures 2021, requires the organization to seek also external assurance to verify that the information has been prepared in accordance with reporting standards. The external assurance may assess the quality and credibility of the reported information or evaluate the systems and processes to prepare the information. (GRI, 2022)

Using external assurance reduces the risk in data quality. Increased credibility benefits both, the stakeholders as well as the decision-makers of the organisation. GRI recommends that the external assurance provider should be independent and objective in its judgement, able to conduct the assessment in a professional way (systematic, documented, evidence-based, utilizing defined procedures) and competent in estimating whether the good reporting and information selection practices are accomplished or not. (GRI, 2022)

5.5.5 The material topics

The term “material topics” refers to topics that represent the organization’s most significant impacts on the economy, environment, and people. To report in accordance with the GRI Standards, the organization is obliged to determine its material topics and report all disclosures in this Standard. GRI has published a process to help organizations in identifying their material topics. The process steps illustrated in Figure 14 below are published to provide guidance, following them is not required. (GRI, 2021c)

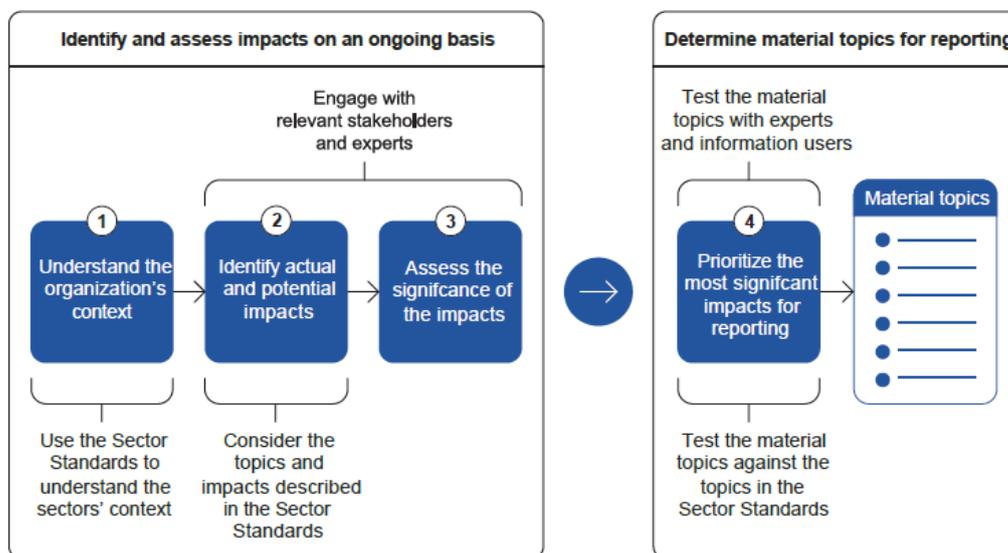


Figure 14: The process steps for determining the material topics (GRI, 2021). Identifying their material topics is mandatory for any organization wishing to implement the GRI Standards, but the process figure above is meant for guidance and following it is voluntary.

6 Reporting and communicating sustainability

As argued in the previous chapters, sustainability can be a strategic choice that produces competitive advantage to the company. This chapter aims to elaborate the topic further by examining the communication aspect: the benefits and different approaches to sustainability reporting.

6.1 The benefits of reporting sustainability to stakeholders

Carrying out CSR activities can deepen the company's relationship to stakeholders, increase favorable stakeholder attitudes and behaviors, and build a better company image. However, to be able maximize the business benefits achievable through CSR, effective CSR communication plays a vital role. (Du et al., 2010)

It seems that the greatest obstacles for a company to collect the full strategic benefits from CSR activities are that stakeholders are not aware of the company's CSR activities (Du et al. 2007; Sen et al. 2006) and stakeholder skepticism (Forehand & Grier 2003; Yoon et al. 2006). The latter refers to stakeholders' attribution of the company's motives behind the CSR actions: are the main drivers extrinsic (an attempt to increase profits) or intrinsic (a sincere concern about the issue on hand) (Forehand & Grier 2003; Yoon et al. 2006).

Therefore, creating stakeholder awareness and managing stakeholder attribution towards the company's CSR activities are essential factors in the pursuit of maximal strategic benefits from CSR (Du et al., 2010). However, it is essential to notice that along with sustainability communication, action is necessary - otherwise it is considered greenwashing. Stakeholders react negatively to such attempts (Forehand & Grier, 2003).

6.2 Three approaches to sustainability reporting

The approach to social, environmental and sustainability reporting can be classified to three different categories. Those are the managerialist, "business-as(-almost)-usual" approach, the

triple bottom line “there-is-a-common-ground” approach and an ecologically and eco-justice-informed approach to sustainability reporting. The difference between these categories is in the way how and to whom they create value. (Gray, 2006)

1. The managerialist, “business-as(-almost)-usual” approach

This approach does not provide many tools to the reader for really estimating the company’s accomplishment on social or environmental performance areas. The reported data is selectively chosen. The approach is based on a supposition that there is little or no conflict between the traditional economic criteria and sustainability. The model also assumes, that the arising social or environmental problems can be solved through existing mechanisms, assumptions and pre-conceptions. (Gray, 2006).

At the time when the article was written, this approach was still prevalent in the current reporting practice. (Gray, 2006). However, it is highly questionable if this is the case or if this approach is still sufficient to stakeholders in 2022.

2. The triple bottom line, “there-is-a-common-ground” approach

This approach is based on Elkington’s Triple Bottom Line sustainability model (Elkington, 1997, 2001). In this approach those three areas should be addressed in company reporting in an equally emphasized and equally reliable way. This approach aims to exceed the Global Reporting Initiative (GRI) standards. (Gray, 2006).

This approach concedes that there could be a substantial dissonance between the prevalent practice and sustainability perspective, but the basic assumption remains optimistic: even if we might need to re-think parts of it, the basic systems of economic organization are probably adequate and redeemable (Gray, 2006). This approach has also criticized for omitting the fact that the financial aspect will always prevail any kind of bottom line (Gray & Milne, 2004).

3. An ecologically and eco-justice informed approach

At least at the point when this work was published, this “deep sustainability” approach is still in a very early phase, and no one definition has been established. This approach is built on two underlying assumptions: 1. By default, most of our current organizations are not socially and environmentally sustainable. 2. The root cause of this unsustainability lies in

the systemic level. This approach argues, that therefore, the causes of this imbalance are not isolated concerns, and we need a profound revisal on economic organization (Gray, 2006).

6.3 Communicating sustainability to the stakeholders

To capitalize the full reputational benefits of corporate social responsibility, communication to stakeholders plays a vital role. The sheer number and length of reporting can be overwhelming to stakeholders. Companies may need to compete of their attention. (Dawkins, 2004)

To make sure that the message reaches the stakeholders, they need to be communicated in a way that is striking, relevant and understandable to the targeted audience. For successful communication, it is essential to have a clear communication strategy and to be able to tailor messages to different stakeholder groups to satisfy their diverse information needs. (Dawkins, 2004)

To reach them effectively, the target audiences and their information requirements need to be clearly defined. Ideally the CSR messages are embedded into the company's main-stream communications, internal communication included. Employees are an under-utilized communication channel, even though they have a wide reach to other stakeholder groups and have a high credibility as company advocates. (Dawkins, 2004)

The key topics to be addressed when communicating sustainability are 1) what to communicate (the content) 2) where to communicate (the channels) 3) the company- and stakeholder-specific factors to be taken into account (Du et al., 2010). The prerequisite is that the company already has defined its CSR strategy.

6.3.1 What to communicate: message content

The company's message can address a social issue in a larger sense or the company's specific involvement in a social issue. Usually the CSR communication revolves around the company's involvement in social cause more than on the social causes themselves. The company may choose to highlight a specific element in their communication, such as the 1)

company's commitment, 2) the impact it makes, 3) the reasons for engaging a specific activity, or 4) the congruence between the cause and their business. (Du et al., 2010).

The communication of commitment is composed of three sub-elements: the amount of input (i.e., funds donated), the durability (i.e., since 2006) and the consistency (i.e., percentage of each sold product) (Dwyer et al.1987). Highlighting commitment emphasizes the input of the company. The company may also choose to focus on the output side, emphasizing the achieved results (Du et al., 2010), such as kilograms of carbon emissions reduced.

The third CSR communication strategy, underlining motives, aims to address the issue stakeholder skepticism. Some companies emphasize the intrinsic motives, some present it as a business case (Du et al., 2010) (i.e., waste reduction). Stakeholders are capable of understanding mixed motives, and frankly admitting the business-improving motives behind the CSR initiatives actually improves the perceived credibility (Forehand & Grier 2003). It is recommendable to communicate CSR from a win-win perspective that benefits both society and the company (Porter & Kramer, 2006).

The fourth aspect to CSR communication is the congruence between a social issue and the company's core activities, or CSR fit. The connection between the social issue and the company's business can be an association related to the brand, product, target group or image built on past behavior (Du et al., 2010). A high CSR fit, or a logical association between the company's business and the social issue reduces stakeholder skepticism (Simmons & Becker-Olsen 2006).

6.3.2 Where to communicate: message channels

Companies can communicate their CSR activities through numerous channels, such as annual CRS reports and press releases, official websites, advertisement channels or even product packages. These channels are governed by the company. However, there are also external channels, such as the media, customers and non-corporate social media, that are less controllable by the company. (Du et al., 2010)

It seems there is a trade-off between the controllability and credibility of the CSR communication: the corporate channels are more likely to induce stakeholder scepticism than

the non-corporate sources. Positive visibility in unbiased media or a recognition from an independent organization is highly valuable for a company. Another significant influence channel is the informal stakeholder communication, such as word of mouth. (Du et al., 2010)

6.3.3 Company-specific factors

There are at least two company-specific factors that affect the impact of the CRS communication: 1) corporate reputation and 2) CSR positioning. (Du et al., 2010)

Corporate reputation incorporates many aspects, such as product quality, innovation, investment value and CSR. Reputation is based on the image of the company's previous actions and results. It works as a framework through which stakeholders view and interpret the company's activities. (Du et al., 2010) A company with a good reputation is likely to induce a positive reaction with their CSR activities, but companies with a bad reputation may find their attempts even backfire (Yoon et al, 2006).

CSR positioning refers to where in the CRS field the company is positioned relative to its competitors. Even though many companies engage in some CSR activities, some companies have taken such a strong stance on CSR, that they are being acknowledged as the socially responsible brand in the category. The CSR positioning of the company seems to impact positively the efficacy of its CSR communication and reduce stakeholder skepticism (Du et al, 2007), thus providing a relative competitive advantage against its competitors.

6.3.4 Stakeholder-specific factors

The stakeholder-specific factors that have an impact on the efficacy of a company's CSR communication, can be classified into three categories: 1) the stakeholder type 2) issue support and 3) social value orientation. (Du et al., 2010)

Shareholders are the recipients of the CSR communication, but they are not a homogenous group. Different shareholders have different demands and expectations for the businesses. Their information requirements are divergent, and their responses to CSR communication

channels may vary. To address the diverse demands of different stakeholder groups, tailoring the CSR communication is essential. (Du et al., 2010)

1. Stakeholder type

The stakeholders can be divided into two groups: the opinion leaders (such as investors, business press, legislators and NGOs) and the general public (such as consumers and local communities). (Dawkins, 2004)

The opinion leaders require hard evidence, such as detailed indicators, benchmarks, targets, trends and case studies, of the impact of the CSR actions. They appreciate a comprehensive, integrated procedure on CSR and compliance to standardized reporting, such as Global Reporting Initiative (GRI) or AccountAbility's AA1000 standards. (Dawkins, 2004)

Mainstream investors are also important opinion leaders. Their main interest lies often in shareholder value maximization, and they look for evidence that CSR is in alignment with the business strategy and capability to produce profit. When communicating CSR to them, it's useful to present CRS as a business case, and link it to concepts familiar to them, such as corporate governance and risk management. (Dawkins, 2004)

2. Issue support

How motivated the stakeholders are to process CRS information depends on how committed they are to support the focal social issue. Initiatives that the stakeholders perceive as important, relevant and something that reflects their values, acquire attention. (Du et al., 2010) Increasing awareness and knowledge of the issue also tends to increase support (Bhattacharya & Sen 2004). That is why it is beneficial to articulate the importance of the social issue in CRS communication.

Actively engaging stakeholders is another method to increase the issue support. This could mean for example giving the stakeholder a choice which cause or non-profit organization to support. The companies should follow what issues their stakeholders view important. However, it is still important to consider the CSR fit by choosing topics that are somehow related to the company's core business, not just blindly chase the current "hot topics". (Du et al., 2010)

3. *Social value orientation*

Social value orientation is another factor that affects the CSR communication efficacy by affecting the stakeholder's motivation to process CSR information. Different social value orientation types incline to different social behavior patterns and may show different receptivity to CSR communication. (Du et al., 2010)

6.3.5 Minimizing stakeholder skepticism

Communicating CSR actions effectively is a subtle issue: how to minimize stakeholder skepticism and signal intrinsic motives to stakeholders? According to studies, stakeholders generally understand and accept that companies have both extrinsic (profit seeking) and intrinsic (genuine concern) motives behind their CSR actions (Ellen et al, 2006), as long as also the intrinsic motives are still there (Du et al., 2010). They react negatively to marketing strategies they consider to be manipulation attempts (Forehand & Grier, 2003).

6.4 Sustainability rating systems

Implementing an external sustainability rating system is a good way to improve transparency in the supply chain and increase the credibility of sustainability communication to the stakeholders. There are several types of rating services with a number of service providers, each answering to different needs.

When selecting a sustainability rating system for an organization, one should consider the intended target audience and the scope of reporting. As illustrated in Figure 15 below, Rogmans & El-Jisr (2022) have classified sustainability rating systems into four groups, based on those two criteria.

Choosing the Right Sustainability Ratings

The size of your audience and what you are reporting on matter.



Figure 15: Sustainability rating system comparison matrix (Rogmans & El-Jisr, 2022). When choosing a sustainability rating system for an organization, one should consider the size of the target audience and the intended scope of reporting. This model classifies the sustainability rating systems into four groups, based on the scope of reporting (narrow or broad) and size of the audience (narrow or broad).

EcoVadis is one of the sustainability rating systems examined by Rogmans & El-Jisr (2022). As can be seen from Figure 15, it has the benefit of being suitable for reporting to a wide audience with multiple stakeholders, and its scope of reporting is broad. EcoVadis will be discussed in further detail in the next section.

6.4.1 EcoVadis sustainability rating platform

EcoVadis is a sustainability ratings service, that provides organizations a platform for sharing information about their sustainability performance with their stakeholders. Organizations can invite their partners to be rated, benchmark their performance to their industry and this way drive continuous improvement. (EcoVadis, 2022a)

EcoVadis is used by over 90 000 companies operating in more than 160 countries and 200 industries (EcoVadis, 2022b). EcoVadis covers the following four themes: Environmental, Labor & Human Rights, Ethics, and Sustainable Procurement. The organizations are rated on the most critical topics considering their size, location and industry. The rating system is based on assessments refined into scorecards. The platform also provides feedback about current strengths and areas of improvement. (EcoVadis, 2022a)

The assessments focus on 21 sustainability criteria based upon international sustainability standards, such as the Global Compact Principles, the International Labour Organization (ILO) conventions, the Global Reporting Initiative (GRI) standard, the ISO 26000 standard and the ten Coalition for Environmentally Responsible Economies (CERES) principles.

Therefore, it can be safely assumed, that EcoVadis reflects the stakeholders' information preferences, the reporting standards of the industry and the topics generally considered as relevant to the industry. EcoVadis is an established platform, recognized also in the Harvard Business Review (Rogmans & El-Jisr, 2022).

6.5 The future of sustainability reporting

According to the KPMG Survey of Sustainability Reporting 2020, acceleration and positive development on sustainability reporting is to be expected. Demand for harmonizing the mainline sustainability reporting has grown as also investors are increasingly expressing their interest towards the issue. (KPMG, 2020)

Several international initiatives that aim towards convergence of sustainability reporting standards have emerged. The Corporate Reporting Dialogue has facilitated discussion about the topic and delivered the results of the Better Alignment Project in 2019. (KPMG, 2020)

The World Economic Forum and International Business Council (IBC) are also working on a project that aims to establish a common set of baseline metrics, that would enable the members to measure and communicate their sustainability key figures. They have released a paper on common metrics and consistent reporting for sustainable value creation, with 21 defined core metrics. (KPMG, 2020)

The European Union has shown initiative in reconciling European reporting requirements, which may later result in a European sustainability reporting standard. Also, The International Financial Reporting Standards Foundation (IFRS) is working on an update to the Management Commentary Practice Statement and has met in April 2022 to complete discussion of the feedback on its Exposure Draft. (IFRS, 2022b) However, at the time of writing, no publishing date has been announced yet.

7 The findings from the sustainability performance measuring project

This chapter aims to examine the current situation in the case company and describe how the sustainability performance measuring project was performed. The recommended actions and further discussion take place in the next chapter.

7.1 The current situation

The case company had already committed to promoting sustainability in its operations and had named it as one of the company values. The company had some sustainability related activities going on, such as a commitment to the United Nations Global Compact and the United Nations Sustainable Development Goals. They are a good starting point, but to really understand the current state of sustainability performance and to drive for improvement, a systematic and measurable approach is needed.

7.2 The purpose and drivers

The need for the project stemmed from the need to start measuring and reporting sustainability performance in a systematic, reliable and credible way. The main driver for this was in stakeholder management: some of the customers were already deeply committed to sustainability and requesting sustainability data.

The requests from the customers were still mostly occasional, but notably increasing. Regular reporting would provide value to the customers and improve the customer relationship. Even the customers that were currently passive in their sustainability data requests are likely to start asking for it later, as the pressure from their customers and partners increases. Systematic collecting of numerical data would help in responding to these requests.

7.3 The target, scope and expected outcomes

The goal of the project was to come up with a sustainability performance measuring and reporting system that could be used for customer communication. The goal was composed of three parts:

1. Selecting a suitable sustainability measuring and reporting framework.
2. Selecting the most relevant reporting disclosures.
3. A brief reporting guideline.

Implementation of the sustainability reporting system and selecting target values for the measures was out of the project scope. The sustainability measuring and reporting system should cover the most relevant concern topics of the industry and reflect the customers' information needs.

7.4 Research plan and methods

The main research question was how to measure and report sustainability. The selected research methods were reading academic research about the topic, orientating on the best practices, and examining existing frameworks, industry recommendations and guidelines, followed by a case study in which the findings were applied to a case company and a list a recommendations was created.

The data gathering methods included analysing the current situation based on interviews, discussions and internal reports. When planning a corporate responsibility report, a recommendable first step is to consult the priority stakeholders, ideally through proactive consultation (Dawkins, 2004). A series of semi-structured theme interviews were performed to examine their thoughts and attitudes towards the sustainability and sustainability reporting.

The framework and disclosure selection methods included benchmarking to the most relevant competitors identified by the Market Intelligence. The results were also reflected against what is already being reported due to stakeholder demand.

7.5 The framework selection process

The first milestone of the Sustainability Performance Measuring project was to find a suitable sustainability measuring framework. The key requisites for the framework were that it should fulfil the following criteria:

1. Be well-known, credible and widely used,
2. Cover all the sustainability Triple Bottom Line aspects,
3. Serve the target stakeholders (primary audience: the customers),
4. Be compatible with the SDGs prioritized by the case company and
5. Be suitable to the case company (industry, size, business model).

7.5.1 Credibility, conspicuousness and popularity

The selection process started with identifying potential candidates for a framework. Rogmans & El-Jisr (2022) have identified seven sustainability reporting frameworks in their Harvard Business Review article as well-known and backed by credible organizations with reputable board members. The seven frameworks are listed below in alphabetical order:

- CDP – Carbon Disclosure Project
- CDSB – Climate Disclosure Standards Board
- GRI – Global Reporting Initiative
- IIRC – International Integrated Reporting Council
- SASB – Sustainability Accounting Standards Board
- TCFD – Taskforce on Climate Related Disclosures
- WEF IBC – World Economic Forum International Business Council (Rogmans & El-Jisr, 2022)

The five first ones – CDP, CDSB, GRI, IIRC and SASB - were also identified as the five major non-financial reporting organizations in the KPMG Survey of Sustainability Reporting 2020. Most popular is the GRI, which is utilized by around 75% of the G250 companies. (KPMG, 2020).

7.5.2 Scope of the reporting and target audience

As examined in Section 4.9, Rogmans & El-Jisr (2022) have introduced a matrix to classify the seven sustainability reporting frameworks by the broadness of topics they address and their target audience. The requirements for the scope and audience were that the framework should cover all the sustainability Triple Bottom Line aspects and serve customers as the primary target audience. The requirements applied to the sustainability reporting framework matrix are visualised in Figure 16 below.

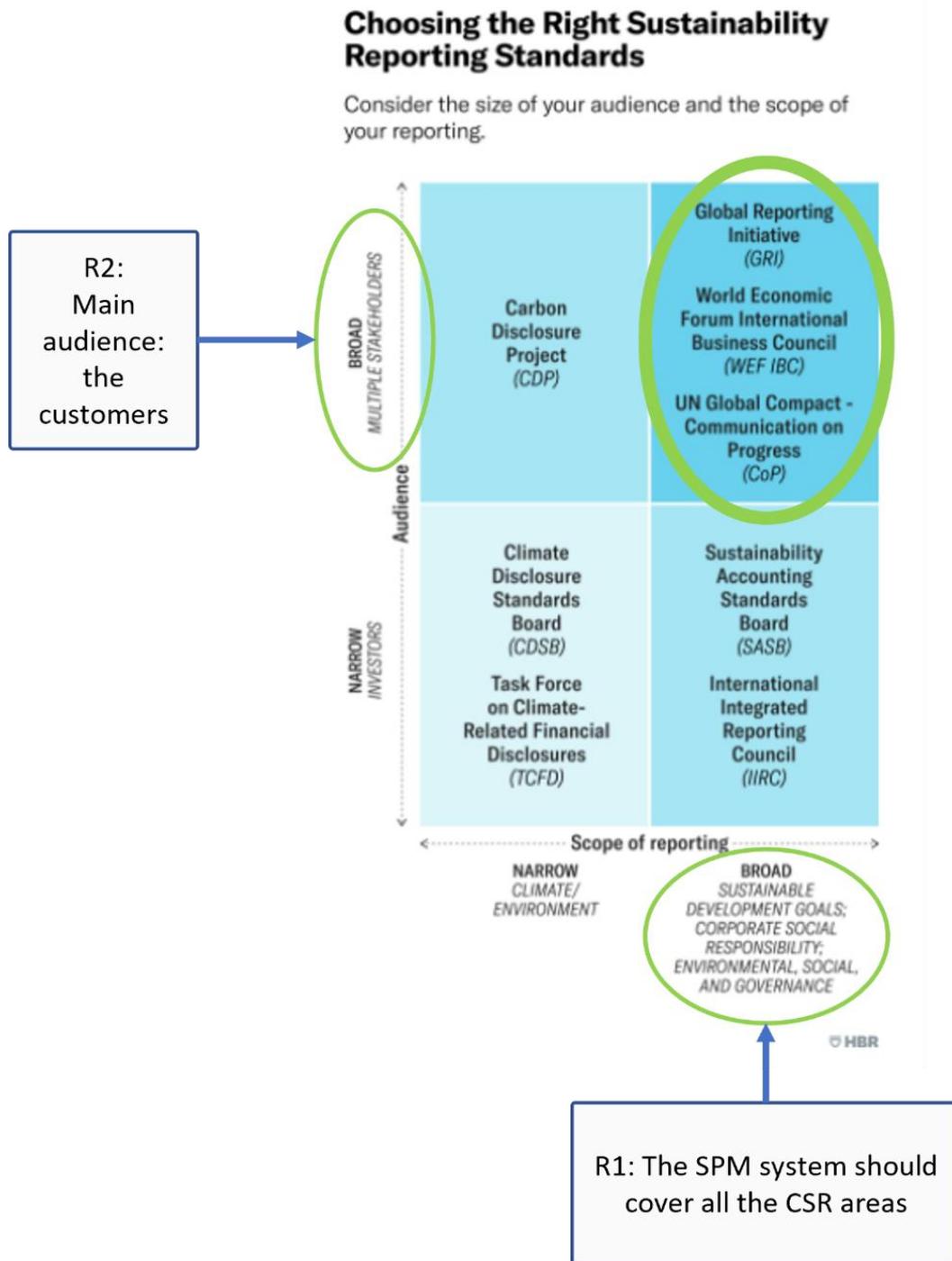


Figure 16: Sustainability reporting framework matrix modified from Rogmans & El-Jisr (2022) and case company requirements applied. The requirements were that the Sustainability Performance Measuring system should 1) cover all the CSR areas and 2) address customer as the main target audience. The standards in the northeast quadrant of the matrix fill these criteria.

7.5.3 Compatibility with the Sustainability Development Goals

The selected framework should support the SDGs that the case company has chosen to prioritize. The SDGs supported by the seven sustainability measuring frameworks are collected into Table 4 below. SASB and IIRC are both under the title Value Reporting Foundation, because they have merged in June 2021 (Value Reporting Foundation: 2021).

Table 4: A summary of the SDGs compatibility the reporting frameworks. One of the criteria was that the framework should support the SDGs that the case company has chosen to prioritize.

		1)	1)	1)	1)	2)	3)	
	UN Sustainable Development Goals	CDP	CDSB	GRI	Value Reporting Foundation (SASB+IIRC)	WEF IBC	TCFD	SDGs prioritized by the case company
1	No poverty			x	*	x		
2	No hunger			x	*			
3	Good health and well-being			x	*	x		
4	Quality education			x	*	x		
5	Gender equality	⊗	⊗	x	*	x	⊗	x
6	Clean water and sanitation	x	x	x	*	x		
7	Affordable and clean energy	x	x	x	*	x	x	x
8	Decent work and economic growth	⊗	⊗	x	*	x	⊗	x
9	Industry innovation and infrastructure			x	*	x	x	x
10	Reduced inequalities			x	*	x		
11	Sustainable cities and communities	x	x	x	*	⊗	⊗	x
12	Responsible consumption and production	x	x	x	*	x	x	x
13	Climate action	x	x	x	*	x	x	x
14	Life under water		x	x	*	x		
15	Life on land	x	x	x	*	x		
16	Peace, justice and strong institutions			x	*	x		
17	Partnerships for the goals	⊗	x	x	*	x	x	x

- x Supports the case company's prioritized SDG target
- * Supports the case company's prioritized SDG target indirectly
- ⊗ Does not support the case company's prioritized SDG target

Sources:

- 1) Corporate Reporting Dialogue, 2018: The Sustainable Development Goals and the Future of Corporate Reporting
- 2) The World Economic Forum, 2020: Toward Common Metrics and Consistent Reporting of Sustainable Value Creation
- 3) World Business Council for Sustainable Development (WBCSD), 2022

As can be seen from Table 4, when comparing the SDG support of the frameworks with the case company's SDG targets, two frameworks can be found that support all the eight SDGs: GRI and Value Reporting Foundation. However, GRI is the only framework that provides direct support to all the SDGs. Value Reporting Foundation framework's linkage is indirect.

7.5.4 Compatibility with the case company

The framework should be compatible with the case organization as a company. The framework should at least be compatible with the industry, company size and business model. It should be scalable and universal enough to be applied to all business units globally. It should be cost-efficient and not too complex to implement.

GRI seems to fill these criteria. As explained in Section 5.4, GRI framework is designed to be suitable for any organization, private or public, regardless of size, type, geographic location or reporting experience. It can be applied in a way that best serves the company's current need. The standards can be implemented fully or partly. They do not set allocations, thresholds, goals, targets, benchmarks, or other indicators of good or bad performance. (GRI, 2021a)

GRI standards are being regularly reviewed and updated to ensure they stay relevant and address the stakeholders' concerns. There is a Sector Program in progress, that aims to identify the most critical topics for each sector and provide industry-specific reporting recommendations based on them. (GRI, 2021a)

The benefits above strongly support selecting GRI for the sustainability framework in the case company. GRI seems to address both the current needs, as well as the sustainability reporting needs in the future. As the GRI standards are scalable and being exposed to constant reviewing, the GRI framework is unlikely to become obsolete.

It is likely that the sustainability reporting requirements are increasing in the future. The increasing demand for transparency in supply chains is likely to lead into increasing consolidation in sustainability reporting standards. As GRI is already the current dominant standard among the G250 companies (KPMG, 2020), it is plausible that the GRI Standards will become the de facto industry standards.

7.5.5 Summary of the framework selection process

There were five requirements to guide the framework selection process. The framework should 1) be credible, well-known and widely used, 2) cover all areas of the sustainability

Triple Bottom Line, 3) serve the target stakeholder audience (the customers), 4) be compatible with the prioritized SDGs and 5) be suitable to the case organization as a company. The selection process is illustrated in the figure below.

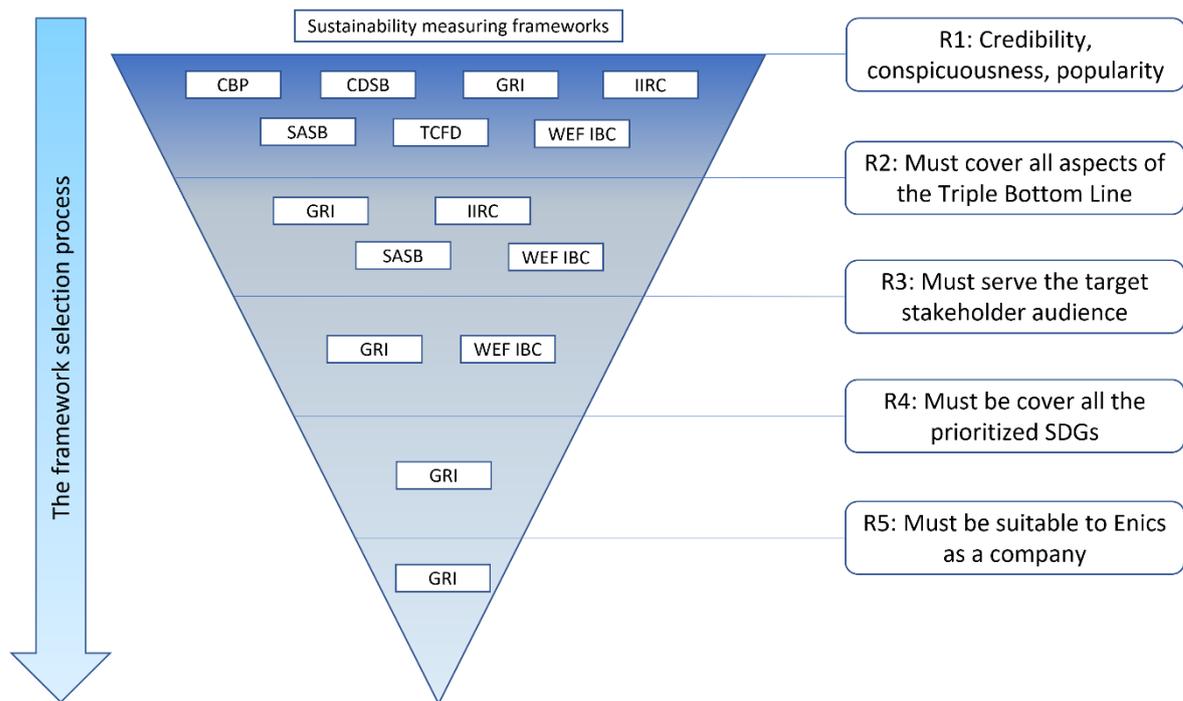


Figure 17: The framework selection process illustrated. There were five requirements that the sustainability measuring framework should fill. GRI is the only framework, that fills them all. The selection process results in GRI appearing as the most suitable one.

The selection process started with identifying potential candidates for a framework. The seven selected frameworks were backed up by a Harvard Business Review article by Rogmans & El-Jisr (2022). Five of them were also mentioned in the KPMG Survey of Sustainability Reporting 2020 (KPMG, 2021).

The next phase was to find the ones that address all the aspects of the Triple Bottom Line. At this point CBP, CDSB and TCFD were dismissed because of their narrow coverage. The third requirement was that the framework should serve the right target audience – in this case the customers. The SASB was dismissed because it is focusing on the needs of the investors, while GRI and WEF IBC serve multiple stakeholders.

The fourth requirement was that the framework should cover all the SDGs prioritized by the case company. GRI does this. It also suits the case company as a company, and comes with

many benefits, as listed in Section 5.4. Therefore, the conclusion was made that GRI is the most suitable framework for the purposes of this project. However, at the time of writing, GRI has not yet published the Sector Standard for EMS industry, which places a challenge on choosing which topics to report. This dilemma will be further elaborated in Section 7.6.

7.6 Selecting and prioritizing the topics to be reported

After selecting the sustainability framework, the next step is selecting the topics to be report. The topics to be selected as the most relevant ones, ‘the material topics’, should be the ones that have the most impact, that are the most recommendable considering the industry sector and that the stakeholders consider the most important.

7.6.1 The GRI implementation process guideline

As explained in Section 5.2, the GRI Standards are composed of three sets: Universal Standards which apply to all organizations, the Sector Standards that include the industry specific disclosure recommendations, and the Topic Standards that are selected by the organization. The organization prioritises the topics for reporting based on its most significant impacts. (GRI, 2022)

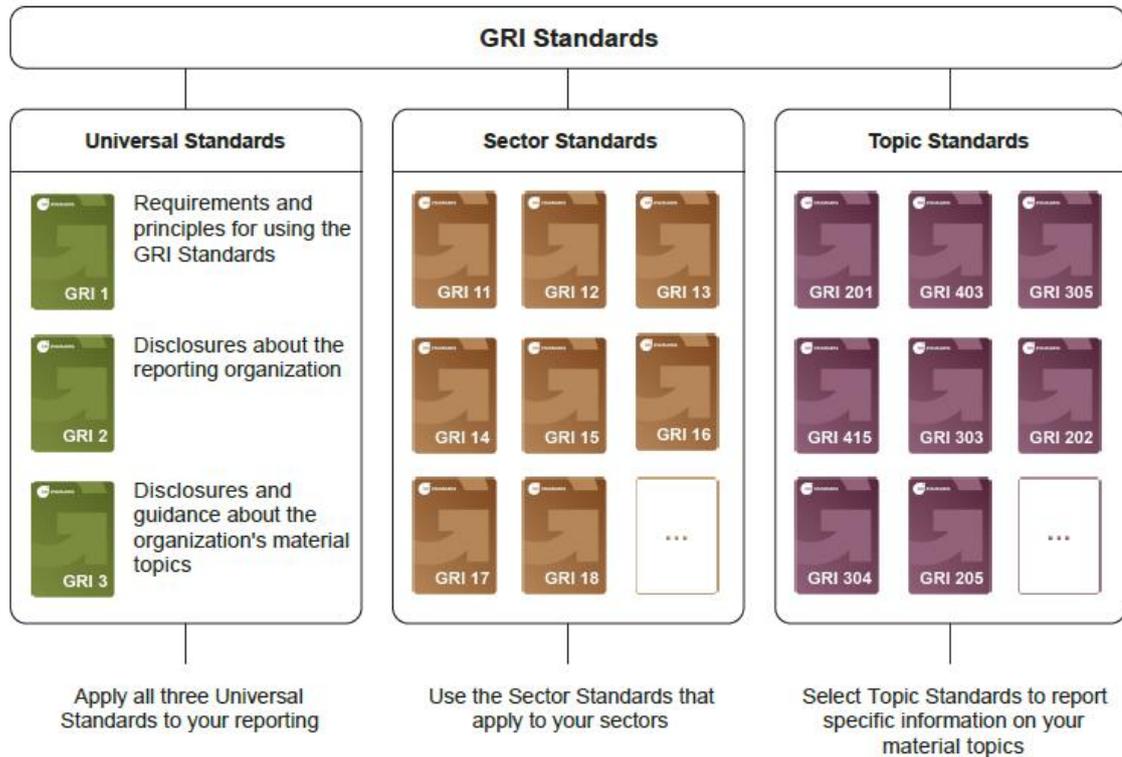


Figure 18: GRI Standards. The Universal Standards apply to all organizations. The Sector Standards are industry sector specific. The Topic Standards are meant to be chosen by each organization, based on which topics they consider most relevant. (GRI, 2022)

Following the GRI guidance, the Universal Standards will be adopted as they are. The next process step is to apply the Sector Standards. Unfortunately, even though a Sector Standards for Manufacturing and Design of Electronic Products is on the program agenda, at the time of writing it has not yet been published.

As the development seems to be quite a laborious process, waiting for the release of the electronics industry standard does not seem like a considerable option. The GRI G4 Guidelines provide no help either. Even though they had some Sector Disclosures, electronics manufacturing sector was not included in them.

7.7 An applied process for selecting the most relevant topics

As the GRI Sector Program or G4 Sector Disclosures provided no guidance for the process of selecting the most relevant topics to be reported. However, the case company had already

selected the SDGs to be prioritized and they are directly linkable to the GRI Standards, so they were used as the starting point.

The following factors were considered in the selection process:

1. The SASB industry-specific disclosure recommendations.
2. The prioritized SDGs, that were decided in a strategy workshop earlier.
3. Benchmarking to competitors that use the GRI Standards to see which Topic Standards they have implemented.
4. The disclosures recommended by EcoVadis sustainability rating platform.
5. Direct data requests from the stakeholders.

The following factors were considered as supplementary information:

6. Checking if the interviews support the conclusions, or if something relevant missing.
7. Data availability.

The factors 1-4 listed above were scored to create a priority ranking list for action recommendations. The factors 5 and 6 were not scored and can be considered as supplementary information, however, not criteria for prioritisation.

7.7.1 The SASB industry-specific recommendations

As the GRI sector-specific recommendations were not published yet, the industry-specific disclosure recommendation by the SASB Standards were checked for reference. The SASB has published a sustainability accounting standard for Electronic Manufacturing Services & Original Design Manufacturing industry (SASB, 2018).

The SASB sustainability disclosure topics and accounting metrics for EMS and ODM industries covered disclosures addressing the following topics:

- Water Management
- Waste Management
- Labor Practices

- Labor Conditions
- Product Lifecycle Management
- Materials Sourcing

The disclosures related to the topics can be found from Annex 4. The topics listed above were determined as material topics to the case company. However, the target audience of the SASB is the investors. SASB is focusing on topics that are considered financially material to the company's business but does not cover the non-financial areas.

The SASB disclosures were assessed as relevant, but not sufficient to comprehensively address the sustainability concerns of a broad stakeholder audience on their own. They have some overlapping with the GRI Standards, therefore it was concluded that they could be used as guidance in the selection process of Topic Standards from the GRI Standards system, but allow adding more Topic Standards to ensure full coverage.

7.7.2 The GRI standards linked to the prioritized SDGs

The connections from each SDG to GRI disclosures are pointed out in the report "Linking the SDGs and the GRI Standards", updated in March 2021 (GRI, 2021b). The GRI Topic Standards that are linked to the SDGs prioritized by the case company are presented in Table 5 below.

Table 5: The GRI Topic Standards linked to the SDGs prioritized by the case company.

SDG		Goal	GRI Topic	
5	Gender equality	Achieve gender equality and empower all women and girls	102	General Disclosures
			202	Market Presence
			203	Indirect Economic Impacts
			401	Employment
			404	Training and Education
			405	Diversity and Equal Opportunity
			406	Non-discrimination
			414	Supplier Social Assessment
7	Affordable and clean energy	Ensure access to affordable, reliable, sustainable and modern energy for all	302	Energy
8	Decent Work and Economic Growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	102	General Disclosures
			201	Economic Performance
			202	Market Presence
			203	Indirect Economic Impacts
			204	Procurement Practices
			301	Materials
			302	Energy
			401	Employment
			402	Labor
			403	Occupational Health and Safety
			404	Training and Education
			405	Diversity and Equal Opportunity
			406	Non-discrimination
			407	Freedom of Association and Collective Bargaining
408	Child Labor			
409	Forced or Compulsory Labor			
414	Supplier Social Assessment			
9	Industry, Innovation and Infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	201	Economic Performance
			203	Indirect Economic Impacts
11	Sustainable Cities and Communities	Make cities and human settlements inclusive, safe, resilient and sustainable	203	Indirect Economic Impacts
12	Responsible Consumption and Production	Ensure sustainable consumption and production patterns	301	Materials
			302	Energy
			303	Water and Effluents
			305	Emissions
			306	Effluents and Waste
			417	Marketing and Labeling
13	Climate Action	Take urgent action to combat climate change and its impacts	201	Economic Performance
			302	Energy
			305	Emissions
17	Partnerships for the Goals	Strengthen the means of implementation and revitalize the global partnership for sustainable development	207	Tax

Each of the SDGs has sub-targets connected to them. The number of sub-targets vary. Table 6 below shows the number of sub-targets of prioritized SDGs that are connected to each GRI Topic Standard. The list is based on the publication “Linking the SDGs and the GRI Standards” (GRI, 2021b).

Table 6: The number of sub-targets of prioritized SDGs that are connected to each GRI Topic Standard. Some of the Standards have had changes made to revision 2021. The changes are commented in the right column.

GRI Topic	Number of prioritized SDGs linked to	Number of subtargets linked to	Revision	2021 revision changes
302 Energy	4	22	2016	
203 Indirect Economic Impacts	4	7	2016	
201 Economic Performance	3	6	2016	
305 Emissions	2	10	2016	
301 Materials	2	8	2016	
401 Employment	2	8	2016	
405 Diversity and Equal Opportun	2	5	2016	
414 Supplier Social Assessment	2	4	2016	
202 Market Presence	2	3	2016	
406 Non-discrimination	2	2	2016	
403 Occupational Helath and Safe	1	18	2018	
207 Tax	1	8	2019	
404 Training & Education	1	7	2016	
306 Effluents and Waste	1	5	2016	Waste 2020
102 General Disclosures	1	4	2021	GRI 2 General Disclosures 2021
303 Water and Effluents	1	2	2018	
204 Procurement Practices	1	1	2016	
402 Labor-Management Relations	1	1	2016	
407 Freedom of Association and C	1	1	2016	
408 Child Labor	1	1	2016	
409 Forced or Compulsory Labor	1	1	2016	
417 Marketing and Labeling	1	1	2016	
205 Anti-corruption	0	0	2016	
206 Anti-competitive Behavior	0	0	2016	
304 Biodiversity	0	0	2016	
307 Environmental Compliance	0	0	2016	Deleted from GRI 2021
308 Supplier Environmental Asses	0	0	2016	
410 Security Practices	0	0	2016	
411 Rights of Indigenous Peoples	0	0	2016	
413 Local Communities	0	0	2016	
415 Public Policy	0	0	2016	
416 Customer Health and Safety	0	0	2016	
418 Customer Privacy	0	0	2016	
419 Socioeconomic Compliance	0	0	2016	Deleted from GRI 2021

The guide that was used as a reference, “Linking the SDGs and the GRI Standards” (GRI, 2021b) referred to GRI 2018 revision even though by the time of writing, GRI 2021 revision that would become effective from January 1st, 2023, had been recently published.

The majority of the GRI Topics and disclosures connected to them remained unchanged or only minor updates had been done. If a significant update has been made for 2021 revision, a comment can be found from the last column of Table 6. If there is not comment, the previous revision is still in use.

7.7.3 Benchmarking to competitors

The Market Intelligence of the case company had identified 15 most notable competitors in their competition overview document published in February 2021. Those 15 EMS companies were used as the sample of the bench-marking research.

Sustainability reporting practices

10 out of the 15 competitors (67%) had produced some kind of a sustainability report. Even the five companies that did not report sustainability, had sustainability or CSR mentioned on their websites in some form, such as a policy statement. 7 out of the 15 companies (47%) had defined their prioritized SDGs.

7 out of the 15 sample companies (47%) used GRI in their reporting. 4 out of 15 companies (27%) used SASB standard in their reporting. All the companies that reported using the SASB, reported also using the GRI standards.

The number of the companies that had defined their prioritized SDGs and companies using GRI was 7 out of 15 (47%) for both, but the two groups were not fully overlapping. When profiling the companies that report SASB and/or GRI and/or have defined their prioritized SDGs, the half of the sample with higher revenue and number of employees is emphasized.

4 out the 7 companies (57%) using GRI report also using the SASB standards. 3 out the 7 companies (43%) report also in accordance with the TCFD standards. All the companies reporting TCFD report also using the SASB standards and have their SDGs defined.

Table 7 below illustrates the other sustainability reporting measures taken by the sample companies using the GRI Standards in their sustainability reporting.

Table 7: The other sustainability reporting measures used by sample companies that report in accordance to the GRI Standards.

	A	B	C	D	E	F	G	count
GRI	x	x	x	x	x	x	x	7
SASB	x	x	x	x	-	-	-	4
TCFD	-	x	x	x	-	-	-	3
SDG	x	x	x	x	-	x	-	5

The prioritized SDGs

6 out of the 7 companies (86%) that use GRI in their reporting have also defined their prioritized SDGs. The number of prioritized SDGs varied from 4 to 14, the average being about 10. The case company had 8 prioritized SDGs. Table 8 below illustrates the SDGs prioritized by the sample competitors, ranked by popularity in the sample companies.

Table 8: The SDGs prioritized by benchmarked competitors, ranked by popularity. The case company had prioritized 8 SDGs. The average number of prioritized SDGs in benchmarked competitors was 10,4.

SDG	A	B	C	D	F	Count (benchmarking companies)	The case company
7 Affordable and Clean Energy	x	x	x	x	x	5	x
8 Decent Work and Economic Growth	x	x	x	x	x	5	x
12 Responsible Consumption and Production	x	x	x	x	x	5	x
4 Quality Education	-	x	x	x	x	4	
5 Gender Equality	x	x	-	x	x	4	x
6 Clean Water and Sanitation	x	x	-	x	x	4	
10 Reduced Inequality	x	x	-	x	x	4	
13 Climate Action	x	x	-	x	x	4	x
3 Good Health and Well-being	x	x	-	-	x	3	
16 Peace, Justice, and Strong Institutions	x	x	-	-	x	3	
17 Partnerships for the Goals	x	x	-	x	-	3	x
9 Industry, Innovation and Infrastructure	-	-	-	x	x	2	x
11 Sustainable Cities and Communities	x	x	-	-	-	2	x
14 Life Below Water	-	x	-	-	x	2	
15 Life On Land	-	x	-	-	x	2	
1 No Poverty	-	-	-	-	-	0	
2 Zero Hunger	-	-	-	-	-	0	
Count	11	14	4	10	13		8

As can be seen from Table 8, the three most popular SDGs were 7: Affordable and Clean Energy, 8: Decent Work and Economic Growth, and 12: Responsible Consumption and Production. 100% of the sample competitors had prioritized them, and so has the case company. These three SDGs seem to be identified in unison as the most relevant impact areas in the EMS business.

The second group of prioritized SDGs are the ones prioritized by 4 out of the 5 (80%) competitors, which are 4: Quality Education, 5: Gender Equality, 6: Clean Water and

Sanitation, 10: Reduced Inequality, and 13: Climate Action. The case company has prioritized two of these five SDGs: Gender Equality (5) and Climate Action (13).

The third group of prioritized SDGs had been prioritized by three companies (60%) of the research sample. These were 3: Good Health and Well-being, 16: Peace, Justice and Strong Institutions and 17: Partnerships for the Goals were prioritized by three companies. SDG 17: Partnerships for the Goals was also prioritized by the case company.

The fourth group was prioritized by two sample companies (40%). The SDGs in this group were 9: Industry, Innovation and Infrastructure, 11: Sustainable Cities and Communities, 14: Life Below Water and 15: Life on Land. The case company had prioritized two of them, which were 9: Industry, Innovation and Infrastructure and 11: Sustainable Cities and Communities. SDGs 1: No Poverty and 2: Zero Hunger were prioritized by none of the sample companies.

It seems that the SDGs prioritized by the case company are in alignment with its business and industry. Five of its prioritized SDGs (7, 8, 12, 5 and 13) seem to be generally recognized by the EMS industry. The remaining three (17, 9 and 11) are more related to business- and company-specific characteristics of the case company.

The GRI Topic Standards

A benchmarking was done to compare which GRI Topic Standards the competitors find the most relevant to report. The results are summarized in Table 9 below.

Table 9: The GRI Topic Standards ranked by the number of sample competitors reporting it. All benchmarked companies reported GRI Standards 102: General Disclosures, 302: Energy, 303: Water and Effluents, 305: Emissions and 403: Occupational Health and Safety.

GRI Standard	Revision	Number of competitors reporting (maximum value 7)	2021 revision comment
102 General Disclosures	2018	7	GRI 2
302 Energy	2016	7	
303 Water and Effluents	2018	7	
305 Emissions	2016	7	
403 Occupational Health and Safety	2018	7	
205 Anti-corruption	2016	6	
306 Effluents and Waste	2016	6	
404 Training & Education	2016	6	
401 Employment	2016	5	
405 Diversity and Equal Opportunity	2016	5	
409 Forced or Compulsory Labor	2016	5	
414 Supplier Social Assessment	2016	5	
201 Economic Performance	2016	4	
308 Supplier Environmental Assessment	2016	4	
408 Child Labor	2016	4	
413 Local Communities	2016	4	
204 Procurement Practices	2016	3	
206 Anti-competitive Behavior	2016	3	
307 Environmental Compliance	2016	3	deleted
418 Customer Privacy	2016	3	
419 Socioeconomic Compliance	2016	3	deleted
402 Labor-Management Relations	2016	2	
406 Non-discrimination	2016	2	
407 Freedom of Association and Collective	2016	2	
202 Market Presence	2016	1	
203 Indirect Economic Impacts	2016	1	
207 Tax	2019	1	
415 Public Policy	2016	1	
301 Materials	2016	0	
304 Biodiversity	2016	0	
410 Security Practices	2016	0	
411 Rights of Indigenous Peoples	2016	0	
416 Customer Health and Safety	2016	0	
417 Marketing and Labeling	2016	0	

Reporting the General Disclosures is mandatory for all companies that use GRI, so it was not surprising to see it being reported by all the sample companies. Other Topic Standards that were reported by all the Sample companies were GRI Standards 302: Energy, 303: Water and Effluents, 305: Emissions and 403: Occupational Health and Safety. Considering the characteristics of the EMS industry, it seems reasonable that these topics are unanimously considered as essential.

The Topic Standards 205: Anti-corruption, 306: Effluents and Waste, and 404: Training and Education, seemed to be generally recognized as substantial. They were reported by 6 out of the 7 companies, which makes about 86% of the sample. It seems these are topics that are generally considered as characteristics of the EMS industry field.

Groups 3 and 4 were reported by majority of the sample companies. Standards 401: Employment, 405: Diversity and Equal Opportunity, 409: Forced or Compulsory Labor and 414: Supplier Social Assessment were being reported by 5 out of the 7 companies, which makes 71% of the sample. Standards 201: Economic Performance, 308: Supplier Environmental Assessment, 408: Child Labor, and 413: Local Communities were reported by 4 out of the 7, or 57%, of the sample companies.

Those topics would seem like issues that concern the EMS industry in general, not only specific companies. The reason for a company not reporting them could be in the immaturity of the sustainability reporting practice and prioritization, not necessarily in considering them as unimportant or irrelevant. The companies may be reporting some of them in other reports and/or have policies for handling those issues, even if they are currently not being reported in accordance to the GRI Standards.

The rest of the Standards were reported by less than half of the sample. Standards 204: Procurement Practices, 206: Anti-competitive Behavior, 307: Environmental Compliance, 418: Customer Privacy and 419: Socioeconomic Compliance, were reported by 3 out of 7, or 42% of the sample. Standards 307: Environmental Compliance and 419: Socioeconomic Compliance were still included in the GRI Standards 2016 version but will be removed from the GRI Standards 2021 revision.

Standards 402: Labor-Management Relations, 406: Non-discrimination and 407: Freedom or Association and Collective Bargain were reported by 2 out of 7, or 29%, of the sample. This could be due to country-specific laws, practices and cultural differences in attitudes to the topics. Standards 202: Market Presence, 203: Indirect Economic Impacts, 207: Tax and 415: Public Policy, were reported by only 1 out of 7, or 14%, of the sample.

There were six Topics Standards, that were reported by none of the sample companies. It seems these Standards are generally not considered a priority on the EMS industry field, or at least the reporting practice is still on immature level. The standards in this category were

301: Materials, 304: Biodiversity, 410: Security Practices, 411: Rights of Indigenous Peoples, 416: Customer Health and Safety, and 417: Marketing and Labelling.

7.7.4 Benchmarking to EcoVadis sustainability rating criteria

EcoVadis was chosen as a subject of benchmarking because it is being used by over 90 000 companies operating in more than 160 countries and 200 industries (EcoVadis, 2022b). The assessments focus on 21 sustainability criteria. The assessment is customized by industry, size and location.

The EcoVadis sustainability criteria are based upon international sustainability standards, such as the Global Compact Principles, the International Labour Organization (ILO) conventions, the Global Reporting Initiative (GRI) standard, the ISO 26000 standard and the CERES principles. (EcoVadis, 2022a)

Therefore, it can be safely assumed, that EcoVadis reflects the stakeholders' information preferences, the reporting standards of the industry and the topics generally considered as relevant to the industry.

EcoVadis sustainability rating system is emphasized a lot on existence of policies on the topics considered as relevant to the industry. It does not give direct answers about which disclosures to report. However, it can be used as guidance about what topics are considered essential. It is notifiable, that a recurring criterion under all themes in EcoVadis is sustainability reporting in accordance with GRI standards.

7.7.5 The Topic Standard priority score card

The guiding criteria for the prioritization of the GRI Topic Standards were collected into a scorecard. The relative weight for each criterion differs. The structure of the score card with the minimum and maximum score for each criterion is depicted in Table 10 below. The total minimum score is 0 and the total maximum is 100 points. The detailed scoring mechanism for each criterion can be found from the Appendix 5.

Table 10: The structure of the scorecard. The guiding criteria are the following: 1) the number of SDGs the Topic Standard is connected to, 2) is there thematic overlapping with EcoVadis, 3) the number of competitors reporting it, 4) the number of SDG sub-targets it is connected to, 4) is there thematic overlapping with SASB industry-specific disclosure recommendation and 5) is there thematic overlapping with a customer assessment. The total minimum score is 0 and the total maximum is 100 points.

	1	2	3	4	5	6	
	Number of prioritized SDGs linked to	Overlapping themes in EcoVadis	Number of competitors reporting (max 7)	Number of SDG subtargets linked to	Overlapping themes in SASB industry-specific disclosure topics	Overlapping with a customer assessment	TOTAL
Minimum score	0	0	0	0	0	0	0
Maximum score	32	28	21	11	4	4	100

Table 11 below presents the results after score card method is applied to the findings. When the Topic Standards were listed into an ascending prioritization order based on their relevance score (rounded up to the closest natural number) a priority ranking order could be formed.

Table 11: The priority scoring method applied to the Topic Standards. The scores were rounded up to the closest natural number. GRI 102 General Disclosures was included in the scorecard, even though it is mandatory for all companies. GRI 102 will become obsolete and be replaced by GRI 2 Standard in the GRI Standards 2021 revision. Standards 307 Environmental Compliance 2016 and 419 Socioeconomic Compliance will be removed from the 2021 revision. The table includes the standard 306 Waste 2020 because that is the current revision, but at the time of the benchmarking five of the companies were still reporting the topic in accordance with the 2016 revision.

	1	2	3	4	5	6	
Maximum score	32	28	21	11	4	4	100
	Number of prioritized SDGs linked to	Overlapping themes in EcoVadis	Number of competitors reporting	Number of SDG subtargets linked to	Overlapping themes in SASB industry-specific disclosure topics	Overlapping with a customer assessment	TOTAL SCORE
302 Energy 2016	32	28	21	11		4	96
305 Emissions 2016	16	28	21	5		4	74
403 Occupational Health and Safety 2018	8	28	21	9	4		70
414 Supplier Social Assessment 2016	16	28	15	2		4	65
401 Employment 2016	16	28	15	4			63
303 Water and Effluents 2018	8	28	21	1	4		62
405 Diversity and Equal Opportunity 2016	16	28	15	2,5			62
306 Waste 2020	8	28	18	2,5	4		61
404 Training and Education 2016	8	28	18	3,5			58
409 Forced or Compulsory Labor 2016	8	28	15	0,5			52
408 Child Labor 2016	8	28	12	0,5			49
205 Anti-corruption 2016	0	28	18	0			46
308 Supplier Environmental Assessment 2016	0	28	12	0			40
201 Economic Performance 2016	24		12	3			39
203 Indirect Economic Impacts 2016	32		3	3,5			39
206 Anti-competitive Behavior 2016	0	28	9	0			37
301 Materials 2016	16		0	4		4	24
102 General Disclosures	0		21	2			23
406 Non-discrimination 2016	16		6	1			23
202 Market Presence 2016	16		3	1,5			21
204 Procurement Practices 2016	8		9	0,5			18
402 Labor/Management Relations 2016	8		6	0,5			15
407 Freedom of Association and Collective Bargaining 2016	8		6	0,5			15
207 Tax 2019	8		3	4			15
413 Local Communities 2016	0		12	0			12
307 Environmental Compliance 2016	0		9	0			9
418 Customer Privacy 2016	0		9	0			9
419 Socioeconomic Compliance 2016	0		9	0			9
417 Marketing and Labeling 2016	8		0	0,5			9
415 Public Policy 2016	0		3	0			3
304 Biodiversity 2016	0		0	0			0
410 Security Practices 2016	0		0	0			0
411 Rights of Indigenous Peoples 2016	0		0	0			0
416 Customer Health and Safety 2016	0		0	0			0

Notes about the standards listed in Table 11. GRI 102 General Disclosures was included in the scorecard to have the GRI Standards comprehensively represented. However, it is mandatory for all companies, so the score it gets is not relevant. GRI 102 will become obsolete and be replaced by GRI 2 Standard in the GRI Standards 2021 revision.

Standards 307 Environmental Compliance 2016 and 419 Socioeconomic Compliance will be removed from the 2021 revision. The table includes the standard 306 Waste 2020 because that is the current revision, but at the time of the benchmarking five of the companies were still reporting the topic in accordance with the 2016 revision.

7.7.6 GRI Topic Standard prioritization

The next step was arranging the Topic Standards into three priority classes based on their relevance score. There were at least two possible approaches to this: 1) The Topic Standards could be divided into three groups, each containing roughly equal number of Topics. 2) Classification based on the relevance score.

The latter could be executed several ways, but the most straightforward way to form three classes based on relevance score would be the following: 0-33 points is low priority, 34-66 points is medium priority, and 67-100 points is high priority. Tables 12 and 13 below exhibit the classification results using Methods 1 and 2.

Table 12: Prioritized topics with classification Method 1 applied.

GRI		Score
Priority class 1: HIGH (ranking 1-10)		
302	Energy 2016	96
305	Emissions 2016	74
403	Occupational Health and Safety 2018	70
414	Supplier Social Assessment 2016	65
401	Employment 2016	63
303	Water and Effluents 2018	62
405	Diversity and Equal Opportunity 2016	62
306	Waste 2020	61
404	Training and Education 2016	58
409	Forced or Compulsory Labor 2016	52
Priority class 2: MED (ranking 11-20)		
408	Child Labor 2016	49
205	Anti-corruption 2016	46
308	Supplier Environmental Assessment 2016	40
201	Economic Performance 2016	39
203	Indirect Economic Impacts 2016	39
206	Anti-competitive Behavior 2016	37
301	Materials 2016	24
406	Non-discrimination 2016	23
202	Market Presence 2016	21
204	Procurement Practices 2016	18
Priority class 2: LOW (ranking 21-31)		
207	Tax 2019	15
402	Labor/Management Relations 2016	15
407	Freedom of Association and Collective Bargaining 2016	15
413	Local Communities 2016	12
417	Marketing and Labeling 2016	9
418	Customer Privacy 2016	9
415	Public Policy 2016	3
304	Biodiversity 2016	0
410	Security Practices 2016	0
411	Rights of Indigenous Peoples 2016	0
416	Customer Health and Safety 2016	0

The Topic Standards 102 General Disclosures, 307 Environmental Compliance and 419 Socioeconomical Compliance have been excluded from the lists. The relevance score of Standard 102 is irrelevant, because reporting the General Disclosures is mandatory for all organizations anyway, and GRI 102 will be replaced by GRI 2 in the 2021 revision. GRI 307 and 419 will be removed from the 2021 revision.

Table 13: Prioritized topics with classification Method 2 applied.

GRI		Score
Priority class 1: HIGH (score: 67-100)		
302	Energy 2016	96
305	Emissions 2016	74
403	Occupational Health and Safety 2018	70
Priority class 2: MED (score: 34-66)		
414	Supplier Social Assessment 2016	65
401	Employment 2016	63
303	Water and Effluents 2018	62
405	Diversity and Equal Opportunity 2016	62
306	Waste 2020	61
404	Training and Education 2016	58
409	Forced or Compulsory Labor 2016	52
408	Child Labor 2016	49
205	Anti-corruption 2016	46
308	Supplier Environmental Assessment 2016	40
201	Economic Performance 2016	39
203	Indirect Economic Impacts 2016	39
206	Anti-competitive Behavior 2016	37
Priority class 2: LOW (score: 0-33)		
301	Materials 2016	24
406	Non-discrimination 2016	23
202	Market Presence 2016	21
204	Procurement Practices 2016	18
207	Tax 2019	15
402	Labor/Management Relations 2016	15
407	Freedom of Association and Collective Bargaining 2016	15
413	Local Communities 2016	12
417	Marketing and Labeling 2016	9
418	Customer Privacy 2016	9
415	Public Policy 2016	3
304	Biodiversity 2016	0
410	Security Practices 2016	0
411	Rights of Indigenous Peoples 2016	0
416	Customer Health and Safety 2016	0

As can be seen when comparing the tables above, applying a different partition method produces a different outcome. However, it is essential to keep in mind that the purpose of the prioritization ranking system is to provide guidance – not to be applied blindly. A critical examination is necessary before deriving a recommendation.

When examining Table 13, in which Method 2 was applied, there are only three topics in the high priority class. These three topics seem highly relevant to the EMS industry, but it also seems clear that this coverage is insufficient to address the stakeholder pressure.

The main reason why only these three topics reach the score of >66 points is that the number of the prioritized SDGs is so heavily emphasized in the scoring. The prioritized SDGs provide a good starting point in determining the most relevant topics and the capability to address more than one SDG at once can be considered an advantage. However, all the prioritized SDGs need to be addressed, and blindly favouring the topics with the capability to address multiple SDGs does not guarantee that all those topics will be covered. The number of linkages from the SDGs to the GRI topics vary.

Table 14 below shows what the priority list would look like, if the case company wanted to prioritize all the topics with a linkage to the prioritized SDGs and the ranking was based on how many prioritized SDGs the Topic Standard was connected to. The list contains 21 Topic Standards, each addressing 1-5 prioritized SDGs.

Table 14: The Topic Standards priority list if the only ranking criteria were the linkages to prioritized SDGs.

Maximum score		32
GRI		Score
302	Energy 2016	32
203	Indirect Economic Impacts 2016	32
201	Economic Performance 2016	24
305	Emissions 2016	16
414	Supplier Social Assessment 2016	16
401	Employment 2016	16
405	Diversity and Equal Opportunity 2016	16
301	Materials 2016	16
406	Non-discrimination 2016	16
202	Market Presence 2016	16
403	Occupational Health and Safety 2018	8
303	Water and Effluents 2018	8
306	Waste 2020	8
404	Training and Education 2016	8
409	Forced or Compulsory Labor 2016	8
408	Child Labor 2016	8
204	Procurement Practices 2016	8
402	Labor/Management Relations 2016	8
407	Freedom of Association and Collective Bargaining 2016	8
207	Tax 2019	8
417	Marketing and Labeling 2016	8

A Topic Standard prioritization list based purely on the case company's SDG prioritization would be highly problematic, because would be reflecting only the company's own views and dismissing the concerns of the stakeholders and the practices of the industry that the benchmarking reflects.

If the company-specific SDG prioritization were taken out of the evaluation, and only the stakeholder concerns and industry standards were taken into account, the list would look different. It can be safely assumed that, as elaborated in Section 6.4.1 and 7.7.4, EcoVadis rating system reflects them both, the stakeholders and the industry standards. That is why it is being emphasized in the scoring.

The number of the competitors reporting the topic reflects the general practices of the industry too, but the sample is only seven companies, and its representativeness is difficult to estimate. That is why it has a lower maximum score. Table 15 below shows the results when this method is applied. That is to say, if EcoVadis and benchmarking results were used as the only criteria.

Table 15: The prioritization list if EcoVadis and benchmarking to the competitors were the only criteria. The grey topics could be excluded from the final results, because they have been removed from the 2021 revision.

Maximum score		28	21	49
GRI		Overlapping themes in EcoVadis	Number of competitors reporting	TOTAL
302	Energy 2016	28	21	49
305	Emissions 2016	28	21	49
403	Occupational Health and Safety 2018	28	21	49
303	Water and Effluents 2018	28	21	49
306	Waste 2020	28	18	46
404	Training and Education 2016	28	18	46
205	Anti-corruption 2016	28	18	46
414	Supplier Social Assessment 2016	28	15	43
401	Employment 2016	28	15	43
405	Diversity and Equal Opportunity 2016	28	15	43
409	Forced or Compulsory Labor 2016	28	15	43
408	Child Labor 2016	28	12	40
308	Supplier Environmental Assessment 2016	28	12	40
206	Anti-competitive Behavior 2016	28	9	37
102	General Disclosures		21	21
201	Economic Performance 2016		12	12
413	Local Communities 2016		12	12
204	Procurement Practices 2016		9	9
307	Environmental Compliance 2016		9	9
418	Customer Privacy 2016		9	9
419	Socioeconomic Compliance 2016		9	9
406	Non-discrimination 2016		6	6
402	Labor/Management Relations 2016		6	6
407	Freedom of Association and Collective Bargaining 2016		6	6
203	Indirect Economic Impacts 2016		3	3
202	Market Presence 2016		3	3
207	Tax 2019		3	3
415	Public Policy 2016		3	3
301	Materials 2016		0	0
417	Marketing and Labeling 2016		0	0
304	Biodiversity 2016		0	0
410	Security Practices 2016		0	0
411	Rights of Indigenous Peoples 2016		0	0
416	Customer Health and Safety 2016		0	0

If overlapping of themes with EcoVadis was used as the only criterion, that would result in 14 Topic Standards to be prioritized. All those topics were also reported by the sample competitors, which also supports the conclusion that they should be prioritized as topics reflecting the EMS industry in general.

EcoVadis has a credible founding such as the internationally recognized principles and a wide userbase, which makes de facto an industry standard. Reporting in compliance with the GRI standards is one of the sustainability rating criteria in EcoVadis. A credible case can be made, that all Standard Topics that have overlapping with EcoVadis should be considered as relevant.

If all Topic Standards that were reported by the competitors were included in the prioritization list, that would give 28 topics. However, since the profiles of the benchmarked

competitors vary in customer base, product portfolio, size, location etc., their company-specific prioritizations may intrinsically vary from the case company. Therefore, benchmarking results should be used as a guidance but not blindly adopted.

An critical review was performed to examine if some of the topics could safely be removed from the priority list. The first Topic Standards to be removed were 307: Environmental Compliance 2016 and 419: Socioeconomic Compliance 2016, which were going to be removed from the GRI Standards 2021 revision anyway.

Other Topic Standards to be eliminated from the priority list were 304 Biodiversity, 410 Security Practices, 411 Rights of Indigenous Peoples, 416 Customer Health and Safety, and 417 Marketing and Labeling. They all scored low on the score card, had no overlapping with EcoVadis and were reported by none of the benchmarked competitors.

Another critical review was performed with management representatives from the case company. After elimination of Topic Standards that were estimated as lower relevance, 26 Topic Standards were left. They can be found listed in Table 16 below.

Table 16: The remaining Topic Standards after eliminating the Topic Standards that were regarded as low relevance by the management of the case company.

Maximum score	32	28	21	11	4	4	100
	Number of prioritized SDGs linked to	Overlapping themes in EcoVadis	Number of competitors reporting	Number of SDG subtargets linked to	Overlapping themes in SASB industry-specific disclosure topics	Overlapping with a customer assessment	TOTAL SCORE
302 Energy 2016	32	28	21	11		4	96
305 Emissions 2016	16	28	21	5		4	74
403 Occupational Health and Safety 2018	8	28	21	9	4		70
414 Supplier Social Assessment 2016	16	28	15	2		4	65
401 Employment 2016	16	28	15	4			63
303 Water and Effluents 2018	8	28	21	1	4		62
405 Diversity and Equal Opportunity 2016	16	28	15	2,5			62
306 Waste 2020	8	28	18	2,5	4		61
404 Training and Education 2016	8	28	18	3,5			58
409 Forced or Compulsory Labor 2016	8	28	15	0,5			52
408 Child Labor 2016	8	28	12	0,5			49
205 Anti-corruption 2016	0	28	18	0			46
308 Supplier Environmental Assessment 2016	0	28	12	0			40
201 Economic Performance 2016	24		12	3			39
203 Indirect Economic Impacts 2016	32		3	3,5			39
206 Anti-competitive Behavior 2016	0	28	9	0			37
301 Materials 2016	16		0	4		4	24
406 Non-discrimination 2016	16		6	1			23
202 Market Presence 2016	16		3	1,5			21
204 Procurement Practices 2016	8		9	0,5			18
402 Labor/Management Relations 2016	8		6	0,5			15
407 Freedom of Association and Collective Bargaining 2016	8		6	0,5			15
207 Tax 2019	8		3	4			15
413 Local Communities 2016	0		12	0			12
418 Customer Privacy 2016	0		9	0			9
415 Public Policy 2016	0		3	0			3

7.7.7 Conclusions and a summary

It seems that none of the methods introduced in the previous chapter alone is capable of giving a comprehensive and satisfying direct answer which Topic Standards to prioritize. The purpose of the ranking list and classification is to provide guidance. It should not be applied blindly, without a critical review.

It can be assumed, that all Topic Standards that have overlapping with the themes in EcoVadis can be considered relevant, even if they do not have a linkage to the SDGs prioritized by the case company. The themes in EcoVadis can be presupposed to reflect the most pressing stakeholder concerns, the considerations most relevant to the EMS industry sector and the general sustainability reporting practices of the industry. Therefore, at least the Topic Standards listed in Table 17 below should be regarded as a priority.

Table 17: The Topic Standards with overlapping themes in EcoVadis.

Maximum score		100
GRI		TOTAL SCORE
302	Energy 2016	96
305	Emissions 2016	74
403	Occupational Health and Safety 2018	70
414	Supplier Social Assessment 2016	65
401	Employment 2016	63
303	Water and Effluents 2018	62
405	Diversity and Equal Opportunity 2016	62
306	Waste 2020	61
404	Training and Education 2016	58
409	Forced or Compulsory Labor 2016	52
408	Child Labor 2016	49
205	Anti-corruption 2016	46
308	Supplier Environmental Assessment 2016	40
206	Anti-competitive Behavior 2016	37

This conclusion is supported by the overall scorecard rating introduced in the previous chapter. All Topic Standards with overlapping in EcoVadis have a score card relevance rating of 37 points or more. All of the EcoVadis topics are in High or Medium priority class also in the score card, regardless of which method (Table 12 and 13) is being applied.

Another benefit from prioritizing the EcoVadis topics is that it may improve the EcoVadis sustainability rating score, thus providing additional competitive advantage.

After all EcoVadis topics have been classified as High Priority and the topics that were identified as Low Priority on the elimination round in Section 7.7.4, left are 12 Topic Standards that need to have their priority classified. They are listed in Table 18 below.

Table 18: The Topic Standards that are left when topics identified in the elimination round and the topics with overlapping to EcoVadis are removed.

Maximum score	32	28	21	11	4	4	100
GRI	Number of prioritized SDGs linked to	Overlapping themes in EcoVadis	Number of competitors reporting	Number of SDG subtargets linked to	Overlapping themes in SASB industry-specific disclosure topics	Overlapping with a customer assessment	TOTAL
201 Economic Performance 2016	24		12	3			39
203 Indirect Economic Impacts 2016	32		3	3,5			39
301 Materials 2016	16		0	4		4	24
406 Non-discrimination 2016	16		6	1			23
202 Market Presence 2016	16		3	1,5			21
204 Procurement Practices 2016	8		9	0,5			18
402 Labor/Management Relations 2016	8		6	0,5			15
407 Freedom of Association and Collective Bargaining 2016	8		6	0,5			15
207 Tax 2019	8		3	4			15
413 Local Communities 2016	0		12	0			12
418 Customer Privacy 2016	0		9	0			9
415 Public Policy 2016	0		3	0			3

When compared to priority ranking lists in Table 12 and 13, their default class is Low Priority, except 201: Economic Performance and 203: Indirect Economic Impacts, which fall to Medium Priority category.

The number of benchmarked competitors reporting on the topics listed above is relatively low. Standards 201: Economic Performance and 413: Local Communities are reported by 4 of the 7 competitors, but the rest are reported by less than half of the benchmarked competitors, which suggests that they could be more company-specific than industry-specific preferences.

The remaining question is are the SDGs prioritized by the case company properly covered by the Topic Standards that have been already picked to the High Priority class (in other words, the topics overlapping with EcoVadis), or should more Topic Standards be included. Table 19 below illustrates the prioritized SDGs and their Topic Standard counterparts.

Table 19: The prioritized SDGs and their GRI Topic Standard counterparts.

SDG		GRI Topic Standard		Overlapping themes in EcoVadis	Number of competitors reporting	Total score
				yes/no	Score	
5 Gender equality	102	General Disclosures			21	23
	202	Market Presence 2016			3	21
	203	Indirect Economic Impacts 2016			3	39
	401	Employment 2016	x		15	63
	404	Training and Education 2016	x		18	58
	405	Diversity and Equal Opportunity 2016	x		15	62
	406	Non-discrimination 2016			6	23
	414	Supplier Social Assessment 2016	x		15	65
7 Affordable and clean energy	302	Energy 2016	x		21	96
8 Decent Work and Economic Growth	201	Economic Performance 2016			12	39
	203	Indirect Economic Impacts 2016			3	39
	404	Training and Education 2016	x		18	58
	204	Procurement Practices 2016			9	18
	301	Materials 2016			0	24
	302	Energy 2016	x		21	96
	102	General Disclosures			21	23
	202	Market Presence 2016			3	21
	401	Employment 2016	x		15	63
	405	Diversity and Equal Opportunity 2016	x		15	62
	408	Child Labor 2016	x		12	49
	409	Forced or Compulsory Labor 2016	x		15	52
	402	Labor/Management Relations 2016			6	15
	403	Occupational Health and Safety 2018	x		21	70
	406	Non-discrimination 2016			6	23
407	Freedom of Association and Collective Bargaining 2016			6	15	
414	Supplier Social Assessment 2016	x		15	65	
9 Industry, Innovation and Infrastructure	201	Economic Performance 2016			12	39
	203	Indirect Economic Impacts 2016			3	39
11 Sustainable Cities and Communities	203	Indirect Economic Impacts 2016			3	39
12 Responsible Consumption and Production	302	Energy 2016	x		21	96
	303	Water and Effluents 2018	x		21	62
	305	Emissions 2016	x		21	74
	306	Waste 2020	x		18	61
	417	Marketing and Labeling 2016			0	9
13 Climate Action	201	Economic Performance 2016			12	39
	302	Energy 2016	x		21	96
	305	Emissions 2016	x		21	74
17 Partnerships for the Goals	207	Tax 2019			3	15

As can be seen from Table 19 above, most prioritized SDGs have at least some Topic Standards addressing them, but there are three SDGs (9: Industry, Innovation and Infrastructure, 11: Sustainable Cities and Communities and 17: Partnerships for the Goals) that are not addressed. To ensure that all prioritized SDGs will be covered, it is recommendable to add to priority list also Topic Standards that address them.

For SDGs 11 and 17 there is only one option. SDG 9 has two Topic Standards related to it: 201: Economic Performance and 203: Indirect Economic Impacts 2016. They both have equal number of points in the score card, but Economic Performance is reported by four of

the seven benchmarking companies, while Indirect Economic Impacts is reported by only one.

It seems that none of the introduced methods alone is capable of giving a comprehensive and satisfying direct answer which Topic Standards to prioritize. However, a synthesis can be composed of them. The final priority classification recommendation can be found from Table 20 below.

Table 20: The final Topic Standards prioritization recommendation.

	Competitors reporting Score	TOTAL score	Comment
Priority class 1: HIGH			
302 Energy 2016	21	96	
305 Emissions 2016	21	74	
403 Occupational Health and Safety 2018	21	70	
414 Supplier Social Assessment 2016	15	65	
401 Employment 2016	15	63	
303 Water and Effluents 2018	21	62	
405 Diversity and Equal Opportunity 2016	15	62	
306 Waste 2020	18	61	
404 Training and Education 2016	18	58	
409 Forced or Compulsory Labor 2016	15	52	
408 Child Labor 2016	12	49	
205 Anti-corruption 2016	18	46	
308 Supplier Environmental Assessment 2016	12	40	
206 Anti-competitive Behavior 2016	9	37	
Priority class 2: MEDIUM			
201 Economic Performance 2016	12	39	
203 Indirect Economic Impacts 2016	3	39	
301 Materials 2016	0	24	
406 Non-discrimination 2016	6	23	
202 Market Presence 2016	3	21	
202 Market Presence 2016	3	21	
204 Procurement Practices 2016	9	18	
207 Tax 2019	3	15	
402 Labor/Management Relations 2016	6	15	
407 Freedom of Association and Collective Bargaining 2016	6	15	
417 Marketing and Labeling 2016	0	9	Eliminated
Priority class 2: LOW (ranking 21-31)			
413 Local Communities 2016	12	12	
418 Customer Privacy 2016	9	9	
415 Public Policy 2016	3	3	
304 Biodiversity 2016	0	0	Eliminated
410 Security Practices 2016	0	0	Eliminated
411 Rights of Indigenous Peoples 2016	0	0	Eliminated
416 Customer Health and Safety 2016	0	0	Eliminated

The High Priority class contains the Topic Standards that are overlapping with EcoVadis. They reflect the general concerns shared with the stakeholders and the EMS industry. The

Medium Priority class contains the Topic Standards that are related to prioritized SDGs, but that are not addressed in EcoVadis. The rest of the Topic Standards are considered as Low Priority.

It is important to understand that sustainability measuring as a dynamic process. The measuring practices and priorities should be regularly reviewed and adjusted if needed. Not all Topic Standards need to be implemented at once, but it is recommendable to expand the coverage of the sustainability reporting over time. If willing to collect the maximal competitive advantage from sustainability reporting, it is important to stay ahead of the curve.

However, it is also relevant to acknowledge that even though GRI Standards have generally been designed to be suitable for as many organizations as possible, they not all of them are applicable in all organizations and all the time. It is acceptable to report a GRI Topic Standard as “not applicable” if that is a case. However, reporting in accordance with the GRI Standards doesn’t exclude or substitute other sustainability reporting and communications. What it comes to, for example, SDG 17: Partnerships for the goals, there can be other, better and more informative, ways to communicate the advancement.

8 Discussion and recommendations

This Chapter aims to summarize the findings and introduce the recommendations.

Taking the initiative in sustainability reporting allows participation in the process of shaping the sustainability reporting practices with the customers. Having a defined and standardized sustainability process enables providing the customers sustainability reporting proactively, instead of taking a reactive approach. This allows providing the data in a uniform, harmonized way instead of spending resources in preparing tailored reports for each customer to respond their individual data requests.

Sustainability reporting is also recognized as a potential source of competitive advantage. It is predicted that the importance of sustainability as a partner selection and rating criteria is increasing in the future. It is also predicted that the legal requirements for sustainability reporting will increase in the future. If willing to efficiently leverage the competitive advantage from sustainability reporting, the time to do it is before it has become the de facto industry standard, or even a legally required responsibility.

8.1 Project wrap up

The purpose of the project was to create a sustainability performance measuring system for measuring and reporting sustainability. The expected outcomes were the following:

1. Selecting a suitable sustainability measuring and reporting framework.
2. Selecting the most relevant reporting disclosures.
3. A brief reporting guideline.

The requirements for the framework and the disclosures were that the system should cover the topics considered most relevant to the industry and address the customers' needs. The primary target audience for the sustainability performance measuring system was the customers.

The main drivers behind the need for the system were stakeholder pressure (the customers) and seeking competitive advantage. Implementation of the sustainability reporting system and selecting target values for the measures were left out of the project scope. The expected outcomes were reached. They will be exhibited in Section 8.2.

8.2 Recommendations

It is strongly recommendable to use a recognized and widely used framework. That is to ensure that the performance measuring and reporting system reflects the best practices of sustainability measuring and the industry standards. Using the industry specific standards as a guideline ensures that the topics with the most impact are properly addressed. Sporadic and selective reporting may risk a suspect of ‘cherry-picking’ and greenwashing. Thus, using a recognized and respected framework also reduces stakeholder scepticism.

8.2.1 GRI sustainability reporting framework

The recommended framework to be implemented is GRI, Global Reporting Initiative. It has several benefits. The scope of reporting is broad: it addresses a wide range of topics instead of focusing only on for example environment. GRI is suitable for reporting to the customers. It is aimed at broad audience addressing multiple stakeholders instead of focusing solely on investors.

GRI is widely recognized, credible and respected. It is the most used sustainability reporting framework among the G250 companies. It is suitable for the industry, Electronics Manufacturing Services, as well as the case company as a company. GRI is compatible with the UN Sustainability Goals. It is the recommended sustainability reporting framework by UN SDG program as well as EcoVadis sustainability rating system. The recommendation is supported also by academic literature.

The recommended revision to be implemented is the GRI Standards 2021. They have been published out already and will become effective from January 1st, 2023.

8.2.2 The GRI Topic Standards

The most recommendable approach to prioritizing the Topic Standards to be reported would be using the industry-specific recommendations by the GRI Sector Program as the starting point. However, they have not been published yet and the process could take years. It is not recommendable to wait that long before implementing a sustainability reporting system.

Therefore, an applied Topic Standard prioritization process was needed. The results are shown in Table 21 below. When the GRI Sector Program recommendation for the ‘Manufacturing and design of electronic products’ industry is released, the priority list should be reviewed against it.

Table 21: The Topic Standards prioritization recommendation, based on results from Section 7.7.7.

Priority class 1: HIGH	
302	Energy 2016
305	Emissions 2016
403	Occupational Health and Safety 2018
414	Supplier Social Assessment 2016
401	Employment 2016
303	Water and Effluents 2018
405	Diversity and Equal Opportunity 2016
306	Waste 2020
404	Training and Education 2016
409	Forced or Compulsory Labor 2016
408	Child Labor 2016
205	Anti-corruption 2016
308	Supplier Environmental Assessment 2016
206	Anti-competitive Behavior 2016
Priority class 2: MEDIUM	
201	Economic Performance 2016
203	Indirect Economic Impacts 2016
301	Materials 2016
406	Non-discrimination 2016
202	Market Presence 2016
202	Market Presence 2016
204	Procurement Practices 2016
207	Tax 2019
402	Labor/Management Relations 2016
407	Freedom of Association and Collective Bargaining 2016
Priority class 2: LOW	
413	Local Communities 2016
418	Customer Privacy 2016
415	Public Policy 2016
Eliminated as not applicable	
417	Marketing and Labeling 2016
304	Biodiversity 2016
410	Security Practices 2016
411	Rights of Indigenous Peoples 2016
416	Customer Health and Safety 2016

The Topic Standards are categorized into three priority classes: high, medium and low. The fourth class is for the Topic Standards, that were dismissed as not applicable. The recommendations are considered to reflect the topics considered most relevant by the stakeholders and the industry in general.

Also the company-specific impacts are taken into account by reflecting upon the SDGs prioritized by the case company. This study does not factor in the data availability, but when implementing the Topic Standards, it is a reality that may need to be considered in the process too.

8.2.3 Sustainability Rating system EcoVadis

It is recommendable to continue reporting to sustainability rating platform EcoVadis. It is a credible, recognized and widely used sustainability rating service, that is based on credible principles and reflects the topics relevant to the industry. It is also required by several customers.

As shown in Section 6.4, EcoVadis is a recommendable sustainability rating service, when the scope of reporting is broad and the target audience is broad (multiple stakeholders), which makes it concordant with the purposes of the sustainability performance measuring system.

Reporting in accordance to the GRI Standards is a criterion that affects the EcoVadis rating score. Therefore utilizing them both, GRI Standards and EcoVadis together, brings synergistic value.

8.2.4 Reporting guidelines

As explained in Chapter 6, the greatest obstacles for a company to collect the full strategic benefits from CSR activities are 1) that stakeholders are not aware of the company's CSR activities and 2) stakeholder skepticism. Reporting to the stakeholders in accordance with the GRI Standards and continuing using the EcoVadis sustainability rating platform should

address both of these obstacles by providing them information in a credible and standardized way.

However, additional CSR communication may also be needed to make sure that the message reaches the desired target audiences. As explained in Section 6.3, the CSR activity needs to be communicated in a way that is striking, relevant and understandable to the target audience. A clear communication strategy plays the key role in this. The message should be tailored to the needs of the targeted stakeholder group. In this process, four factors should be considered:

- 1) The message content
- 2) The message channels
- 3) The company-specific factors
- 4) The stakeholder-specific factors.

The four factors are elaborated further in Section 6.3, but as a general guideline, sustainability communication should not be limited only to an annual sustainability report. It is recommendable to utilize diverse channels, such as customer relationship meetings, operational communication, social media etc., in bringing forth the sustainability efforts.

8.3 Process review

Two process guidelines were used as a reference in the sustainability measuring project: the sustainability measuring process model by Savitz & Weber (2006) introduced in Sections 3.1 and 3.3, and the GRI Standards implementation guidelines by GRI introduced in Section 5.5.

The model by Savitz & Weber is wide and was therefore applied only partly, but also it recommends considering the GRI. In other words, the process models are not mutually exclusive, but support each other.

Also the GRI process guideline could be applied only partly: Step 2, ‘use the Sector Standards that apply to your sectors’ could not be applied, due to the Sector Program

recommendations for ‘Manufacturing and design of electronic products’ industry not being published out yet.

Therefore, the prioritized SDGs were used as the material topics. They had already been determined by the management in a strategy workshop earlier.

8.4 Additional benefits of sustainability reporting

Taking the initiative in sustainability reporting allows participation in the process of shaping the sustainability reporting practices with the customers. Having a defined and standardized sustainability process enables providing the customers sustainability reporting proactively, instead of taking a reactive approach. This allows providing the data in a uniform, harmonized way instead of spending resources in preparing tailored reports for each customer to respond their individual data requests.

Sustainability reporting is also recognized as a potential source of competitive advantage. It is predicted that the importance of sustainability as a partner selection and rating criteria is increasing in the future. It is also predicted that the legal requirements for sustainability reporting will increase in the future. If willing to efficiently leverage the competitive advantage from sustainability reporting, the time to do it is before it has become the de facto industry standard, or even a legally required responsibility.

8.5 Recommended list of actions to the case company

For the example of the case company, the current recommendation is to implement the GRI framework and the selected Topic Standards as soon as possible, starting from the High Priority class, and to continue reporting to EcoVadis sustainability rating system. It is also recommendable to increase and diversify sustainability communication, not settling for an annual report.

These actions seem sufficient to satisfy the current needs. However, it is important to keep in mind that sustainability measuring and reporting is a dynamic process that needs to be regularly reviewed. The whole field of sustainability measuring is in constant transition and

the reporting requirements are increasing. What is sufficient today, could be deficient tomorrow.

Since a new revision of GRI has been published just recently, it is likely that the GRI Standards will remain stable at least for some years, but it is possible that another measuring and reporting framework, such as Science Based Targets, need to be implemented on parallel at some point.

9 Conclusions

The aim of this research was to compile an overview to Corporate Sustainability, and to propose a method for measuring and reporting sustainability. The research was composed of two parts: a literature review and a case study of an EMS company, that wishes to start measuring its sustainability performance. The expected outcome of the latter was a recommendation on how to measure sustainability. The targets were reached in the process.

The sustainability performance measuring project consists of two phases: selecting a suitable sustainability reporting framework and deciding which topics to prioritize. The intended purpose, scope and target audience of the report guide the framework selection process, along with industry- and company-specific factors. The topics which to report should be the areas with most significant impact, ‘the material topics’. This phase is typically guided by industry-specific recommendations, supplemented with company-specific topics recognized as relevant by the organization itself.

As a result of the framework selection process, GRI was selected as the preferred framework. It addresses the intended target audience and scope. It is the current dominant standard and suitable to the case company as an organization. However, at the time of writing, the GRI Sector Standards to provide the guidelines which Topic Standards to implement were not published for the EMS industry sector yet. This challenge led to a need to create an alternative method for selecting and prioritizing the Topic Standards to be reported.

As a response to this challenge, a score card method was developed. The score card aims to consider the company-specific prioritizations, industry trends, stakeholder concerns and industry-specific recommendations derived from another major sustainability reporting framework (SASB). As a result, a Topic Standard priority ranking list is introduced in Section 7.7.7. This ranking list is created for the specific purposes of the case company, but with adjusted parameters, a similar method may be applicable to other companies as well – at least until the official Sector Standards by the GRI are launched.

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Appendix 1. UN Sustainable Development Goals.

1. *No poverty*. End poverty in all its forms everywhere.
2. *Zero hunger*. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
3. *Good health and well-being for all at all ages*. Ensure healthy lives and promote well-being for all at all ages.
4. *Quality education*. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. *Gender equality*. Achieve gender equality and empower all women and girls.
6. *Water and sanitation*. Ensure availability and sustainable management of water and sanitation for all.
7. *Affordable and Clean Energy*. Ensure access to affordable, reliable, sustainable and modern energy for all.
8. *Decent Work and Economic Growth*. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9. *Industry, Innovation and Infrastructure*. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
10. *Reduced inequalities*. Reduce inequality within and among countries.
11. *Sustainable Cities and Communities*. Make cities and human settlements inclusive, safe, resilient and sustainable.
12. *Responsible Consumption and Production*. Ensure sustainable consumption and production patterns.
13. *Climate Action*. Take urgent action to combat climate change and its impacts.
14. *Life below water*. Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

15. Life on land. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

16. Peace, justice and strong institutions. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

17. Partnerships for the Goals. Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Appendix 2. References

Appendix 2. Targets and topics related to the UN Sustainable Development Goals, as defined in Transforming Our World – the 2030 Agenda for Sustainable Development.

Goal 1. End poverty in all its forms everywhere

1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day.

1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions

1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round

2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons

2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment

2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed

2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries

2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round

2.c Adopt measures to ensure the proper functioning of food commodity markets

and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

Goal 3. Ensure healthy lives and promote well-being for all at all ages

3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births

3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births

3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol

3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents

3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes

3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate

3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries,

provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all

3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States

3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes

4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education

4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university

4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy

4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable

development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all

4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries

4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States

Goal 5. Achieve gender equality and empower all women and girls

5.1 End all forms of discrimination against all women and girls everywhere

5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation

5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation

5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate

5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences

5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women

5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

Goal 6. Ensure availability and sustainable management of water and sanitation for all

6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all

6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity

6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies

6.b Support and strengthen the participation of local communities in improving water and sanitation management

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

7.1 By 2030, ensure universal access to affordable, reliable and modern energy services

7.2 By 2030, increase substantially the share of renewable energy in the global energy mix

7.3 By 2030, double the global rate of improvement in energy efficiency

7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology

7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries

8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors

8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services

8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead

8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training

8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms

8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products

8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all

8.a Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries

8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries

9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets

9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States

9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities

9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

Goal 10. Reduce inequality within and among countries

10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average

10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard

10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality

10.5 Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations

10.6 Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions

10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies

10.a Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements

10.b Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes

10.c By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities

11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning

11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels

11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials

Goal 12. Ensure sustainable consumption and production patterns

12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries

12.2 By 2030, achieve the sustainable management and efficient use of natural resources

12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle

12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities

12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production

12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products

12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities

Goal 13. Take urgent action to combat climate change and its impacts*

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

13.2 Integrate climate change measures into national policies, strategies and planning

13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible

13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

* Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation¹⁶

14.7 By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism

14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries

14.b Provide access for small-scale artisanal fishers to marine resources and markets

14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of “The future we want”

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

16 Taking into account ongoing World Trade Organization negotiations, the Doha Development Agenda and the Hong Kong ministerial mandate

15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development

15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species

15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed

15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products

15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species

15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems

15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation

15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities

Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

16.1 Significantly reduce all forms of violence and related death rates everywhere

16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children

16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all

16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime

16.5 Substantially reduce corruption and bribery in all their forms

16.6 Develop effective, accountable and transparent institutions at all levels

16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels

16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance

16.9 By 2030, provide legal identity for all, including birth registration

16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements

16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime

16.b Promote and enforce non-discriminatory laws and policies for sustainable development

Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Finance

17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection

17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of gross national income for official development assistance (ODA/GNI) to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries

17.3 Mobilize additional financial resources for developing countries from multiple sources

17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress

17.5 Adopt and implement investment promotion regimes for least developed countries

Technology

17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism

17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed

17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology

Capacity-building

17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation

Trade

17.10 Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda

17.11 Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020

17.12 Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access

Systemic issues

Policy and institutional coherence

17.13 Enhance global macroeconomic stability, including through policy coordination and policy coherence

17.14 Enhance policy coherence for sustainable development

17.15 Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development

Multi-stakeholder partnerships

17.16 Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries

17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

Data, monitoring and accountability

17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts

17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

Appendix 3. The Ten Principles of the UNGC.

Human rights:

1. Businesses should support and respect the protection of internationally proclaimed human rights; and
2. make sure that they are not complicit in human rights abuses.

Labour:

3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
4. the elimination of all forms of forced and compulsory labour;
5. the effective abolition of child labour; and
6. the elimination of discrimination in respect of employment and occupation.

Environment:

7. Businesses should support a precautionary approach to environmental challenges;
8. undertake initiatives to promote greater environmental responsibility; and
9. encourage the development and diffusion of environmentally friendly technologies.

Anti-corruption:

10. Businesses should work against corruption in all its forms, including extortion and bribery.

Appendix 4. SASB Sustainability disclosure topics and accounting metrics for Electronic Manufacturing Services & Original Design Manufacturing.

SUSTAINABILITY DISCLOSURE TOPICS & ACCOUNTING METRICS

Table 1. Sustainability Disclosure Topics & Accounting Metrics

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Water Management	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic meters (m ³), Percentage (%)	TC-ES-140a.1
Waste Management	Amount of hazardous waste from manufacturing, percentage recycled ²	Quantitative	Metric tons (t), Percentage (%)	TC-ES-150a.1
Labor Practices	(1) Number of work stoppages and (2) total days idle ³	Quantitative	Number, Days idle	TC-ES-310a.1
Labor Conditions	(1) Total recordable incident rate (TRIR) and (2) near miss frequency rate (NMFR) for (a) direct employees and (b) contract employees	Quantitative	Rate	TC-ES-320a.1
	Percentage of (1) entity's facilities and (2) Tier 1 supplier facilities audited in the RBA Validated Audit Process (VAP) or equivalent, by (a) all facilities and (b) high-risk facilities	Quantitative	Percentage (%)	TC-ES-320a.2
	(1) Non-conformance rate with the RBA Validated Audit Process (VAP) or equivalent and (2) associated corrective action rate for (a) priority non-conformances and (b) other non-conformances, broken down for (i) the entity's facilities and (ii) the entity's Tier 1 supplier facilities	Quantitative	Rate	TC-ES-320a.3
Product Lifecycle Management	Weight of end-of-life products and e-waste recovered, percentage recycled	Quantitative	Metric tons (t), Percentage (%)	TC-ES-410a.1
Materials Sourcing	Description of the management of risks associated with the use of critical materials	Discussion and Analysis	n/a	TC-ES-440a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of manufacturing facilities	Quantitative	Number	TC-ES-000.A
Area of manufacturing facilities	Quantitative	Square feet (ft ²)	TC-ES-000.B
Number of employees	Quantitative	Number	TC-ES-000.C

² Note to **TC-ES-150a.1**— The entity shall disclose the legal or regulatory framework(s) used to define hazardous waste and recycled hazardous waste, and the amounts of waste defined in accordance with each applicable framework.

³ Note to **TC-ES-310a.1**— Disclosure shall include a description of the reason for each work stoppage, impact on operations, and any corrective actions taken.