Corporate Sustainability Reporting Directive

Bridging the Gap

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I hope you enjoy reading my thesis.

Management Summary

Problem Context

This thesis research, conducted as a graduation assignment for the Master's program in Industrial Engineering and Management (IEM) specialising in Financial Engineering, focuses on analyzing the evolving landscape of sustainability reporting. Specifically, we aim to lay out the structure and gap to bridge to comply with the new European Union (EU) regulation called Corporate Sustainability Reporting Directive (CSRD).

McCoy & Partners, a System, Application, and Products (SAP) consultancy firm, assists companies in implementing and utilizing SAP systems. As the demand for sustainability reporting increases among McCoy's clients, companies seek guidance in meeting the reporting requirements for their environmental goals. The research aims to understand the necessary steps involved, to set up a report that meets the CSRD regulation, including the role of SAP software in measuring sustainability goals.

Research Objective

The objective is guiding clients, particularly of McCoy & Partners, so companies with SAP implemented somewhere in the business process, in creating appropriate sustainability annual reports according to the demanded CSRD structure. To advise companies, it is crucial to assess the current state of sustainability reporting across different organizations.

After establishing the current reporting status at various companies, the research aims to outline the structure and content of the future CSRD. Additionally, we explore the recent performance of annual reports on CSRD. Furthermore, the study aims to investigate the capabilities of SAP software, specifically in measuring and analyzing a company's sustainability Key Performance Indicators (KPIs) over time.

Methodology

Through interviews and questionnaires, companies express their pursuits and challenges regarding the upcoming regulation. This descriptive research has identified the urgency felt inside organizations and the problems that companies demand help with. Next, we implement a method (the performance matrix) that measures the maturity of current annual reports, in terms of measuring the number of KPIs that are currently measured.

This measuring method brings insight into the gaps that have to be bridged to comply with CSRD. Next, we present a step-by-step roadmap that lays out the necessary steps to undertake to start the procedure towards

CSRD auditability. This roadmap can be used by companies themselves or McCoy while advising clients. These steps together aim to bridge the gap towards auditable CSRD reporting.

Results

During the interview and questionnaire phases, it was observed that companies have an urgent need for assistance in CSRD reporting. More than 90% of the respondents agreed that CSRD would play a significant role in their organization shortly. However, 38% of the respondents admitted to not knowing the definition of CSRD yet. The analysis of the reports resulted in a list of 50 KPIs that can be used to assess the CSRD performance of companies. After conducting in-depth research of several companies, it was determined that the average CSRD coverage is 37%, with reports ranging from 78% compliance to 3% compliance. This analysis revealed the gap that needs to be bridged from current reporting practices to CSRD reporting. The next and final result is a five-step roadmap that clarifies how a company should address CSRD, including the KPI list, the performance matrix and guidance in software implementation.

Conclusion

This research confirms the relevance and timeliness of the CSRD topic. Approximately 50,000 European companies will need to comply with the regulation in the coming years. The structure and content of CSRD are built upon previous reporting guidelines, and it can be categorized into 13 sub-categories under the topics of Environment, Social, and Governance. Furthermore, CSRD can and should be fully integrated into regular (financial) annual reports, requiring companies to report on their strategy, business model, targets, and action plans.

Another essential aspect of CSRD is the materiality analysis, which quantifies the significance of different environmental topics about a company's internal and external impact. This paper provides a comprehensive roadmap outlining the steps to achieve CSRD auditability. Additionally, it is concluded that SAP can assist companies in collecting sustainability data, particularly for those companies that have integrated SAP throughout various departments. SAP can offer a data solution to gather all the necessary information for CSRD-compliant reporting.

List of Abbreviations

CSDD Corporate Sustainability Due Diligence Directive. 38

CSRD Corporate Sustainability Reporting Directive. 2, 3, 5, 14, 19, 25

EFRAG European Financial Reporting Advisory Group. 11

ERP Enterprise Resource Planning. 1

ESG Environmental Social and Governance. 11, 12, 24

ESRS European Sustainability Reporting Standards. 3, 10, 11, 20, 24

GHG Greenhouse Gas. vi

GRI Global Reporting Initiative. 5, 6, 14

KPI Key Performance Indicator. 3, 11, 26, 39

MPSM Managerial Problem Solving Method. 2, 3

NFRD Non-Financial Reporting Directive. 6

SAP System, Application and Products. 1

Scope 1 emission Scope 1 emissions are direct GHG that occur from sources that are controlled or owned by an organization [EPA-Center, 2022]. 15

Scope 2 emission Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling. Although scope 2 emissions physically occur at the facility where they are generated, they are accounted for in an organization's GHG inventory because they are a result of the organization's energy use.[EPA-Center, 2022]. 15

Scope 3 emission Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly affects in its value chain. Scope 3 emissions include all sources not within an organization's scope 1 and 2 boundary.[EPA-Center, 2022]. 15

SCT Sustainability Control Tower. 33

Contents

1. Introduction

This research is performed at McCoy & Partners, a consultancy firm specialising in assisting and implementing SAP software. The goal of the research is to analyze the status of sustainability reporting and lay out the structure and content of a report that meets the CSRD requirements.

Next, the research proceeds to lay out the steps for companies to undertake to initiate the CSRD report while including the role of System, Application and Products (SAP) software in measuring sustainability goals. The research is conducted as a graduation assignment of the Master's program Industrial Engineering and Management (IEM) at the University of Twente with a Specialization in Financial Engineering.

We first introduce the organisation (Section 1.1), and explain the problem context (Section 1.2). Then we arrive at the proposed research questions (Section 1.3), and finally the used research method is clarified (Section 1.4).

1.1 Information about the Organisation

McCoy is an SAP consultancy firm that guides companies towards implementing an SAP system [McCoy, 2023]. SAP is a much-applied software suite for Enterprise Resource Planning (ERP) for medium and large corporations, including at a minimum, financial and human resources applications and at least one of the following: manufacturing, supply chain (SCM), or customer relationship management (CRM) [SAP, 2023].

McCoy is specialized in software and helps their client to implement, improve and sustain the use of SAP. The company came into existence ten years ago and has grown to over 200 employees. The company is structured into 18 business units that each have expertise, in an application area, in which they consult and implement the SAP software. Examples of business units are the Finance department, User Experience, Business Intelligence, Supply Chain, Procurement, and many others. Throughout their growth in size, McCoy consistently develops new Business Units; for example, the Change Management unit is now being developed [McCoy, 2023].

1.2 Problem Statement

McCoy works for a broad spectrum of companies, and they noticed that the companies they work for, more than ever, ask for help regarding sustainability reporting. The regulation on a (company's) sustainability reporting is changing, and its prospects are that companies have to start meeting rules regarding reporting their environmental goals.

Throughout client meetings, consultants from McCoy have noticed that the uprising regulations such as CSRD regarding sustainability reporting have led to stress at multiple companies. CSRD is a new directive that regulates reporting, where the performance is audited under EU regulation. If an organization is guilty of non-compliance with CSRD, the company can expect administrative sanctions and three possible penalties: a public denunciation; an order to change conduct; and financial punishment [Achilles, 2023]. Each EU member state will set the penalty and define the limits of the sanctions within their jurisdiction [Achilles, 2023]. However, McCoy has witnessed that the rules for compliance are perceived as vague, and companies are not yet sure how to measure their processes correctly. Companies ask McCoy for their expertise on how to satisfy CSRD guidelines.

Before providing companies with advice, it is essential to assess the current state of sustainability reporting across different companies. Our objective is to outline the structure and content of the future CSRD and compare it with the previous frameworks and the company's current reporting practices. Additionally, we aim to understand the sector-specific guidelines, the categories covered by these guidelines, and the required KPIs for CSRD.

Furthermore, the capabilities of SAP software have to be explored, specifically in measuring and analyzing a company's specific sustainability Key Performance Indicators (KPIs) over time. The analysis includes benchmarking with other companies within the same sector and adhering to regulatory requirements. This leads to the following main research question:

How can companies bridge the gap from their current annual reporting practice towards an auditable Corporate Sustainability Reporting Directive compliant report?

1.3 Research Questions

The research is divided into different stages. The stages are inspired by the Managerial Problem Solving Method (MPSM) of Heerkens and van Winden [2017]. The MPSM is a systematic approach to solving managerial problems. The method provides a step-by-step approach to the goal of constructing the right solution for the problem. The main and sub-research questions are divided into five different stages that are closely related to the seven phases in the MPSM.

Stage 1 - Problem Context and History

The first research stage represents the first two phases of the MPSM: (1) Problem identification and (2) Problem approach. The goal of stage one is to gain an understanding of the origin, scope and timeline of CSRD. In this first stage, the following knowledge questions are answered through a literature review which is done in Chapter 2.

- How can the historical timeline of sustainability guidelines be laid out, and where does CSRD fit in?
- How did sustainability reporting evolve towards the emergence of CSRD?
- For which companies is it mandatory to report under CSRD?
- How does the expected timeline of the CSRD regulation unfold over the next three years?
- What is CSRD, and how is the structure of a CSRD report laid out?

Stage 2 - Qualitative Research

In stage 2, the third phase of the MPSM, we perform a descriptive analysis to fully grasp the status of CSRD compliance at different organisations. During the qualitative research phase (Chapter 3) we aim to answer the following questions:

- How do companies currently face sustainability and/or CSRD reporting?
- How do organisations prioritize sustainability internally?
- What challenges and shortcomings do companies generally face with CSRD?
- Which European Sustainability Reporting Standards (ESRS) have to be further specified/justified to comply with CSRD?
- How do companies approach implementing new software to tackle CSRD?

This analysis phase aims to find the general state of the art within different companies and their internal status with respect to sustainability reporting.

Stage 3 - Quantitative Analysis

After collecting the information on companies' internal prioritisation and challenges, this third stage works with the fourth phase of the MPSM [Heerkens and van Winden, 2017]. Based on the overview of KPIs measured we will quantify the current performance on CSRD. This can be found in Chapter 4, and the following questions are answered:

- Which KPIs can be measured to report on each category of CSRD?
- How well do companies already measure the established KPIs?
- What KPIs do companies already measure consistently with regard to previous guidelines?
- Which categories leave the largest KPI gaps towards CSRD compliance?

After stage three we aim to have a full understanding of the ESRS categories and how to measure and report on each. After this stage, we have analysed the current gap in sustainability reporting towards CSRD reporting.

Stage 4 - Roadmap towards a CSRD Compliant Sustainability Report

In this stage, we formulate a step-by-step approach to how a company should tackle CSRD (Chapter 5). With the knowledge from the previous stages, the following questions are answered:

- How should a company implement the general cross-cutting standards?
- How can a company develop a CSRD report according to a step-by-step action plan?
- What steps lie ahead to draw up a report for different companies and sectors?
- What role can SAP take in the implementation of CSRD?

- Where do the opportunities lie for a role that McCoy can take in this evolution towards auditable CSRD?

After having answered the questions in this last phase, we finalize the research with conclusions and advice in Chapter 6 and recommendations for further research in Chapter 7.

1.4 Research Method

After understanding the problem context and the goal of the research, the methods to reach the research objective are the following. First, a literature review is conducted, to set the total regulatory background and answer all questions from Stage 1 (Section 1.3). Next, eight companies are interviewed to analyse the current status and perceived gap of sustainability reporting towards CSRD. Besides that, we conduct a larger questionnaire to draw more general conclusions on the demand for CSRD advice. The main goal of the interviews and questionnaire is to establish the current situation of sustainability reporting and the shortcomings that companies experience. This together is aimed at conducting a descriptive analysis of the perceived gap towards CSRD compliance, and this answers all questions from Stage 2 (Section 1.3). After the descriptive analysis, we continue with an analysis of publicly available annual reports. With a composed list of KPIs that fit into CSRD, the annual reports are tested for the actual gap from current reporting towards CSRD reporting. This method provides answers to all questions from Stage 3 (Section 1.3). With these analyses together, we develop a roadmap that companies can follow to reach CSRD compliance and answer questions from Stage 4 (Section 1.3).

1.5 Outline

The literature review can be found in Chapter 2. Next, the descriptive analysis of the current status is presented in Chapter 3, which contains both the in-depth interviews and the questionnaire. Then Chapter 4 includes the method for measuring current CSRD performance. Chapter 5 lays out the roadmap that guides companies through the steps of becoming CSRD compliant. Finally, the conclusions are presented (Chapter 6) and we lay out the limitations of the research together with possibilities for further research (Chapter 7).

2. Literature Review

The literature research stage focuses on the body of existing literature on sustainability reporting and answers the following questions:

- What is the historical timeline of sustainability guidelines, and what is the link to CSRD regulation?
- What is the motivation for the emergence of CSRD?
- For which companies is it mandatory to report under CSRD?
- What is the prospected timeline of the CSRD regulation in the coming 3 years?
- What is the basic structure of CSRD?

Sustainability reports are aimed at bringing insight into the strategy and policy of sustainability topics for a specific company, by reporting the company's progress for different segments and specifying the implementation and performance of sustainability units. The concept of sustainability reporting is very broad and throughout time there have been various initiatives to give a definition of this concept [Antonini et al., 2022]. We aim to establish an overview of different sustainability reporting guidelines, and how CSRD originated from previous frameworks. Sustainability reporting finds its origin in the 1990s [Enden, 2022b]. The previous frameworks that have led to the development of CSRD are the Global Reporting Initiative, the Non-Financial Reporting Directive and the EU taxonomy. This chapter lays out the evolution and differences of each of the frameworks.

2.1 Global Reporting Initiative

One of the first founded initiatives in sustainability reporting is the Global Reporting Initiative (GRI). GRI is an international, independent and multi-stakeholder nonprofit that supports businesses, governments and other organizations to clearly communicate their impact on the world [Envizi, 2023]. GRI provided the first general guidelines on how to set up a sustainability report based on the environmental, social and governance (ESG) categorization of sustainability [de Jaarverslaggeving, 2022]. The initiative originated from a public outcry after the environmental damage caused by the EXXON Valdes oil spill of 1989. This sparked the Global Reporting Initiative (GRI) to be founded [Enden, 2022b]. The goal of the global initiative was to create the first accountability mechanism to ensure that companies adhere to responsible environmental conduct principles.

By the time of 2002, around 100 major companies around the world were using the new GRI Guidelines for reporting. [Caricasole, 2018]. New versions of the guidelines were quick to follow, with G2 (2002) and then G3 (2006), each provided freely as a public good and expanding the scope of subjects covered and the relevance of the framework for organizations and stakeholders alike. The growth continued, and analysis in 2009 revealed that 1,350 companies globally were reporting their impacts using GRI guidelines. By 2015, the number of reports passed 5000 - and since 2020, more than 10,000 organizations in over 100 countries report each year with the GRI standards.

All in all, GRI aims to promote sustainability reporting by companies and organizations. The main goal of GRI is to provide a comprehensive and internationally recognized set of sustainability topics that together form a framework for sustainability reporting that can be used by organizations around the world to measure and report on their economic, environmental, and social performance. However, it is important to realize that there is no obligation whatsoever for companies to execute measures according to GRI. From this first development of sustainability reporting, we find the following specific shortcomings [Diaz-Sarachaga, 2021]:

- The GRI standards are completely voluntary by nature. Because there is no legal obligation to report according to the norm that is set, there is a lack of consistency in reporting style.
- GRI puts the focus on reporting quantitative measurements. The guidelines fall short of bringing insight into the context behind the provided measures.
- GRI is focused on measuring the performance towards sustainability internally. However, preferably the company should measure beyond their own internal choices by including their scope 2 and 3 emissions, which are further defined later (Section 4.1).

2.2 Non-Financial Reporting Directive

Companies have had to meet strict requirements that obligate financial reporting for a longer time. However, ever since the world was rebounding from the global financial crisis, the importance of including more than just financial information in annual corporate reporting became apparent[Noonan, 2021]. Many companies have started to dig into the GRI guidelines in order to standardize certain sustainability goals, however, there has not yet been any obligation for companies to report. The first step towards mandatory sustainability reporting is the Non-Financial Reporting Directive (NFRD). Under the NFRD, large listed companies, banks and insurance companies ('public interest entities') with more than 500 employees are required to publish reports on the policies they implement in relation to social responsibility and treatment of employees; respect for human rights; anti-corruption and bribery; and diversity on company boards (in terms of age, gender, educational and professional background)[European Parliament, 2023]. The EU Commission is responsible for the release of NFRD. [Noonan, 2021].

Sustainability remains a broad concept and it is often specified into the categories of environmental, social, and governance (ESG) [Noonan, 2021]. The NFRD framework is categorized under the ESG factors, like GRI, but then subdivided into five categories as can be seen in Figure 2.1. So, to comply with the NFRD, companies must disclose details on their policies related to five core factors within their annual reports.

However, with respect to how the information must be disclosed, the NFRD is relatively flexible. Companies are free to choose from a wide range of international, European or national frameworks that they are most comfortable with. The most used framework is by far the GRI standard that is described in Section 2.1.

So the NFRD was implemented in 2018 and started as a natural extension to annual financial reporting requirements. The aim was to provide companies with guidelines on how to disclose their approach to managing

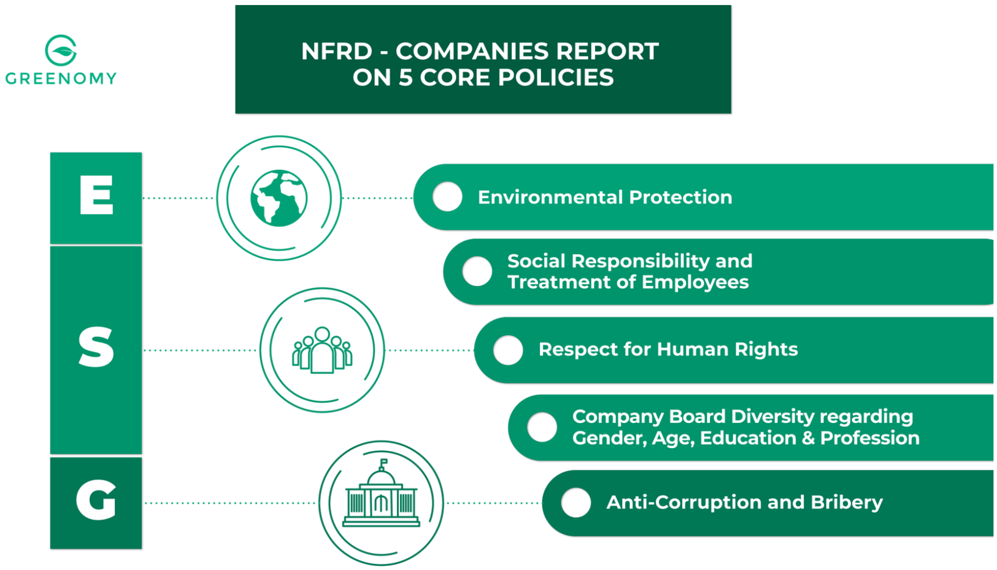

Figure 2.1: Categories within NFRD [Noonan, 2021]

environmental and social challenges and include them in their annual reports, along with their financial reporting. The scope of the regulation includes a subset of the overall economy. Specifically, large companies with more than 500 employees and publicly listed companies - which accounts for around 11,000 companies in the EU need to comply, as seen in Figure **??**.

While the adoption of NFRD was a major step towards greater sustainability transparency among different companies, the NFRD regulation leaves room for improvement. Mainly investors and civil society organizations, are now demanding more and better information from companies about their social and environmental performance and impacts. Moreover, there is a global trend with a wide variety of different organisations and stakeholders calling for the consideration of a new regulatory approach to non-financial reporting[Antonini et al., 2022]. NFRD has led to insight into a few shortcomings that should be improved in case of the next reporting directives.

Shortcomings:

- A requirement for all information to be disclosed in the management report would create consistency in transparency.
- There is high demand for common reporting standards, digitalisation of non-financial information, and stricter audit requirements.
- The scope of the NFRD should be expanded to include a wider subset of companies. This should include all listed and private companies regardless of size but with the proportionality of reporting requirements for small and medium-sized enterprises (SMEs) to ensure the feasibility of disclosure.

All in all, there is a lack of comparability, reliability, and relevance of non-financial information provided by companies, and the scope as can be found in Figure **??**, should be increased to cover more companies.

2.3 EU Taxonomy

In order to achieve comparable sustainability progress in a large region such as the EU, a common language and a clear definition of what is 'sustainable' is needed. The EU Taxonomy is a classification system that was introduced by the European Union in 2020 as part of the EU's Action Plan on Sustainable Finance. The goal of the taxonomy is to provide a common language for defining when and which economic activities can be considered environmentally sustainable [European Commission, 2023].

The taxonomy is based on six environmental objectives:

- Climate change mitigation.
- Climate change adaptation.
- Sustainable use and protection of water and marine resources.
- Transition to a circular economy.
- Pollution prevention and control.
- Protection and restoration of biodiversity and ecosystems.

The EU Taxonomy can play an important role in helping the EU scale up sustainable investments and implement the European Green Deal. The European Green Deal refers to a set of proposals, adopted by the European Commission, to make the EU's climate, energy, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels[European Commission, 2023]. The EU taxonomy would provide companies, investors and policymakers with appropriate definitions by providing a common language for defining what is environmentally sustainable, it is easier to identify and support sustainable economic activities and avoid investments that harm the environment. The main criticism mentioned on behalf of the EU Taxonomy is the following:

Shortcomings

- The scope of EU Taxonomy is mainly environmental while the overall sustainability interest includes a broader scope by preferably taking into account social and governmental aspects.
- The EU taxonomy is perceived as complex and hard to understand. The regulation leaves room for discussion on the requirements [European Commission, 2023].

2.4 Corporate Sustainability Reporting Directive

On the 20th of April 2021, the European Commission announced the proposal for the Corporate Sustainability Reporting Directive (CSRD) that will ultimately replace the Non-Financial Reporting Directive. The proposed CSRD is intended to resolve the issues of NFRD highlighted in Section 2.2.

2.4.1 Scope CSRD

The former regulation (NFRD) was criticized on the aspect of its scope. The regulation included a small and specific segment of companies. The newly developed regulation, CSRD, applies to the following four categories:

1. Category 1. Companies that fall within NFRD scope (see Section 2.1).
2. Category 2. "Large" companies
3. Category 3. Public interest companies.
4. Category 4. Specific non-EU enterprises.

The first group to comply with CSRD, are companies that are already covered by the NFRD regulation. This group will have to report in the year 2025 over the data of 2024. The next category included in CSRD is "large" companies. For CSRD a company is labelled large when it checks at least two out of the following three conditions [de Jaarverslaggeving, 2022].

- over 40 million € revenue.
- over 20 million € profit.
- over 250 employees.

The large companies will have to comply in 2026, so report over the data of 2025. The third category to comply is public interest companies. This can be defined by a group of listed small and medium-sized undertakings, excluding micro-undertakings, and encompass insurance and reinsurance undertakings[Antonini et al., 2022]. These public companies have to comply in 2027 over the data of 2026.

Finally, the new CSRD guidelines are relevant for specific companies outside the EU. The enterprises of this type are third-country undertakings that generated a net turnover of more than EUR 150 million in the Union for each of the last two consecutive financial years, and that have EU subsidiaries that are large undertakings or listed SMEs[Antonini et al., 2022]. Their compliance starts after 2027.

All in all, CSRD includes an extended scope compared to NFRD, as it covers approximately 50.000 companies in the EU instead of 11,000 as NFRD did. [Noonan, 2021]. It is estimated that eventually, more than a thousand companies in the Netherlands will have to comply with the CSRD[Spek and Vries, 2023].

With the designation of the organisations involved in the change in regulation, it is essential to understand the timeline of the execution of the regulation. Different groups will have to start reporting in different phases based on their category label as can be seen in Figure **??**. The figure implies that the organisation is obligated to execute and publish the CSRD; from January 1st of the stated year, meaning the report is due the year after.

2.4.2 Content CSRD

CSRD will be further specified in sustainability reporting norms called the European Sustainability Reporting Standards (ESRS). The European Commission set up an organisation; the European Financial Reporting Advisory Group (EFRAG), to serve the public interest of the international sustainability reporting standards.

Figure 2.2: Sector Agnostic ESRS

EFRAG is then responsible for elaborating on the aspects of CSRD as well as advising the European Commission on this topic. The ESRS categories are prepared by the EFRAG Project Task Force on European Sustainability Reporting Standards (EFRAG PTF-ESRS), and they are meant to define the content, layout, and disclosure requirements of CSRD[de Jaarverslaggeving, 2022]. So, ESRS is used as support and provides a framework for the process of compiling a company's CSRD.

The sets of ESRS categories are published in phases and the first set has been released and evaluated in 2022[Hijink et al., 2022]. This phase includes the Sector-Agnostic norms, meaning the stated categories are relevant for every company under CSRD. Later, sector-specific standards and standards tailored to SMEs will come into effect[Spek and Vries, 2023].

The Sector-Agnostic Standards are split into cross-cutting standards and topical standards. The first two ESRSs fall under cross-cutting standards, and these are general. The general categories contain some basic principles and prescribe what should be reported on strategy, governance and decisions related to materiality (see Section 2.6)[Spek and Vries, 2023]. The remaining ten standards are topical, as they cover different

ESG aspects and later the KPIs to measure each ESRS are specified. We can conclude that the total ESRS categorization leads us to Figure 2.2.

The second set of ESRSs that EFRAG develops includes sector-specific norms[de Jaarverslaggeving, 2022]. The sector-specific norms are developed in different phases and the sector categories can be found in Appendix A. At last, EFRAG will publish proportional standards.

2.4.3 Auditability CSRD

CSRD is the first regulation that is obligatory for a large group of companies. With obligation comes auditability. While companies have to measure up to the set directive, their report has to be audited by an external party. If an organization is guilty of non- compliance with CSRD, the company can expect administrative sanctions and three possible penalties: a public denunciation; an order to change conduct; and financial punishment [Achilles, 2023]. Each EU member state will set the penalty and define the limits of the sanctions within their jurisdiction [Achilles, 2023]. However, literature thus far fails to give a clear definition to the term auditability, as the regulation is so new that no one has gone through the audit phase yet. This research will proceed to lay out the structure in terms of what and how to measure in order to comply with CSRD.

2.5 Comparing GRI and CSRD

As mentioned, many companies now report under the GRI framework. The CSRD regulation builds on the GRI Standards and incorporates many of the principles and practices of sustainability reporting that are promoted by the GRI. For example, the CSRD requires companies to report on a set of specific sustainability indicators using a standardized reporting format, which is similar to the GRI Standards approach to sustainability reporting.

The GRI also provided input and feedback during the development of the CSRD. In 2020, the European Commission launched a public consultation to gather feedback on the proposed CSRD framework[Enden, 2022a]. GRI submitted a response to the consultation, providing its perspectives on how the CSRD could be strengthened and improved to better align with international sustainability reporting standards.

In summary, while both the GRI and CSRD aim to promote sustainability reporting, they differ in terms of their scope, format, audience, and implementation. The GRI provides a voluntary framework that allows organizations to report on a wide range of sustainability issues, while the CSRD is a mandatory regulation that requires certain companies to report on specific sustainability indicators using a standardized electronic reporting format. We can conclude that companies that have reported under GRI are a step ahead, as they have gathered measurements that are in line with CSRD. However, we need to further evaluate what the KPIs per ESRS category are, how they relate to GRI and what the exact gap is that has to be covered from GRI towards an auditable CSRD. It is certain that there is an overlap between the two. CSRD is implemented on a more obligatory note, hence it is likely that CSRD will take over the GRI framework completely, however, the GRI as an institution will remain closely related with sustainability reporting.

2.6 Materiality

Materiality is a term that we come across in literature in the context of CSRD, GRI and EU taxonomy and materiality plays a crucial role in implementing the CSRD. It refers to the significance or relevance of an issue or piece of information to a company's operations, performance, or stakeholder interests.

2.6.1 Single and Double Materiality

Both single materiality and double materiality are relevant concepts for understanding the ESG impacts of a company under the CSRD. Single materiality refers to the impact of a company's operations and activities on its financial performance. This includes considering financial risks, opportunities, and impacts related to ESG issues that directly affect the company's activities. Double materiality refers to the impact of a company's operations and activities on society and the environment. This encompasses the impact of the company's products, services, and supply chains on external stakeholders, as well as the broader societal and environmental impacts of the company's operations.

2.6.2 Materiality in CSRD context

Within the context of the CSRD, materiality helps companies identify and prioritize the ESG issues that are most pertinent to their business operations and stakeholders. By focusing on material issues, companies can better allocate their resources and efforts toward addressing the most significant impacts and risks associated with their operations. The CSRD aims to enhance the quality and comparability of sustainability reporting by companies in the European Union. The directive requires companies to report on both single and double materiality issues, with an emphasis on identifying and disclosing material ESG risks and opportunities that are relevant to the company's business model and strategy.

By reporting on both single and double materiality issues, companies can provide a comprehensive view of their ESG impacts and risks. This information is valuable for investors, stakeholders, and society as a whole. It enables investors to make more informed decisions, and it helps companies gain a better understanding of and manage their ESG risks and opportunities effectively.

2.7 Conclusion Literature Review

This chapter has outlined the steps that led to the implementation of CSRD. CSRD builds on previous frameworks, like GRI (Section 2.1), NFRD (Section 2.2), and EU Taxonomy (Section 2.3). NFRD will be completely replaced by CSRD, while the EU Taxonomy guidelines remain in place as the common sustainability language for the EU. Finally, GRI will remain the EU initiative to evaluate the guidelines, so GRI as an organization will remain relevant.

On behalf of CSRD, the scope of companies to be included is growing and includes 50.000 European companies in the following 3 years. Due to the obligation and potential fine that is put on CSRD compliance, companies will have to take the CSRD structure as their main priority in terms of reporting frameworks. Also, the role and definition of materiality are set (Section 5.2). Materiality is a key concept for CSRD compliance and we later develop an approach to conduct a materiality analysis.

In the next chapters, we interview companies to find out internal prioritization and problems, where we aim to develop a structure in terms of KPIs for CSRD, make an inventory of what KPIs companies measure already, and determine the gap to close to measure up to CSRD standards.

3. Descriptive Analysis

Having gained an understanding of the near-future landscape of CSRD, our objective is to assess the current status of selected companies in the scope of CSRD. Specifically, we seek to address the following sub-questions:

- What is the priority of sustainability within different organisations?
- What is the status of the process towards CSRD reporting that companies are currently in?
- What frameworks do companies say they have previously used to report on sustainability?
- What are the challenges and shortcomings in compiling CSRD?

To establish the prominence of CSRD that companies are facing, eight different in-depth interviews have been conducted spanning companies from multiple sectors. The questions asked aim to comprehend the main topics that companies are dealing with on behalf of sustainability, their perception of the CSRD regulation to come, and the expected role that software will have. The interviews include only open questions and leave room to go off-topic when needed in order to gather a wide range of information. The structure and background questions that are used for each interview are included in Appendix D. Parallel to the interviews, a larger-scale questionnaire has been executed to sketch a picture of the relevance and stage of CSRD in various organizations with which McCoy is in contact.

3.1 In-Depth Interviews

We start with the results of the in-depth interviews. This section provides a summary of the respondents' perceived status regarding aspects such as awareness of CSRD, customer interest in sustainability, utilization of software for current sustainability measures, the expected IT implementation and the timeline and prioritization of CSRD implementation.

3.1.1 Demography of Respondents

The demography of the interviewees is sketched in Table 3.1. In the table, C. stands for the company that respondent R. presents, where the companies are left anonymous. The number of employees (Emp.) gives a valuable background to the reporting status. Next, it is relevant to state other variables about the reporting such as the matter of integration with the financial report, whether GRI and CSRD are used as frameworks. Finally, we are interested in the general rise of internal work related to sustainability which can be approximated by looking at the existence of a sustainability department.

C.	R.	Emp.	Sector	Ctry.	Position	Integration	GRI	CSRD	SD
1	A	3000	Energy	NL	Sustainability Officer	Integrated	Yes	No	Yes
2	B	19000	Food	NL	Board Procurement/Digital	Integrated	Yes	Med	Yes
2	C	19000	Food	NL	VP Sustainability	Integrated	Yes	Med	Yes
3	D	3000	Events	NL	Financial Manager	Integrated	No	Yes	Yes
4	E	8000	Food	NL	Operations Officer	Integrated	Yes	Yes	No
4	F	8000	Food	NL	CSR Officer	Integrated	Yes	Yes	No
5	G	48000	Technology	NL	Lead ERP	Integrated	No	No	No
6	H	600	Production	NL	Financial Manager	Separate	No	No	Yes
7	I	6000	Electronics	NL	VP IT	Non existing	No	No	No
7	J	6000	Electronics	USA	Senior Director	Non existant	No	No	No
8	K	250	Services	NL	Accountant	Separate	No	No	No

Table 3.1: Table of Correspondents

C = Company reference number, R = Respondent reference, Emp = Number of employees, Ctry = Country of residents, Position = Position of the employee in the company, Integration = Sustainability numbers integrated into the financial report or production of a separate paper, GRI = whether the report aims to follow the GRI framework, CSRD = whether the CSRD framework is taken into account in the report, SD = whether a company has a sustainability department.

3.1.2 Motivation for Investing in Sustainability

When discussing the motivation for investing in sustainability, nearly all companies mentioned their desire to take a leading role in sustainable practices. Interviewees frequently emphasized the importance of staying ahead of competitors. In terms of their clients' perspective on sustainability performance, companies noted that they are increasingly being evaluated based on their sustainability practices, albeit to varying degrees. For example, respondent A shows to be more concerned with sustainability matters than Respondent D, which can be partly explained by the fact that an energy company is scrutinized more closely on sustainability matters than an organizer of events.

Moreover, in the context of motivations for sustainability investment, many companies referenced the CSRD regulation. This suggests that CSRD plays a significant role in propelling companies towards greater sustainability. CSRD specifically encourages companies to expand their focus beyond Scope 1 emission, requiring them to consider Scope 2 emission and Scope 3 emission (Defined in the glossaries) when selecting suppliers or importing products. The respondents seem aware that long-term decisions that they take can and will be significant throughout the companies' CSRD reporting.

3.1.3 CSRD Priority

When looking at priority, there exists a distinction between companies that are unaware of their upcoming responsibilities regarding CSRD regulations and those that have established dedicated sustainability departments. Notably, companies that are already compliant with the Non-Financial Reporting Directive (NFRD) because of their size, are generally better aware of their obligations to report CSRD. Two of the interviewed companies specifically demonstrated an awareness of CSRD's significance by mentioning to have engaged consultancy firms such as EY and PWC for guidance. EY & PWC research the specific gap to transition from the company's current annual report to an auditable CSRD report in order to comply with a short term such as 2024.

Some companies seem to be lagging behind. They struggle to comprehend the meaning and magnitude of CSRD's impact on their organization and find it challenging to evaluate the maturity of their current reporting in relation to CSRD auditability. While a few interviewees mentioned departments consisting of 50 people, with statements such as, "Our sustainability department is growing larger than our Finance department," other firms are in the initial stages of recruiting their first sustainability experts. Although individuals within each organization recognize the importance and priority of CSRD, the companies as a whole are still determining the role it will play within their organizational structure.

Clearly, the maturity of sustainability developments is different between companies. The prioritization of sustainability as a whole and CSRD-specific can be either company-wide or individual in nature, and the challenge of CSRD is fully faced or still to be discovered.

3.1.4 Global Priority

To date, CSRD regulations have primarily been defined within a European context. Several respondents represent that, large corporations have operations in both Europe and the United States. Interviews have revealed that the United States has yet to adopt any sustainability obligations. A spokesperson from an internationally operating organization specifically highlighted the contrasting situations between European guidelines and the American landscape. Consequently, European corporations prioritize their sustainability progress to a greater extent than their American counterparts.

In summary, CSRD serves as a catalyst for prioritizing sustainability, particularly in Europe. NFRD-compliant companies demonstrate a relatively high level of commitment to embracing CSRD, while other companies are struggling to catch up, resulting in a notable maturity gap.

3.1.5 Voluntarily Used Previous Frameworks

When inquiring about their previous reporting practices, companies provided contrasting responses. A significant distinction emerged between companies that report on sustainability matters in separate reports and those that integrate sustainability measures into their financial reports. The division of this throughout the respondents can be found in the demography table 3.1.

Companies that integrate their financial and sustainability reports often reference frameworks such as the GRI or the EU Taxonomy. As explained in Chapter 2, NFRD represents the directive that mandated companies to report on their sustainability goals, while GRI and the EU Taxonomy provide the structure for these reports. The frameworks previously used, serve as a foundation for the CSRD regulation, and companies with integrated annual reports indicate a level of preparedness.

Conversely, some companies produce separate sustainability reports. When asked about the frameworks they employ, representatives often lack knowledge, suggesting that these companies do not adhere to a specific sustainability framework. Instead, they report on sustainability matters based on intrinsic motivation rather than compliance with regulations, focusing solely on essential aspects from their perspective. In Chapter 4, we analyse how well separate reports overlay the CSRD structure to conclude whether separate reports have

	Q1	Q2	Q3	Q4	Q5
Strongly Disagree	6.3%	3.1%	0.0%	9.4%	6.3%
Disagree	6.3%	34.4%	0.0%	6.3%	18.8%
Neutral	12.5%	9.4%	9.4%	31.3%	34.4%
Agree	40.6%	28.1%	65.6%	34.4%	28.1%
Strongly Agree	34.4%	25.0%	25.0%	18.8%	12.5%

Table 3.2: Results Questionnaire

helped companies prepare for CSRD.

3.1.6 Challenges and Shortcomings

Next, we address the challenges and shortcomings faced by the companies themselves. As the topic gains prominence, each company encounters its unique set of obstacles.

First of all, a significant challenge faced by companies pertains to comprehending the guidelines and structure of CSRD. As a relatively new regulation, CSRD presents companies with the task of familiarizing themselves with the specific requirements and reporting frameworks outlined by the directive. The complexity of CSRD guidelines, including the incorporation of new reporting elements and metrics, poses a learning curve for organizations. Companies must invest time and resources into studying the intricacies of CSRD to ensure accurate and compliant reporting. This challenge necessitates careful analysis, interpretation, and internal alignment to fully grasp the nuances of CSRD, thus enabling companies to navigate the reporting process effectively.

Furthermore, a primary concern expressed during interviews pertains to data availability and credibility. Companies struggle to gather the appropriate data, with representatives often mentioning the difficulty of ensuring the reliability and validation of the measures presented in their reports. Larger companies employ specific software to track their CO2 emissions, while other key performance indicators (KPIs) are sourced from various systems, making integration and validation challenging. However, companies recognize the need for validation, particularly in light of the demand for auditable CSRD reports.

Companies with separate reports also identify data as a major shortcoming; however, their primary concern is a lack of data at all. They are uncertain whether they are accurately measuring the relevant metrics. In contrast, larger companies with NFRD reports grapple with integrating data from disparate sources and departments.

3.2 Questionnaire

Besides the in-depth conversation with representatives from the eight interviewed companies (Section 3.1), we are highly interested in the larger-scale perception and relevance of CSRD. For that reason, a questionnaire is conducted. We aim to measure the activity on the topic of sustainability and the stage of the approach.

Large corporations such as ASML, Signify, Alliander and EY were approached at a live event to fill in their company perception on CSRD topics. The specific questions can be found in Appendix B.

The findings of the questionnaire can be observed in Table 3.2. There were 33 respondents, and important to note is that all responses belong to companies under the scope of CSRD. Notably, 75% of the respondents express agreement that the sustainability department in their company is experiencing growth, indicating its relevance. Additionally, a significant 90% of respondents acknowledge the substantial role CSRD will play in their company, with over half of them anticipating the involvement of SAP software in their CSRD compliance efforts. Furthermore, it is intriguing to note that approximately 40% of respondents confirm that CSRD currently serves as their primary sustainability activity. Overall, the questionnaire reveals a growing prominence of the CSRD topic among various corporations. While nearly 40% of the respondents admit to having limited familiarity with the precise definition of CSRD, over 90% of all participants demonstrate awareness of the regulation's significant impact on their company's operations.

3.3 Descriptive Analysis Conclusions

The descriptive analysis has validated the need for insight into CSRD. We established how different respondents are preparing for CSRD. The companies that have been interviewed are increasingly prioritizing the topic internally and are highly motivated to invest in addressing CSRD requirements. There is a great variety throughout different interviewees on the topic of prioritizing CSRD internally, the background of reporting style, the previously used reporting style and the challenges that companies face in the process towards auditability.

These interviews underscore the relevance of the topic and the need for support to ensure that companies meet the regulatory demands within a short time frame. There is a large differentiation in the stage of maturity of CSRD reporting, some companies are at the start of understanding the concept and consequences, while others are already in the process of external consultation to test their auditability. We can conclude that there is a specific need for comprehension of the structure and content of a CSRD report, as well as guidance in the advice usage of the software. With the results of this analysis in mind, we continue to lay out the regulation further in the next chapter.

4. Analytical Analysis

So far, the situation sketch is based on literature and the conducted interviews. In this chapter, we conduct an analytical analysis in order to draw qualitative conclusions. Publicly available data, in the form of annual reports, is tested on compliance with CSRD in order to draw subjective conclusions on the gap from current reporting to CSRD reporting. With this, we answer the following questions:

- What KPIs do companies currently report on within the ESG categories?
- How can the found KPIs be generalized to be compliant with the CSRD framework?
- Which ESRS leave gaps in order to comply with CSRD?
- How well do companies report on CSRD so far?

4.1 Topical Standards

This section aims to establish the structure of CSRD reporting for each category within the topical standards. Each category is specified in a standard requirements document prepared by EFRAG. To create an initial draft structure for CSRD, KPIs are listed and the performance of reference companies is assessed. To ensure comprehensive KPI selection, the annual report of Nestlé, known for its leading role in sustainability reporting, is included in the analysis [Confectionery News, 2023]. From the collection of the latest annual reports from companies one to eight in Table 3.1, including Nestlé, the following KPIs have been identified and mentioned at least once.

4.1.1 Environmental

- ESRS E1: Climate change: greenhouse gas emissions in scope 1, 2, and 3; energy consumption; renewable energy use; energy intensity; percentage of low emission leased vehicles; energy efficiency in buildings; percentage of renewable energy used.
- ESRS E2: Pollution: air emissions and water discharges.
- ESRS E3: Water and Marine Resources: water consumption; emissions to water; percentage of water sourced; percentage of water from stressed areas.
- ESRS E4: Biodiversity: organic compounds; biodiverse area at sites; percentage of sites in protected areas.

- ESRS E5: Circular economy: percentage of renewable raw materials; share of residual waste; total waste and recycling rates.

The environmental measures are divided into five categories. The first category, ESRS E1, focuses on climate change [EFRAG, 2023b]. It includes the measurement of greenhouse gas emissions, categorized as scope 1, scope 2, and scope 3. Scope 1 emissions refer to direct greenhouse gas emissions from sources controlled or owned by an organization [EPA-Center, 2022]. Scope 2 emissions are indirect greenhouse gas emissions resulting from the purchase of electricity, steam, heat, or cooling. Scope 3 emissions encompass activities related to assets not owned or controlled by the reporting organization but indirectly influenced through its value chain [EPA-Center, 2022]. ESRS E1 also encompasses energy consumption, the percentage of renewable energy used, and other related indicators, such as the organization's fleet composition and the percentage of electric vehicles.

ESRS E2 and ESRS E4 have relatively fewer reported KPIs compared to E1. Although these KPIs are included in the matrix (Table 4.1), they are not yet integrated across multiple companies. Appendix A provides example KPIs from Nestlé's report. ESRS E3 focuses on water resources, including indicators such as water consumption, emissions to water, and the source location of water resources (refer to Appendix B for more details).

ESRS E5 measures an organization's progress in the area of circular economy. This includes indicators such as the percentage of renewable raw materials and how the organization manages and reduces waste throughout its value chain.

4.1.2 Social

- ESRS S1: Own Workforce Employee: gender diversity; nationality diversity; employee training hours; sickness and injury frequency rate.
- ESRS S2: Workers in the Value Chain: percentage of indefinite contracts; percentage of workers below low/high bound living wage; percentage of suppliers evaluated for sustainability; gender pay gap.
- ESRS S3: Social cohesion and community involvement: community investment and philanthropy.
- ESRS S4: Product responsibility and customer relations: product safety measures; customer satisfaction percentage; responsible marketing.

The first category under the social ESRS is "Own Workforce" [EFRAG, 2022b]. Companies are expected to report on initiatives related to their internal employees. An important metric is the percentage of gender diversity, preferably presented in a table for comparison with previous years. Companies can also enhance their ESRS S1 metrics by measuring diversity in terms of nationality, the average number of training hours provided to employees, and the incidence of injury and sickness leave for the specific year. (Nestle example: see Appendix C)

After ESRS S1, companies are required to identify and report on workers in the value chain [EFRAG, 2022c]. This includes both positive and negative effects related to working conditions, equal opportunities, and issues of discrimination and human rights. Commonly reported KPIs include the percentage of indefinite contracts and the gender pay gap, which help identify pay equality concerns. Some reports include a supplier sustainability evaluation, where suppliers are assessed based on specific sustainability criteria before engaging with the company. One company in the matrix quantified the percentage of external employees living below the so-called living wage boundary, providing valuable information on this topic. Other potential measures include general living wage at the supplier level, working hours, forced labor, and child labor.

ESRS S3 [EFRAG, 2022d] and ESRS S4 [EFRAG, 2022e] are extensively covered in Nestlé's report, and example measures can be found in Appendix C. Companies should assess their impact on surrounding communities, such as their contributions to community initiatives and philanthropic activities. ESRS S3 also addresses philanthropy, while ESRS S4 focuses on consumers and end-users of the product. It requires an analysis of impact and satisfaction, such as customer satisfaction scores or surveys to assess how responsible the organization's marketing strategy is perceived.

4.1.3 Governance

- ESRS G1: Governance and Internal Control: board composition; executive pay; cyber security incidents; anti-corruption policies and procedures; whistle-blower protection, etc.
- ESRS G2: Business Conduct: number of incoming complaints; percentage of employees trained on business conduct; percentage of sustainable investments.

The governance section of CSRD regulation comprises internal control and business conduct [EFRAG, 2022a]. ESRS G1, Internal Control, focuses on providing transparency regarding management composition. This includes disclosure of executive pay and the gender composition of the management team. Furthermore, organizations can address internal safety by reporting the number of cybersecurity incidents.

The final category, ESRS G2, incorporates an organization's business conduct into its sustainability performance. Each company establishes a business conduct framework that outlines ethical procedures. In ESRS G2, companies are expected to reflect on their internal performance based on this framework. They can count the number of risks or complaints of a specific type reported per year and assess how well they adhere to their own business conduct guidelines. Additionally, companies can report the percentage of investments deemed sustainable.

4.2 KPI Matrix

With this list of possible indicators per ESRS category, we aim to test on existing reports how well companies are already measuring the topical standards on behalf of CSRD guidelines. There is no authenticated list of possible indicators per ESRS category published yet by EFRAG or the European Commission, so the analysis aims to form a basic understanding of possible indicators to comply with reporting under CSRD regulation.

The list from Section 4.1 is our list of possible indicators per ESRS category. So, in table 4.1 we aim to evaluate which of CSRD structured categories are already measured and reported on. Each annual report is tested for each KPI, where a green box represents a successive inclusion of the KPI, and orange boxes embody KPIs that are touched upon but leave room for clarification. For example at energy efficiency, a company reports to have improved the energy efficiency without naming any benchmark situation to compare with. Finally, the red boxes depict missing measurements.
The KPI matrix is used to give an overview of the overall status of measuring the different CSRD categories. We aim to measure the performance in two ways.

Company	Nestlé	1	2	3	4	5	6	7	8	%
Separate/Integrated Report	I	I	I	S	I	I	S	S	None	
Report Year	2022	2022	2022	2021	2022	2021	2022	2022	2021	
Materiality Analysis Type	Double	Double	Single	Double	Single	Double	None	None	None	
Total Measured CSRD Performance	**70%**	**69%**	**58%**	**48%**	**41%**	**26%**	**15%**	**6%**	**3%**	**37%**
ESRS E1: Climate Change	71%	57%	57%	93%	100%	57%	71%	14%	0%	58%
greenhouse gas emission scope 1 & 2										78%
Renewable energy use %										78%
Greenhouse gas emission scope 3										67%
Energy consumption										61%
Percentage low emission vehicles										44%
Energy efficiency in buildings										44%
Energy intensity										33%
ESRS E2: Pollution	50%	50%	0%	25%	0%	0%	0%	0%	0%	14%
Water discharges										17%
Air emissions										11%
ESRS E3: Water & Marine Resources	75%	75%	50%	75%	13%	0%	25%	0%	0%	35%
Water consumption (m3)										61%
Emissions to water?										33%
Percentage from water stressed area										33%
Own water sources/%										11%
ESRS E4: Biodiversity	0%	67%	67%	17%	0%	0%	0%	0%	0%	17%
Organic Compounds (tons)										22%
Biodiverse area at sites										17%
Sites in protected areas %										11%
ESRS E5: Circular Economy	100%	75%	50%	25%	25%	0%	0%	0%	0%	31%
Renewable raw materials %										39%
Recycling rates										39%
Share of residual waste										22%
Total waste (KT)										22%
ESRS S1: Own Workforce	100%	100%	80%	80%	80%	60%	0%	20%	20%	60%
Gender Diversity %										89%
Injury Frequency Rate										67%
Nationality Diversity %										56%
Sickness Absenteeism										56%
Training hours per employee										33%
ESRS S2: Workers in the Value Chain	75%	88%	75%	38%	50%	50%	0%	0%	0%	42%
Percentage indefinite contract										61%
Supplier sustainability valuation %										61%
Gender pay gap										33%
Employees low/high bound living wage										11%
ESRS S3: Affected Communities	100%	100%	100%	50%	0%	25%	0%	25%	0%	44%
Community initiatives										50%
Philanthropy										39%
ESRS S4: Consumers & end-user	100%	0%	33%	33%	0%	33%	0%	0%	0%	22%
Customer satisfaction %										33%
Product safety measures										22%
Responsible marketing										11%
ESRS G1: Governance & Internal Control	33%	67%	100%	17%	67%	33%	0%	0%	0%	35%
Gender composition in management										61%
Executives' pay										22%
Cyber security indicents										22%
ESRS G2: Business Conduct	100%	67%	33%	0%	0%	0%	0%	0%	0%	22%
Number of incoming complaints/risks										22%
% Trained on your Business Conduct										22%
% Sustainable investments										22%

Table 4.1: KPI Matrix

Green box: Successive inclusion of the KPI in the annual report. Yellow box: KPI is touched upon but too qualitative. Red box: No measurement is available in the annual report.

	Average Performance %
Integrated Report	55%
Separate Report	32%
Double Materiality	55%
Single Materiality	51%
No Materiality	8%

Table 4.2: General Statistics Performance Correlations

- How well does the analyzed company already cover the KPIs of the ESRS categories? (columns)
- How well is a category covered throughout the company reports? (rows)

We first count the answers in the matrix vertically to find the percentage of covered KPIs per company report, where orange boxes are counted as half performance. This gives insight to analyze the overall performance of each of the companies on the listed KPIs. Next, we measure the coverage of each specific KPI. For example, the first KPI, GHG emission scope 1 & 2 is reported on by 78% of the included companies.

4.2.1 Company Performance

We analyze how well a company performs on CSRD to the best of our knowledge of this research. The KPI matrix (in Table 4.1) is used to give an overview of the overall status of measuring the different CSRD categories. We aim to measure the performance in two ways, first the coverage of a specific KPI. For example, the first KPI GHG emission scope 1 & 2 is reported on by 78% of the included companies meaning it is a relatively important KPI and a good measure regarding a company their ESRS E1 performance. The other way is vertically where we measure the percentage of covered KPIs per tested company report. This helps to analyze the overall performance of each of the companies on the listed KPIs.

4.2.2 Performance Correlations

On the top rows of the matrix, one can see general classifications such as the matter of integration of sustainability into the annual report, and the materiality analysis type used. An integrated report refers to a report that includes the sustainability performance in the financial annual report, whereas a separate report refers to a detached paper that covers ESG performance. With the company performance percentages, we can now try to find correlations between the general classifications and the CSRD maturity. In Table 4.2 we see the derived averages.

So, we can clearly see that companies that have integrated their sustainability report into their annual report score higher on the general CSRD structure. Also, the companies that include double materiality score somewhat higher than single materiality, and especially companies that do not analyze their materiality score lower on their performance. It is logical that companies that miss materiality assessment score lower, as they are generally less mature in sustainability reporting. The steps to undertake to conduct a materiality analysis are defined in Section 5.2.

Also, integrated reporting is clearly the reporting technique that is expected in the future. Financial metrics are no longer the only value measure for a company, and integrating ESG into their main report shows to be one step ahead towards CSRD compliance.

4.2.3 Category Performance

The row percentages in Table 4.1 give indications of how densely the categories are reported on. This can help to identify the most relevant KPIs and the gaps in ESRS categories that remain. The ESG categories are covered as follows:

Environmental (E1:E5)
The matrix provides a great overview of the coverage of the different KPIs. The list of KPIs leaves the company with a wide variety of possible measures. When leaving out the companies 7 & 8 that miss out on ESG reports completely, we can see that the climate change category has relatively high coverage. Many companies include GHG emissions and percentages of renewable energy used and companies choose a variety of other measures to indicate their ESRS E1 performance. The categories that leave the largest possibilities for enhancements are ESRS E2 (Pollution) and ESRS E4 (Biodiversity). So, there are little to no KPIs that companies report on that measure the impact that a company's actions have on biodiversity and pollution level.

Social (S1:S4)
On average, the companies measure at least two or three indicators on ESRS S1 and S2. Next, community involvement is measured by only two different indicators, however, the coverage is still relatively high. The least-performing ESRS in the social category is the Consumers & End-User (ESRS S4). Companies do not yet measure the social impact caused by the effect they have on their consumer. A few companies were able to report on ESRS S4, by presenting their attempt at measuring customer satisfaction.

Governance (G1:G2)
The governance section of CSRD includes only two categories, namely ESRS G1 (Internal Control) and ESRS G2 (Business Conduct). From the row percentages (Table 4.1), we conclude that G1 is slightly better reported on than G2. However, it is safe to say that not many companies have initiated any governance performance indicators. The suggested KPIs in the governance categories can provide companies with an indication of possible KPIs to include. We expect that companies often measure some of these KPIs, but just don't report on them yet.

4.3 Analytical Analysis Conclusion

From the analytical analysis, we have gathered a list of KPIs on which companies can report to reach CSRD compliance. There are specific KPIs that are covered frequently such as emissions, while other KPIs have only emerged in one or two reports from the reference companies.

There is a noticeable difference in companies that have integrated reports including materiality, where integrated sustainability/financial reports generally show greater compliance with the CSRD structure. Also, we see a clear division in companies that are attempting to be compliant and generally reach a higher coverage percentage, while other companies show not to overlap with any of the ESRS categories.

This analysis confirms the conclusion from the descriptive analysis; there is a need for help by companies for implementing the structure of CSRD. The current report style scores a 37% coverage with the found KPI list, and the analysed reports leave clear KPI gaps when compared with the demanded CSRD structure and ESRS categories. We continue by providing a roadmap with a step-by-step approach to becoming CSRD compliant.

5. A Roadmap for Bridging the Gap

In this chapter, we aim to provide a comprehensive roadmap for companies to successfully navigate the integration of CSRD into their annual report. We have identified a significant gap that needs to be bridged for companies to comply with CSRD. While there is a growing awareness of the impending regulations, many companies struggle to grasp the structure and content requirements of CSRD.

To address this challenge, we guide companies through a five-step process of initiating CSRD. We have accumulated valuable knowledge that will assist in this journey. Our approach entails outlining the starting phase, establishing general reporting principles, identifying low-hanging fruit KPIs, and evaluating software availability for streamlined reporting. The process of CSRD can be broken down into five main steps (see Figure 5.1).

5.1 Step 1: Start-Up

To start up CSRD, companies have to familiarize themselves with the scope, content and timeline of CSRD. Also, the responsibilities have to be divided throughout the company and its departments, and the company can bring strategy into their sustainability report through the general reporting principles.

5.1.1 Consulting the Timeline CSRD

The first step for a company embarking on the path of CSRD compliance is to gain a thorough understanding of its specific timeline, priorities, and internal stakeholders responsible for the process. The timeline (Figure 5.3) states when each category of companies has to oblige. Further specifications of the company categories can be found in Section 2.4.1. The outcome, if a company has to comply, is that reporting must be set in place for the year 24', 25' or 26.

Subsequently, the company needs to familiarize itself with the standards and guidelines set forth by CSRD. This can be achieved by engaging with resources such as this thesis and the European Directives ([European Commission, 2023], [de Jaarverslaggeving, 2022]). By gaining a comprehensive understanding of the regulatory scope, the company can effectively determine the internal parties accountable for the CSRD report.

5.1.2 Dividing Responsibilities

Our research has revealed a clear distinction between companies that integrate their sustainability report with their financial report and those that keep them separate. Notably, integrated sustainability reports tend to yield superior outcomes. Integrated reporting aims to disclose and connect financial, social, and governance

Figure 5.1: Roadmap CSRD

aspects to quantify a company's performance, recognizing that a company's value is no longer solely based on financial factors.

While we highly recommend adopting an integrated reporting approach, it is currently permissible for companies to keep their sustainability report separate from the financial report. Depending on the chosen reporting style, the company should designate accountables for the process, such as the sustainability or finance department, or preferably a collaborative effort between the two.

5.1.3 General Reporting Principles

Through our analysis of the CSRD structure, we have identified four categories of reporting standards. Currently, all CSRD reports are required to adhere to the cross-cutting standards and topical standards. Let's delve into the first category, which is the cross-cutting standards category, further divided into ESRS1: General principles and ESRS2: General disclosures.

The general disclosures encompass the qualitative aspect of CSRD reporting. This section within a company's sustainability report aims to provide readers with insights into a company's background and its sustainability strategy. The following topics can be addressed:

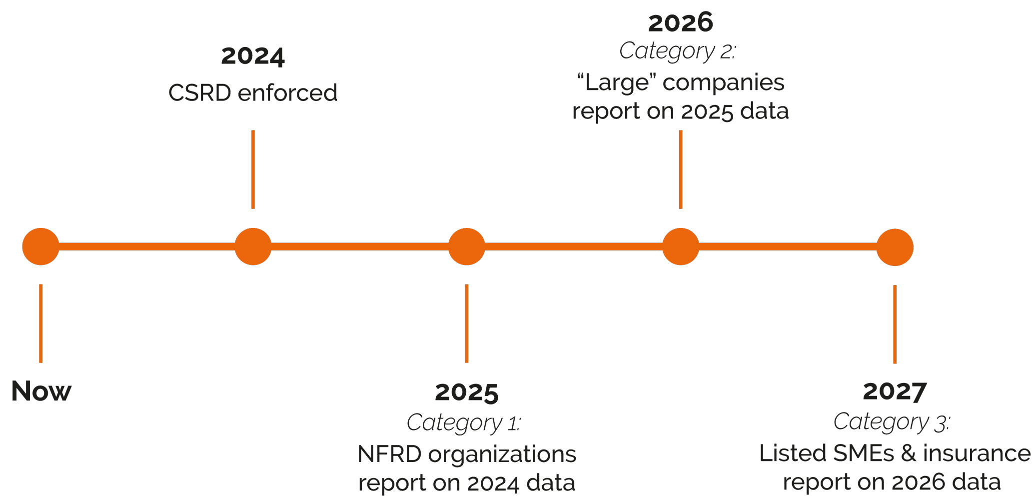

Figure 5.2: Timeline CSRD

- Strategy.
- Business Model.
- Governance and Organisation around Sustainability.
- Targets and Action Plans.

The above list serves as inspiration for potential general disclosures. It is important to note that there are currently no strict guidelines specifying the minimum requirements or an audit rubric. The general disclosure section of the annual report can serve as a foundation for substantiating the information presented throughout the report. Since the topical standards are sector-wide, ESRS1 and ESRS2 provide an opportunity to justify the relevance of each ESRS for the specific company under consideration.

The primary objective of CSRD is to enhance transparency and consistency in sustainability reporting across companies within the European Union (EU). The directive seeks to establish a unified framework for disclosing companies' environmental, social, and governance (ESG) performance. The provided guidelines do not differentiate based on company size or sector. Therefore, in the initial part of the CSRD report, companies can substantiate their performance by outlining their strategy, business model, action plans, or explanations of their governance structure.

5.2 Step 2: Materiality Analysis

As mentioned in Section 2.6, materiality plays an important role in CSRD compliance. We have established the importance of conducting a materiality analysis, and to achieve CSRD compliance, it is obligatory for a company to perform a double materiality analysis. Double materiality assessment determines the scope of the organization's specific sustainability reporting. Furthermore, it enables an efficient allocation of the resources needed to achieve CSRD compliance and provides insights for shaping the company strategy.

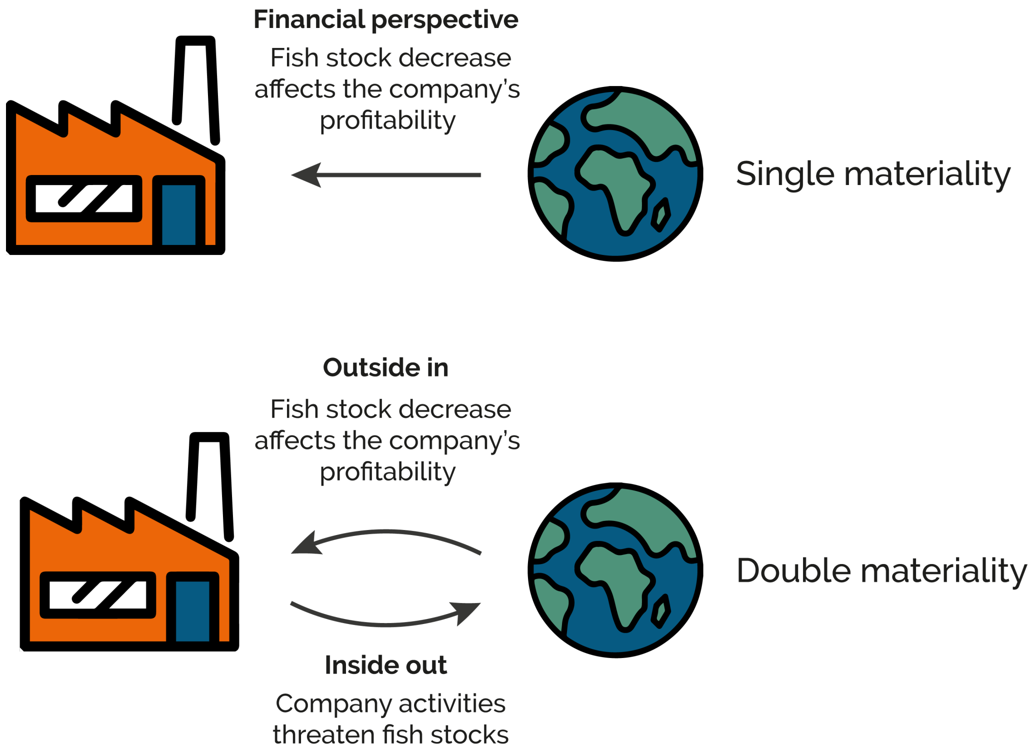

Figure 5.3: Double Materiality Explained

To perform a materiality analysis according to the double materiality standard a company must thus work through the following seven steps:

1. Identify & engage stakeholders.
2. List relevant sustainability measures.
3. Define impacts and risks.
4. Assess inside-out impact.
5. Assess outside-in impact.
6. Draw up the materiality overview
7. Establish strategic implications

5.2.1 Stakeholder Assessment

First and foremost in step 1, the company must identify its stakeholders. While Section 5.1 identifies the responsible party, it is important to note that the stakeholders who determine the materiality of the company's processes may be entirely different individuals. The objective of stakeholder engagement is to understand how people may be impacted by the organization and to gather input and feedback on sustainability matters, particularly those deemed material.

Next, the relevant sustainability measures need to be defined to execute steps 2 & 3. According to the November 2022 update of the ESRS, Climate Change and (part of) Own Workforce (for organizations with more than 250 employees) are considered material sustainability matters within the scope of the CSRD [Helgers and Sethi, 2023].

5.2.2 Assesing Materiality Impacts

In steps 3, 4, and 5, the organization should define and assess the impacts both inside-out and outside-in. The definition and difference between these two is clarified in Figure **??**) Additionally, the ESRS list of sector-agnostic sustainability matters Figure 2.2 can provide categorized topics that organizations should consider in their materiality assessment. An example assessment is given in Table 5.1.

The relevant sustainability measures need to be defined to assess the impacts. In terms of the ESRS categories, according to the November 2022 update of the ESRS, Climate Change and (part of) Own Workforce (for organizations with more than 250 employees) are considered material sustainability matters within the scope of the CSRD [Helgers and Sethi, 2023]. Meaning these two categories should at least be covered throughout reporting.

Assessing the impact that certain sustainability categories have on an organization can be a complex undertaking. These impacts, whether related to people or the environment, can manifest themselves in various forms, ranging from positive to negative, and can be current or potential. Moreover, they are often interconnected with impacts in other areas. Additionally, these impacts can occur in the short, medium, or long term, and are relevant to present and future events and activities throughout the value chain. When considering double

ESRS Category	Inside out impact	Outside in impact
ESRS E1: Climate Change	major	major
ESRS E2: Pollution	major	moderate
ESRS E3: Water & Marine Resources	negligible	negligible
ESRS E4: Biodiversity	moderate	negligible
ESRS E5: Circular Economy	major	major
ESRS S1: Own Workforce	moderate	moderate
ESRS		

Table 5.1: Impact Assessment

materiality, both the inside-out impact, which focuses on the influence of actions on the environment, and the outside-in impact, which examines the influence of ESG metrics on the financial business value, need to be evaluated, in order to come to a materiality matrix.

After assessing all impacts in accordance with the ESRS categories, the company can compile a materiality analysis matrix (Figure 5.4).

5.2.3 Strategic Implications

The materiality assessment is an essential component of the general reporting principles in which the company outlines its strategy. It is crucial to establish a link between the materiality assessment and the strategy and action plan. For each ESRS, the CSRD requires companies to disclose the measures they are implementing to manage their environmental and societal impacts, however, the materiality helps to justify the performance of an organization on less material topics. Consequently, companies must disclose not only the metrics and targets set for each sustainability measure but also the policies and action plans they will execute to achieve their goals. Therefore, companies are expected to report on what and how they address each category defined as material, or in other words important.

5.3 Step 3: ESRS Implementation

Once a company understands the relevant topics to report on, we start to fill in the KPIs. We advise companies to take on CSRD as the entire framework by tackling the directive according to the ESRS categorization. After performing an extensive materiality analysis, companies can conclude which ESRS are most material (important) in the company's performance scope. Companies should aim for a comprehensive and total ESG image to fit into the CSRD structure. Chapter 4.1 outlines possible KPIs to comply with CSRD. The list of KPIs can be used as a reference point to start filling in the ESRS categories. The KPIs are merely possible metrics, as companies can add alternative KPIs that they measure, in case they fit well within the category.

A company can start by filling in the performance matrix that is developed in Section 4.1. This method is used to quantify the current performance reporting of an organization compared to the CSRD structure. With this performance matrix, one can gather information on the gaps to fulfil in order to better comply with the demanded ESRS categories. A company might need to ask for external consultation if it remains hard to understand all ESG KPIs.

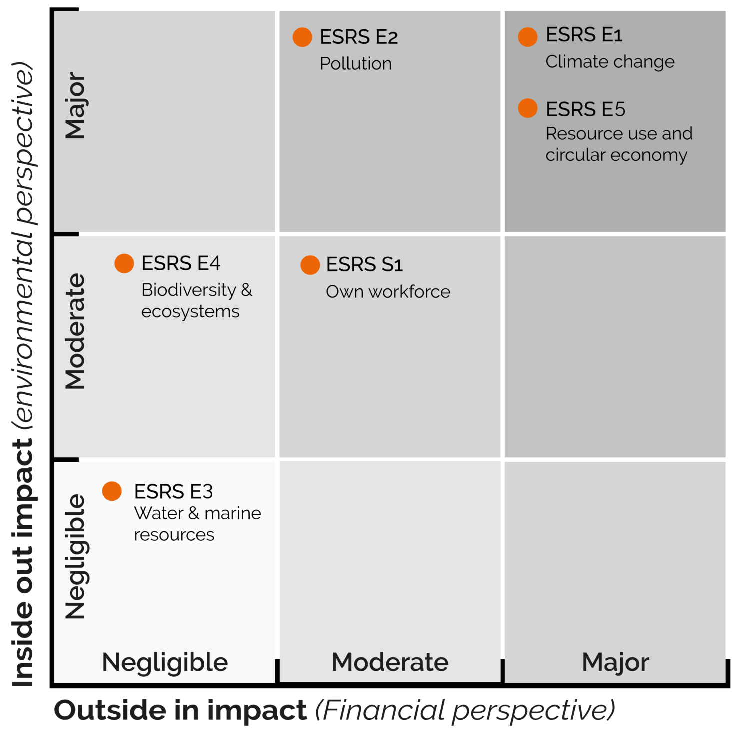

Figure 5.4: Example Double Materiality Analysis Outcome
The darker the cell background, the more material the ESRS category in that cell is.

Once an organization has gathered insight into the current performance, they can start to fill in the entire KPI list step by step to come to a compliant CSRD report. The main goal of CSRD is to establish benchmark sustainability measures that closely relate to the ESG definition and thus provide a complete overview of sustainability performance. By the scope of CSRD, we can say there are many companies that should start tackling the topical standards to create their individual benchmark for compliance over the coming years.

5.4 Step 4: Software Maturity

For the matter of Software solutions, it is important to realise that this research is conducted at McCoy & Partners whose main job is being an SAP consultant. The aspect that their partners have in common is that each company has SAP implemented in their processes to some extent. With this bias in mind, we consider software usage on the topic of sustainability reporting.

During the descriptive analysis, we noticed that companies experience great challenges regarding data availability and software usage. Over 50% of the respondents indicated to expect SAP to play a role in CSRD compliance. The software conclusions are based on an interview with SAP and asking SAP users about their experiences with SAP with respect to sustainability reporting.

The interviews have shown that the main problem that companies experience is data integration (Chapter 3). Sustainability is a company-wide topic, whereas for example scope emissions can and will originate from all departments within the organization. For giving reliable output metrics, we need a fully integrated solution tool. Furthermore, companies are hesitant to implement new software solutions, as a large part of the problems that they face in their business are related to software connectivity and integration. A great part of the success factor of SAP's business is that SAP is often relatively integrated throughout the organization, while SAP is responsible for the data in various departments. In most of the researched cases in the interviews, SAP is the largest software partner that the company works with. Ideally, companies stick with SAP as a data landscape for finding a sustainability reporting solution.

5.4.1 Sustainability Control Tower

The specific SAP module that is developed to help companies reach compliance is the Sustainability Control Tower (SCT). SAP Sustainability Control Tower® is an environmental, social, and governance (ESG) accounting tool powered by the SAP Business Technology Platform (SAP BTP), SAP® Data Warehouse Cloud, and SAP Analytics Cloud, all of which are hosted on AWS. With this Guidance, customers can track their carbon footprint—one of the key metrics for ESG disclosures—using pre-built data models [SAP, 2023].

The sustainability control tower aims to be a virtual-single source of truth, to integrate all different company segments. This means the SAP module will integrate both information that is already loaded into SAP software and other data sources used such as Excel.

While conducting interviews, the only other software partner that was mentioned in the interviews is Sphera, which focuses on measuring a company's emissions but excludes other categories. Furthermore, the interviews with all the different companies as well as the entire literature research have not mentioned any competitors for the SCT solution. The entire CSRD topic is new and emerging fast, and there have not yet been found any well-implemented solutions. Through interviewing SAP and their experience with the control tower we can conclude that they implemented enough KPIs to cover each ESRS from CSRD, but new measures will keep being developed and added to the solution.

5.4.2 Shortcomings of using SAP

A general objection to using SAP is that the introduction of this solution is rather late. Companies that have to comply with CSRD starting from January 2024, are no longer able to completely implement this. However, SAP includes a few references of companies that are yet able to report with the use of the SCT, for example, the SAP will have to report under CSRD themselves as if 2024, and they will report based on the control tower. So, while there are not yet any reference reports, there will be in the coming year.

Another shortcoming that was learned throughout interviewing SAP, is that the SCT does not yet incorporate qualitative data. Where SAP now says to be able to measure all needed KPIs they have not yet managed to guide a client through the A-Z process of setting goals and quantifying their performance into a report.

5.4.3 Software Conclusion

We can conclude that SAP is a good choice for companies that are already working with SAP for setting up their CSRD framework. However, it is important to realise that the outcome is biased, as it only includes companies already working with SAP. We noticed a general problem that companies face with implementing more and more different IT solutions, so for SAP partners, it is relatively more approachable to work with the SCT. The problems of data availability and integration can best be approached by SAP as the partners of SAP generally have the IT integrated throughout different departments.

Larger and NFRD-compliant companies that have had to prepare their data during this year often did not choose to work with SAP when their solution was not ready yet. These companies aim to audit their current report without the use of the SCT, and next year they can re-decide whether or not to implement the control tower, based on the outcome of their audit.

6. Conclusions

The main research question to answer in this research is the following:

How can companies bridge the gap from their current annual reporting practice towards an auditable Corporate Sustainability Reporting Directive compliant report?

The conclusion of the research is divided into four sections. First, we clarify the found urgency and scope of CSRD, next, we conclude on the content and structure, including the perceived gap. Then, we present the achieved roadmap that lays out how the gap can be bridged, including the conclusion on the use of software, and finally, we give advice to McCoy.

6.1 Urgency and Scope of CSRD

The urgency of the CSRD topic is evident based on our research findings. We initially hypothesized that CSRD and its regulations would be relevant in the field of IT consultancy, and our research confirms this hypothesis. We have discovered that the number of companies required to comply with sustainability reporting will increase from 11,000 to 50,000, and CSRD will replace previous sustainability frameworks.

Throughout our research, we have compared the state-of-the-art with the urgency companies perceive within their organizations regarding CSRD. It is apparent that companies are struggling to comprehend the meaning, structure, and implications of CSRD on their activities. Over 90% of respondents agree on the high priority of CSRD, but only 50% claim to understand the definition and scope of CSRD. It is important to note that all participants in the study fall under the CSRD regulation, indicating a pressing demand for insight.

6.2 Content and Structure of CSRD

Through interviews, surveys, and analysis of annual reports, we have observed a wide range of maturity levels in sustainability reporting. This implies that companies that are less mature in their reporting practice need to make progress urgently. Companies have expressed a need for assistance and have also shown a lack of awareness regarding the specific content required to comply with CSRD. Our research includes a first draft of Key Performance Indicators (KPIs) for each category within the CSRD structure (Section 4.1). Although a list of mandatory KPIs has not yet been published, this overview serves as a starting point for companies to identify possible sustainability measures.

During the analysis of annual reports, we found that some companies attempted to implement CSRD by conducting a materiality analysis and addressing all ESRS categories. Companies that attempted to comply showed the largest gaps in the areas of biodiversity, pollution, business conduct and consumers & end-users

(Table 4.1). These categories are perceived as vague and challenging to measure, and the KPI matrix may help companies by providing examples of what other companies are attempting to measure in these categories.

Companies that have not yet implemented the CSRD structure scored below 20% compliance. This particularly includes companies that keep their sustainability measures separate from their financial and management reports. These separate sustainability reports do not integrate with the CSRD structure, as the indicators do not align.

So, we have identified different stages of maturity that require different next steps to improve CSRD reporting. Companies in the immature phase of CSRD implementation can start with step one of the provided roadmap (Chapter 5) and follow the recommended steps of integrated reporting. Although there is a significant gap to fill for this segment of companies, they now have the opportunity to address the entire structure since there is a first draft overview of CSRD content.

The other group of companies that achieved around 50% compliance score in CSRD reporting needs to first improve their reporting before undergoing an audit. Companies that have not yet conducted a double materiality analysis should start with that, and others can find inspiration from the KPI matrix to address areas where they perform poorly based on ESRS categories.

6.3 Roadmap and Software for CSRD

Apart from achieving accurate performance outputs, bridging the gap in data preparation and software implementation is crucial. Throughout our research on CSRD maturity, we have found a widespread need for assistance. Companies can initiate the CSRD structure by assessing the status of their internal sustainability measures. However, we have identified that software implementation and reliable data output pose significant compliance bottlenecks. The most challenging KPIs to measure, such as Scope 2 and 3 emissions, require information from each department within the company and even from each supplier of each department.

Throughout our research, we have discovered that companies are generally hesitant to implement software from new IT partners. One of the emerging problems in organizations is data integration. All the companies that are included in the research are clients of McCoy and thus use SAP in their business processes. Specific sustainability SAP software is not yet widely implemented due to the fast emerging timeline of CSRD, but at this moment SAP's software solution (the Sustainability Control Tower) for CSRD is being implemented by the first few companies. We can conclude that SAP is a logical partner to assist in CSRD compliance because of its significant data share at various departments within companies. The SCT is a software solution that can guide companies from their strategic action plan to producing an auditable report.

Previously, SAP software was not ready, which is why relatively mature companies, in terms of sustainability reporting, have struggled in finding their own internal solutions for data-related challenges. However, we can now conclude that CSRD alignment through the SCT is possible.

6.4 Advice towards McCoy & Partners

The advice towards McCoy & Partners would be to proceed with the contact with their clients regarding CSRD. The hunch of relevance was indeed true and companies have shown to demand help with tackling the regulation. McCoy can behave as the advisory consulting partner on behalf of CSRD. They should start by guiding one of the relatively immature companies such as company 6 or 7 (Table 4.1), as they can guide them through the process from A-Z. With this experience, they can then help the next company, and so on. The roadmap in Chapter 5 should be considered in order to prepare for the consultation, and the KPI matrix can be used to measure the current maturity of sustainability reporting within the CSRD structure.

McCoy themselves has to comply with CSRD in their reporting in 2026. Throughout this research, they have shown to be immature in their sustainability reporting. Also, they have yet to integrate the CSRD structure in their reporting. In order to comply with CSRD they will have to execute the entire roadmap. Ideally, McCoy consults a few of their clients in order to take advantage of the fact that they are not part of the first group to comply. After the first batch of 2024, there is more example material to use to become CSRD-ready.

7. Discussion

This research presents an initial approach to understanding CSRD. However, further research is advised to further comprehend the directive for several reasons. In this final chapter, we explore possibilities for future research (Section 7.1, Section 7.2 & Section 7.5) and discuss ways to validate the research findings (Section 7.3 & Section 7.4) for optimal utilization.

7.1 Progress in CSRD

Firstly, it is important to note that the current version of the CSRD regulation is only available as a draft [Enden, 2022a]. Therefore, to ensure the validity of the outcomes, future research should validate them using newer versions of the CSRD regulation. Additionally, while the CSRD regulation is sector-agnostic, sector-specific norms are expected to be published in October 2023 [European Commission, 2021]. The interviewed companies are categorized under specific sectors, as specified in Appendix A. Understanding the intricacies of these additional requirements, including their implications, measurement methodologies, and reporting frameworks, necessitates further research and analysis.

7.2 Corporate Sustainability Due Diligence Directive

The field of sustainability reporting is dynamic and continuously evolving. Ongoing research is crucial for keeping pace with the changing landscape and ensuring an accurate and up-to-date understanding of the CSRD. Specifically, since March 2023, a complementary guideline called the Corporate Sustainability Due Diligence Directive (CSDD) has been published [Gemerden, 2022]. This proposed directive complements the CSRD by aligning with other EU initiatives, such as the 'Fit for 55' package and the European Green Deal. The CSDD requires companies under the CSRD to identify actual or potential negative impacts on human rights and the environment and take measures to mitigate these impacts. The proposed directive also aims to link executive variable remuneration to sustainability objectives. To bridge the gap between current reporting practices and CSRD auditability, further research is needed to integrate the implications of this new addition and explore the structure of CSDD.

7.3 Validating the Roadmap

Once the roadmap has been utilized for a comprehensive case study by either the company itself or McCoy as consultants, it is recommended to validate the outcomes with experts in the field of sustainability reporting and CSRD compliance. Engaging professionals with expertise in corporate reporting, sustainability standards, regulatory compliance, and related areas can provide valuable insights and help to identify any gaps, inaccuracies, or areas for improvement. External companies specializing in CSRD analysis often referred to as "gap analysts" can also contribute to enhancing the validity of the research outcomes.

7.4 Auditability

The term 'auditable' poses certain limitations within the context of bridging the gap from a company's current annual reporting style to an auditable Corporate Sustainability Reporting Directive-compliant report. The challenge arises from the relative newness and evolving nature of sustainability reporting guidelines. As these guidelines continue to emerge and evolve, a universally accepted and well-defined definition of 'auditable' within the specific context of sustainability reporting is yet to be established. The lack of a comprehensive definition or control rubric hinders the development of clear criteria and frameworks for assessing the auditability of sustainability reports. This ambiguity raises questions regarding the specific requirements and standards that companies need to meet in order to achieve auditable status. Without a solid understanding of what 'auditable' entails, companies may struggle to effectively bridge the gap and align their reporting practices with the desired sustainability reporting standards. Therefore the research should continue with developing a clear understanding of how the success of a report will be measured in order to foresee problems with sustainability reporting.

7.5 KPI Gaps

Further research presents an opportunity to address the existing gaps in corporate sustainability reporting, particularly in the areas of pollution and biodiversity. While sustainability reporting frameworks provide general guidance on reporting KPIs, specific metrics and standardized methodologies for quantifying and reporting on these categories are often lacking. Throughout the research we have found various example KPIs (Section 4.1), however, we have realised that some categories lack KPIs. Future research endeavours can focus on developing KPIs for pollution and biodiversity, enabling companies to effectively capture and report their environmental impact. By providing companies with clear and measurable indicators, further research can facilitate more accurate and comprehensive reporting in these critical areas.

By conducting further research, validating the findings, and staying updated with emerging regulations and guidelines, we can enhance our understanding of the CSRD and advance sustainable reporting practices.

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A. Appendix: ESRS Sector List

[EFRAG, 2023a]

- Food and beverages
- Agriculture and farming
- Oil & gas (upstream & downstream)
- Motor vehicles
- Energy Production and Utilities
- Road Transport
- Coal Mining
- Energy Production and Utilities
- Metal Processing
- Forestry
- Water and Waste Services
- Real Estate and Services
- Information Technology
- Buildings Material
- Paper and Wood products
- Food and Beverage Services
- Tobacco
- Food and Beverages
- Pharma and Biotechnology
- Health Care and Services
- Medical Instruments

- Machinery and Equipment
- Electronics
- Chemical Products
- Accommodations
- Recreation and Leisure
- Media and Communication
- Gaming
- Constructions and Furnishing
- Construction and Engineering
- Sports Equipment and Toys
- Marketing
- Education
- Professional services (e.g. architects, accounting, photographic, legal, travel agencies, security, packaging)
- Textiles, accessories, footwear, jewellery

B. Appendix: Questionnaire Questions

The questions asked in the questionnaire can be found in Figure B.1.

Corporate Sustainability Reporting Directive (CSRD)

Company: .... / anonymous

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The sustainability department in my company is growing					
I know the definition of **CSRD**					
CSRD will play a large role in my company					
I expect SAP to play a role in our road to CSRD compliance					
CSRD is our **main** sustainability challenge					

Figure B.1: Questionnaire Set-up

C. Appendix: Example KPIs

The reference annual report used is the sustainability paper by Nestlé. The following KPIs are used as examples throughout the paper.

Energy consumption

	2020	2021	2022
Energy consumption (Gigajoules)	81 385 568	82 779 476	**80 131 120**
Energy consumed that is renewable energy (%)	23.1	25.3	**30.6**
Energy consumed that was supplied from grid electricity (%)	12.2	10.2	**6.0**

Figure C.1: Example Environmental E1 KPI [Bulcke and Schneider, 2023]

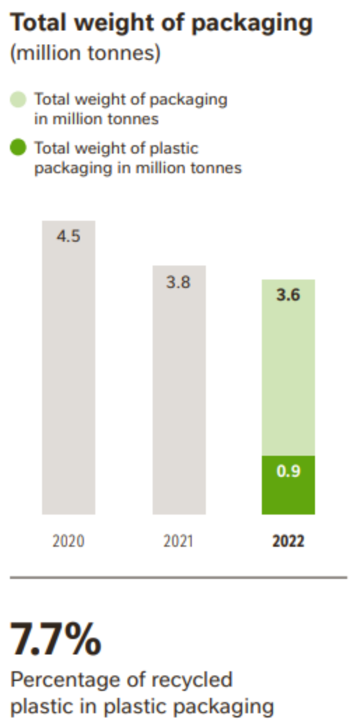
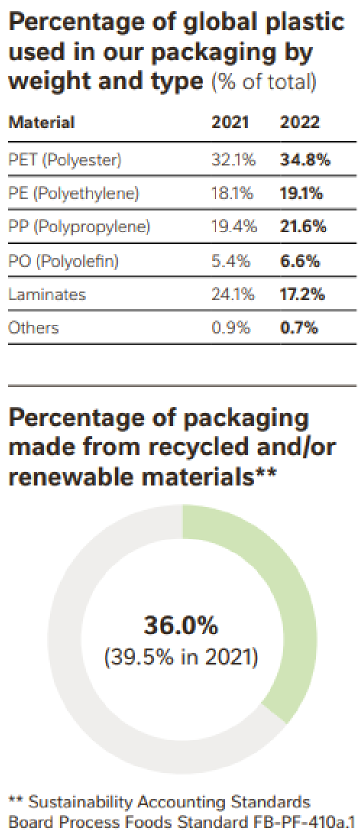


Figure C.2: Example Environmental E5 KPI [Bulcke and Schneider, 2023]



Percentage of global plastic used in our packaging by weight and type (% of total)

Material	2021	2022
PET (Polyester)	32.1%	**34.8%**
PE (Polyethylene)	18.1%	**19.1%**
PP (Polypropylene)	19.4%	**21.6%**
PO (Polyolefin)	5.4%	**6.6%**
Laminates	24.1%	**17.2%**
Others	0.9%	**0.7%**

Figure C.3: Example Environmental E5 KPI [Bulcke and Schneider, 2023]

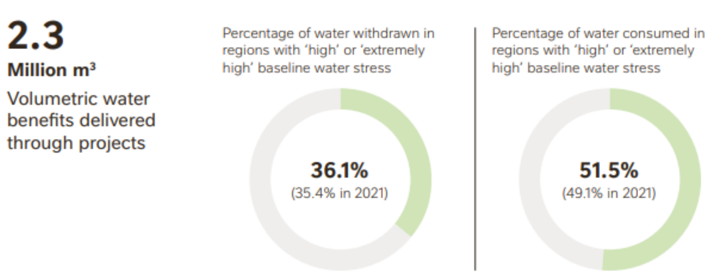


Figure C.4: Example Environmental E3 KPI [Bulcke and Schneider, 2023]

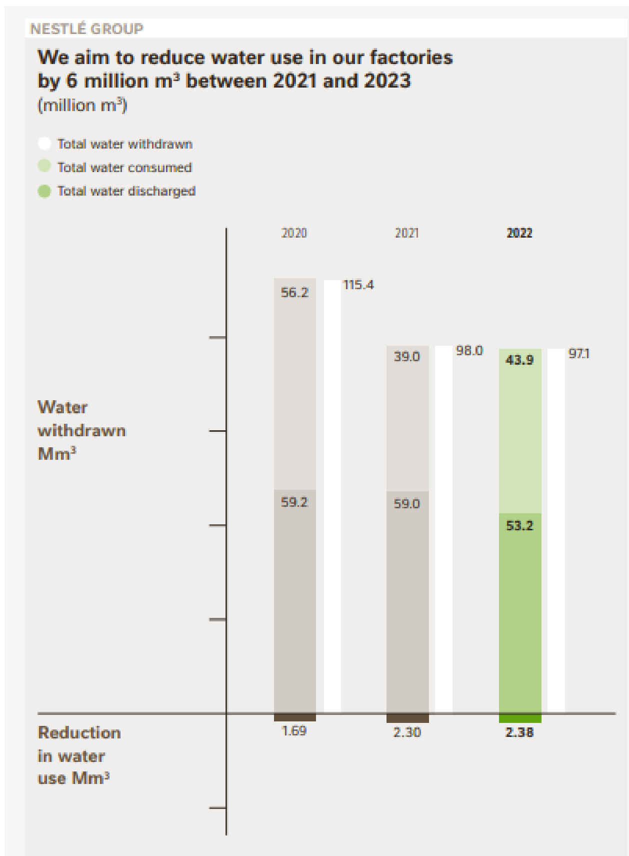


Figure C.5: Example Environmental E3 KPI [Bulcke and Schneider, 2023]

D. Interview Set-Up

1. Wat speelt er binnen het bedrijf/ wat doen jullie op het gebied van Sustainability ?
2. Wat is de voornaamste reden dat jullie bezig zijn / investeren in duurzaamheid?
3. Wat is de mening van jullie klanten op dit topic?
4. Hebben jullie hier intern een team voor of wie monitort/ is verantwoordelijk.
5. Wat is de rol van duurzaamheid in jullie verslaglegging/jaarverslag
6. Hebben jullie voorheen geprobeerd te voldoen aan GRI guidelines?
7. Hoe ondersteund data of software jullie op dit vlak?
8. Bent u bekend met CSRD?
9. Zijn jullie je bewust van wat CSRD voor de organisatie gaat betekenen en wanneer?
10. Wat zijn aspecten waar jullie hulp nodig denken te hebben op dit vlak?
11. Wat is jullie timeline op dit onderwerp.
12. Hoe ondersteund data of software jullie op dit vlak?
13. Wat zijn de goede punten van deze tooling?
14. Wat zijn de minder goede punten van deze tooling?
15. Eventueel de rol van SAP bespreken hoe zij die nu zien.
16. Wat zou voor jullie een reden zijn om gebruik te gaan maken van SAP Duurzaamheids software? (unique selling point, die ze wellicht nu missen in hun huidige systeem)