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How to start the implementation of CSRD in a Finnish SME?

Case study of Sustainability Reporting

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ABSTRACT:

Sustainability and sustainability reporting have been developed extensively during the past five years. The implementation of the Corporate Sustainability Reporting directive (CSRD) is the output of the continuous development of the sustainability reporting. The sustainability reporting directive CSRD was published in 2023, and implemented in Finnish law in January 2024. Before the implementation of CSRD, sustainability reporting was voluntary for the most small- and medium-sized enterprises. Because of the implementation of the CSRD, the requirements related to sustainability reporting will change among SMEs. At the same time when CSRD was implemented, European sustainability reporting standards (ESRS) became mandatory. The reporting requirements of CSRD is presented via ESRS standards which ensures that sustainability reports can be assured and compared between companies. Therefore, the ESRS are equally mandatory reporting standards with CSRD. ESRS standards evaluate the sustainability of the organization from the three common perspectives environment, social, and governance which are the common ESG pillars. With the ESG pillars materiality is analyzed on CSRD from two perspectives, impacts and financial materiality, which build the concept double materiality. On double materiality analysis risks, and opportunities, and the essential material topics are reported on the final sustainability report.

The scope of this study is to investigate the implementation process of sustainability reporting in a Finnish SME in metal industry. The main aim of CSRD is to increase the transparency and harmonize sustainability reporting so that sustainability disclosures are in the same reliable level that other regulated financial reports. CSRD standardizes and harmonizes sustainability reporting across organizations so that the sustainability reports are comparable between organizations, reliable, understandable and that stakeholders get correct picture of the operations of undertaking. Harmonized reporting standards enables stakeholders compare sustainability reports. The accounting principles together with the harmonized sustainability reporting standards ensure that principles of accounting are met during the reporting process and stakeholders get actual picture of the sustainability. Sustainability disclosures should give understanding of main impacts, risks and opportunities, and increase transparency.

The thesis investigates the implementation of CSRD with the help of design science methodology. The study combines theory of sustainability reporting in practice. The primary goal of the thesis is to develop sustainability reporting routines, understand the reporting process and requirements for the sustainability reporting according to CSRD. To complete sustainability reporting the materiality assessment plays a crucial role. Because of that the study investigates double materiality analysis, and its preparations. Then the material topics are identified in a reliable way the process can continue to gap analysis, data collection, and finally the preparations of a final sustainability report. The research ends to the presentation of a possible process model to complete sustainability reporting according to CSRD. The results of the study presented that the

implementation of CSRD should happen in implementation cycles. This study took a step forward with the implementation of CSRD in the case company. Since CSRD among SMEs is not been researched yet this thesis gives valuable information for the case company, and to the metal industry.

KEYWORDS: Corporate Sustainability Reporting directive, sustainability reporting, CSRD, ESRS, European Sustainability reporting standards, double materiality, European Commission, IRO, ESG, materiality assessment

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TIIVISTELMÄ:

Viimeisen viiden vuoden aikana kestävyysraportoinnin kehitys ja sen merkitys on kasvanut Euroopassa ja osoituksena tästä kestävyysraportoinnin kehityksestä Kestävyysraportointidirektiivi (CSRD) julkaistiin 2023 ja implementoitiin sittemmin osaksi Suomen lakia 2024. Ennen CSRD implementointia kestävyysraportointi on perustunut vapaaehtoisuuteen pk-yrityksissä. Vapaaehtoisille kestävyysraportointi aloitteille ei ole ollut yhteisiä varmennus mekanismeja sekä niiden vertaaminen toisiinsa on haasteellista. Kestävyysraportointidirektiivin implementoinnin seurauksena kestävyysraportointi tulee kehittymään tulevina vuosina, sillä CSRD asettaa myös pk-yrityksille tarkat vaatimukset kestävyysraportoinnin laatimiseksi. CSRD päätavoitteina on standardisoida ja harmonisoida kestävyysraportointia siten, että raporttien vertailu yritysten välillä olisi mahdollista. Tämän ansiosta sidosryhmät saavat todellisen kuvan raportoivan yrityksen vastuullisuudesta toimista sekä ymmärtää raportoivan yrityksen ydin vaikutukset, riskit ja mahdollisuudet ympäristöön ja yhteiskuntaan liittyen. Tämä lisää yritysten toimintamallien ja strategian läpinäkyvyyttä suhteessa sidosryhmiin. CSRD implementoinnin yhteydessä ESRS standardit tulivat osaksi suoraa velvoittavaa lainsäädäntöä. Kestävyysraportointi direktiivin raportointi vaatimukset ovat esitetty ESRS standardien kautta. ESRS standardien avulla taataan Kestävyysraportointidirektiivin mukainen kestävyysraporttien yhdenlaisuus ja varmentamisen mahdollisuus. ESRS standardit asettavat tarkat vaatimukset kestävyysraporteille. ESRS standardeissa vastuullisuutta analysoidaan ympäristön, yhteiskunnan ja hallinnon (ESG) pilarien kautta. Jotta yritys kykenee identifioimaan olennaiset ESRS standardit tulee olennaisuutta arvioida kaksoisolennaisuusanalyysin kautta. Kaksoisolennaisuusanalyysissa yritys arvioi vaikutusten olennaisuutta ja taloudellisia vaikutuksia, joita raportoiva yritys aiheuttaa tai jotka kohdistuvat raportoivaan yritykseen. Kaksoisolennaisuusanalyysissa arvioidaan vaikutuksia, riskejä sekä mahdollisuuksia vastuullisuuden näkökulmasta. Tätä arvioita kutsutaan IRO -analyysiksi. Yhteenvetona, CSRD ansiosta kestävyysraportointia tullaan kehittämään yrityksissä tulevaisuudessa ja tavoitteena on nostaa kestävyysraportointi samalle tasolle muiden taloudellisten raporttien kanssa.

Tutkimuksen ensisijainen tavoite on kehittää kestävyysraportointi prosessi ja ymmärtää CSRD asettamat teoreettiset vaatimukset kohde yrityksen näkökulmasta. Tutkimuksessa tarkastellaan kaksoisolennaisuusanalyysia ja tutkimus päättyy raportointimallin esittämiseen CSRD mukaisesti. Tutkielman mukaisesti CSRD kehittäminen tulee tapahtua vaiheitta ja tutkimuksen teoria osuudessa tarkastellaan kestävyysraportoinnin teoriaa. Kestävyysraportoinnin suorittamiseksi kaksoisolennaisuusanalyysi on tärkeässä osassa raportointia. Olennaisien kestävyysseikkojen määrittämisen jälkeen raportointi jatkuu kuiluanalyysilla, datan keräämisellä ja virallisen raportin viimeistelyllä. Tutkimuksen avulla CSRD implementointia kehitettiin tutkimuksen kohde yrityksessä ja tutkimuksen tulosten perusteella kestävyysraportoinnin implementointi tulee tapahtua implementointi sykleissä. Tutkimus tuotti arvokasta tietoa niin kohde yritykselle, pk-yrityksille kuin koko teollisuuden alalle.

AVAINSANAT: Kestävyysraportointidirektiivi, kestävyysraportointi, kestävä kehitys, CSRD, ESRS, kaksoisolennaisuusanalyysi, vastuullisuusraportointi, Euroopan Komissio, IRO, ESG

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Abbreviations

CSRD	Corporate Sustainability Reporting Directive
DMA	Double Materiality analysis
DS	Design Science
EFRAG	European Financial Reporting Advisory Group
ESG	Environmental, social & governance
ESRS	European Sustainability reporting standard
EU	European Union
FY	Fiscal Year
GOV	Governance
GRI	Global Reporting Initiative
IAAE	International Standard on Sustainability Assurance
IRO	Impacts, Risks and Opportunities
NFRD	Non-financial Reporting Directive
NSRS	Nordic Sustainability reporting Standard
MDR	Minimum disclosure requirements
MT	Metrics
PAT	Policies, action and targets
SBM	Strategy
SDG	United Nations Sustainable Development Goal
SME	Small and medium-sized enterprises
SR	Sustainability Report
TBL	Triple Bottom line
VC	Value chain
UN	United Nations

1 Introduction

Sustainability reporting and its importance has rapidly growth during the past five years, and on the most of the countries in European Union the Corporate Sustainability Reporting directive CSRD has become mandatory (Hummel & Jobst, 2024; European Commission, 2023b). The regulation related to sustainability disclosures on CSRD set new requirements for the organizations when they prepare sustainability disclosures (Hummel & Jobst, 2024). To be aware with the changes both organizations and decisionmakers should follow the development of sustainability (Hummel & Jobst, 2024). Also, stakeholders and other sustainability report users are increasingly interested in organizations sustainability work and corporate sustainability is an important aspect while making investment decision (Greenstep, 2023; Silvola & Landau, 2019; PwC, 2024e).

In 2021 European Financial Reporting Advisory Group (EFRAG) presented a project to build sustainability reporting standards which could be used across organizations (European Commission, 2023ab). Later in 2022 the Corporate Sustainability Reporting directive (CSRD) was adopted in European Union and entered in to force in Finland in 2024 (Hummel & Jobst, 2024, p.2; Niskala & Palmaro, 2023). The main aim of CSRD can be summarized into the four main focus areas, to sustainable economic growth, well-being, and health in European Union and to support the remediation after the consequences of Covid-19 pandemic (European Commission, 2023b; 2024a; Hummel & Jobst, 2024). The legal background of these main focus areas is coming from the International Conventions and Agreements such as European Union's Green Deal, the Paris Agreement (2024) and United Nations Sustainable Development goals (Herremans, 2019; European Commission, 2023b; 2024a; Niskala & Palmaro, 2023). To ensure that organizations actively work towards the net-zero target 2050 on the European Green Deal and climate targets on the Paris Agreement the CSRD and other sustainability regulations were published (European Commission, 2024a; 2023b; Hummel & Jobst, 2024; Niskala & Palmaro, 2023).

CSRD is a sustainability reporting legislation for the sustainability accounting, which sets requirements for the contents of sustainability disclosures, and to the methods to prepare data. These requirements ensure that sustainability work in the organizations is planned so that the EU climate change targets can be reached (Hummel & Jobst, 2024; European Commission, 2023ab; Niskala & Palmauro, 2023). CSRD is a mandatory accounting regulatory which obligates organizations to disclose material sustainability impacts, risks and opportunities which are identified via double materiality analysis (Niskala & Palmauro, 2023; European Commission, 2023b; Herremans, 2019; Mezza-notte, 2023). CSRD was implemented both because of the increased importance of sustainability but also to ensure that organization can provide reliable, comparable, and understandable data of their operations (European Commission, 2023b; 2024a; Niskala & Palmauro, 2023). According to the theory of sustainability reporting, sustainability disclosures include the main impacts, risks and opportunities which are presented with the help of common sustainability pillars environment, social and governance (ESG) (Herremans, 2019; Silvola & Ström, 2023; Yip & Yu, 2023; Bureau Veritas, 2023). On CSRD the main impacts, risks and opportunities are presented with the help of ESG categories (Silvola & Ström, 2023). Sustainability report presents undertakings culture and action related to sustainability which is a way to inform stakeholders of the sustainability work (Herremans, 2019; KPMG, 2024a). During the next five years sustainability reporting will become mandatory to many organizations in different countries (Hummel & Jobst, 2024). With these changes on sustainability reporting, approximately 50 000 organizations are in the scope of mandatory CSRD sustainability reporting (PwC, 2024c).

This study concentrates investigate Corporate Sustainability Reporting directive (CSRD) in a Finnish SME. The study presents a model and methods of how the sustainability reporting could be made in the case company, and pilots the double materiality analysis. The research problems of the study are presented with the help of following two complexities:

1. How to build a sustainability reporting in case company and what are the principles, standards and frameworks which should be taken into account to build a sustainability report in case company?
2. Which ESRS standards are material for case company and how they can identify material topics of ESRS?

The sample of the study is the case company, and the empirical data of the study comes from the case company. Qualitative and quantitative data is collected to pilot the double materiality analysis which is the way to identify the material topics for the organization (European Commission, 2023b). Additionally, workshops and meetings with the case company acquired understand the sustainability work on case company and collected data to this study. The first chapter introduces researched topic, research questions, the main limitations of the study. The chapter provides understanding of the main topics related to sustainability, sustainability reporting and the Corporate Sustainability Reporting directive.

1.1 Background

The study focuses to sustainability from the Corporate Sustainability Reporting directive (CSRD) point of view. In begging of 2018 the project “Action Plan Financing Sustainable Growth was introduced by European Commission (2018)” (Hummel & Jobst, 2024). The content of that action plan is shared to the three categories which are planning to improve sustainable finances, implement sustainability to the organizations risk management systems and include sustainability to the corporate culture (Hummel & Jobst, 2024, p.1-2; European Commission, 2018). Soon after that the action plan was concluded to European Green Deal (Hummel & Jobst, 2024). In the center of European Green Deal is to work towards the climate neutrality in Europe in 2050. That means that European Union’s nations should reduce the net-zero emissions to the zero before 2050 to reach the goal of European Green Deal (Hummel & Jobst, 2024). To achieve the goal of net-zero development on sustainability reporting among was made (Hummel & Jobst, 2024).

European Green Deal is a part of the Climate targets of European Union to slowdown the climate change, the definition of climate change is that the average temperature increases in the world which cause global warming, risk biodiversity loss and impacts to the ecosystem (Joof et al., 2023).

To achieve the targets of European Green Deal, the Corporate Sustainability Reporting directive 2022/2464 was published in EU in 2023 and implemented to Finnish law in the beginning of January 2024 (Niskala & Palmuaro, 2023; European Commission, 2023b; 2024a). Implementation of CSRD sets organizations to rethink their operations and disclose how the European climate targets can be reached (European Commission, 2023b; 2024a; Hummel & Jobst, 2024). The weigh of CSRD is more than reporting, since to report according to CSRD organization should focus on the sustainability work behind the reports. To complete sustainability reporting according to CSRD organizations should have policies, actions, metrics, and targets related to identified impact, risk or opportunity (European Commission, 2023b). In addition, the most of the reporting paragraphs are narrative (EFRAG, 2024b; European Commission, 2023b).

The directive is a part of European Law and the regulation given by European Union becomes automatically mandatory in EU-member nations after the publication (Lakikirjoittajan opas, 2024; Niskala & Palmuaro, 2023). The main aim of CSRD is to harmonize the sustainability reporting by setting standard guidelines which should be applied across organizations (Niskala & Palmuaro, 2023; European Commission, 2023b; 2024a). The standard guidelines regulate the accounting process in a similar way than on other financial reports (Niskala & Pamuaro, 2023; European Commission, 2023b; 2024a; KPMG, 2024a; Mezzanotte, 2023). With the harmonized standards, CSRD pursue to ensure that organizations' sustainability strategies and actions are connected to international conventions and agreements so that the sustainability work in organizations are really completed (European Commission, 2023b; 2024a; Hummel & Jobst, 2024; Niskala & Palmuaro, 2023).

Before the CSRD organizations had reported sustainability disclosures according to other standards and directive such as Non-financial Reporting Directive (NFRD) or Sustainable Finance Disclosure Regulation (SFDR) (Hummel & Jobst, 2024). The biggest difference related to these standards are that these standards are not evaluating the impact materiality which means the impacts of the operations of the organization outside to the society and environment (Niskala & Palmauro, 2023; Mezzanotti, 2023; Dragomir et al., 2024). According to Hummel and Jobst (2024), the scope of NFRD and SFDR was minor and obligated only large-sized enterprises which resulted that only organization which employed over 500 employees were obligated to disclose sustainability. To ensure that the European climate change target for 2050 can be reach, CSRD entered into force from 2024 to obligate wider scope of enterprises to disclose sustainability (Hummel & Jobst, 2024).

According to Heijala et al. (2023), small and medium sized enterprises (SME) are the biggest organization category in Europe. To classify organizations the Accounting Act 1336/1997 sets requirements of how the organization should be shared to the different groups (Heijala et al., 2023; European Commission, 2024d). The evaluation is based on the criteria on the Accounting Act 1336/1997 which evaluates revenue, balance and the number of employees of the undertaking (Heijala et al., 2023). From the global context, approximately 99 percent of the companies can be classified as SMEs (Granly & Welo, 2014). And according to Granly and Welo (2014), only few of these organizations prepares and publishes an annual sustainability report (Granly & Welo, 2014).

Additionally, European Commission's investigation showed that approximately 70 percent of pollution in European Union comes from small and medium-sized businesses (Arena & Azzone, 2012). Organization should see that a sustainability report is a document to engage with stakeholders and because of that a transparent description of the operations can open new possibilities (European Commission, 2021; Arena & Azzone, 2012; Greenstep, 2023; Silvola & Landau, 2019; PwC, 2024e). These thoughts were confirmed in multiple studies (Granly & Welo, 2014; Khan et al., 2016).

The Corporate Sustainability Reporting directive (CSRD) is presented via the three common sustainability pillars which are environment, social and governance (ESG) (Laine et al., 2022; Arvidsson & Dumay, 2022). Altogether the European sustainability reporting standards (ESRS) consist twelve different sustainability reporting standards to take into account ESG dimensions (European Commission, 2023b; EFRAG, 2023a). ESRS sustainability reporting standards are given via European Commissions delegated act and the ESRS standards are prepared by EFRAG (EFRAG, 2023a European Commission, 2023abc; Niskala & Palmaro, 2023). The CSRD pursue to affect to the responsible growth of society and economics (European Commission, 2024a; Haarmala et al., 2012). The main aim is to develop European Union so that all the ESG dimensions are notice on society.

Which role organizations have in sustainability context? According to Haarmala et al. (2012), sustainability can be presented via concept corporate social responsibility (CSR) which means the allocation of responsibility between companies and society. That means that organizations have responsibility of social and environmental responsibility with the financial sustainability (Haarmala et al., 2012). This definition was found already in 1950s (Haarmala et al., 2012). The CSR can be identified on CSRD as well, since CSRD aims to develop sustainability on its all dimensions (Niskala & Palmaro, 2023).

The statistics of PwC (2024d) showed that, companies have already identified multiple benefits of implementation of CSRD and the implementation process goes forward. The statistics showed that approximately 50 percent of the respondents agreed that CSRD enables and supports stakeholder engagement, risk management processes and control of the environmental performance (PwC, 2024d). Respondents of the statistics starts the reporting same year than the case company of the study. Overall, 93 percent of organization which are starting reporting in 2026 felt confident and are ready to publish the first sustainability report according CSRD (PwC, 2024d). The main challenges related to implementation of CSRD are costs and some of the ESRS standards are more identified more challenging than others (PwC, 2024d). The scope of CSRD is wider and because of

that the study by PwC (2024d) underlines the importance of involvement of the whole organization to complete the reporting. Board, executive committee, finance, ESG committee and sustainability departments are examples of the departments which organization have included to the process (PwC, 2024d).

In the best practice CSRD increases the transparency of the operations of an organization, harmonize the sustainability reporting, improves engagement with stakeholders and affect positively to environmental performance (European Commission, 2023ab; 2024a European Commission, 2021; Niskala & Palmuaro, 2023; PwC, 2024d). According to PwC (2024d) statistics, approximately 35 percent of the organization which should publish the sustainability report in 2026 can see it as a comparative advantage. Sustainability reports are an applicable way to communicate with stakeholders, partners and customers and provide reliable sustainability data (European Commission, 2021; Arena & Azzone, 2012; Herremans, 2019). In addition, CSRD affects positive to the misleading information such as greenwashing, because of the mandatory reporting requirements (Euroopan Neuvosto, 2022; European Parliament, 2024).

1.2 Case company

The study explores the process to implement the sustainability reporting to a Finnish organization in metal industry. The case company build up from six different organizations and employes approximately 240 employees. The revenue is greater than 42 million euro, and balance 27 million euro during the fiscal year 2023. The sustainability work started in the case company during 2022 by implementing a sustainability strategy and statements. The sustainability strategy of group is connected to SDGs and the includes five focus areas: employees, own operations and concrete sustainability actions. The sustainability strategy is connected to United Nations SDGs

- Good health and well-being (SDG 3),
- Decent work and economic growth (SDG 8),

- Industry, innovation and infrastructure (SDG 9),
- Responsible consumption and production (SDG 12) and
- Climate action (SDG 13) (United Nations, 2023bc).

In addition, case company continuously develops their systems towards more sustainable solutions. Sustainability is not only environmental actions and case organization sustainability strategy concentrates to improve employee well-being (SDG 3) and safety at work (United Nations, 2023bc). Additionally, the corporate sustainability is important for the case company. Because of the enormous changes and requirements on the sustainability field the study pursue to continue the sustainability work with the case organization. The CSRD set the relevance to this study.

1.3 The scope and limitations

The case company of the study is in a scope of the mandatory sustainability reporting from 2026 or 2027 which make this study relevant. At this point, the target organization has not published a sustainability report previously and because of that the study starts to project to build a sustainability reporting routines in case company.

Primary goals are to find the best practices how sustainability reporting should be started in the target organization and assess the materiality by identify the material topics for the case company. The materiality assessment is made via double materiality analysis, so that in 2026 or 2027 the case company is ready to build and publish the sustainability report according to CSRD. The thesis focuses on CSRD and acquire knowledge of how the CSRD affects in the target organization and which is the CSRD connection to the target organization. Since, CSRD is a massive regulatory frame the study is limited to the ERS standards which will be mandatory during the first reporting year.

The study concentrates to find the standards, frameworks and principles which should be taken into account on the sustainability reporting process. The results of the study

present the process flow of how the first parts of the sustainability reporting according to CSRD could be made in the target organization and which ESRS topical topics are identified to be material and how the materiality assessment is completed. Anyhow, the study provides an interpretation of the CSRD implementation process and how the implementation should continue after the study.

1.4 Structure

The thesis is structured as follows. The study is shared to the six chapters of which the first chapter is the introduction to the researched topic. Chapter 1 presents the researched topic, research questions, limitations, scope and structure and background of the study. Chapter 2 provides a literature review of the researched topic where the main focus is to give understanding of how sustainability and sustainability reporting theory and methods are connected to CSRD and ESRS standards. The understanding of sustainability reporting theory supports the understanding of connection between theory and CSRD. Chapter 2 provides understanding of sustainability, sustainability reporting, the Paris Agreement, Sustainability Development Goals SDGs by United Nation and environmental management systems. CSRD and ESRS standards are presented on the chapter 3. The literature review continues on the chapter 3. Chapter 3 has its the main focus is on the legislation behind the CSRD and ESRS. The key requirements of the directive and standard are presented on this chapter.

The empirical part of the study starts from the chapter 4 which presents the methodology of the study. Chapter 5 combines CSRD requirements and theory of sustainability reporting in practice. This chapter presents the research process, data collection and analyses, and findings to the research questions. This chapter presents the double materiality, gap analysis and how the requirements of ESRS and CSRD can be implemented in case company. Chapter 5 ends to the model of sustainability reporting process managerial implications. The study ends to the discussion of key findings, evaluates the research process, and concludes study.

2 Literature review

This chapter presents the theoretical frames of the study. The theory is shared to the two different chapters 2 and 3 to separate CSRD to its own chapter. Chapter 2 includes theory of the two concepts sustainability and sustainability reporting. The first chapter discusses about the sustainability, international conventions, agreements and standards. The second part of the chapter 2 concentrates to the sustainability reporting and its main principles. The chapter 2 pursues to support the later understanding of CSRD and ESRS which are presented on chapter 3.

As a start point, sustainability development was defined already in 1987 by World Commission for Environment and Development (Laine et al., 2022; Arvidsson & Dumay, 2022). Sustainability development is:

Development that meets the needs of the present without compromising the ability of future generations to meet their own need (Laine et al., 2022, p. 14; Arvidsson & Dumay, 2022; Haarmala et al., 2012, p.15).

2.1 What is sustainability?

Sustainability is a broad concept which main aim is to affect to the operation so that the future generations have the same possibilities that we have today (Juutinen, 2016; Laine et al., 2022). From the organizations' perspective the sustainability and corporate sustainability are often used parallel because of the similar definition (Juutinen, 2016). The corporate sustainability (CS) means that an organization pursues to ensure that their operations are not affecting negatively to other organizations (Borga et al., 2009). According to Haarmala et al. (2012, p.16), European Commission has defined corporate social responsibility as follows:

It is a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis (Haarmala et al., 2012, p. 16).

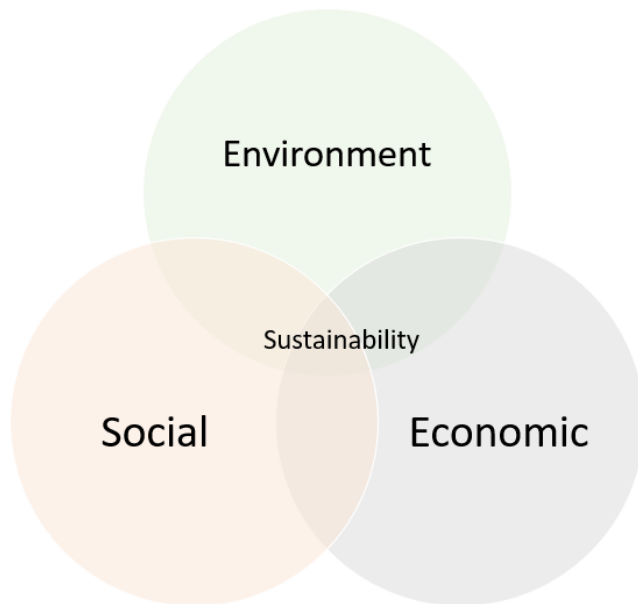
The importance of the sustainability has increased emphatically during the past decades and stakeholders expect that sustainability-related information of operations of an organization are reported transparently (Greenstep, 2023; Silvola & Landau, 2019). Stakeholders are evaluating the services and products continuously, and because of that responsibility of organization plays a crucial role while making purchase decisions (Silvola & Landau, 2019). Consequently, a sustainability report presents an organization's responsibility to stakeholders (Silvola & Landau, 2019).

Sustainability is commonly shared to the three different categories environment, social and governance (Lainer et al., 2022, p.15; Arvidsson & Dumay, 2022; Herremans, 2019). According to Herremans (2019), sustainability is addressed in a different way on each dimension.

- **Environment sustainability** concentrates to ensure that “economic and social activities should leave the planet diverse for the future generations”,
- **Economics** concentrates to products and services performance and profitability, and
- **Social sustainability** concentrates to ensure that all members of society have possibility to wealth and quality life (Herremans, 2019, p.3; Bureau Veritas, 2023; Haarmala et al., 2012, p.16-24).

According to Laine et al. (2022, p.15) and Herremans (2019), ESG categories can be called also to the Triple Bottom line (TBL), the three P's people, profit and planet or E's which illustrates environment, economic and equity. In the center of sustainability work is the aim to balance economic, social and environmental activities on our decision making

(Herremans, 2019, p.5). The picture 1 illustrates the three different dimensions of sustainability.



Picture 1. Sustainability Venn Diagram (Herremans, 2019, p.4; Haarmala et al., 2012, p.17).

With the help of ESG categories organizations have a possibility to evaluate their operations and continuously develop them towards sustainability targets such as United Nations Sustainability Development Goals (Arvidsson & Dumay, 2022).

To understand the scope of sustainability Laine et al. (2022) presented that United Nation has shared sustainability to 17 concrete categories via which sustainability can be worked in organizations. United Nation's Sustainability Development Goals (SDGs) pursue to conceptualize and concretize sustainability (Laine et al., 2022; United Nations, 2023abc). The United Nation's SDGs are made so that each SDG support the Sustainability target 2030 (Laine et al., 2022; Suomen YK-Liitto, 2024). In the center of the Sustainability target 2030 is to reduce poverty and notice the environment, economics and society in the operations (Suomen YK-Liitto, 2024). The global SDGs were set in 2016 (Suomen YK-Liitto, 2024). Laine et al. (2022) underlines the complexity of each goal and present that one SDGs and development on that category can have a negative effect to another SDG.

The United Nations SDGs are globally applied and one of the main goals are to promote responsible economic growth, consumption, climate change, poverty and education (Laine et al., 2022; United Nations, 2023bc; Suomen YK-Liitto, 2024). Additionally, SDGs pursue to affect positively to justice, peace, role of institutions and importance of cooperations (Laine et al., 2022, p.12). United Nations (2023bc) has introduced 17 sustainability development goals (Laine et al., 2022, p.13). These 17 SDGs have together 169 under categories (Suomen YK-Liitto, 2024):

- 1.No poverty
2. Zero hunger
3. Good health and well-being
4. Quality education
5. Gender equality
6. Clean water and sanitation
7. Affordable and clean energy
8. Decent work and economic growth
9. Industry, Innovation and Infrastructure
10. Reduce Inequalities
11. Sustainable cities and communities
12. Responsible consumption and production
13. Climate action
14. Life below water
15. Life on land
16. Peace, justice and strong Institutions and
17. Partnership for the goals (United Nations, 2023bc).

From national perspective, Finland has signed European Union's Climate goals. According to Seppälä et al. (2019), Finnish governments, regions and municipalities modify their operations to reach Intergovernmental Panel for Climate Change (IPCC) goals. Finland

has engaged to improve emissions of production and service. To reduce emission the evaluations of the possible emission are made with the help of three steps:

1. Evaluation of a total amount of greenhouse gas emissions,
2. Plan to reduce greenhouse gas emissions and
3. Compensate the amount of greenhouse gas emissions which is left by reducing emissions somewhere else (Seppälä, et al. 2019).

From the European Union's point of view, EU has set its legally binding goals to tackle and slowdown Climate Change (European Parliament, 2023). According to European Parliament (2023), European Union aims to reduce greenhouse gas emissions with 55% before year 2025. Additionally, European Parliament works with the strategy to compensate carbon dioxide emission as effective as possible. The compensations are made with the help of renewable energy resources and by finding a new more effective energy solution (European Parliament, 2023). The reduction in greenhouse gas emissions is combined to global warming and to the goal to ensure that temperature is not a rising rapidly (European Parliament, 2023). From future orientated perspective, European Union has a long-term target to be the first climate neutral domain by 2025 (European Parliament, 2023). Climate neutrality is connected Green Deal which supervised by European Union (European Parliament, 2023).

Carbon neutrality is a global action towards global warming and the main aim is to ensure that the temperature in the world is not increasing more than 1,5 Celsius degrees (Seppälä, et al., 2019). Carbon neutrality means all these operations which are helping to reduce carbon emissions to the atmosphere to the carbon sinks (European Parliament, 2023). Carbon sinks is the term to ecological system where sinks are over absorbing carbon (European Parliament, 2023). Finland and Sweden are following the greenhouse gas emission based on the United Nation's Kyoto Protocol which set requirements to how greenhouse gas emissions should be calculated (Seppälä, et al., 2019). Based on the Kyoto Agreement greenhouse gas emissions in Finland are calculated with the help of

production method which means that Finland based on its calculations to understanding the amount of greenhouse gas emissions released during the value chains (Seppälä, et al., 2019). Currently, the common Paris Agreement is signed by 195 countries according to European Parliament (2023).

Silvola and Landau (2019) presented that sustainability should be noticed on all operations of an organization during the upstream and downstream value chain. A successful organization should understand the effects to the society which illustrates the corporate sustainability (Silvola & Landau, 2019). In addition, sustainability and responsibility are expected to take into account on organizations (Khan et al., 2015; Greenstep, 2023; Quesado et al., 2022). Organizations with the high-level understanding of sustainability performed better and vice versa (Khan et al., 2015). Knowledge of sustainability is adding value to the reporting organization (Khan et al., 2015). In addition, PwC (2024c) article underlines importance of sustainability and transparency for organization and their stakeholders. According to PwC (2024c), organization should understand the impact to the society and how for example tax payments are effect stakeholder's trust.

2.2 The Paris Climate Agreement

The Paris Agreement is a legally binding contract which is signed by 196 parties (United Nations, 2023a). The Paris Agreement was created and signed in the United Nation's Climate Change Conference in 2015. In the center of the Paris Agreement is two main objectives (Mistry of the Environment, 2023).

It aims to limit the rise in global average temperature to well below 2°C relative to the pre-industrial levels and to pursue efforts by which warning could be limited to below 1.5°C (Mistry of the Environment, 2023, p.1).

This contract has one main goal which is to decrease Greenhouse gas emissions (Ministry of the Environment, 2023). Additionally, according to Ministry of the Environment (2023,

p.1) the target of the Paris agreement is to “achieve a balance between anthropogenic emissions and the sinks that sequester carbon in the second half of this century”. Mistry of the Environment (2023) presented that this agreement aims to modify long-term guidelines which helps to manage Climate Change and settle money flows so that they follow sustainable development. The Paris Climate Agreement is strongly connected to sustainable development globally (Ministry of the Environment, 2023).

2.3 Corporate Sustainability -ISO 14001, ISO26000 & ISO 9001

The main aim of the ISO standards is to ensure that the operations, products and services of the organization meets the expected quality and environmental requirements and products are not threat to health and safety (Standardi, 2024a). Standards helps both consumers and authorities to understand the purpose of the product. With the help of standards consumers have possibility to compare products which have the same certificate (Standardi, 2024a). This chapter presents ISO14001 and ISO9001 standards. The case company of the organization have a certificate of these two standards. In addition, this chapter presents shortly the ISO26000. The ISO standards are published by International Organization for Standardization (ISO) (Vanhala et al., 2022).

The ISO9001 is a standard for quality management systems (Standardi, 2024b). In the center of ISO9001 is the continuous development of the products and service of the organization to ensure the best quality of the products. Globally, the ISO9001 commonly used (Standardi, 2024b). With the ISO9001 organization can ensure that products are full-filling the requirements consumers and authorities set. The key aspects of ISO9001 are risk management, supervisory bodies increased responsibility, resource and process management and audits (Standardi, 2024b).

The ISO 14001 is an Environmental Management standard which defines the processes, methods and resources which organizations should have to achieve sustainability-re-

lated goals (Vanhala et al., 2022). The ISO14001 underlines the responsibility of supervisory bodies related to sustainability and responsibility of it and the strategic planning of the sustainability in organization (Standardi, 2024c). The main aim of ISO14001 is to help organization to increase the knowledge and management of sustainability (Standardi, 2024c). The ISO 14001 aims to give frames to the business operations and ensure that organization are following climate targets and goals (Liappis et al., 2019, p. 112).

ISO 14001 standards include nine principles of environment management (Liappis et al., 2019; Standardi, 2024c). For example, responsibility of the environment, knowledge of the main environmental risks of the products and operation, regulatory responsibilities, life-cycle assessment, risk management, continuous development, prevent, mitigate and adapt to the possible environmental risks, training and skill of the employees and evaluation of effects of the operations to environment are examples of ISO14001 (Liappis et al., 2019, p.113; Standardi, 2024c).

The ISO26000 is a standard for social responsibility (Herremans, 2019, p.59-60). The main aim of the ISO 26000 is to harmonize corporate social responsibility which includes both environmental and social aspects (Herremans, 2019). The ISO26000 standard highlights the importance of stakeholders, consumers and other partners role and their expectations (Dqs, 2024). ISO26000 includes following key concepts responsibility, transparency, ethics, stakeholders, international conventions and regulation and Human Rights (Dqs, 2024). The ISO26000 supports most of the concepts on ESRS Social standards.

2.4 What is Sustainability reporting?

Sustainability reporting is a dimension of accounting where company documents their sustainability activities (Herremans, 2019). Sustainability reporting is a way to express to stakeholders' the way company works with the sustainability (Herremans, 2019). Sustainability report presents company's key ratios and relationship related to sustainability

and how the company works with it (Herremans, 2019; Silvola & Ström, 2023; Yip & Yu, 2023). Without the sustainability reporting stakeholders are not informed of the organization sustainability direction, what are the sustainability targets and actions of the organization and which kind of main challenges they have related to sustainability (Herremans, 2019, p.23). The sustainability report is not only the published report without it presents the culture of organization by providing information of the operations related to sustainability (Niskala & Palmuaro, 2023; Herremans, 2019; KPMG, 2024a). Because of that sustainability report present organization brand outside to the stakeholders (Herremans, 2019; Niskala & Palmuaro, 2023).

According to Herremans (2019), sustainability reporting started in 1980s. And sustainability reporting has based on organization's own initiative and interest towards sustainability (Niskala & Palmuaro, 2023, p.14). To ensure that organization and stakeholders get reliable sustainability information the first voluntary conventions were published 1980 (Niskala & Palmuaro, 2023, p. 14). Anyhow, sustainability reporting has been voluntary for the most of the organizations except large-sized organizations (Niskala & Palmuaro, 2023, p.14).

Herremans (2019, p.41) presented that sustainability reporting can be shared to the three key concepts policies, actions and stakeholders' needs and expectations. The sustainability reporting starts from the policy setting which sets the ground for the organization relationship, attitude and behavior related to the sustainability issues or topic (Herremans, 2019). The final sustainability report is connected to the organization policies or strategy which starts the sustainability reporting process (Herremans, 2019). Policies should be identified so that, policies are answering the stakeholders' expectations and needs. Therefore, policies guides organizations with the target setting (Herremans, 2019). Before the policies are implemented organization should have understanding of the material topics for them (Herremans, 2019). Policies are then modified and implemented as a part of the organization to support the work with the material topics (Herremans, 2019, p.42). Because stakeholders are the biggest resource to the organization

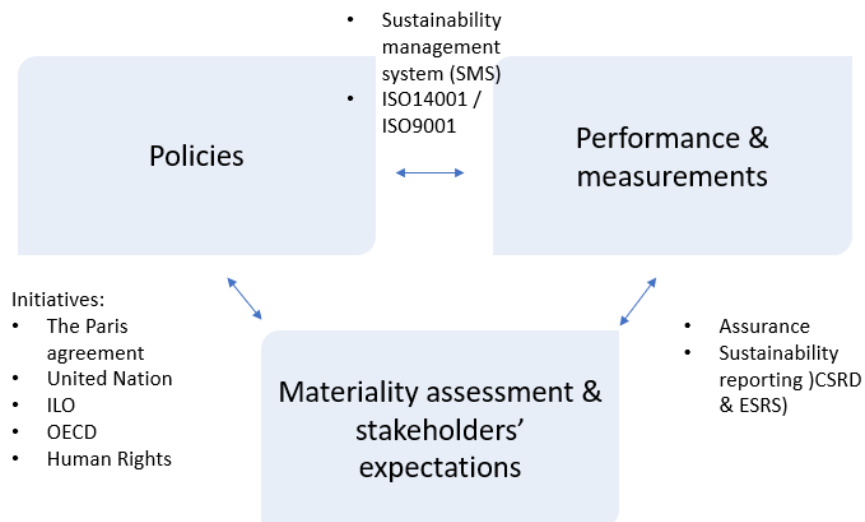
should they engage with the stakeholders to understand their needs and expectations (Herremans, 2019; Laine et al., 2022). With that understanding, organization can make sure that policies are noticing the expectations of stakeholders and that the policies are action to material topics. The policy should be accepted with the Board of directors and then adapted in all operations in the organization (Herremans, 2019, p.42).

According to Laine et al. (2022), Freeman presented in 1984 that stakeholders are individuals or a group which can affect to the target organization. Stakeholders can be identified after the specific product or project (Laine et al., 2022).

Secondly, policies and performance are linked together, but to collect data and measure performance organizations need to have a sustainability management system (SMS) (Herremans, 2019). The sustainability management system (SMS) can be called as environmental management system (EMS). The previous chapter presented three ISO standards. The ISO standards set base of SMS and supports organizations with the decision making while evaluating the performance (Herremans, 2019). The SMS include the key aspects of the sustainability and therefore full-filling the policies organization have the sustainability management system should include commitment such as a sustainability committee and capability (Herremans, 2019, p. 61). Organizational commitment and capability can be shared to three levels: strategic operational and tactical (Herremans, 2019).

Performance and targets are connected to a scope or period of time in which organization works with the identified impacts (Herremans, 2019). Hereby, organization can follow that the profession of policies and confirmed targets are met and organization works towards them (Herremans, 2019). The key aspects on performance are sustainability strategy and organization vision, mission and values which should be connected to the targets and actions (Herremans, 2019, 72; Shalhoob & Hussainey, 2023; Yip & Yu, 2023). To measure performance targets should be set. One way to set target is to use SMART - methodology. SMART -method build up from the words specific, measurable, achievable,

relevant and timely. The targets are connected to ESG categories (Herremans, 2019). Additionally, while setting targets and measuring performance organization should understand the cause-effect rule (Herremans, 2019, p.91). The picture X presents the key concepts of the sustainability reporting:



Picture 2. Model of Sustainability reporting (Herremans, 2019).

Sustainability reporting is done both externally and internally in organizations (White, 2015). To external stakeholders, sustainability reporting enables to follow organization social, economic and environmental impacts (White, 2015). According to White (2015), an example of external reporting is greenhouse gas emissions (GHG) or other emissions, waste management and consumption. Internally, sustainability reporting enables organization to manage social, economic and environmental impacts (White, 2015, p.13-14). According to White (2015, p.13-14), on sustainability reporting is made with the help of ESG categories. On sustainability reporting organizations provide information of their operations often with the help of ESG categories (Silvola & Ström, 2023; Yip & Yu, 2023). Sustainability reporting is shared to three different categories environment, social and governance (Silvola & Ström, 2023; Bureau Veritas, 2023).

- The category environment (E) concentrates to sustainability from environmental perspective (Silvola & Ström, 2023). Environmental sustainability includes questions related environmental responsibility, different types of emissions, energy and water consumption, pollution of water, waste management, recycling, biodiversity and resource use, circular economy and use of hazardous materials and microplastics during the value chain (Silvola & Ström, 2023; European Commission, 2023b).
- The social responsibility (S) concentrates to employee well-being and working conditions, safety at the work, equity and discrimination and to product quality and quality of the collected data and presented data (Silvola & Ström, 2023; European Commission, 2023b).
- Thirdly, governance (G) ensures that organization have policies to control bribery and corruption, money laundering and tax reporting and governance diversity and ethics (Silvola & Ström, 2023).

To summarize sustainability reporting consists of identifying material topics, setting policies, targets and measuring the performance (Herremans, 2019). After completing the process to implement sustainability reporting company finally has data to present key performance indicators (KPI) related to material topic (Herremans, 2019, p.97). The material topics which are identified to be relevant to reportative organization should be integrated to the SMS (Herremans, 2019). The final sustainability report should have following characteristics:

- Materiality
- Balance
- Comparability and reliability (Herremans, 2019; p.98).

Balance of the reported information challenges organizations, and to find balance between financial, environmental and social impacts, risks and opportunities can be challenging (Paridhi & Arora, 2023; Herremans, 2019). Balance illustrates the importance to

understand what is the right amount of information which should be reported, and how to ensure that organization reports both challenges and accomplishments without making stakeholders to question the published information (Herremans, 2019). The sustainability reporting process ends to the assurance which main aim is to control that reported information are reasonable and reliable (Herremans, 2019). Currently, the most common assurance standards are IAASB ISAE 3000 (Herremans, 2019). Because of the change in sustainability reporting PwC (2023b) presented that the ISSA 5000 assurance standard has been developed.

From the stakeholders' perspective, sustainability reporting is a way to engage with the stakeholders (Herremans, 2019). And via sustainability report company presents its key operations to the stakeholders (Paridhi & Arora, 2023). Increased importance of sustainability has negative affects as well (Yip & Yu, 2023; Herremans, 2019). According to Herremans (2019) study over 73% percent of respondents felt that companies are not able full-fill their sustainability statements and they felt that organization are not doing enough to reach the targets they set. In addition, stakeholders are increasingly discussion about the greenwash and spin (Herremans, 2019). Greenwash and spin means that that organizations present sustainability-related information of the products without evidence to stakeholders mainly because of the competitions on the markets (Yip & Yu, 2023; Herremans, 2019, p.93). On the other hand, Yip and Yu (2023) presented that a large number of stakeholders how are not giving value to the sustainability.

In the best practice, sustainability reporting supports organizations to build and notice different aspects of sustainability in a long-term and increases the transparency towards stakeholders (Shalhoob & Hussainey, 2023). In addition, sustainability reporting can have positive effects to a company's performance, reputations and reports can be a help in a competitive advantage (Shalhoob & Hussainey, 2023). Sustainability reporting may increase both organization's social responsibility, prevention of corruption and bribery, sustainable development and employee training and skills (Yip & Yu, 2023). The biggest challenge for the organization is to find resources to start reporting (Yip & Yu, 2023;

Arena & Azzone, 2012). To build a sustainability report organization should have knowledge, time, and capita. Consequently, according to authors (2012), sustainability reporting can be found challenging. Because of the voluntary sustainability reporting the most of the SMEs do not have resources to build reports (Arena & Azzone, 2012).

In conclusion, the present research by Yip and Yu (2023) showed that the number of organizations which are publishing sustainability report have increase abundance during last two decades. According to Yip and Yu (2023), that can be explained with the advanced understanding of triple bottom line.

2.4.1 Background of the Sustainability reporting

The first sustainability reporting initiative Global Reporting Initiative (GRI) was published in 1997 (Niskala & Palmuaro, 2023). Global reporting Initiative standards are globally used frameworks which build up from general standards, sector-specific standards and topical standards (Bureau Veritas, 2024). The main aim of the GRI standards is to harmonize reporting routines and praxis with “the goodwill” which organization takes (Niskala & Palmuaro, 2023, p. 15). GRI standards assess materiality and with the help of materiality assessment organization identifies the key opportunities and risks of the operations (Niskala & Palmuaro, 2023). GRI helps organizations to disclose, evaluate and account internal operations so that the report can be presented to stakeholders and other partners how are interested in sustainability report (Luque-Vilchez et al., 2023).

Since, the GRI standards have been use a long period of the time the ESRS standards are partially comparable with them (Niskala & Palmuaro, 2023). Because of that some large-sized organizations which have already reported according to GRI may have advantages on the transfer process from GRI to CSRD (Niskala & Palmuaro, 2023, p.16).

Also, according to Niskala and Palmuaro (2023, p.16), the Sustainability Accounting Standards Board (SASB) have had a strong effect to the sustainability reporting during

the years. Sustainability accounting standards board (SASB) is an institution which has published sector-specific standards which concentrate to the environment and especially to the climate change (Niskala & Pamuario, 2023). Altogether, SASB has published over 70 sets of standards for different industries. Today SASB is merged with other institution called IIRC and these two institutions use name International Sustainability Standards board (ISSB) (Niskala & Palmauro, 2023, p. 17). From the study point of view, the standards given by IFRS and ISSB are connected to the CSRD (Niskala & Palmauro, 2023). The some of the ESRS standards are convertible with some of the IFRS standards (Niskala & Palmauro, 2023).

As a step towards mandatory sustainability reporting, in the begging of 2014 European Commission published a directive called non-financial reporting directive (NFRD) 2013/34/EU which obligated then large-sized enterprises to report sustainability as a part of the annual report (Luque-Vilchez et al., 2023). The NFRD is target to large-sized businesses and because of that the directive is not taking into account the needs of SMEs (Luque-Vilchez et al., 2023). Nevertheless, NFRD aims to answer to the climate goals for 2030 and increase the transparency of sustainability reporting among large organizations which is a step to the right directive while thinking the transparency of operation in organizations (Luque-Vilchez et al., 2023).

Before 2024 there was no legislation for SMEs to build sustainability reports (Castello-Polo & Guerrero-Baena, 2023). Consequently, the interest to prepare sustainability reports were low (Castello-Polo & Guerrero-Baena, 2023). That can be explained with the lack of knowledge, resources and challenges to know how to start the projects in organizations (Castello-Polo & Guerrero-Baena, 2023). Additionally, sustainability reports among SMEs were not comparable because those reports which were published can include non-academic more marketing type of information. In that sense, the mandatory reporting directive ensures and hopefully limits the incorrect sustainability information such as greenwashing and green whishing (European Commission, 2024; United Nations,

2024). The CSRD obligates organization to follow, set target and manage the presented sustainability goals (European Commission, 2023b).

Behind the ESRS standards is a group called European Financial Reporting Advisory group (EFRAG) which started the preparations of standards in 2020 (Luque-Vilchez et al., 2023; PwC, 2024b). The building of the sustainability reporting requirements was started. The preparations of Corporate Sustainability Reporting directive were made with the help of European Financial Reporting Advisory group (EFRAG) which published drafts of each standard in 2022 (Luque-Vilchez, et a.,2023). The first frameworks and principles of CSRD were published in November 2022 (European Commission, 2023a). The importance of sustainability reporting increase emphatically (European Commission, 2023a). The main goal of the directive is to arise the transparency of the sustainability operations of an organization (EFRAG, 2022b; Ecobio, 2023; European Commission, 2023b, 2024a). Additionally, CSRD aims to set standardized guidelines for the sustainability reports to protect European Union's health, well-being and natural capita (European Commission, 2023a; 2024a). Sustainability reporting can in the best practice learn an organization more about their operations, help to develop operations towards more sustainable operations and also gives a new view to an organization to see their operations (Massa et al., 2015).

3 Corporate sustainability Reporting directive

In the beginning of 2024, the CSRD 2022/2464 was implemented to a Finnish law and entered into force (Hummel & Jobst, 2024; Niskala & Palmuaro, 2023; EUR-Lex, 2022). The Corporate Sustainability Reporting directive is a continuum of the sustainability development in European Union (Hummel & Jobst, 2024). Consequently, the past five years sustainability reporting have achieved a lot of attention among sustainability reporters, stakeholders and other sustainability disclosure users. This chapter presents the legislation and theory of CSRD and European Sustainability reporting standards (ESRS).

In 2019 European Union presented a sustainability strategy European Green Deal (European Commission, 2024; Hummel & Jobst, 2024). The main aim of European Green Deal is to prevent and mitigate the nature resources, and protect EU members from impacts related to harm of the nature, health and society (European Commission, 2024, Silvola & Ström, 2023). In addition, the recovery of the Covid-19 pandemic is noticed on the CSRD and included to the directive (PwC, 2024b). The CSRD is adopts the European Green Deal and supports the targets on it (European Commission, 2024a).

The European Green Deal directive ensure that development is taken into account on all EU-regions (PwC, 2024b). The targets on Green Deal are connected to the “Action plan for Financing Sustainable Growth” which was published by European Commission in 2018 (Hummel & Jobst, 2024). This action plan includes ten key actions which are concluded to the three key characteristics:

1. Reorientate capital flows toward a more sustainable economy, 2. integrate sustainability into risk management, and 3. foster sustainability disclosure and sustainable mechanisms of corporate governance (Hummel & Jobst, 2024, p.1).

The Action plan for Financial Sustainable Growth build up from three different standards and the main aim of these standards are to support the planning of the sustainable finance (Niskala & Palmuaro, 2023; Hummel & Jobst, 2024). The target on that framework

is to allocate and lead resource to sustainable investments to ensure the sustainable growth, manage the investment risks which affect to the climate and prefer the transparency of operations (Niskala & Palmuaro, 2023). From the sustainability reporting point of view, the targets are connected to three different directives:

- The Corporate Sustainability Reporting directive (CSRD)
- EU-taxonomy commandment
- Sustainable Finance Disclosure Regulation (SRDF) (Niskala & Palmuaro, 2023; Hummel & Jobst, 2024).

Of these standards only CSRD is investigated on this study, since other standards are target to the financial institutions (Niskala & Palmuaro, 2023; Hummel & Jobst, 2024). The main aim of CSRD is to set reporting requirement for the organizations which are guiding organization to the European Union's climate targets (European Commission, 2024; EUR-Lex, 2022; PwC, 2024b). The CSRD is implemented to each EU-nations law to ensure that European Union's members and non-European enterprises with operations in EU-regions works towards to the sustainability targets by EU (Silvola & Ström, 2023; EUR-Lex, 2022).

The Action plan for Financing Sustainable Growth is connected to the Paris Agreement and United Nation's sustainable development goals (Hummel & Jobst, 2024). The target of the Paris Agreement is "--to limit the rise in global average temperature to well below 2°C relative to the pre-industrial levels and to pursue efforts by which warning could be limited to below 1.5°C" (Mistry of the Environment, 2023, p.1; United Nations, 2023a). The European Union's net-zero emission target is in the center of CSRD, and it is presented in the begging of the Commission's directive (European Commission, 2024a). To ensure that organizations, independent on the size, works towards the climate targets the CSRD as developed (Hummel & Jobst, 2024).

On CSRD the sustainability disclosures should be identified via double materiality analysis (EFRAG, 2024c; Mezzanotte, 2023). The double materiality analysis (DMA) is developed to identify the material sustainability topics for the reportative organization (Niskala & Palmuaro, 2023). With the help of DMA organization acquires understanding of actual and potential impacts, risks and opportunities of the operations (Niskala & Palmuaro, 2023; Mezzanotte, 2023). The identification of the main sustainability impacts, organizations can develop the operation towards European Union's climate targets (EFRAG, 2024c; Niskala & Palmuaro, 2023; Beske et al., 2020; Hummel & Jobst, 2024). And allocate resources to the sustainable investments (Niskala & Palmuro, 2023). This illustrates the main idea of the double materiality and CSRD. With the disclosure requirements organization cannot omit to disclose negative impacts to the environment and society which increases the transparency towards stakeholders (Beske et al., 2020).

In the terms of CSRD, the main aim of it is to ensure that organization provides reliable, comparable, understandable and quality information of the operations (Niskala & Palmuaro, 2023; European Commission, 2023b). To ensure and reach these characteristics are connected to CSRD is connected to ESRS standards (Hummel & Jobst, 2024). And the requirements of CSRD are presented via these European Sustainability reporting standards (ESRS) (Niskala & Palmuaro, 2023; Mezzanotte, 2023; Hummel & Jobst, 2024). With the standards and key characteristic CSRD aims to increase the transparency of the sustainability work (Niskala & Palmauro, 2023). CSRD supports efficiency, well-being and Union's natural capita from the environmental risks and challenges point of view (EUR-Lex, 2023). And the target of the sustainability development is to develop sustainability reporting to a level which answers other financial reports (Niskala & Palmuaro, 2023). According to Niskala and Palmuaro (2023, p.13), the role of sustainability in the organization will be more important in the future when stakeholders select their partners.

Couple of recently made studied estimated that the implementation of CSRD will affect to approximately to 50 000 organizations (Niskala & Palmuaro (2023); PwC (2024); Silvola and Ström (2023). Organizations which are not a part of the first reporting phases can be affected of CSRD via their value chain (Niskala & Palmauro, 2023, p.14-16). And according to Niskala and Palmauro (2023), organization outside the first implementation phase should be aware of the CSRD and ready to provide data of their operation if asked. That makes the first implementation scope of CSRD wider, and illustrates the indirect effects to small and medium sized enterprises (Niskala & Palmuaro, 2023, p.14-16).

In conclusion, CSRD standardizes sustainability reporting. The sustainability reporting according to CSRD should give a transparent and actual picture of the operations of an organization, in level, that stakeholders can evaluate and understand the impacts, risks and opportunities of the operations (Niskala & Palmuaro, 2023). The chapter 2 presented the theory of sustainability reporting. To combine the theory and CSRD it is possible to see a clear connection on theory and CSRD (Herremans, 2019). CSRD sets the requirements for the sustainability reporting and the legislative frames are coming from the international conventions (see picture 2). Additionally, the theory presented that management systems and audit should be included as a part of the reporting (Herremans, 2019). The theory and CSRD requirements have a clear connection there. This chapter continues to present CSRD and ESRS legislation.

3.1 Corporate Sustainability Reporting directive

From the begging of 2024, the Corporate Sustainability Reporting directive (CSRD) replace previously used sustainability reporting standards (Niskala & Palmuaro, 2023; European Commission, 2024a, 2023b). Before the publication of the CSRD the most of the large-sized organizations used NFRD to disclose sustainability (Hummel & Jobst, 2024). After the CSRD got its legal force, NFRD is not legally binding for large-sized organizations

(Hummel & Jobst, 2024). From SMEs point of view, there has not been sustainability reporting standards for the SMEs and the sustainability reporting has been voluntary (Hummel & Jobst, 2024).

The Corporate Sustainability Reporting directive (CSRD) requires organization to report standardized topics on the sustainability report, and the requirements for that are presented on the European Sustainability reporting standards (ESRS) (Hummel & Jobst, 2024). With that European Commission aims to ensure that stakeholders have a possibility to reach quality data of the operations (Niskala & Palmuaro, 2023). Since, CSRD will reform the sustainability routines in organizations and rethink their strategy and vision of sustainability (Suomen Tilintarkastajat, 2024; Silvola & Ström, 2023). Sustainability reporting became mandatory across organizations (Silvola & Ström, 2023; Hummel & Jobst, 2024).

The CSRD focuses to standardize and harmonize sustainability reporting so that the sustainability reporting is in line across organizations, can be controlled and that sustainability reporting follows the European Union's and globally set climate targets and that the data on sustainability reports are comparable and reliable (Hummel & Jobst, 2024; Niskala & Palmuaro, 2023; EUR-Lex, 2022). Sustainability report should provide an actual picture of main risks, opportunities and impacts of the organization (European Commission, 2023b; Niskala & Palmuaro, 2023; Herremans, 2019; Mezanotte, 2023). To ensure that, sustainability disclosures should be built with the help of datapoint of ESRS standards (Niskala & Palmuaro, 2023). During the coming years, the transition from voluntary to mandatory sustainability reporting will be interesting to follow. And according to Silvola and Ström (2023), it will be interesting to follow how much information of the sustainability will be removed from the sustainability reports because of the lack of the evidence or that actions or targets cannot be supported or provided. The regulatory frame gives organization to an opportunity to include additional sustainability related topics to the sustainability report, but the evidence should be presented (Suomen Tilintarkastajat, 2024). The sustainability report according to CSRD is still a sustainability report which

markets the organization but the content of it should be in line with CSRD (Suomen Tilintarkastajat, 2024).

In the center of CSRD are following concepts:

1. Wider scope which means that the same directive is implemented and used in EU nations and small, medium and large-sized organization are included to the mandatory sustainability reporting
2. European Union's Green Deal
3. Sustainability report is an equal document with other financial reports and the sustainability report should be a separate part of the annual report
4. CSRD includes both qualitative and quantitative disclosures
5. CSRD is presented with the help of twelve ESRS standards
6. Double materiality
7. Sustainability report should be able to read in machine language (XHTML) and
8. The nation should implement the directive to their legislation during 18 months after it got the legal force
9. Stakeholders' role in materiality assessment
10. Phases into entry during 2024 to 2029
11. Audit & Assurance
12. Sector-specific standards in 2026 (Niskala & Palmaro, 2023, p.36-42; European Commission, 2023b; Charluet, 2024; EFRAG, 2024e).

The scope of mandatory sustainability reporting is shared to four different phases which are in level with Finnish Accounting Act (Niskala & Palmaro, 2023; European Commission, 2023b, 2024d; Deloitte, 2023a). The mandatory sustainability reporting obligates first the large-sized enterprises which may be familiar with the sustainability reporting via GRI or NFRD (Niskala & Palmaro, 2023; Sagayam et al., 2023; European Commission, 2023a). The phased entry into application enables more time for SMEs to carefully pre-

pare datapoints and interpret the directive (Niskala & Palmuaro, 2023; European Commission, 2023ab; 2024a). The four different sustainability reporting phases are presented on picture 1:



Picture 3. Application phases of CSRD (Niskala & Palmuaro, 2023; Deloitte, 2023a; European Commission, 2023ab; 2024d; Ramboll, 2023).

The requirement of different phases is implemented on the Finnish Accounting Act (Kirjanpitolaki 1336/1997). The first phase embodies the large-sized organization which employ more than 500 employees (European Commission, 2023bc, 2024ad; Kirjanpitolaki 1336/1997). Organization in a part of the first phase should publish the sustainability report from the fiscal year 2024 data (Niskala & Palmauro, 2023, p.33). The second phase includes specific requirements. Organization which are a part of the second category should full-fill two of the three criteria presented on Accounting Act 1336/1997 (European Commission, 2023ab, 2024d; Niskala & Palmauro, 2023). The criteria are presented on the picture 3. The third phase build up from small-sized listed organization and credit institutions as well as other SMEs. The last phase is for organization which have operations in EU and they full-fill the requirement on the picture 3 (Niskala & Palmauro, 2023).

The phase to evaluate the size of the organization with the help of cash-flows (Niskala & Palmuaro, 2023). Because of the current inflation there are ongoing discussions of the amount of revenue and balance and which is the limit of it (Niskala & Palmuaro, 2023, p.32; Bureau Veritas, 2024). Currently, the Finnish government has made a presentation of the amendment of the Accounting Law so that the definition of organization size will be changed, the decision is not made at this point (Ammattilintarkastajat, 2024). The yearly revenue is discussed to be increased from 40 million euros to 50 million euros and the limit of the balance from 20 million euros to 25 million euros (Niskala & Palmuaro, 2023, p. 32). The latest update and limit values are included on picture 3 (Deloitte, 2023a).

The corporate Sustainability Reporting directive includes four main principles:

- Value chain
- Double materiality
- Time horizons of the reporting
- Due diligence (Niskala & Palmuaro, 2023; European Commission, 2023b).

The principles of accounting are presented on ESRS 1 General Requirements (European Commission, 2023b). The principles are taken from the accounting act. The key principles of accounting are:

- Verifiability
- Reliability
- Comparability
- Understandability
- Relevance
- Faithful presentation (European Commission, 2023b; Niskala & Palmuaro, 2023)

With these characteristics of good accounting, CSRD aims to ensure and increase transparency of sustainability work and disclosures (Niskala & Palmaro, 2023; European Commission, 2023b). In the best practice, when organization adhere the main characteristics full-fills they at the same time the transparency requirements (Luque-Vilchez et al., 2023). According to Luque-Vilchez et al., (2023), their study presented that in 2022 approximately 65% of 250 world's top organizations the large-sized enterprises have used KMPG as their assurance company. The assurance can be found important from the transparency point of view, since the audits are made in similar way on different organizations (Luque-Vilchez et al., 2023). In addition, Additionally, transparently made sustainability report may reach bigger sample of potential investors (Glaveli et al., 2023).

The requirements of qualitative information are presented on ESRS 1 in appendix B (European Commission, 2023b). The reported information should be neutral, correct, reliable and verifiable like on the other financial reports (European Commission, 2023b; Niskala & Palmuaro, 2023, p.46). The CSRD datapoint consists mostly of the narrative descriptions and because of that the main characteristics are important (European Commission, 2023b; EFRAG, 2024c). In conclusion, the CSRD obligates both small, medium and large-sized enterprises in European Union or with a connection to European Union report sustainability on the annual reports (European Commission, 2023a; Niskala & Palmuaro, 2023, p.32).

In comparison to former standards, frameworks and directives CSRD includes more exact requirements and perspective of how the sustainability should be analyses (Niskala & Palmuaro, 2023; Hummel & Jobst, 2024). Organization should evaluate sustainability related actions, targets and impacts, opportunities and risks (European Commission, 2023b; Niskala & Palmuaro, 2023; Mezanotte, 2023). From the stakeholders' point of view, partners and other sustainability statement user come towards trustworthy, pedantic and reliable information sources (Niskala & Palmuaro, 2023). From wider perspective, CSRD affects both to the society, well-being and to risks management (Niskala & Palmuaro, 2023; EUR-Lex, 2022).

The Corporate Sustainability Reporting directive (CSRD) should be seen as a tool to help organization to reach the climate targets (Niskala & Palmuaro, 2023; Hummel & Jobst, 2024). With the CSRD organization may have other initiatives which they follow and these initiatives supports the CSRD since the main aim is to reach the target on the Paris Climate agreement (European Commission, 2023b; Hummel & Jobst, 2024). The process of implementing and building a sustainability report can in the future have positive affect to the business (Khan et al., 2016; Suomen Tilintarkastajat, 2024; PwC, 2024d). Because of the legally binding background of CSRD sustainability reports should include reliable and comparable data of the operations of an organization (Niskala & Palmuaro, 2023; European Commission, 2023b).

The Corporate Sustainability reporting directive is connected to European Sustainability reporting standards (ESRS) which are setting the requirements what should be reported (European Commission, 2023c; European Commission, 2023b; Luque-Vilchez et al.,2023). The CSRD gets it requirements via European Sustainability reporting standards (ESRS) (EFRAG, 2021; European Commission, 2023c; European Commission, 2023b; Luque-Vilchez et al.,2023). ESRS standards are presented closely on the chapter 3.4. ESRS standards are one of the key concepts of CSRD and the sustainability report should be prepared according to the requirements on ESRS standards (Sagayam et al., 2023).

The main supervision of sustainability reporting will be on Financial Supervisory Authority (Niskala & Palmauro, 2023, p.56). The neglects of sustainability reporting are followed by Finnish Patent and Registration Office (Niskala & Palmuaro, 2023). The sustainability reports should be revised by third parties which means that the information on the reports should be documented so that organization is able to provide an audit trail to the assurance partner (European Commission, 2023b; Granly & Welo, 2014; Hummel & Jost, 2024). Hummel and Jobst (2024) added that assurance increases the reliability and quality of the content on sustainability reports.

In conclusion, according to the study by Granly and Welo (2014), the main drivers of sustainability reporting and sustainable development are stakeholders and the pressure which are coming outside of the organization. Also, authorities and employees are driving the implementation process forward. With drivers the main barriers are resources and lack of knowledge which causes that the reporting process is more complicated to run in organization (Granly & Welo, 2014). With Granly and Welo, also, Castilla-Polo & Guerreto-Baena (2023) presents that cost management, cost related risks and knowledge are identified as a challenge especially for SMEs. In the best practice, sustainability reporting can add value and boost the brand which are comparative advantages (Castilla-Polo & Guerreto-Baena, 2023; Suomen Tilintarkastajat, 2024). Sustainability reporting can in the best practice affect positively to the organization and its stakeholders (Buallay, 2019). The synergy of sustainability reports boost transparency, support of internal and external decision making, affects to society and organizations financial stability (Buallay, 2019).

To summarize, the CSRD requires that organizations are including sustainability disclosures to their annual financial report and that stakeholders get an actual picture of the sustainability impacts and how the impacts affect to the financial performance (Mezzanotte, 2023, p.1-2). To be align with that organization should follow the ESRS standards (European Commission, 2023b; Mezzanotte, 2023). The next chapter presents the European Sustainability reporting standards (ESRS) in detailed.

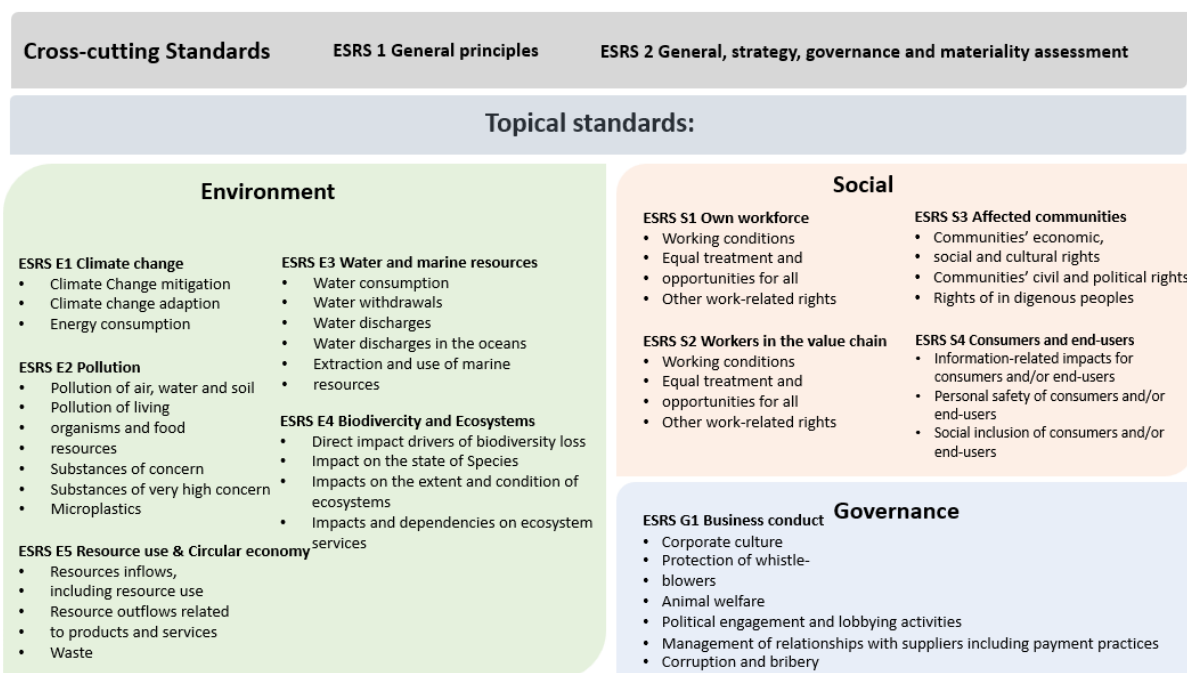
3.2 European Sustainability reporting standards

This chapter presents the European Sustainability reporting standards (ESRS) via which requirements of CSDR is presented (Niskala & Palmuaro, 2023). The ESRS standards are provided by European Financial reporting Advisory Institution (EFRAG) which is an independent organization and its business is supported by European Union (EFRAG, 2023a; European Commission, 2023abc; 2024a). ESRS standards differs from the CSRD directive so that the standards are given via delegated act which means that EU-member nations

should adapt the standards in a way European Commission has set them and nations do not have force to make changes to the standards (Niskala & Palmuaro, 2023, p.49). The CSRD directive should be implemented to a national law during 18 months after directive got its legal force (Niskala & Palmuaro, 2023).

After the European Green Deal was published in 2019 and European Council had accepted the CSRD, the project group was set to start the process to build sustainability reporting standards (Hummel & Jobst, 2024; Sagayam, et al., 2023). In 2022 European Sustainability Reporting Advisory Group (EFRAG) published the first draft of the ESRS standards (Sagayam et al., 2023). This first set of ESRS disclosures included standards for ESG categories. After the consultation period in 2023 EFRAG published the first set of ESRS standards (Sagayam, et al., 2023). Without the standards the sustainability is impossible to build (Niskala & Palmuaro, 2023, p.50). ESRS standards ensure that organizations are preparing sustainability reports in an identical way so that reports are comparable and includes reliable information of responsibility (European Commission, 2024a; Niskala & Palmuaro, 2023; Luque-Vilchez et al., 2023).

ESRS standards are shared to the twelve categories where two of the standards are cross-cutting standards and ten of the standards are topical standards (European Commission, 2023b, p.4; Niskala & Palmuaro, 2023). The cross-cutting standards are mandatory to all companies which are in CSRD scope. Because cross-cutting standards mandatory for all organization they are not included to double materiality analysis where organization identifies the materiality sustainability topics for them (European Commission, 2023b). The topical standards are shared to the ESG -categories and ESRS standards includes five environmental standards, four social standards and one standard for the business conduct (European Commission, 2023b). The picture 5 presents ESRS standards.



Picture 4. ESRS Standards (European Commission, 2023b; Ramboll, 2023).

The picture 4 presents both cross-cutting and topical standards (European Commission, 2023b). The ESRS standards are present in a topical level on picture 4. Each ESRS topical standard includes sub-topic and sub-sub-topics which are presented on Appendix A in AR.16 (Application requirement) (European Commission, 2023b). The sustainability report should be built with the help of these standards (Niskala & Palmauro, 2023; European Commission, 2023b). The ESRS standards includes three types of standards DR, AR and QC datapoints (European Commission, 2023b). All these datapoints are equal and should be used with similar weight (European Commission, 2023b, p.5).

AR	Application Requirement
CQ	Qualitative Characteristic of information
DR	Disclosure requirement (European Commission, 2023f).

According to Niskala and Palmuaro (2023), CSRD is built so that it includes four key categories which are presented on the picture 5. The operation of the organization are connected these strategy, governance, risk management and targets (Niskala & Palmuaro,

2023). These aspects are included to the ESRS standards and consequently, organization which is preparing sustainability disclosures are automatically taking into account these characteristics (European Commission, 2023b; EFRAG 2022b; 2023b; Niskala & Palmuaro, 2023). These four categories are presented on picture 5.



Picture 5. Key perspectives of disclosures of ESRS (Niskala & Palmuaro, 2023, p.66).

The picture 5 presents the structure which is used in ESRS topical standards and ESRS 2 General Disclosures standard (European Commission, 2023b; Niskala & Palmuaro, 2023).

These four main perspectives can be connected to all standards and the requirements there and because of that it is important to ensure that these four key principles are noticed in organizations while thinking the sustainability reporting process (Niskala & Palmuaro, 2023). Chapter two presented theory of the sustainability reporting process (Herremans, 2019; White, 2015; Silvola & Ström, 2023). This theory can be adapted to the CSRD sustainability reporting. The CSRD includes reporting requirements related to categories strategy, governance, risk management and metrics (Niskala & Palmauro, 2023). Especially, the risks management process should present how organization manage the identified material impacts, risks and opportunities (Niskala & Palmauro, 2023;

European Commission, 2023b). The theory of sustainability reporting is shared to three main categories which are policies, measuring the performance and materiality assessment (Herremans, 2019). The CSRD standards can be connected to this theory. The impacts, risks and opportunities (IROs) can be connected to the theory of sustainability reporting where Herremans (2019), presented that organization should disclose the main impacts related to sustainability on the materiality assessment (see picture 2). The ESRS standards presents the minimum disclosure requirements (MDR) (Niskala & Palmuaro, 2023; EFRAG, 2023b). The main aim of MDR is to ensure that organization works with the sustainability in a correct way directive requires and presents minimum information of their operations related to sustainability (Niskala & Palmuaro, 2023). The minimum disclosure requirements can be shared to four categories:

- MDR-P Policies adopted to manage material sustainability matters
- MDR-A Actions
- MDR-T Targets
- MDR-M Metrics (Niskala & Palmuaro, 2023, p.94; European Commission, 2023b; EFRAG, 2023b).

These four minimum disclosure requirement categories (MDR) are connected to each ESRS topical standard and because of that organization should transparently present how they work with the identified material topic on each category (Niskala & Palmuaro, 2023, European Commission, 2023b, EFRAG, 2023b). The MDR-P obligates reportative organization disclose the policies related to sustainability topic (European Commission, 2023b; EFRAG, 2023b). The MDR-P is directly comparable with Herremans (2019) theory of sustainability (see picture 2). And if organization do not have policies, the MDR-P requires organization to present why the policy is not adopted, which resource is used to adopt the policy and in which timetable policy will be adopted (European Commission, 2023b; EFRAG; 2024b; EFRAG, 2023b). That illustrates the transparency level of CSRD

(European Commission, 2023b; EFRAG, 2023b). In a similar way MDR-A-M should be disclosed (European Commission, 2023b; EFRAG, 2023b). MDR-A, MDR-T and MDR-M corresponding the step measurements and performance on picture 2 (Herremans, 2019).

CSRD includes both narrative descriptions of the operations and numerical datapoints (European Commission, 2023b). While reading the list of datapoint provided by EFRAG (2024b), it is possible to state that over fifty per cent of datapoint includes a narrative description of operation related to sustainability matter. To be align with CSRD the ESRS standards should be understood as a handbook which guides undertaking during the implementations process (European Commission, 2023b; European Commission, 2023a; Niskala & Palmuaro, 2023; Hummel & Jobst, 2024; Mezanotte, 2023). The first cross-cutting standard ESRS 1 General Requirements (picture 4) presents the principles which should be applied on the sustainability reporting process (European Commission, 2023b; Niskala & Palmuaro, 2023). The key idea of the ESRS 1 is to present the materiality assessment process and how the final sustainability report should look (Niskala & Palmuaro, 2023). ESRS 1 standard concentrates to the double materiality analysis and how it should be made (Niskala & Palmauro, 2023).

Additionally, the ESRS 1 includes few appendixes which gives guidance to build sustainability report:

Appendix A	Application Requirements
Appendix B	Characteristics of the Qualitative information
Appendix C	Transition rules and phases when an organization should publish the first mandatory sustainability report,
Appendix D	Structure of the final sustainability statement
Appendix E	Flow chart which helps organization to evaluate the material topics (European Commission, 2023b, p.22-36).

The ESRS 2 General Disclosures (picture 4) is the another cross-cutting standard, and is also mandatory for all organizations (European Commission, 2023b. p.40-72; Niskala & Palmuaro, 2023, p.93). On ESRS 2 organizations are required to disclose information related to governance and the supervisory bodies and their role, their performance incentives and risk management and intern controls. The same standard requires organizations to disclose the sustainability strategy is connected to risk management, how organization takes into account stakeholders and value chain on their strategy, business model and which kind of conducts and policies they have set (European Commission, 2023b; Niskala & Palmuaro, 2023). In addition, ESRS 2 requires organizations to present how they follow sustainability-related targets and goal, how the improvements are measured (European Commission, 2023b). The MDR presented earlier are a part of ESRS 2 (EFRAG, 2024b; EFRAG, 2023b). With the cross-cutting standards ESRS 1 and ESRS 2 organizations should identify the material standards for topical ESRS standards (picture 4) for them via double materiality analysis (Niskala & Palmauro, 2023). Double materiality analysis is presented later on this chapter.

In conclusion, the CSRD presents a bunch of new definitions which organizations should understand and adapt to the sustainability report (European Commission, 2023bc; Niskala & Palmuaro, 2023). The strict guidelines of how reporting should made supports the main idea of mandatory sustainability reporting which is comparability and transparency (European Commission, 2023b; 2024a; Luque-Vilchez et al., 2023; Belske et al., 2020). The main aim of the CSRD is to identify from the topical standard the material standards for the reportative organization and then analyzed these topics with the help of double materiality and gap-analyses (European Commission, 2023b; Niskala & Palmuaro, 2023). The implementation process might be demanding for the organizations since ESRS standards includes a lot of data and over 1000 datapoints (Niskala & Palmuaro, 2023; EFRAG, 2024b). But according to KMPG (2024a), the implementation process of CSRD should be a process which continues over the fiscal years. The sustainability reporting process is different in comparison to previously used standards and because of that education, knowledge and resources are needed.

The ESRS 1 starts by presenting that the sectors-specific standards will be published (European Commission, 2023bc; EFRAG, 2024e). According to Charluet (2024) and EFRAG (2024e), the sector-specific standards are delayed and will be published later. Before that the cross-cutting and topical standards should be applied (European Commission, 2023b). This thesis is not concentrating in detailed to the sector-specific standards but from the future orientated perspective that could be a comprehensive research area from SMEs point of view and ease the implementation of CSRD among SMEs.

3.3 Double Materiality

This chapter presents and discusses of materiality assessment and double materiality analysis (DMA) with the help of references. On CSRD the materiality should be assessed with the help of double materiality analysis (European Commission, 2023b, p.8; Mezzanotte, 2023; Niskala & Palmuaro, 2023). The concept single materiality assessment has been used before the implementation of CSRD and for example organization which reported sustainability disclosures according to GRI evaluated materiality (Beyne & Moratis, 2024). Materiality assessment is the impact evaluation process where reportative organization evaluates their own operations to set targets and strategies to their operations (Taubken & Feld, 2018). According to Beyne and Moratis (2024, p.1), International Integrated Reporting Council (IIRC) defined that:

Materiality assessment filters out information which is reasonably capable of making a difference to the conclusions stakeholders may draw when reviewing the related information (Beyne & Moratis, 2024, p.1).

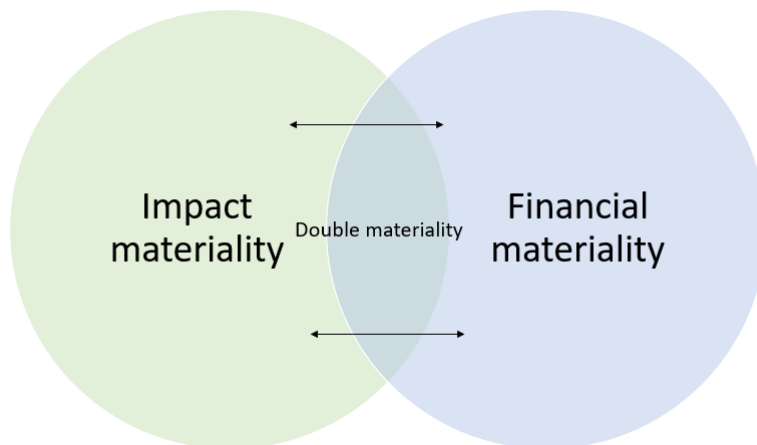
Other definition to materiality assessment is that it identifies the environmental, social and economic issues which may be interesting among stakeholders and have largest impacts to the operations (Beyne & Moratis, 2024). The concept materiality is connected

to the stakeholders and because of that while assessing materiality the needs of stakeholders should be noticed (Beyne & Moratis, 2024). The importance and role stakeholders are underlined both on CSRD and GRI (Beyne & Moratis, 2024; Niskala & Palmuaro, 2023; European Commission, 2023b).

On the CSRD the materiality assessment is developed from the single materiality to the double materiality (European Commission, 2023b). On double materiality analysis organizations analyse the impacts, risks and opportunities from the two different perspectives: impacts and financial materiality (Mezanotte, 2023; Niskala & Palmuaro, 2023; European Commission, 2023b). With the double materiality analysis organizations identify the main impacts, risks and opportunities which an organization causes to the environment and society (inside-out), but also to understand which kind of impacts and possibilities other organizations set (outside-in) to the reporting organization (Niskala & Palmuaro, 2023; European Commission, 2023b; EcoOnline, 2023; Beske et al., 2020). These risks, impacts and opportunities can affect an organization in a long, medium or short-term (European Commission, 2023b).

On the double materiality analysis, the financial materiality on double materiality analysis evaluates the sustainability related risks and opportunities which are coming outside of the organization but effects to them (Niskala & Palmuaro, 2023; Eco Online, 2023). In opposite to that, the impact materiality analyses sustainability related impacts, risk and opportunities which the reporting organization causes to environment and society. The impact materiality concentrates to sustainability related impacts which are coming inside from the organization (inside-out) and financial materiality evaluates the impacts which are identified to affect outside-in to the organization (EcoOnline, 2023; Niskala & Palmuaro, 2023; European Commission, 2023b; Dragomir et al., 2024; Mezzanotte, 2023). The analysis which evaluates impacts, risks and opportunities are called IRO paragraphs on the ESRS standards (European Commission, 2023b). The target of these two analyses is to understand wider the impacts of the operation of an organization and arise the transparency (European Commission, 2023b; 2024a). Additionally, the

identification of impacts gives an opportunity for organization remediate and adapt the operation to the identified risks, opportunities and impacts. According to Taubken and Feld (2018) and Mezzanotte (2023), after the identification of material topics organization should disclose the datapoint and application requirements related to the sustainability topic. The double materiality analysis illustrated in the picture 7.



Picture 6. Double materiality (Niskala & Palmuaro, 2023; European Commission, 2023b; EcoOnline, 2023; Ramboll, 2023).

In the beginning of double materiality analysis, organizations should analyze all the sustainability topics presented on ESRS standards (Appendix, A, AR.16.) (Mezzanotte, 2023). The purpose of this relevance analysis is to identify the topics which are relevant for the reportative organization (Mezzanotte, 2023). Additionally, this acquires knowledge of the impacts during the value chain, since the impacts of the sustainability issue are analyzed from stakeholders' perspective (Mezzanotte, 2023). According to Mezzanotte (2023), CSRD requires organization to engage with their stakeholders. The engagement happens via materiality assessment (Mezzanotte, 2023).

On double materiality analysis the evaluation should be made with the instruction in ESRS 1 on chapter 3.4 (European Commission, 2023b, p.8-9). The ESRS standard shares impact materiality to the four different categories actual and potential positive impacts and actual and potential negative impacts. Material sustainability impacts are matters

which have an impact to an organization, upstream or downstream value chain in a long, medium or short term (European Commission, 2023b; Mezzanotte, 2023). The terms which CSRD presents are presented below:

- **Short-term:** is the actual reporting year,
- **Medium-term:** after the short-term period starts the medium-term period. The medium-term is five years forward in time after the short-term period = from 1 to 5 years
- **Long-term:** Long-term is the time after the medium-term which is 5 years or more (European Commission, 2023b, p.14; Mezzanotte, 2023).

To analyze and evaluate the impact materiality organization should evaluate impacts from four different perspective scale, scope, irremediability and likelihood to understand the severity of analyzed impact (European Commission, 2023b, p. 10; Mezzanotte, 2023). On CSRD the scale means how grave the impacts are and scope means how wide the impacts is (European Commission, 2023b, p.10; Mezzanotte, 2023). The evaluation of actual positive impacts is the summa from scale and scope. The potential positive impacts are based on the evaluation and summa of scale, scope and likelihood. The actual negative impacts are the summa of evaluation of scale, scope and irremediability and the potential negative impacts is evaluated with the help of the summa of scale, scope, remedy and likelihood (European Commission, 2023b; Mezzanotte, 2023). Additionally, organizations should disclose the possible negative impacts to the Humans Rights (European Commission, 2023b).

The financial materiality is presented on ESRS 1 in chapter 3.5 and defines as follows (European Commission, 2023b, p.9-10). To evaluate the financial materiality the sustainability related risks and opportunities which are coming outside of the organization should be evaluated. To identify the financial material impacts it is important to understand what are these effects. The financial materiality analyses the impacts which can be seen affecting financially to the operations of an organization. These sustainability related risks and opportunities affects for example to the development, profit, cash flows or payment ability in a long, medium or short-term (European Commission, 2023b, p.9-

10; Mezzanotte, 2023). Additionally, the possibilities of employment and human resources and capita in organizations are financial risks (European Commission, 2023b, p.11). To evaluate financial materiality organization should make analyses with the help of parameters likelihood and potential magnitude of the financial effects (European Commission, 2023b, p.9). The financial materiality pursues to identify both future related risks and retrospective risks which can still today affect, on an organization result (European Commission, 2023b). On the financial materiality the possible impacts related to Human Rights should be analyzed (European Commission, 2023b).

After the analyses of impact materiality and financial materiality organization has more understanding of the impacts which affects organization inside-out and outside-in (Niskala & Palmuaro, 2023; European Commission, 2023b). The information of these two analyses enables organizations to continue the evaluation of material topics for them (Niskala & Palmuaro, 2023). According to ESRS 1, if the ESRS topics is material organization should disclose the datapoints on this specific ESRS topic (European Commission, 2023b; EcoOnline, 2024). If organization have identified Climate change mitigation as a material topic, they should examine the topic with the help of the standard ESRS E1 and disclose disclosure requirements related to ESRS E1 (European Commission, 2023b). If an organization evaluates that climate change is not a material topic organization should be able to present elaborate explanation of the impact identification process and why they have determined that climate is not a material topic for them (European Commission, 2023b, p.8-10). ESRS 1 paragraph 53 explains in which kind of situations a ESRS topic becomes material (European Commission, 2023b). The paragraph 53 is not giving a scale which should be used to evaluate the topics but it provides a description of the material topics for an organization which can be used while evaluating ESRS topics (European Commission, 2023b, p.11).

To set targets and strategy organization should understand the impacts, risks and opportunities of the operations and how operations affect to the results of the organization (Taubken & Feld, 2018). In the center, on double materiality analysis is the understanding

of essentialness and is the topic essential and therefore material to the reportative organization (Beske et al., 2020; EcoOnline, 2023; Mezzanotte, 2023). Because of that organization should find a suitable way and scale to evaluate the topical standards (EcoOnline, 2023). The material topics are topics which should be included to the final sustainability report (Beske et al., 2020). Beske et al. (2020) presented an excellent definition to essentialness from materiality assessment perspective. If undertaking wants omit or do not present sustainability topic which is material, it may affect to organizations performance (Beske et al., 2020). The output of the materiality assessment is often presented with a help of materiality matrix (Beske et al., 2020). The double materiality analysis can be concluded to two key concepts:

1. Importance of understanding the impacts of the operations related to sustainability
2. How sustainability affects to undertaking financial performance (Mezzanotte, 2023, p.2).

The requirements of double materiality analysis, how organization should complete it and how it is connected to topical standards is presented on ESRS 1 (European Commission, 2023b). Since, the double materiality analysis is the way to confirm and identify the material topics the double materiality concept is connected to each ESRS topical standard. Consequently, in the begging of each topical ESRS standard is a connection to “ESRS 2 IRO” which aims organization to transparently present the DMA process (European Commission, 2023b).

Lastly, according to Baumüller and Sopp (2022, p.17), double materiality concept has both advantages and disadvantages. At first, according to Baumüller and Sopp (2022, p.17), the double materiality process doubles the amount of the data which is collected during the analysis process. The double materiality analysis includes two different perspectives and because of that both standpoints should be analyzed and the data should be able restored so that it can be then verified (European Commission, 2023b; Baumüller

and Sopp, 2022). Also, the large number of data have positive effects, and Baumüller and Sopp (2022, p.17), presented that sustainability reports become more complete when data is analyzed from two different perspectives. To complete double materiality analysis successfully organization needs time, capacity to make preparations and knowledge (Baumüller and Sopp, 2022). Additionally, organizations should have right ways to collect and evaluate data (Baumüller and Sopp, 2022). Mezzanotte (2023) presented that CSRD helps society to work with the climate change and biodiversity. According to Baumüller and Sopp (2022, p.22), they identified on their study that the organization can find challenging to differs the information they collect and get. Consequently, that can cause the situation that some data will be analyzed less. That underlines the importance of suitable ways to run double materiality process. As an advantage, sustainability reports become more comprehensive and reliable since the information is collect, reported and analyzed in a similar way (European Commission, 2023b; Baumüller and Sopp, 2022; Niskala & Palmuaro, 2023).

The scale in which impacts and financial materiality are evaluated should be reliable and verifiable so that the DMA process can be verified by third party (Niskala & Palmuaro, 2023). According to Niskala and Palmuaro (2023), the assurance of sustainability report will be developed in the future and the target is to build a system that financial and sustainability reports have a same reliable assurance level (Niskala & Palmuaro, 2023; Deloitte, 2023a). The lack of assurance routines, illustrates the new requirements of CSRD.

3.3.1 Phased-in disclosures on ESRS

The study has now presented the double materiality analysis and the connection to the ESRS topical standards (Niskala & Palmuaro, 2023). Additionally, the connection between sustainability reporting theory and CSRD is discussed and presented shortly. When organization have completed the double materiality analysis the identified topics should be included to the final sustainability report (European Commission, 2023b; Niskala &

Palmuaro, 2023; Mezanotte, 2023; Dragomir et al, 2024). The sustainability issues are disclosed on sustainability report with the help of ESRS datapoints (DP) and application requirements (AR) (see chapter 3.2) (Mezanotte, 2023; European Commission, 2023b). The sustainability reporting will be an unfamiliar process for the most of the SMEs during the first reporting year, the CSRD includes phased entry rules which organization might utilize (European Commission, 2023b, 2024d; PwC, 2024a).

The most of the phased-in disclosures are targeted to organizations which are employing under 750 employees (European Commission, 2023b, 2024d; PwC, 2024a). The postponements of ESRS standards are presented on ESRS 1 Appendix C on List of phased-in Disclosure Requirements (European Commission, 2023b, p.29-32; EFRAG, 2024b). The list of disclosures which organization “may report” during the first mandatory reporting are presented on the table 1. The phase entry disclosures are presented from the target organization point of view since the study is made in cooperation with them.

Table 1. Phased in disclosures for SMEs (European Commission, 2023b, p.30-33; Deloitte, 2023a; PwC, 2024a).

Category	Description	SMEs under 750 employees
ESRS 2 SBM-1 & SBM-3	SBM-1: Strategy, business model and value chain SBM-3: IRO	May omit during the first reporting year and then during the three first reporting years prepare only qualitative (narrative) parts of the disclosure requirement.
ESRS E5-6 ESRS E3-5 ESRS E2-6 ESRS E1-9	Anticipated financial effects	Organization may omit to report these paragraphs during the first reporting year and then present the qualitative characteristics during the three first reporting years company should report qualitative disclosure parts.
ESRS E1-6	Scope 1,2 & 3 greenhouse gas emissions	May omit during the first reporting year.
ESRS E4	All requirements	May omit all requirements during the two first reporting years.

ESRS S1	All requirements	If organization employees under 750 they may omit S1 disclosures during the first reporting year.
ESRS S2-S4	All requirements	May omit all disclosure requirements during the two first reporting years.

From the table 1 it is possible to notice that phased-in disclosures include two different types of transition rules:

Table 2: Exceptions for the first three years of reporting (European Commission, 2023b, p.30; European Commission, 2023c, 2024d; Deloitte, 2023a; PwC, 2024; Niskala & Palmauro, 2023, p.91-92).

1.	<p>Exceptions for organizations which employ less > 750 employees</p> <ul style="list-style-type: none"> • May omit to report disclosure during the first reporting year • May omit to report disclosure during the first two reporting years
2.	<p>An organization has specific requirements for a datapoint and are required to report only qualitative parts of the datapoints during the three first reporting years (European Commission, 2023b, appendix C, p.30).</p>

According to Niskala and Palmuaro (2023, p.90-91), with the possibility to omit to report some ESRS standards, CSRD gives some time for companies to prepare data. The most of the transition possibilities are addressed to SMEs which have not build sustainability report before (PwC, 2024a). The phase in standards is presented on the table 1. On the standards paragraphs, the two different formulation is used (European Commission, 2023b). On the paragraphs some of them use “may” and “should” report. Consequently, while preparing the first sustainability disclosure it is important to pay attention to “may” and “shall” paragraphs and the difference and requirements on the standards between them (European Commission, 2023b, p.6-7; EFRAG, 2024d).

3.3.2 Stakeholders

On CSRD, the importance of stakeholder engagement is underlined and to assess materiality stakeholders should be involved to the process of materiality assessment (Mezanotte, 2023). Consequently, stakeholders are an essential resource to complete and identify sustainability impacts, risks and opportunities (Kierivä, 2023).

According to Laine et al. (2022), stakeholders are a group or individuals which affects or can be affected by reportative organization. This definition was presented by Freeman in 1984 (Laine et al., 2022). The stakeholder engagement gives information for organizations of stakeholders' expectations and needs (Laine et al., 2022, p. 43). On CSRD, European Commission (2023b) divides stakeholders to the two groups based on their interest and impact to sustainability report and the financial performance. 1. Affected stakeholders are individuals and groups during the value chain which may be affected of the operation of the reportative organization (Kierivä, 2023). 2. Sustainability report users build up from investors, credit institutions, insurance companies and other users such as co-operators and confederations (Kierivä, 2023).

The relevant stakeholders are challenging to identify, and because of that the process to identify stakeholders often challenges organizations (Laine et al., 2022). The most common stakeholders for organizations are customers, employees and investors. According to Laine et al. (2022), there are two ways to identify stakeholders. The relevant stakeholders can be identified via sold product or projects (Laine et al., 2022). On CSRD the theory is expanded so that the stakeholders should be involved to the materiality assessment process to understand the main impacts, risks and opportunities (Mezanotte, 2023; European Commission, 2023b; Kierivä, 2023). In the best practice, organization can discuss with the stakeholders of the sustainability work of the organization (Kierivä, 2023).

The chapter 3.3 presented that, to complete double materiality analysis both financial materiality and impact materiality should be analyzed (European Commission, 2023b).

In addition, the stakeholders should be involved to the materiality assessment (Mezzanotte, 2023). The challenge in the future is to find suitable ways to activate stakeholders to this analysis with the reportative organization and identify the most important risks, opportunities and impacts (Laine et al., 2022; European Commission, 2023bc; Kierivä, 2023). The theory by Laine et al. (2022), suggested that the data of stakeholder engagement can be collected via interviews, meetings, on online or via other possible reliable channels regularly. The stakeholder engagement process is a commonly challenging process for the organizations and needs time and management. Consequently, Laine et al. (2022) highlighted that stakeholder engagement process should be a continuous and communicative process and it should aim to activate stakeholders to the discussions.

3.3.3 Value chain

This chapter presents the definition to the value chain and the connection to CSRD and ESRS standards. The definition of value chain was presented by Porter already in 1985 (Koc & Bozdag, 2017; Rahman et al., 2021). Value chain is a definition for internal activities which an organization runs during a production process to produce the final product to its target customers with the best quality (Rahman et al., 2021, p.5; Koc & Bozdag, 2017). Value chain is important from the performance perspective and to find the profitable ways to work the activities during the value chain should be analyzed (Rahman et al., 2021; Koc & Bozdag, 2017). The deeper analysis enables to identify the obstacles and operations which are adding value for the organization. Additionally, the investigation of value chain can be found important to develop processes to be more cost effective (Rahman et al., 2021; Koc & Bozdag, 2017).

Value chain is a process which includes the key activities of the operation of the organization (Koc & Bozdag, 2017). The value chain is limited so that it illustrates only the strategically important activities of the production (Koc & Bozda, 2017, p. 1). In theory, value chain can be shared to the two different categories primary and support activities. This classification is made by Porter (Koc & Bozdag, 2017; Rahman et al., 2021, p.5). Value

chain can be evaluated from the greenhouse gas emissions perspective. Value chain is shared to the three different parts after emissions upstream operations, downstream and own operations (Greenhouse gas protocol, 2024). Upstream includes indirect emissions of the upstream activities such as purchased energy (Greenhouse gas protocol, 2024). Downstream activities include indirect emissions of that are connected to the reportative organization's value chain (Greenhouse gas protocol, 2024). Own operations include emissions of product and objects organization owns (Greenhouse gas protocol, 2024).

On ESRS 1 the value chain is presented on the chapter 5 (European Commission, 2023b, 13-15). According to ESRS 1.5.1 the undertaking should be able to provide the information from their upstream and downstream value chain which sustainability matters are connected to their operations (European Commission, 2023b). The operations which should be included are essential operations which are connected to the reportative organization (European Commission, 2023bc). When organization have identified the most essential organizations on their VC should they report the risks, impacts and opportunities related to VC (European Commission, 2023b; EcoOnline, 2023). The value chain can be identified with the help of following steps:

- Identification of the parts of the value chain
- Understanding of the IRO during the value chain
- The analysis of IRO during the value chain the measurement related to value chain (Niskala & Palmuaro, 2023, p.76).

According to Rahman et al. (2021), the properly understanding of a value chain have positive effects to the organization. Understanding of the value chain can help organization to improve their business strategy or to evaluate the costs of the operations they are running (Rahman et al., 2021).

3.3.4 Due diligence

Due diligence is a process which ensures, identifies and prevents that operations of an organization are not compromising and affecting negative to the Human Rights, society and environment (European Commission, 2023b, p.12; OECD, 2018). The evaluation of negative impacts is made during the value chain (OECD, 2018). The due diligence process is often embedded to organization strategy and business model (European Commission, 2023b).

The due diligence process is presented on the ESRS 1 General Requirements (European Commission, 2023b). The due diligence process is presented on United Nation's Guiding Principles on Business (2011) document and on Human Rights and the OECD Guidelines for Multinational Enterprises (2019) (European Commission, 2023bg). According to UN (2011) human rights and due diligence process should be implemented directly when an organization starts its operations, to ensure and prevent that businesses are not impact or compromise human rights. The due diligence process is a part of Sustainable operations in an organization (OECD, 2019). According to UN (2011), implementation of the due diligence process supports both organization and employees. And due diligence process set the legal background to operations and because of that undertaking's operations are not including operations which can compromise human rights (United Nations, 2011).

If organizations by themselves are not able to ensure and prevent negative impacts of business operations the due diligence process provides support for those who are targeted to be impacted (OECD, 2018). On the other hand, the due diligence process supports an organization to maximize the positive impacts of business operations to the society or stakeholders for example by evaluating the costs of the business (OECD, 2018). Due diligence process is an international, dynamic and preventative process which understand undertakings operation from different perspectives (OECD, 2018).

According to OECD (2018) the due diligence process is a part of an organization's risk and decision-making processes. The due diligence process recognizes and aims to prevent challenges related to workers such as bribery, corruption, human rights, corporate governance and the environment (OECD, 2018). The process of implementing due diligence to an organization consist of six different steps:

1. Embed responsible Business Conduct
2. Identify potential challenges on the business operations
3. Mitigate these Business operations in an organization
4. Evaluation and tracking of implementations and solutions to the problem
5. Communicate how these impacts are solved
6. Explanation of the problem and how it is remediated (OECD, 2018, p.21).

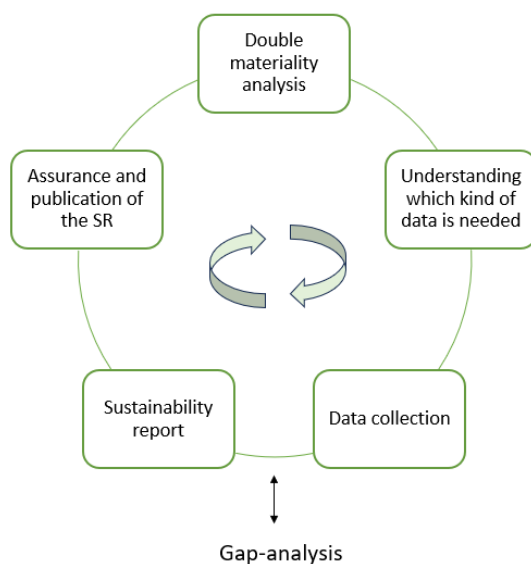
On the CSRD the due diligence is presented in ESRS 1 standard and applied on other cross-cutting standards (European Commission, 2023b). The ESRS 1 is not setting own requirement for the implementation or adaptation of the Due diligence (European Commission, 2023b). Because of that the international convention and agreements related to due diligence should be applied (European Commission, 2023b). To conclude, the due diligence process is a concept which set requirements how an organization should build the risk and decision-making management to support, prevent and ensure humans right are not hurt (OECD, 2018). The due diligence process supports both employees, society and an organization (United Nations, 2011).

3.4 The process of build the Sustainability report

This chapter discusses and presents the main concepts in theory for building sustainability disclosure related to CSRD. This chapter ends to the conclusion of the presented concepts by presenting a model via which the implementation of CSRD can be made. This chapter included the presentation of the Corporate Sustainability Reporting di-

rective (CSRD) which set the legal background to sustainability reporting and ESRS standards via which the requirements of CSRD are presented (Mezanotte, 2023; European Commission, 2023b). To be aligned with ESRS standards and the implementation of CSRD, the double materiality analysis, the output of double materiality analysis, value chain, stakeholder engagement, and due diligence processes were presented (European Commission, 2023b).

To summarize the sustainability reporting process, Niskala and Palmuaro (2023, p.75) presented a picture of the process of sustainability reporting and its implementation with the help of five key steps. The picture 8 presents the sustainability reporting process:



Picture 7. The process of preparing sustainability report (Niskala & Palmauro, 2023, p.75; Ram-boll, 2023).

Picture 8 presents the categories which should be included to the sustainability reporting process (Niskala & Palmauro, 2023). In comparison to the theory by Herremans (2019), the sustainability reporting process by Niskala and Palmuaro is presented more in a higher-level topical level. The ESRS requirements can be combined better to theory by Herremans than to this higher-level model of implementation of sustainability reporting,

since the model by Herremans (2019) presents internal operation during the implementation process.

The model by Niskala and Palmuaro (2023) is not including the gap analysis which aims to present information of those processes in the categories which are missing and because of that it is added out of the picture. Niskala and Palmuaro (2023) present on their publication that gap analysis is an essential part of the first-year reporting. In conclusion, the first cycle of CSRD might be the most complex process and the resource are needed to complete it. After the first reporting loop organization have both information of the sustainability related topics and ESRS standards but also knowledge how the reporting process works (Niskala & Palmauro 2023, p.75).

The literature review on chapter 2 and 3 presented the context (C) of the study (Kalairasan et al., 2023). The next chapter presents the methodology of the study.

4 Methodology

This chapter presents the empirical part of the study. The development of sustainability started on case company in 2023 by implementing a sustainability strategy. The sustainability strategy of the case company pursues to develop sustainability on all its dimension and concretize sustainability and find new solutions to modify operations more responsible. The sustainability strategy is connected to the three SDGs of the United Nations (2023bc). The case company is a Finnish organization which production concentrates to metal working solutions and group produces sheet metal products, parcel boxes and pipes. The final products are exported worldwide. Case company employees currently 240 employees and the revenue of the organization was in the fiscal year 2023 42,2MEUR.

The CSRD was implemented in Finland in the beginning of 2024 and the case company is a part of the scope of the directive (Niskala & Palmuaro, 2023). Since, case company has not published a sustainability report the need of this study was identified. The CSRD is a wide regulatory frame and to implement it case company should start the implementation in time (KPMG, 2024a). This empirical part of the study focuses to pilot the double materiality analysis, and process how sustainability report according to CSRD should be build. The double materiality analysis was identified to be an essential concept of CSRD and because of that the understanding and mapping the materiality is important to continue the sustainability reporting process (Mezanotte, 2023; Dragomir, et al., 2024). After the DMA the process can continue after to the gap and data collection processes (Niskala & Palmuaro, 2023).

The sample of empirical part of the study is whole concern but the double materiality analysis was piloted with three sub-organization of case company. The study was carried by using the design science (DS) methodology which is methodology which aims to solve practical problems by providing new theory and solutions to the case organization (Kalai- arasan et al., 2023). The main characteristic of design science is flexibility, and because

of that the method is solution orientated approach (Kalaiarasan, et al., 2023). DS can be shared to the six different steps:

1. Understanding of the researched problem,
2. Mapping and innovation solution,
3. Design and development,
4. Testing if the solution is suitable,
5. Evaluation of the developed model and
6. Generation of the theory (Kalaiarasan et al., 2023; O'Keefe, 2015).

The design science methodology answers best to the practical problems and because of that the methodology is usually used in development projects (Kalaiarasan et al., 2023).

4.1 Data collection and structure of the study

The first chapter presented the purpose and researched problem of the study. To answer that problem the study was started to identify the solution to the researched problem. To understand the research topic and formulate the problem literature review played a crucial role on this study, since the requirements of CSRD are new for all across organizations. The literature review concentrated to the newest changes in sustainability field and the focus on the literature review was on legislation of CSRD and ESRS published by European Commission and EFRAG. Additionally, the literature review included recently published academic publications and journals which discussed about CSRD and sustainability reporting and its implementation. Literature on this study was searched via Tritonia provided by University of Vaasa. Along with that, most of the references are original publication by European Commission and EFRAG which are taken from their websites. The main keyword on the literature review was sustainability, sustainability reporting, materiality assessment, double materiality, CSRD and ESRS. The literature review showed that the topic is not researched yet.

Together with the literature review the study included meetings with the case company to discuss, map and to identify possible solutions to the researched problem. The workshops increased understanding of the sustainability work of the organization to disclose the sustainability work on the sustainability report. The data on this study is both qualitative and quantitative data which is collected via meetings, workshops, and by analyzing existing documents provided by case company. In addition, to pilot the DMA data was collected from three sub-organization of case company to complete the pilot.

Since this study piloted the DMA with three sub-organization of the case company this study can be shared to two bigger parts which supports each other. On the first phase which whole case company was informed about the change on the sustainability field and how CSRD will affect to them. This phase included presentation of the CSRD and an early draft of the model of which parts should be included to CSRD sustainability reporting process. The final model is presented to whole case organization. The second part of the study is the double materiality analysis. The whole group was informed about the empirical part of the study and from six organization three took a part of the empirical part of the study. Respondents of these three organizations prepared answer to the questionnaire on this study. The results of the study were presented to the whole group and in the future to answer to the requirements of CSRD the whole concern must take a part of CSRD project. The research process remains identical with the theory of DS (Kalaiarasan et al., 2023).

4.2 Data analysis

Kalaiarasan et al. (2023) presented a CIMO method on their study. The CIMO method is applied on this study. The method consists of four pillars context (C), intervention (I), mechanism (M) and output (O) (Kalaiarasan et al., 2023).

Context (C), the research process started with the meetings and literature review to be able to understand and formulate the research problem. The meetings enabled to discuss with the sustainability department of case company to acquire knowledge of operations of the case company. With the help of meeting the research problem was formulated and the important changes on sustainability field was identified. With the interviews the begging of the study concentrated to dive in to CSRD and ESRS to be able to understand the requirements of CSRD, and what should be done in case company. Material of the operation of case company was provided. On the first meetings the ESRS 2 General Disclosures were went through which helped to build understanding of the current situation in case company. The first model of sustainability reporting process was built.

The study continued to the intervention (I) part (Kalaiarasan et al., 2023). To collect data the suitable data collection tool should be identified. This study collected data to the double materiality analysis which is the analysis via which the material topics of the sustainability report should be identified (European Commission, 2023b). The data final was collected via excel tables which was modified so that excel tables includes categories from which the data should be collected.

Mechanism (M), this study piloted the DMA with the pilot group of three sub-organization of case company. To build the report a suitable data collection tool was created. Additionally, the first sustainability report was built from the existing material and connected to relevant CSRD categories. The mechanism of the study is relevance analysis, double materiality analysis and a pilot of gap analysis, which enables case company to move forward to the data collection and complete reporting.

Output (O), the study provided a solution to start the sustainability reporting according to CSRD by presenting a possible model to run the sustainability reporting process. The double materiality analysis is in the very center of CSRD and because of that with the

DMA organization can continue to the data collection process with the material topics (European Commission, 2023b; Mezanotte, 2023; Dragomir et al., 2024).

The three organizations of case company took part of this pilot study of CSRD pilot. With these three organizations the double materiality analysis was piloted to assess materiality. The empirical part of the study collected both qualitative and quantitative data of respondents. Respondent were asked to prepare answers to the following narrative questions:

1. Which kind of negative impacts organization has related to ESRS topic?
2. Which kind of positive impacts organization has related to ESRS topic?
3. What are the actual and potential risks of this ESRS topic?
4. What are the actual and potential opportunities of this ESRS topic?

Respondents were asked to answer these narrative questions from ESRS E1 Climate change, ESRS E2 Pollution, ESRS E3 Water and Marine resources, ESRS E5 Circular economy, ESRS S1 Own workforce and ESRS G1 Business conduct point of views (European Commission, 2023bg).

In addition, respondents evaluated the scale, scope, remedy and likelihood of each ESRS topic and sub-topic. The estimation of scale, scope, remedy and likelihood of ESRS topic or sub-topic were med in a scale 1 to 5. The first pilot included 23 ESRS topic and sub-topics (European Commission, 2023b). The scale of evaluation and the results of the analysis is presented in chapter 5. In addition, the study reviewed the financial statements to control in which scope the sustainability reporting becomes mandatory for the target organization. The study collected both quantitative and qualitative data.

The data of this study is provided by the case company and documented to the excel tables to ensure the audit trail and ensure the reliability, quality and validity of the study (Hummel & Jobst, 2024).

5 Results

This chapter presents the key finding of the study. The chapter starts by discussion the results to the second research question. After the discussion of it, the study moves to the first research question. This order is selected since the second research question support the understanding of the first research question. Consequently, the understanding of the big picture is important to understand the results related to CSRD sustainability reporting implementation.

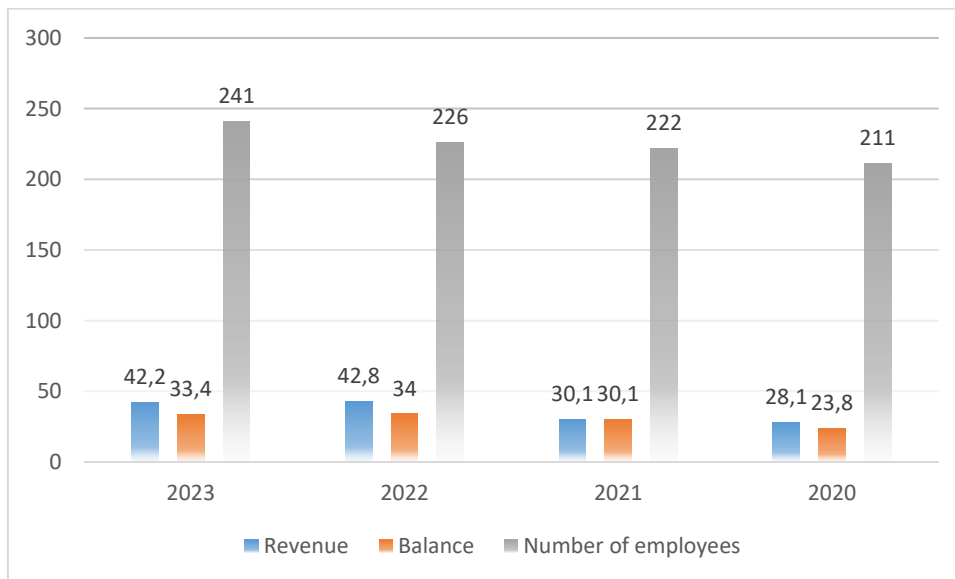
5.1 When case company should publish the first mandatory sustainability report?

The theory on the chapter 3.2 presented that CSRD is dived into four different implementation phases according to Accounting Act (European Commission, 2023b, 2024d; Niskala & Palmuaro, 2023; Deloitte, 2023a; Kirjanpitolaki 1336/1997). And the case company of the study is in the scope of mandatory sustainability reporting. To identify in which category the case company should publish the first sustainability report the financial statements was reviewed to control balance, revenue and the number of employees during the past four fiscal years (Niskala & Palmuaro, 2023; Kirjanpitolaki 1336/1997). As presented on the chapter 3.2. the second phase is connected to Accounting Act and to evaluate the size of the organization revenue, balance and number of employees should be controlled (Kirjanpitolaki 1336/1997; Heijala et al., 2023). The table 3 summarize the balance, revenue and the number of employees of the case company of years 2020, 2021, 2022 and 2023:

Table 3. Revenue, balance and number of employees of case company from 2020 – 2023.

M€	2023	2022	2021	2020
Revenue	42,2	42,8	30,1	28,1
Balance	33,4	34,0	30,1	23,8
Number of employees	241	226	222	211

To analyze the key ratios, case company is not currently meeting two of the three criteria presented on CSRD and on the Accounting Act (Niskala & Palmuaro, 2023; Kirjanpitolaki 1336/1997; Heijala et al., 2023; Deloitte, 2023a). But the situation can change. In case, case company meets two of the three criteria on the Accounting Act, sustainability report should be prepared from fiscal year 2025 data and publish 2026 (Niskala & Palmuaro, 2023; Kirjanpitolaki 1336/1997; Heijala et al., 2023).

**Figure 3.** The development of revenue, balance and number of employees.

To analyze and combine theory to the key ratios, the figure 1 shows that case the balance of the case company is greater than 25 million euros which means that at least one criterion is met today. The annual revenue has increased in comparison to the baseline year 2020. The figure 1 shows that that the annual revenue has increased rapidly from 2020

to 2023. In three years, the revenue has increased with roughly 14 million euros. If this trend continues the case company will be close to the set reporting limit on CSRD. Figure 1 shows that case company is not currently employing more than 250 employees but the number of employees increase constantly (Niskala & Palmuaro, 2023; Kirjanpitolaki 1336/1997).

In conclusion, the case company will be part of the third reporting phase in 2027 of CSRD, and the first sustainability report should be made from fiscal year 2026 sustainability data (Niskala & Palmuaro, 2023; European Commission, 2023b). According to the table 3, the limit values in phase two are quite close to the control limits on Accounting Act. Because of that the study suggests that case company to be ready and prepare data already in 2025 to be able to publish the first sustainability report in 2026 because of the close key ratios related to limit values (Niskala & Palmuaro, 2023). Also, other large-sized organization may ask sustainability data of SMEs if they are part of their value chain (EFRAG, 2024ad). Because of that it is important for SMEs to be ready to deliver sustainability data for them. The connection to the upstream and downstream value chain is presented on chapter 3. That express the wideness of CSRD.

5.2 Double materiality analysis

This chapter concentrates to document the double materiality analysis. On this pilot study, the double materiality analysis is shared to two phases, to the relevance analysis, and to the second step of double materiality analysis which build the double materiality analysis (Mezzanotte, 2023). The first step of double materiality analysis included a long list of ESRS sustainability topics, sub-topic and sub-sub-topics from Appendix A, AR 16 (European Commission, 2023bc; Mezanotte, 2023). The topical topics on paragraph AR 16 build a long list of sustainability standpoints which were analyzed and evaluated so that the non-material topics can be removed from the second step of double materiality analysis (Mezzanotte, 2023). The ESRS standards are made for all types of organizations,

and because of that all sustainability topics are not essential for the case company (European Commission, 2023bc; Niskala & Palmuaro, 2023; EcoOnline, 2023; EFRAG, 2024cd).

The second step of double materiality analysis evaluated ESRS topics, sub-topic and sub-sub-topics in detailed. The ESRS 1.3 sets requirements for the double materiality analysis (European Commission, 2023b). The second step of double materiality is built around the help of those requirements (European Commission, 2023bc; Niskala & Palmuaro, 2023; Mezanotte, 2023). On the second step of double materiality analysis, all the sustainability topics, sub-topics and sub-sub-topics were analyzed with the help of parameters scale, scope, remedy and likelihood (Mezanotte, 2023; EFRAG, 2023cd; European Commission, 2023b). Since, the relevance analysis eliminated non-material sustainability topics, the second step of DMA includes topics which was taken forward after the relevance analysis (Mezanotte, 2023). That illustrates the connection of these two analyzes (European Commission, 2023bc; Niskala & Palmuaro, 2023).

The double materiality analysis is a requirement of CSRD, and the process to behind the sustainability report should be documented and the process should observe good accounting principles (European Commission, 2023bc; Greenhouse gas protocol, 2024). To continue the accounting process to gap analysis material topics should be identified via double materiality analysis (European Commission, 2023b; Niskala & Palmuaro, 2023; Mezzanotte, 2023). Because of that the DMA has a crucial role in CSRD and sustainability reporting process (European Commission, 2023bc; Mezzanotte, 2023).

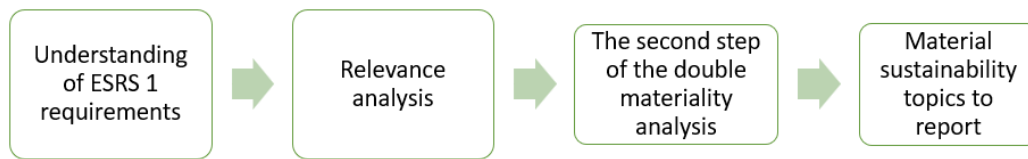
To ensure that sustainability report full-fills the criteria of reliability, understandability and comparability between organizations the DMA should be completed in a way which can be verified and compared (European Commission, 2023bc; Niskala & Palmuaro, 2023; Greenhouse gas protocol, 2024). Requirements of double materiality analysis ensures

that sustainability reports are built in a similar way which then ensures that audit processes can be developed (European Commission, 2023b; Niskala & Palmuaro, 2023; Deloitte, 2023a; Hummel & Jobst, 2023).

On this pilot study the double materiality analysis was piloted with the help of three sub-organization of the case company. The DMA and the process to run the DMA analysis is the intervention (I of CIMO) of the study (Kalaiarasan et al., 2023). The double materiality on this study can be summarized three key steps:

- Find the best practices to analyze ESRS categories on excel
- Requirements for double materiality analysis on ESRS 1
- Relevance analysis (interviews and meetings to understand the sustainability work in the organization)
- The second step of the double materiality analysis (data collection from the three sub-organizations)
 - Time horizons, human rights, responsible departments and value chain
 - Negative and positive impacts, risks and opportunities
 - The first high level analysis
 - The second step of DMA
 - Scale, scope, remedy, likelihood and financial effects
- Data collection (Niskala & Palmuaro, 2023; European Commission, 2023bc; Mezzanotte, 2023).

These steps are summarized to the three key steps on picture 8. The chapter continues by mapping the double materiality analysis.



Picture 8. Flow chart of steps of double materiality analysis (Mezanotte, 2023; European Commission, 2023b; Niskala & Palmuaro, 2023).

5.2.1 Relevance analysis

This chapter presents the first step of double materiality analysis. The relevance analysis started by building a table which can be used to analyze and collect data. To help user to understand the double materiality analysis, and ensure that process notice the principle of accounting, the terms sustainability standpoint and sustainability topics should be defined. This chapter uses terms sustainability standpoints and sustainability topics in parallel. Both concepts refer to European Commission's (2023b, p.24-26) long-list of sustainability aspects.

The excel table of the relevance analysis is built with the help of ESRS sustainability topics, sub-topics and sub-sub-topic on the paragraph AR 16 (European Commission, 2023b, p. 24-26). The topical standards and sub-topics were listed to columns D-F. European Commission's (2023b) list of the sustainability standpoint includes 91 different ESRS sustainability topics and sub-topics which all was included to the excel table. With the sustainability standpoints excel table includes the value chain of the case company which is shared to upstream, downstream and own operations (Greenhouse gas protocol, 2024). Upstream, Downstream and own operations were placed to the columns G, H and I. To concretize this the picture 9 presents a part of the excel table used on this first step of double materiality. On this study, materiality is assed from case company point of view. According to EFRAG (2024a), materiality should be assessed during the whole value

chain which includes cooperations and processes connected to the final product. Because of that excel table gives a possibility for the case company to completed materiality assessment on upstream, and downstream value chain with more information of sustainability in the future (European Commission, 2023b; EcoOnline, 2023; Beske et al., 2020).

Standard#	Standard	Sub-sub-topics	Leinola Group (production, waste management, material management)	Upstream Value chain (raw materials, sub-suppliers)	Downstream value chain (Retail, Sales and end-customers, recycling and circularity)	Materiality
#1000000000	Reporting obligations		Yes	Yes	Yes	It is a mandatory category for all undertakings

Picture 9. The first step of DMA with ESRS topics (European Commission, 2023bc).

The relevance analysis has one main target. The main target is to remove those ESRS sustainability standpoints which can be seen directly non-material for case company (Mezzanotte, 2023). That is needed since the ESRS standards are not made to a specific industry without for all types of organizations (European Commission, 2023b; EFRAG, 2024d; Mezzanotte, 2023). At this point, these standards are used across the organizations, but in the future EFRAG has planned to publish sector-specific standards (Charluet, 2024; EFRAG; 2024e). The prognosis for the publication is in late 2024 and during the coming years (EFRAG, 2024e).

After the relevance analysis, topics which were not removed from the long list of sustainability standpoints was taken forward to the second step of double materiality analysis (European Commission, 2023b; Beske et al., 2020). Even the eliminated sustainability topics are included to the excel, because these topics which are not material today can become material in the future (EFRAG, 2024ac; Törrönen, 2024).

Before the analysis excel table was prepared. The figure 1 presented that case company employees currently under 750 employees which is an important and essential parameter from sustainability reporting point of view (European Commission, 2023bc). According to European Commission (2023b), organizations which are employing under 750 employees may omit to report some sustainability standards and paragraphs during the

first, second and third reporting years. The requirements are presented on Appendix C (European Commission, 2023bc). The relevance analysis takes these transition periods into account and consequently some of the standards are eliminated from the first reporting pilot. Topical standards ESRS E4 Biodiversity and ecosystems, S2 Workers during the value chain, S3 Affected Communities and S4 consumer and end-users are not mandatory for the case company during the first mandatory reporting years (EFRAG, 2024bd; European Commission, 2023b). Because of transition periods of these ESRS standards they are not included to this study. ESRS standards E4, S2, S3 and S4 was marked with a different color to the excel table with a clarification why standard is not analyzed on this pilot. This pilot is not evaluating or collection data to these standards (European Commission, 2023b; EFRAG, 2024d). Even ESRS standard S1 Own workforce have the phase-in opportunity, but because of the importance of own workforce the ESRS S1 standard was taken to this pilot study, because of its essentialness for the case company and its strategy and operations (European Commission, 2023b).

The main target of this analysis is to evaluate the materiality in a brief level on different parts of value chain from own operations point of view (Mezanotte, 2023). To understand the value chain of case company the figure 2 presents lifecycle of the product produced by case company:

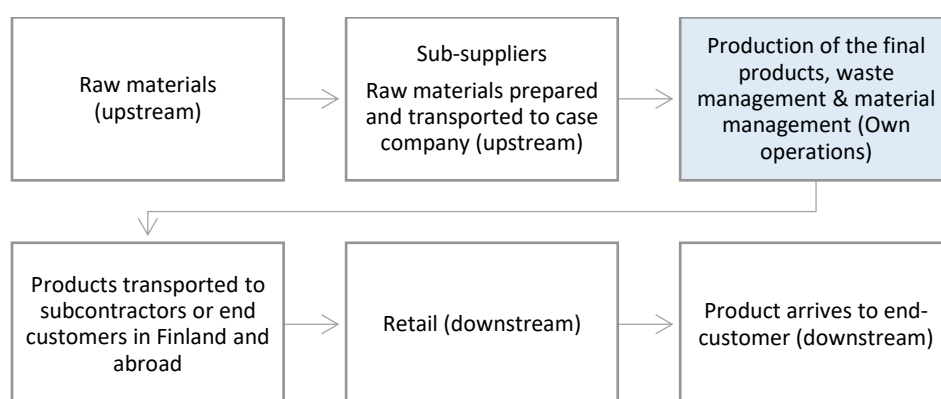


Figure 4. Value chain of the case company (European Commission, 2023bc).

Value chain can be shared to three parts upstream, downstream and own operations according to Greenhouse gas protocol (2024). Upstream consists of raw material production and sub-suppliers' operations (Greenhouse gas protocol, 2024). Downstream value chain consists of retail, sales, end-customers, waste management and circularity of the materials (Greenhouse gas protocol, 2024). Value chain is a definition for all activities organization's operations includes to produce a final product from raw materials to the final product (EFRAG, 2024a). Because of that value chain should describe all the resources, cooperations and activities done to build a final product (EFRAG, 2024a, p. 10). For the future development, the impacts, risks and opportunities should be evaluated during the value chain (EFRAG, 2024ad, p.28-36).

The analysis on the relevance analysis is made from the production and product point of view and which impacts, risks and opportunities production and the final product have to the environment and society (European Commission, 2023b; 2024a; Glaveli et al., 2023; Mezanotte, 2023). On relevance analysis, the evaluation of each ESRS topic was made with the help of two parameters yes and no. If the actual ESRS topical-topic, sub-topic or sub-sub-topic may be or is material the topic got value yes. If the topic can be seen non-material the topic got value no with a short explanation of why the topic can be seen non-material. This is presented limited on the picture 9.

The relevance analysis analyzed sustainability topics from the own operations point of view, and how the sustainability topics can be connected to the operations of the case company. The challenge on this analysis was to set the limit when impact, risk or opportunity is a part of reportative organization, and when cooperator or other organization should report the impact, risk or opportunity (EFRAG, 2024a). Additionally, the essentialness was hard to evaluate in a brief level. According to EFRAG (2024a, p.10-11), all the relevant operations which affects to the reportative organization should be considered while describing value chain and IROs. Consequently, the relevance analysis pursues to identify topics which may be important for the reportative organization during value chain and should be evaluated detailed (EFRAG, 2024a). Additionally, the impacts, risks

and opportunities during the value chain should be based on the reliable resources and estimation of the materiality by reportative organization (EFRAG, 2024a). Because of that the IROs during the value chain are analyzed in brief level just to understand if the sustainability standpoint is material or not to be able to make the selection to include the category to the second step of double materiality analysis or eliminate it from the long list of sustainability standpoints (EFRAG, 2024a).

To complete this analysis, it is important to have wide and complete understanding of the operations organization runs, understanding the purpose of materiality and essentiality (Beske et al., 2020). As a start point, case company produces metal solution and provided comprehensive metal solutions to its customers. The reportative organization should understand what double materiality means from their operations point of view, and how they may have effect with their operations to the environment and society (Beske et al., 2020). Additionally, which ESRS categories can be connected to these impacts (Beske et al., 2020; European Commission, 2023b).

Results from the relevance analysis. Relevance analysis removed a couple of ESRS topics or sub-topics from the long list of sustainability standpoints. The production of the case company is not including production of living organisms (E2) or food resources (European Commission, 2023b). From the production and operations point of view, these standpoints are either not compromising or risking these needs. The connection of these two standpoints to case company's operation's is hard to identify. Because of that that topics were marked as non-material on the excel table. This methodology is presented limited on the picture 9.

Case company's operations are located to Finland. The ESRS E3 standard discusses about Water and Marine resources (European Commission, 2023b). ESRS E3 standard includes topics water consumption, water discharges in the oceans, and extraction and use of marine resources (European Commission, 2023gb, p.25-27). These categories were evaluated to be non-material because of water consumption of case company includes only

the consumption of water in company's factories. The consumption of water is low. The production of the case company is not concentrating to the marine resources, and the possible negative impacts could build from the discharges. Since, sustainability topics water discharges in the oceans, and extraction of marine resources are not a part of the production these categories were not taken to the second step of double materiality analysis (European Commission, 2023gb). However, according to SASB Standards (2024), water consumption and wastewater management can be a possible issue on mining and metal industry. Consequently, the sustainability sub-topics: water discharges and water withdrawals were taken forward to the second step of double materiality analysis to be able to document the materiality assessment, and to present concrete fundamentals to the arguments and reasoning (SASB, 2024). Additionally, some of the factories are located close to the coast line which makes this sustainability topics and its investigation important.

Category ESRS E4 is not a part of this analysis because of the transition rule for organizations which employes under 750 employees (European Commission, 2023b). The category ESRS E5 includes relevant categories for the case company and because of that ESRS E5 is taken forward to the second step of the double materiality analysis.

The ESRS S1 evaluates case company's own workforce and their working conditions (European Commission, 2023b). From that standard four sub-sub-topics were removed. According to Code of Conduct of the case company they are not employing children (S1) or have forced labor (S1). Since, the case company has clear policy for these topics were removed from the long list of ESRS topics. Additionally, case company follows local laws and regulation as well as good principles while making working contracts so that employees have the best possibilities success with the work. In addition, topic adequate housing (S1) was removed from a long list since it is not connected to the operation of the case company, and it is hard to identify how case company could impact to this standpoint (European Commission, 2023b).

ESRS S1 equal treatment, and opportunities for all includes a topic employment and inclusion of persons with disabilities (European Commission, 2023b, p.26). This topic is hard to evaluate, and has a contraction with the category employee privacy (S1). On the newest publication by EFRAG (2024d), employment, and inclusion of person with disabilities should include percentual number of the employees with disability. The challenge on this category is to understand on which level, and which kind of information should be collected, which kind of information is legal to collect, and what is a definition for disability. According to ESRS S1 appendix A.2 this sub-topic aims to ensure that employees with the disabilities have accessibility to their workplaces so that their special needs are taken into account (European Commission, 2023b, p.192). With this definition, the sustainability standpoint should be investigated more in detailed to be able to understand the impacts of it and which kind of actions case company may have already made to ensure the accessibility in the factories and workplaces (European Commission, 2023b).

From the G1 Business conduct standard the political engagement and connection to the animals or animal welfare were removed (European Commission, 2023b). Political engagement includes activities such as donations and sponsors or actively taking a part of the political decision or implementation of regulations (EFRAG, 2024d). The case company do not have that type of donations and because of that political engagement category can be seen as non-material (EFRAG, 2024d). Production is not either connected to the animals and their welfare.

In conclusion, relevance analysis included 91 ESRS sustainability topics from which 42 was evaluated on this pilot study. 49 sustainability topics were removed because of the transition period possibility (European Commission, 2023b; EFRAG, 2024d). Of 42 sustainability standpoints which was left after the phase-in control, nine were removed from the second step of double materiality analysis. However, the double materiality analysis includes still a lot of different ESRS topical topics and sub-topics to analyze. The

relevance analysis showed that deeper investigation and understanding of how the operations are connected to environment and society should be made to present documented arguments.

Since, ESRS standards are made for all types of industries the essentialness is important to understand (Beske et al., 2020). The materiality should be evaluated and interpret from the case company's perspective (European Commission, 2023b; EFRAG, 2024a). In that sense, relevance analysis and its results support the main aim of double materiality analysis presented on European Commission's (2023b) first cross-cutting standard ESRS 1. Organization needs to have deep understanding of their operations, evaluate ESRS topics from different perspectives (scale, scope, remedy and likelihood) and the evaluation should be made in a reliable, which means that the double materiality analysis should be verifiable and reliable (Niskala & Palmauro, 2023; European Commission, 2023b; Mezzanotte, 2023). Consequently, the second step of double materiality analysis dives in deeper to the each ESRS category and collects data from the case company to complete analysis. All the different ESRS topics may be material on some level, but the organization should find a suitable method and threshold to evaluate the materiality to understand the differences between ESRS topics and then understand which categories are important and which are material and essential for them (EFARG, 2024cd; European Commission, 2023b; EcoOnline, 2023; Beske et al., 2020). The eliminated categories are marked with orange color to the double materiality analysis.

5.2.2 The second step of double materiality analysis

This chapter presents the second part of the double materiality analysis of the study. The second analysis of the study is a continuum to the relevance analysis presented on the previous chapter. The second analysis is made based on the requirements presented on ESRS 1.1.3 and on application requirements related (AR) on ESRS 1 (European Commission, 2023b, p.24-27). This analysis has one key target. The target is to document and identify the material topics for the case company to continue to the data collection and

reporting. The impacts, risks and opportunities related to these categories should be included to final sustainability report of the case company (Herremans, 2019; European Commission, 2023bc; Niskala & Palmuaro, 2023). Theory of double materiality is presented on chapter 3.4. and sustainability reporting on 2.3.

The second step of the double materiality analysis started by listing all the ESRS topics and sub-topics to a long list to excel table. Excel table includes same topics than on the previous analysis on chapter 5.2.1. The ESRS topics and sub-topics listed on this analysis are the same topics which are presented on Appendix A datapoint AR.16 (European Commission, 2023b, p. 25-27). All together the excel table included 91 topics on column C and D. The cross-cutting standards ESRS 1 and ESRS 2 were not included to this analysis since these two standards are mandatory for all undertakings and therefore a materiality assessment is not needed (European Commission, 2023bcfg). The relevance analysis removed nine ESRS topics from the long list of topics. Additionally, of 91 topics 49 was removed directly because of the phase-in entry rule on appendix C (European Commission, 2023b). Consequently, the long list on this analysis includes now 82 ESRS topics, sub-topics or sub-sub-topics from appendix A (European Commission, 2023b). The removed nine topics and phase-in topics are still included to this long list on the excel but marked with the orange color to separate them from other topics.

The double materiality analysis is a process which should be updated continuously and because of the possible changes on the operations, production context or other changes might affect to the materiality, the categories are recommended to include on excel (EFRAG, 2024ac; Törrönen, 2024). According to EFRAG (2024c), the double materiality analysis should be a dynamic process which means that reportative organization should provide evidence and documentation as a support of evaluation of materiality (EFRAG, 2024c). Consequently, all 91 ESRS topics are important to keep on the excel since the double materiality analysis should be continuously controlled and topics evaluated again every year (Niskala & Palmuaro, 2023; European Commission, 2023b; EFRAG, 2024ac, p.41-42; Törrönen, 2024). Additionally, this evaluation will be change in the future. After

the first reporting year categories which have a one years phased-in possibility will become mandatory (European Commission, 2023b). Because of that column F should be updated frequently. The main aim of column F is to mitigate the reading of the excel table and sort topics which are mandatory to report during the first mandatory reporting year (European Commission, 2023b). In a similar way all the 91 topics were went through and ranked with this logic. To summarize, double materiality analysis is a process which should be included to an organizations' yearly operative reviews and calendars as a one routine.

The materiality assessment in practice, and management of each sustainability standpoint. On this excel, ESRS topical standards, sub-topics and sub-sub-topics were listed on the column B-E. Each topic got a phase-in transition rule which express the phased entry rules on Appendix C on ESRS 1 (European Commission, 2023b, p. 30-33). This adjustment of that is made in column F. The phase-in ranking of the standards was made with the help of numbers 0, 1 and 2. If the ESRS topical standard should not be reported during the first mandatory reporting year the topical topic got a ranking value 1. And if the reportative organization may omit to report the topical topic during the first two reporting years the topical two got the ranking number 2. The number 0 expresses the output of relevance analysis. If the category was reasoned to be non-material on the relevance analysis on the second step of double materiality analysis sustainability standpoint got the value 0. If the ESRS topical topic or sub-topic is without value, the topic is mandatory from the first reporting year. For example, ESRS E1 did not get a transition raking because it is a mandatory topical standard from the first reporting year.

At this point, the study has added transition rules from the appendix C to the excel table. In comparison to the previous phase in rules, the priority number was given to each ESRS topic and sub-topic. The priority number rule was made to classify ESRS topical topics to the three different categories. The priority of each category is more strategical selection of view topics should be included to the first voluntary sustainability report. This was made together with the case company via workshops. The priority was made with the

help of the scale 1 to 3, and the output it is placed to column H on excel table. The priority number 3 means high priority and priority number 1 low priority. On this study, the ESRS topics and sub-topics which got the priority number 3 are ESRS categories which should be reported during the first mandatory reporting year or already on the first voluntary sustainability report (European Commission, 2023b). The first mandatory reporting year is 2027 and the report should include data from fiscal year 2026 (European Commission, 2023bc). Picture 10 presents the adjustments this far. The priority number is a similar kind of sort that the phase-in-rule control but the main aim of this is to clearly express to the organization from which categories the data should be collected and which topics are prioritized on this first double materiality analysis pilot (European Commission, 2023b). The priority number is an internal and strategical evaluation of ESRS topics. Those topics and sub-topics which got the priority number 3 were included to the data collection part of the study. With the evaluation of the priority and control of the phase-in possibilities the column G presents a responsible department of the topic. Column P is for the evaluation of the Humans Rights and if the topics compromises them and column AE is for the evaluation in which part of the value chain impacts, risks and/or opportunity may happen (European Commission, 2023b; EFRAG, 2024c). When the implementation of CSRD reporting is completed the responsibility of each sustainability category (ESG) can be shared in case company to one responsible department and include preparations of CSRD reporting to their routines. The picture 10 presents a picture of excel table this far.

STD	Standard	Sub-topic	sub-sub-topic	Transition rule	Responsibility	Priority
E1	Climate change	Climate change mitigation			Quality	3

Picture 10. The second step of double materiality analysis

After these adjustments following ESRS topics from European Commissions (2023b, p.25-26) list of sustainability standpoints were taken to the double materiality analysis:

- ESRS E1 climate change: climate change adaption, climate change mitigation and, energy,
- ESRS E2 Pollution: Pollution of soil, air and water, substances of concern, substances with very high concern and microplastics,
- ESRS E3 Water and Marine sources: water withdrawals and water discharges,
- ESRS E5 Resources use and Circular economy: circular economy resource inflows and resource outflows and waste
- ESRS S1 Own Workforce: secure employment, working time, work conditions, adequate wages, social dialogue, freedom of association and consultation and participation rights of workers, collective bargaining, work-life balance, health and safety, measures against violence and harassment in the workplace, training and skills development, Employment and inclusion of persons with disabilities, privacy, diversity, gender equality and equal pay for work of equal value and
- ESRS G1 Business Conduct: Corporate culture, protection of whistleblowers, relations with suppliers, prevention and detection including training and corruption and bribery incidents (European Commission, 2023gb, p. 25-26).

The data to these categories was collected from the three sub-organizations of the case company. The categories on the list below consist of topics which got the priority number 3 and did not have a transition possibility. The study is limited to topics ESRS E1, ESRS E2, ESRS E3, ESRS E5, ESRS S1 and ESRS G1 which are the topical standards which should be reported during the first reporting year 2027, if the standard is material for the reportative organization (Niskala & Palmuaro, 2023; European Commission, 2023gb; EFRAG, 2024c). This list includes one exception which is ESRS standard S1 (European Commission, 2023gb). The ESRS S1 not a mandatory for organization which employe less than 750 employees during the first reporting year (European Commission, 2023b, p.30-33). Because employees are a key asset for case company the standard ESRS S1 was included to the first implementation cycle of DMA. Other prioritized standards are standard which are mandatory during the first reporting year of CSRD. The next chapter continues to discuss and present how the narrative and numerical data was collected.

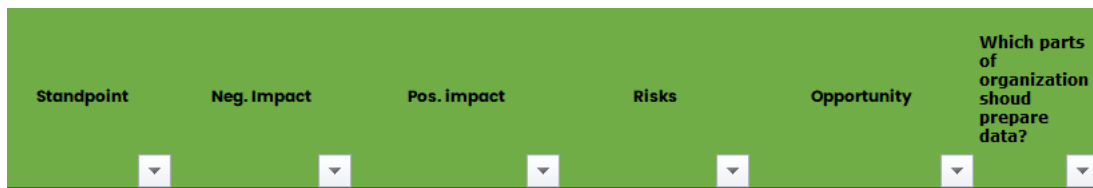
5.2.2.1 Data analysis, collection and threshold

This chapter concentrates to the data collection, preparation of the data analysis and the threshold setting. The data collection was completed with the help of excel tables which included the ESRS topical topics and sub-topics, priority number and phase in rule. The excel table was present limited on the picture 10 on previous chapter and picture 11 later on this chapter. The sample of the study was three sub-organization of the case company and the data was collected to three identical excel tables. The data from these excel tables was exported and summarized to the master excel. The final sustainability report should be made in a concern level and because of that data from different sub-organization was exported to one main excel (European Commission, 2023b). This chapter continues to present the excel table used to collect and analyze data.

ESRS 1.3.4 and 1.3.5. presents the requirements from which standpoints the data should be collected on this study (European Commission, 2023b, p.5-9; EFARG, 2024c). The double materiality analysis builds up from impact and financial materiality where impacts,

risks and opportunities should be evaluated (European Commission, 2023b; EFARG, 2024c). On the double materiality analysis organizations should evaluate the actual and potential negative and positive impacts, risks and opportunities (European Commission, 2023b, p.7-8; EFARG, 2024c). To complete these requirements the data was collected to the same excel than presented on the previous chapter.

Before the data was collected the excel table was completed with columns J-N to be align with the requirements of ESRS (European Commission, 2023b; EFARG, 2024c). The excel table continues to the right and includes columns J-M. Column J is for negative impacts and K for positive impacts. Additionally, risks (L) and opportunities (M) were placed to this excel (European Commission, 2023b). In addition, excel table includes column (N) which informs which sub-organization should prepare data this the ESRS topical topic. The picture 11 illustrates how the excel table continues from the previous chapter:



Picture 11. Double materiality analysis, example of narrative question.

To the question of actual and potential negative and positive impacts, risks and opportunities organization were asked to write narrative answers (European Commission, 2023b). On the excel each ESRS topical topic and sub-topic got the own row and the answers were given directly to the excel (picture 11). To understand and collect more data of the impacts, risks and opportunities data was collected to these questions for the case company. The study did not include separate interviews, but the material and presentations of CSRD and double materiality was provided during the research period.

Because of the limitation of the study organization were asked to prioritize categories which got the priority number 3. In case, suborganization wanted to prepare answer to

a lower prioritized category where they allowed to do that. In the best-case scenario that can even help to identify the material topics better (Suomen Tilintarkastajat, 2024).

The second step of double materiality analysis and the excel table continues to the columns O-R with the numerical evaluations. The ESRS 1 3.4. and 3.5. requires that the reportative organization evaluated the scale, scope, remedy, potential magnitude of financial effects and likelihood of the impact (European Commission, 2023b; EFARG, 2024c; Mezzanotte, 2023). To the evaluation of scale, scope, remedy, likelihood and potential magnitude of financial effects organization were asked to give numerical evaluation in a scale from 1 to 5. The scale is presented in the table 4.

Table 4. Scale on the second step of double materiality analysis (EFRAG, 2024ac).

Scale	Definition	
1	Very low	Non-material
2	Low	Non-material
3	Medium	Material
4	High	Material
5	Very high	Material

The scale of the double materiality analysis is the same scale which is recommended on ESRS standards (EFRAG, 2024c). The reportative organization can use scale which they want to but the requirement is to illustrate and present narratively how the scale is applied with evidence (EFRAG, 2024c, p.28; 2024d). According to EFRAG (2024d, p.75), the threshold setting should be presented so that stakeholders understand how the impacts, risks and opportunities are identified. The threshold of the study is 3,0 and all the categories which got value 3,0 or over were stated as a material. That means that all the impacts which have a medium impacts, risks or opportunities to environment, society or governance and economic, are material for the case company. The table 4 presents the

scale and threshold, and the picture 12 presents the layout of numerical evaluations on the excel.

Scale /mittakaava	Scope /laajuus	Remedy/korjaamaton luonne	Likelihood
3,5	3,5	4,5	5,0

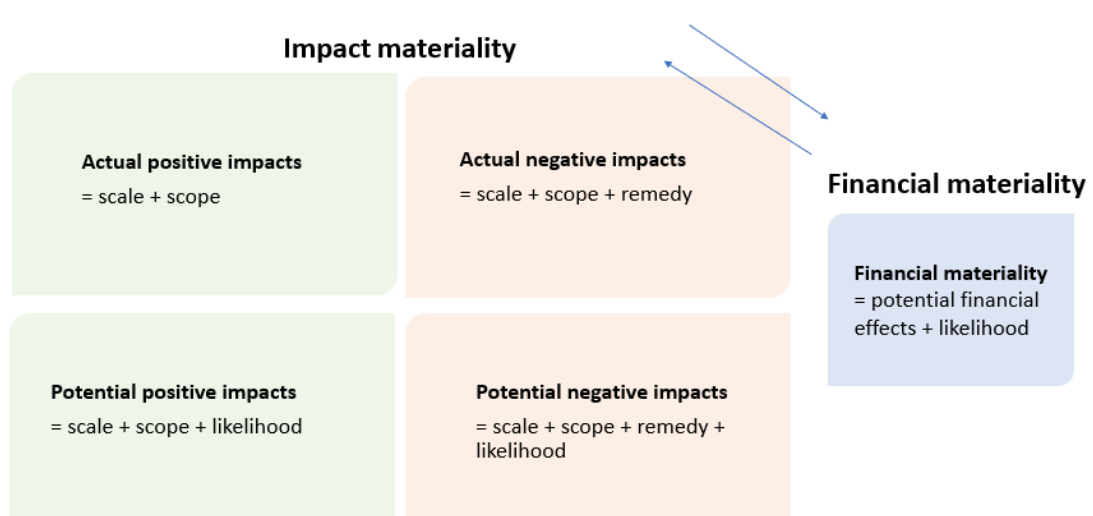
Picture 12. Double materiality numerical evaluation of scale, scope, remedy and likelihood.

5.2.3 Evaluation principles and analysis of the Quantitative data

The answers of prioritized ESRS sustainability standpoints were collected to the excels and summarized to the one master excel. This chapter continues to present the evaluation and analysis principles of the quantitative data analysis of double materiality analysis (EFRAG, 2024d; European Commission, 2023b). Since, ESRS 1 standard did not include detailed requirements of thresholds so this chapter continues to present double materiality analysis, and the numerical evaluation with the threshold (EFRAG, 2024ca). The chapter provides an interpretation of the requirements given and how the materiality analysis could be made in case company (EFRAG, 2024d; European Commission, 2023b).

The picture 13 presents evaluation principles of ESRS topics and sub-topics given by EFRAG (2024a). The first step to analyzed the answers were to summarize the evaluations of scale, scope, remedy and likelihood (Mezzanotte, 2023; European Commission, 2023b; EFRAG, 2024a). The numerical answers given by each organization were summarized and then shared with the number of organizations took part of the study. This adjustment was made to scale, scope, remedy and likelihood (European Commission, 2023b; EFRAG,

2024a). Secondly, to understand which impacts are potential impacts and which of the impacts are actual impacts the study used principles presented on the picture 13. Additionally, the ESRS 1 requires organizations separate negative and positive impacts (European Commission, 2023b; EFRAG, 2024a). According to ESRS 1 3.4 and 3.5 to evaluate actual and potential negative and positive impacts of the operations of the organization, the evaluation should be as follows:



Picture 13. Formulas to calculate impact and financial materiality (European Commission, 2023b, p.5-11 & p.22-24, Niskala & Palmuaro, 2023; Mezzanotte, 2023).

On this study each parameter has same weight, and the final output is the average of evaluated parameters on the specific formula (EFRAG, 2024c). For example, the final result of actual positive impact is the average of scale and scope, and potential positive impacts is the average of scale, scope and likelihood (EFRAG, 2024c; European Commission, 2023b). Hereby, on this study all the parameters scale, scope, remedy and likelihood had a same weight on calculations and organization answers had the same weight. However, the evaluation scale and weight can be discussed and developed in the future (European Commission, 2023b; EFRAG, 2024c). In addition, three sub-organizations gave individual evaluations of scale, scope, remedy and likelihood. Some of those evaluation can be more essential than other, and because of that it is important to adjust the scale

and acquire knowledge and understanding of the scale and impacts and that each organization uses the scale in similar way. The main excel summarized the evaluation of each category and presented an average of these three evaluations.

With this requirements organization were able to give data to the following ESRS topics and sub-topics: ESRS E1: climate change adaptation, climate change mitigation and energy, ESRS E2: pollution of air and soil, substances of concern, substances with very high concern and microplastics, ESRS E3: water consumption, withdrawals and discharges, ESRS E5: circular economy and resource inflows, resource outflows and waste management, ESRS S1: working time, social dialogue, work-life balance, health and safety and training and skills development, privacy, gender equality and equal pay for work of equal value, measures against violence and harassment in the workplace, ESRS S4: personal safety of consumers and/or end-users, health and safety of the products and ESRS G1: corporate culture, protection of whistleblowers, relationship with suppliers, prevention and detection including training and corruption and bribery incidents (European Commission, 2023gb, p. 25-26).

To summarize, the sample of the study were not able to prepare answers to all required questions, but answers on the pilot enables this study to pilot the double materiality analysis with these categories. To ensure that data can be collected from all required categories the training and information of CSRD should be shared with the case company. The missing evaluations were added to the excel table as an estimation to pilot the double materiality on this study. Since, the process to implement CSRD should be a continuous process according to KPMG (2024a), the DMA should be completed during the next implementation cycle. Lastly, the threshold setting. On this study the threshold is $< 3,0$. With this threshold 23 ESRS topics of 42 analyzed sustainability standpoints got greater result than $3,0$. From 23 different topics, three were evaluated to be exact over or slightly under the threshold because of the rounding. These three topics which were on the limit of the limit value were either material from the positive impacts point of view or nega-

tive impacts point of view. Consequently, these three topics were rounded up to an integer and taken forward as a material topic. From 82 ESRS topics and sub-topics the topics below are material based on this study: ESRS E1 Climate change: climate change mitigation, climate change adaptation and energy, ESRS E2 Pollution: pollution of air, pollution of soil, substances of concern, microplastics, ESRS E3 water and marine resources: water discharges, ESRS E5 circular economy: waste, resource inflows, resource outflows, ESRS S1 Own workforce: working time, gender equality and equal pay for work of equal value, working conditions, health and safety, training and skills development, work-life balance, measures against violence and harassment in the workplace, privacy, and ESRS G1 Business conduct: corruption and bribery, protection of whistleblowers, relationship to the suppliers and corporate culture (European Commission, 2023bg). The next chapter analyzes narrative data, and presents the risks, opportunities and impact of material sustainability topics based on respondents' answers.

5.2.4 Analysis of the Qualitative data

This chapter concentrates to analyze respondent's answers to the narrative question on the double materiality analysis. Previous chapter presented that the second step of double materiality analysis included both narrative and numerical evaluations. The numerical evaluations are analyzed and the selected threshold the identified material topics and the narrative descriptions are analyzed on this chapter (EFRAG; 2024acd). This chapter concentrates to understand the main risks, opportunities and impacts of the material sustainability topics with the help of respondents' answers (EFRAG, 2024cd). This chapter connects identified material topics to the policies, actions and targets (PATs) the case company already has (European Commission, 2023b). The list below repeats the questions to which narrative data was collected to. These questions are presented even on the picture 11.

- What are the potential and actual negative impacts?
- What are the potential and actual positive impacts?
- Which kind of risks can be connected to this impact?

- Which kind of opportunities can be connected to this impact? (European Commission, 2023b; EFRAG, 2024c).

To these questions the data was provided by three sub-organizations of the case company. In a similar way each respondent got its own excel table to deliver answers to questions presented below. The answers were asked to categories with the priority number 3 (in a H, see chapter 5.2.2.). Then the categories which got the threshold 3,0 or higher are included to this analysis since the threshold was set to identify the essential topics and the IRO to the own operations. The topics which are not part of this analysis this FY can become material in the future FY (EFRAG, 2024acd). To document the process, it is important to have those categories in the excel table.

To the ESRS E environmental sustainability standards, respondents were asked to deliver answer to 14 ESRS topics, sub-topics and sub-sub-topics (European Commission, 2023b). Respondents answered to 12 questions which express a good answer rate, illustrates that implementation and education of CSRD should continue (KPMG, 2024a). This reporting cycle learned that to make sure that topics are understood correctly and answers given in a correct level the next cycle of double materiality analysis should include more interaction with respondents. Additionally, in the future FY analysis should include more interaction between sustainability managers and reporters. Respondents' answers are summarized on this chapter in a topical level connected to policies and actions on CSRD (European Commission, 2024a; Hummel & Jobst, 2023; European Commission, 2023b).

In general, the main aim of ESRS environmental standards is to give understanding of operations reportative organization have implemented to work towards the European Green Deal which includes target of global warming (1,5C), and net-zero emissions (Niemi, 2023; Hummel & Jobst, 2023). These targets are a part of the Paris Agreement (Niemi, 2023; European Commission, 2023b; Hummel & Jobst, 2024). Additionally, in a center of ESRS environmental standards is the transition plan which should describe the

actions which will be taken to reach the net-zero target, and how reportative organization's strategy is connected to that (European Commission, 2023b). The transition plan asks organizations to disclose actions which are taken related to climate change, greenhouse gas emission reductions, and which is the plan to avoid the use of coal (Niemi, 2023; European Commission, 2023b). Because of the transparency requirements of CSRD organizations should present a transition plan related to climate change, in which timetable they have or will be implement it, and resource set to implement a transition plan (Niemi, 2023; European Commission, 2023b). With the transition plan, the normal application requirements and datapoint should be disclosed. In addition, the description of strategy and business model, materiality assessment and the role of the management should be disclosed (European Commission, 2023b).

At this point, target organization has implemented an environmental policy which conducts the operations. Along with that, the sustainability statements summarize the main actions will be taken. The case company works to reduce carbon footprint, and developing the energy efficiency solutions. Additionally, the used resources are controlled. These targets should be connected to ESRS E1-1, its paragraphs and to the Paris Agreement. The key idea of E1-1 is to give understanding how these operations are connected to the climate targets of 2050 on the Paris Agreement (European Commission, 2023b, p.73-74).

Related to ESRS E1 climate change paragraphs, the study collected following insights. The main production of the case company concentrates to production of metal pipes and other metal solutions. The industry on which the case company operates, steel is the main material of products. Steel has negative impacts to the climate, creates releases, and speed up the greenhouse gas effect. Steel and its use are risk for the environment and society. The impacts of ESRS E1 are placed to upstream value chain and own operations (Greenhouse gas protocol, 2024). Additionally, production of the final products needs energy to produce the final products (GHG protocol, scopes) (Greenhouse gas protocol, 2024). According to the double materiality analysis the opportunities related to alternative materials or fossil-free steel can reduce emissions and reduce impacts to the

environment and society. Additionally, DMA identified that case company may set their own requirements for suppliers so that the affects to the environment related to emissions are taken into account. Along with that the DMA analysis identified that heating of factories releases carbon emissions to the atmosphere. The main challenge is to find solutions to answer these challenges and modify operations so that the management of main impacts and risks are driven towards Paris agreement, European Union's climate targets of 2050, and organization's sustainability strategy so that case company ensures that sustainability work is directed so that the aim is to reach climate goals (Hummel & Jobst, 2023; European Parliament, 2023; Mistry of the Environment, 2023; European Commission, 2023b). The policies, targets and actions, and metrics should be set so that international agreements are in the center of them (European Commission, 2023b). Related to ESRS E1 the case company of the study has stated that SDG 13 is one of the goals for 2023. Other initiatives are not applied at this point. ESRS E1-6 standard obligates case company to disclose scope 1 and 2 emissions during the first reporting year (European Commission, 2023b). To control the emissions of the production, one target could be related to greenhouse gas emission reductions (MDR-A/T) and other actions can be taken from the already exiting sustainability statements, and the progress of them followed annually.

Related to ESRS E1, the double materiality analysis identified that it is important to continue the work to identify more sustainable solutions which can be used during the production, but which still would be profitable. The regulation can change in the future which can affect to the steel and it use as a material but also to the price with which organization can purchase it. From the energy perspective, the double materiality analysis identified nuclear waste, and its management, factory's locations, and impacts of the nuclear waste are negative impacts during the value chain which affects to the case company's sub-organization. To answer challenges, organization could set policies to how cooperations, and suppliers are selected, and how operations take into account international climate targets on Paris Agreement. One of the respondents presented that their products are 100% recyclable, and customers are increasingly looking for products

which can be used with renewable energy sources. Additionally, one of the respondents presented that they are continuously developing products to reduce releases during the use and production. That can be seen as a huge possibility to the case company in the future.

Code of Conduct includes environmental policy, and the chief executive officer has the highest responsibility of the implementation and control of the policy. Environmental policy is adapted in the whole case company. With the environmental policy, sub-organizations have implemented their own guidelines which regulates sustainability work but the environmental policy is the highest document related to the sustainability development in the organization. The main aim of the environmental policy is to ensure that case company's operations are not causing harm to the environment, and responsibility is taken into account on all its operations. The target is to reduce environmental carbon footprint by using resources effectively, mitigating emissions and actively follow legislation related to environment. Additionally, case company has set statement, and sustainability strategy related to environment. According to the sustainability strategy, case company has developed carbon footprint analyses, and have a sustainability strategy which pursue to improve sustainability on all its dimensions. These targets, actions and policies should be presented on final sustainability disclosure with the help of (MDR-A) and SMART targets (MDR-T) (European Commission, 2023b). Additionally, the policies are set with the help of environmental management system (ISO 14001).

At this, point, the case company has already set sustainability statement which can be developed to answer the requirements of CSRD. On the gap-analysis organization should concentrate to controlled which parts of ESRS E1 are missing, and describe those parts (European Commission, 2023b). ESRS E1 includes the requirement of scope 1 and 2 emissions which should be disclosed with the help of Greenhouse gas protocol (2024). Scope 3 emissions have a phase-in possibility, and because of that the scope 3 emissions have more time for the implementation (EFRAG; 2024b; European Commission, 2023b).

On the ESRS E2 standard, organizations should disclose the main impacts related to pollution (European Commission, 2023b). On this standard pollution is evaluated from the three perspectives water, soil and air (European Commission, 2023b). Along with that the use of substances with high concern, and microplastics should be evaluated (European Commission, 2023b). The ESRS E2 disclosures should present the connection of the impacts to the business model, strategy and management to give a picture how pollution is addressed and managed in case company (European Commission, 2023b). In similar way than on the ESRS E1 the double materiality analysis process should be presented in the beginning of the sustainability disclosure (European Commission, 2023b). Each standard beginning in almost in a similar way (European Commission, 2023b, Niskala & Palmaro, 2023). The impacts on ESRS E2 are placed to the value chain and own operations.

The main aim of the ESRS E2 standard is to disclose impacts related to pollution and give understanding how the business model and strategy of reportative organization is connected to targets of toxic-free environment, zero pollution and “*EU Action Plan Towards a Zero Pollution of Air, Water and Soil*” (European Commission, 2023b, p. 105). The answers presented that pollution of soil, air, substances of very high concern and microplastics are topics where organization have negative impacts and risks to the environment according to the double materiality analysis (European Commission, 2023b; Mezzanotte, 2023). At first, the reportative organization should present the policies related to these categories (European Commission, 2023b). As presented on the previous chapter, case company’s Code of conduct includes an environmental policy which is signed by whole concern. The environmental policy is the culture of how sustainability is addressed on the case company. Since, environmental policy is signed by whole concern, and because of that the same policy with the emissions reduction target can be used here (European Commission, 2023b, p.56).

Pollution indifferent contexts challenge the case company. On the double materiality analysis SCHV-liquids and chemicals found out to be potential risks if an accident occurs.

This effects negative to society and environment. Additionally, production creates releases. To answer that challenge, double materiality analysis identified that case company has investigated to or can in the future investigate to materials, ways and solutions which mitigate and prevent releases. From the financial materiality point of view, costs of new solutions, and the possible accidents was identified as potential financial risks for the case company. The study identified that new solutions, policies to mitigate and prevent actual risks and impacts and smart targets such as use of metal instead of plastics can be opportunities for the target organization. Case company should implement suitable targets (MDR-T) related to pollution to be align with CSRD and manage the identified topics in a correct way (European Commission, 2023b). Organization has already a target to reduce emissions, resource conservations and carbon footprint which are targets related to climate change. A similar concrete action could be modified to this category which supports the environmental policy.

The main aim of ESRS E3 is to disclose water and marine resource related impacts to the environment and society (European Commission, 2023b). The standard notices directives for: “*Water framework (directive 2000/60/EC), EU Marine Strategy framework (Directive 2008/56/EC) and EU Maritime Spatial Planning Directive (Directive 2014/89/EU)*” (European Commission, 2023b, p.115). Additionally, the role of business model, strategy, double materiality analysis, and the role of the management should be disclosed in a similar way than on ESRS E1 and E2 (European Commission, 2023b). Impacts on ESRS E3 are identified on the double materiality analysis on own operations because of the location of the factories.

Code of conduct presents the environmental policy which is company’s culture of the sustainability. On the policy case company presents that they aim to reduce the emissions of the operations. Of ESRS E3 the study identified one material topic which is water discharges (European Commission, 2023b). One of the organizations which took a part of the study is located close to the sea and coast in Finland which made this category material from the own operations point of view. The potential risk is water discharges to

the close water areas. The process to clear water areas causes costs and may affect negatively to reputation of case company. This impact can even be seen as a potential financial risk (European Commission, 2023b). The financial risks of this category should be evaluated in detailed to understand the financial effects for the case company (EFRAG, 2024c; European Commission, 2023b). Double materiality analysis presented, that costs related to clearance is a challenge for the case company. It can be also hard to remediate areas which have been exposed to the releases and emissions. The opportunity is to identify possibilities to ensure that water areas are not impacted of the operations, and how the policies, actions and targets supports that. Only one organization identified this risk, but because of the severity of it, it would be important to notice this risk. To combine this to the theory, the financial consequences, and affect to the performance of omitting to report category may be higher (Belske et al., 2020; EFRAG, 2024d; European Commission, 2023b). The environmental policy can be applied here since the main aim of the environmental policy is to ensure that case company's operations are not causing harm to the environment, and responsibility is taken into account on all its operations. More specific actions and targets related to this standard should be set (MDR-A/T) (European Commission, 2023b).

On ESRS E5 standard organizations should focus on the used materials, circularity and waste management (European Commission, 2023b, p.145). In the center of this standard is the directive of waste (Directive 2008/98/EC) and Circular economy action plan by European Union (European Commission, 2023b, p.145-146). The center terms on ESRS E5 are waste management, waste hierarchy and recycling (European Commission, 2023b). ESRS environmental standards have connection to each other and because of that ESRS environmental standards should be combined and evaluated with other ESRS standards (European Commission, 2023b). On ESRS E5, all the sub-topics were identified as material for the case company, which is understandable because of the nature of the industry.

The main impacts and risks on ESRS E5 are connected to recycling of materials, and material management which may cause impacts to the environment and society. Exportations of materials, and different regulations creates challenges to the case company. Opposite to risks, well-planned circularity and recycling was identified as an opportunity for the case company. Resource efficiency is additionally an important aspect and how the materials could be used again as good as possible without waste or spillage. For example, cardboards can be converted to energy and the operations of the case company are planned in an effective way so that the materials can be used as good as possible to avoid spillage. All the used materials on one of the sub-organizations are recyclable. The possibility is to evaluate the lifecycle of product and which are the possibilities to prolong the use of product. Additionally, the management and development of the processes related to waste management is a clear opportunity for the case company. The risks related to these categories are the quality of recycled material which case company uses, and as a financial risk a poor recycling can affect to the reputation. The ESRS E5 can be connected to the environmental policy on the Code of Conduct but clear actions and targets should be implemented (European Commission, 2023b, p.58).

The social sustainability (S). On this study respondents were asked to give answer to ESRS S1 own workforce standard (European Commission, 2023b). This standard included 14 topics and sub-topics and narrative answers were given to nine of the topics and numerical to 7 of the topics. The ESRS S1 has a transition rule which means that the case company do not have to report this category during the first reporting year (European Commission, 2023b). But because of the strategical decision with the case company, and the importance of own workforce as an asset case company, ESRS S1 was taken to this pilot already. The case company has made an internal risk control related to risks on different parts of the production. On that analysis most of the risks were related to employee safety, ergonomics, allergies to the material, noise in the factory and work-related risks such as competence to the tasks, high working hours as well as rush on the work tasks. The risks assessment analysis should be taken into account while evaluating S1 standards and the risks and opportunities here. The results of the DMA present similar results.

On this standard 6 topics or sub-topics were identified as material. Worktime, work-life balance, health and safety, gender equality and equal pay for work of equal value, training and skills development and measures against violence and harassment in the workplace are topics which got the threshold over 3.0 (European Commission, 2023bg; EFRAG, 2024ac). On ESRS S1 organization should evaluate the human resources and the potential negative and positive impacts, risks and opportunities of the operations causes (European Commission, 2023b). ESRS S1 standard gets its relevance from the international conventions such as Human Rights, ILO agreements and OECD Guidelines (European Commission, 2023b, p.158; Niemi, 2023). From the NACE-codes N78 and application requirements 3 on this standard are relevant while defining employees (European Commission, 2023b, p.158). Along with that, organization should express how they are with their own operations pursue to effect positive and negative effects which production and operations may cause (Niemi, 2023). To give an understanding of policies of the reportative organization topics on ESRS S1 should be investigated and then evaluated from the international conventions point of view to understand how organization follows them on their operations (Niemi, 2023).

The case company of the study has a policy related to employee relations. According to that policy case company aims to ensure safe working environment for employees. Safety at the work means that case company provides occupational health care and safety rules are followed. Additionally, the competence training is held in the factories. The target is to create environment which helps employees to succeed. Policy presents as well that case company respects the human dignity and helps employees to show their full potential. The case company respects the Human Rights in line with the United Nations Guiding Principles. Additionally, the case company have a whistle blowing channel.

The double materiality analysis presented that actual impacts and risks of the operations are overtime work, fast takt of work tasks, loss of free time, ergonomics and dangerous

situations. These are the main negative impacts and risks identified on this analysis. The negative impacts and risks can affect negative both to employee well-being and reputation of the organization. The identified risks are in line with the previously made risks analysis. That expresses the synergy of these two documents. To ensure that negative impacts and risks do not occur the case company has implemented a quality management system (ISO9001) and environmental management system (ISO 14001). The case company has also policy for human resources, occupational health and safety and the safety is one of the priorities on factories of the case company. The case company values the employee safety and social sustainability and code of conduct includes policies related to human resources. Consequently, social sustainability is a one of the priorities on case company's sustainability strategy. The sustainability strategy is even connected to United Nations (2023bc) Sustainable development goals (SDGs). On the sustainability strategy SDGs 3 and 8 are in the scope (United Nations, 2023bc). Along with that, the case company works with annual community questionnaires, have regular discussion with managers and training employees of safety at work. Organization has 0-tolerance with violence and harassment and the code of conduct ensures that Human rights, healthcare and safety are prioritized. Concretely the opportunities identified on double materiality analysis are the opposite effects to the risks. Answers presented that balance between work and life should be ensured with the possibility to holiday. The safety is one of the key priorities to case company and training and information about the safety to the employees should continue. To ensure the well-being, circularity of work tasks and possibility to holiday case company should see the training and circularity of work tasks as an opportunity from them. Policies and actions aim to ensure that employees can show their full potential at the work. To be align with CSRD concrete targets should be followed to measure these identified sustainability topics and actions and targets related to them (European Commission, 2023b). Additionally, the control of polices should be made to make sure that policy can be adapted on each sustainability topic identified on the double materiality analysis.

The last category which was included to this double materiality analysis is ESRS G1 Business Conduct (European Commission, 2023b). The main aim of this standard is to give understanding of the culture of the organization, how organization operates and how they measure the performance (Niemi, 2023; European Commission, 2023b; KPMG, 2024a). Additionally, this standard pursues transparently to present the supervisory, management and leaders' roles, knowledge and understanding of sustainability work (European Commission, 2023b; Niemi, 2023).

The first pilot of double materiality analysis identified following topics material for the case company. ESRS G1 consist of seven topics. Five of them were in the scope and all these five topics identified as material for the case company. The topics which identified material on this category were corporate culture, relationships with supplier and payment practices, protection of whistle blowers, corruption and bribery incidents and prevention (European Commission, 2023b).

Code of Conduct presents the culture of case company and ethics of the case company. Code of conduct includes chapters for policy for employee relations, business practice, confidentially, and whistle blowing. In the center of corporate culture is values trust, teamwork and transparency (TTT). These values should be taken into account on all operations of the case company. Code of conduct is the protocol which presents how the case company operates.

Related to ESRS G1 the pilot study presented some risks related to corporate culture. Apathy of corporate culture among employees, suppliers and organization, and the importance of ESG may affect negative to reputation of case company and stakeholders' interest towards organization. The board and lead of the organization should be adhered of sustainability to receive the best performance of sustainability. The lack of knowledge, and education of the corporate culture is a potential financial risk for the case company. Loss of employees, reputation and customers are examples of financial impacts. As a suggestion, ESRS G1-1 presents organization to disclose the actions taken to improve the

corporate culture. Annual education related to corporate culture can be a possibility for the case company to improve understanding of sustainability in all levels of organization. That can be a one way to foster the corporate culture (European Commission, 2023b, p. 238).

As a part of the corporate culture and its improvement, case company has implemented a whistleblowing channel. Code of conduct presents a policy of how case company works with whistleblowing channel, and presents that case company have routines related to whistle blowing. Additionally, in the Code of conduct routines related to confidentially is presented.

During year 2023 the Ministry of Economic Affairs and Employment of Finland prepared the directive of whistle blowing channel (Keskuskauppa Kamari, 2024; KPMG, 2023). The double materiality analysis identified that it is important to ensure that the channel works. The highest responsible of whistleblowing channel is the chief executive officer of the organization. Whistleblowing channel is available internally. Whistleblowing channel should ensure that both intern and external stakeholders can make a notification and that the process of handle incidents should ensure the anonymity and objectivity in the highest level (Keskuskauppa Kamari, 2024; KPMG, 2023). To ensure that channel full-fills the requirements of the directive, case company should ensure that the whistleblowing channel works and that an objective group manages the incidents (Keskuskauppa Kamari, 2024; KPMG, 2023). Corruption and bribery are presented on the Code of conduct of the case company as a part of corporate culture (European Commission, 2023b; EFRAG, 2023b; 2024b). Related to governance category, the case company should present measurements related to each category (European Commission, 2023b). Since, double materiality analysis identified categories corporate culture, relationships with suppliers and payment practices and protection of whistleblowers and corruption and bribery incidents as material topics paragraphs G1-2, G1-3, G1-4, G1-6 with the policies relevant categories to report for the case company (European Commission, 2023b).

Opportunities for the future related to corporate culture and business conduct are to start to educate employees annual of the corporate culture and transparently present the values organization aims to reach.

Table 5. Summary of material sustainability topics for the case company (European Commission, 2023b).

Standard	ESRS topic	Materiality evaluation
ESRS E1	Climate change mitigation	High
ESRS E1	Climate change adaptation	High
ESRS E1	Energy	Medium
ESRS E2	Pollution of air, soil and water	Medium
ESRS E2	Substances of high concern	Medium
ESRS E2	Microplastics	Medium
ESRS E3	Water discharges	High
ESRS E5	Resource inflows and outflows	Medium
ESRS E5	Waste	High
ESRS S1	Working time	High
ESRS S1	Work-life balance	High
ESRS S1	Health and safety at work	Medium
ESRS S1	Gender equality and equal pay for work of equal values	Medium
ESRS S1	Training and skills development	Medium
ESRS S1	Measures against violence and harassment in the workplace	Medium
ESRS G1	Corporate culture	Very high
ESRS G1	Protection of whistleblowers	Very high
ESRS G1	Management of relationship with suppliers	Very high
ESRS G1	Corruption and bribery	Very high

This chapter summarized the main impacts, risks and opportunities identified on the double materiality analysis pilot (European Commission, 2023b; Niskala & Palmuaro, 2023). Additionally, this chapter aimed to describe how the double materiality analysis was completed to answer the requirement of ESRS 2 IRO which requires undertakings to describe the implementation and evaluation of materiality (European Commission, 2023b; Mezzanotte, 2023). This double materiality analysis process aims to answer to the requirements on ESRS 1 (European Commission, 2023b). The requirements on that ESRS 1 are reliability, relevance, verifiability and understandability (European Commission, 2023b; Greenhouse gas protocol, 2024). These requirements underline the importance of systematic and documented analysis which can be completed again with the help of instructions. The double materiality analysis starts from the relevance analysis and continues to the double materiality analysis. The materiality of each topic is defined with the help of scale, scope, remedy and likelihood as presented on ESRS 1 (European Commission, 2023b). The answers to the material categories were evaluated after. The evaluation of qualitative data given to the material topics aimed to present which kind of actions and policies case company has today to understand the main gaps. In conclusion, in the future case company eighter should implement actions and target related to material sustainability standards or transparently present why actions and targets are missing and which will be the possible timetable for the implementation (MDR-A) (EFRAG, 2024b; European Commission, 2023b). The accounting methodology on CSRD build around transparency (European Commission, 2024a; 2023b; Niskala & Palmuaro, 2023).

The next step of implementation of CSRD is to start the data collection to the paragraphs on ESRS standards (Niskala & Palmuaro, 2023). To understand the current situation, the gap analysis should be made (Niskala & Palmuaro, 2023). The gap analysis helps case company both understand the ESRS standards deeper, what is required on standards and which parts case company can report already today (Niskala & Palmauro, 2023). At this point, this study has concentrated to ESRS 1, since the double materiality analysis is pre-

sented on that standard (European Commission, 2023b; Niskala & Palmuaro, 2023). Additionally, during the gap analysis the table on ESRS standards should be made (European Commission, 2023b).

5.3 Gap analysis

This pilot study has now identified the material ESRS sustainability standpoints via double materiality analysis, combined results in a brief level to the ESRS standards with the existing data, and discussed about them. These sustainability standpoints where organization identifies impacts, risks and opportunities (IROs) are sustainability topics which should be disclosed on the final sustainability report with the help of requirements on ESRS standards (Niskala & Palmuaro, 2023; Ramboll, 2023, p.9; European Commission, 2023b). That sets the need of a gap analysis. Gap analysis ensures the sustainability disclosures are align with transparency requirements of CSRD and good accounting practices (Niskala & Palmuaro, 2023, p.74-75; European Commission, 2023b). Additionally, according to Niskala and Palmuaro (2023, p.74), gap analysis helps organization to describe which operations should be implemented and how much time should be estimated to succeed with the implementation to be align with ESRS standards. Niskala and Palmuaro (2023, p.74) summarizes that gap analysis can be seen as an intern strategy document which guides sustainability reporting and its development. The main aim of the gap analysis is to acquire knowledge of the current status related to ESRS standards (Greenomy, 2024; Niskala & Palmuaro, 2023; Commission, 2023b; Niskala & Palmuaro, 2023; Ramboll, 2023, p.9). This chapter presents shortly the main aim of gap analysis with the help of theory. According to Niskala and Palmuaro (2023), gap analysis should develop a manual for the reporting, and that is the main aim of this chapter. Gap analysis and the method to complete it is piloted with the sustainability topic E1 Climate change mitigation to concretize this analysis (European Commission, 2023b).

When organization is evaluating the gaps, the minimum disclosure requirements (MDR) datapoints (DP) and application requirements (AR) should be taken into account equally

(European Commission, 2023b; EFRAG, 2024b; 2022c; Ramboll, 2023; Niskala & Palmuaro, 2023). The MDR, DP and AR on ESRS standards are the requirements which should be reported on the final sustainability report (EFRAG, 2024b; European Commission, 2023b). The MDR guide undertaking to answer to the main aim of the paragraph which is in the begging of each chapter (EFRAG, 2024ab; European Commission, 2023b). AR guide organization to build answer related to each ESRS category (EFRAG; 2024b; European Commission, 2023b). AR includes also mandatory paragraphs (EFRAG, 2024b).

To understand the current situation EFRAG's (2024b) list of datapoints should be evaluated. That ensures that all the mandatory datapoints are taken into account (European Commission, 2023b). The gap analysis should evaluate how organization works with the identified sustainability topics today with the paragraphs related to policies, actions and targets and what should be implemented to meet the requirements (European Commission, 2023b; EFRAG, 2024abc). Additionally, if sustainability topic is material for the organization on from their own operation point of view, the metrics should be disclosed, in some cases when topic is material on the value chain metrics do not have to be presented (European Commission, 2023b; EFRAG, 2024cd).

The gap analysis is case company's intern document which concretizes how the identified sustainability topics are connected to management of the organization, strategy, business model and which kind of resources are used (Niskala & Palmuaro, 2023; European Commission, 2023b). Additionally, gap analysis helps organization connect sustainability topics to the international frameworks such as the Paris Agreement, national sustainability targets and to European Climate target 2050, Climate neutrality target, EU Green Deal and United Nations's Sustainability Goals (SDG's), OECD Guidelines, Humans Rights, ILO's agreements and to other environmental directives and frameworks (European Commission, 2024b; European Commission, 2023c; European Commission, 2023b; Niskala & Palmuaro, 2023, p.41).

On this study the gap analysis was made with the ESRS 2 standard (EFRAG, 2024b). On that analysis each paragraph was analyzed to understand the gap. On that analysis EFRAG's (2024b) list of datapoints were completed with columns for comments, size on the gap, and the current situation. Additionally, questions which needs more investigation were marked with red color and completed question with green. That analysis gave understanding of the gap on ESRS 2 standard.

Along with this gap analysis with ESRS 2 cross-cutting standard, material topical standards should be evaluated (European Commission, 2023b; Niskala & Palmuaro, 2023). To complete the gap analysis organization can use following categorization to evaluate the current situation. The questions below are placed to the excel table horizontally with the EFRAG (2024b) list of datapoints. The datapoints are listed to the columns A-K vertically.

1. Which kind of policies organization have and when it is implemented?
2. Which kind of action related to material topic organization have taken and what are the resources to implement that?
3. Has the organization a target related to identified material topic?
4. In which part of the value chain this is topic is actual?
5. Does organization have metrics to measure the material topics and targets which they have set?
6. Description of the current gap
7. In which part of the value chain this impact occurs
8. Organization's goal with this datapoint
9. Responsible department
10. In which form data should be presented (narrative or numerical fact)?
11. What is the timetable to report this datapoint?
12. How much the existing data should be modified to answer the requirement of CSRD (in scale 1 to 5)?
13. If topic needs more investigation the cell can be marked with red/ green color (European Commission, 2023b; EFRAG, 2024b; Niskala & Palmuaro, p.74-75).

These questions are formulated with the help of publication by European Commission (2023b), the datapoints published by EFRAG (2024abcde) and Niskala and Palmuaro (2023, p.74-75). The excel table can be completed to the right with new insights and headers during the gap analysis if needed. This study did not complete the gap analysis with all the material ESRS datapoints, and because of that category column should be updated continuously if some category occurs.

The next step is to adjust EFRAG’s (2024b) excel table. EFRAG’s (2024b) list of datapoints are in placed to the rows A-K, and the question categories presented on the previous page to the column L and forward to the right. ESRS E1 climate change mitigation is a material topic for the case company so the development is made on the ESRS E1 excel table (EFRAG, 2024b; European Commission, 2023b). Gap analysis evaluates now the identified sustainability topic with the help of MDRs and normal datapoints (European Commission, 2023b). In practice, ESRS E1-2 requires case company to disclose policies related to climate change mitigation (European Commission, 2023b; EFRAG, 2024b). The list of datapoints include questions related to policies which should be connect to the question category 1 presented on the list on the previous page. In this case, the answer to this question comes to the column L to which the first question was placed. Additionally, after that datapoint, the MDR-P datapoints connected to ESRS E1-2 was added after the DP and AR to the excel table (EFRAG, 2024b). Answers to MDR-P datapoints should be added to the column L. The picture below illustrates this:

ESRS	DP	Parag	Related AR	Name	Data T	Conditional or other DP	May IV	Appendix B - EFRAG	Appendix C - EFRAG	Appendix D - EFRAG	Policies organization have adopted?
E1	E1.2	24		Polices in place to manage its material impacts, risks and opportunities related to climate change mitigation and adaptation		MDR-P					Environment policy
E1	E1.2	25	AR 19-AR18	Sustainability matters addressed by policy for climate change		semi-narrative					
ESRS 2	MDR-P	65.a	AR 21	Description of key contents of policy		narrative					
ESRS 2	MDR-P	65.b		Description of scope of policy or its exclusion		narrative					
ESRS 2	MDR-P	65.c		Description of most central level in organization that is accountable for implementation of policy		narrative					
ESRS 2	MDR-P	65.d		Disclosure of third-party standards or initiatives that are respected through implementation of policy		narrative	Conditional				
ESRS 2	MDR-P	65.e		Description of consideration given to interests of key stakeholders in setting policy		narrative	Conditional				
ESRS 2	MDR-P	65.f		Evaluation of whether and how policy is made available to potentially affected stakeholders and stakeholders who need to help implement it		narrative	Conditional				

Picture 14. Gap analysis (EFRAG, 2024b; European Commission, 2023b).

In similar way, EFRAG's (2024b) table of datapoints includes question "which kind of actions organization have adopted related to climate change mitigation (ESRS E1-3)?" and "has organization a target related to identified material topic (ESRS E1-4)?" Answers to these questions should be connected to questions 2 and 3 on the list on page 111 on this study. These questions are placed to the columns N and O. With this logic all the questions on the list on the page 111-112 was added to the EFRAG's (2024b) excel table. With this evaluation each datapoint and the possible the gaps can be identified. Gaps can be evaluated in a scale 1 to 5 and the cell can be marked with the red color in case gap occurs. Additionally, all the datapoints should be evaluated from value chain, target of the datapoint, description, responsible department, form of data and status of the gap should be filled at the same time with MDR questions (see list from the page 111).

To summarize, on this study the EFRAG (2024b) list of datapoint was developed and adjusted forward. With this systematic gap analysis of each ESRS datapoint the case company understands what should be reported and what still should be implemented (Niskala & Palmauro, 2023). With the question categories listed on the page 111-112 organization can sort from the list questions related to policies or to the category they wish to of ESRS E1. The gap analysis is an excellent way to document already existing operations internally and prepare the external sustainability report (Niskala & Palmuaro, 2023; Ramboll, 2023). As Niskala and Palmuaro (2023, p.74) presented gap analysis document is an interna strategy document. Additionally, gap analysis document can be also a one part of the audit trail. The sustainability report and its process will be audited, the documentation of each step is mandatory to provide the audit trail (European Commission, 2023b; Niskala & Palmuaro, 2023, p.44). The audit will be first limited (limited assurance) but in the future assurance of the sustainability reports will be at the same reliability level as other financial reports (reasonable) (Niskala & Palmuaro, 2023, p.44-45; Deloitte, 2023a). With this review organization can complete the gap analysis in the future. This study did not finish the gap analysis, but this chapter 5.3 has presented the methodology to complete gap analysis to prepare a sustainability report. The next chap-

ter summarizes implementation steps and presents a flow chart of how the final sustainability report process looks like. Chapter 5 presented the interventions (I) and mechanisms (M) to complete sustainability reporting (Kalairasan et al., 2023).

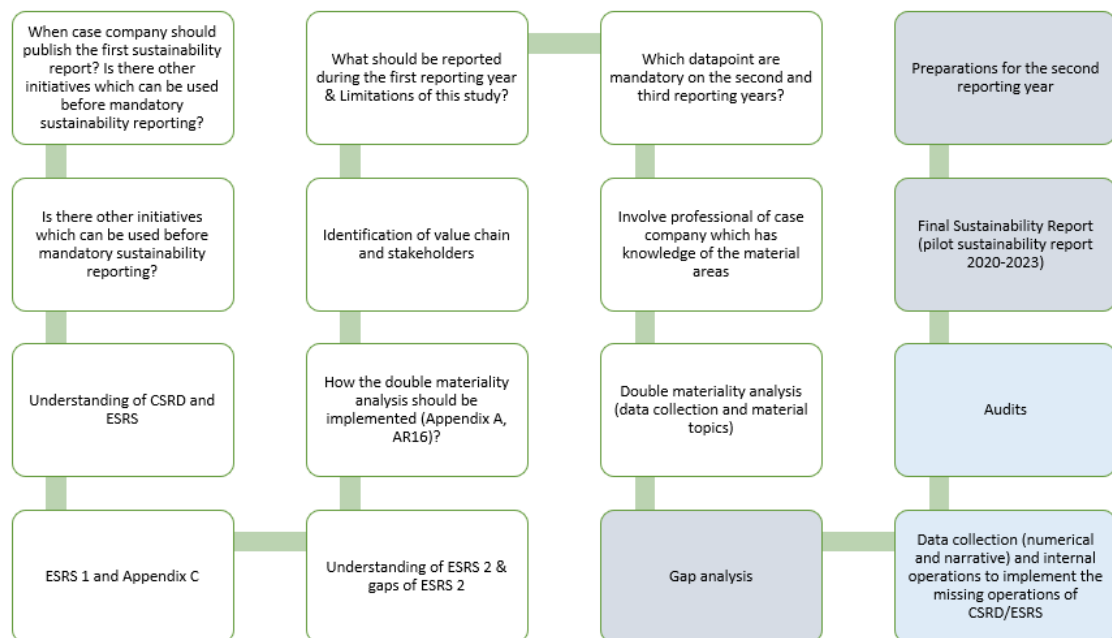
5.4 How the Sustainability reporting should be made?

This chapter presents the output (O) of the study. The second research question of the study pursue to present a model of how the sustainability reporting according to CSRD could be started on case company. This chapter provides an overlook of the model for the first mandatory reporting year and concludes the steps which should be a part of a sustainability report.

The CSRD and its implementation is new for all organization, and because of that, there is not a standard model or a way to complete the sustainability report. This study aimed to present mechanisms and invention to implement CSRD sustainability reporting in a best practice.

The ESRS standards guide undertaking to implement the CSRD, and at this point only one research can be found which discusses about the implementation of CSRD. Authors Niskala and Palmuaro (2023), published a book which summarizes the implementation of CSRD in practice in financial institutions. Additionally, Ramboll (2023), presents the implementation of CSRD can be made with the help of five steps. These publications with a couple of similar publications by PwC and KPMG are referred on this study, and used as help to build the reporting flow chart. The theory of sustainability reporting presented by Herremans (2019), supports Niskala and Palmuaro (2023) findings that the sustainability report and its implementation process should be shared to the smaller phases. KPMG (2024a) presented that CSRD implementation is happening in phases which supports finding. On this study, the implementation of CSRD happened in phases (European Commission, 2023b; Niskala & Palmuaro, 2023).

The case company employees under 750 employees the implementation of CSRD will be included at least three cycles, since some of the datapoints will be mandatory in the third reporting year (European Commission, 2023b). The transition rules of ESRS 1 appendix C illustrates the phases in which the implementation of different ESRS standards will be made in the case company (European Commission, 2023b). Because of that to build a sustainability reporting model a comprehensive understanding of CSRD and ESRS is needed to be able strategically build reporting model with the phases. The picture 15 summarizes the steps of how the sustainability report implementation started in case company.



Picture 15. Implementation chart of CSRD in the case company.

The picture 15 presents the implementation process of CSRD in case company shared to the smaller tasks (Niskala & Palmuaro, 2023; Ramboll, 2023; European Commission, 2023b). On the picture 15 the white tasks are tasks which are included to this pilot study, and the grey tasks are tasks which should be finished in the future but was already started on this study. Blue colored tasks mean that the task should be started in the future.

Since, the CSRD is a legally binding regulatory which includes strict requirement which parts should be included to the sustainability the process flow includes topics from ESRS 1 General requirements (European Commission, 2023b). Additionally, the model remains a combination of Niskala and Palmuaro (2023) and Herremans (2019) theory of sustainability reporting. That illustrates that CSRD is mandatory regulatory frame and companies cannot by themselves choose what to report (European Commission, 2023b). CSRD is connected to the theory of sustainability reporting and it is possible to state after the study that previously presented theory can be used on this study as well (Herremans, 2019). The sustainability reporting according to CSRD is a normal accounting process but the requirements which CSRD sets are new (European Commission, 2023b). That is the most challenging part of the reporting. In conclusion, the process to implement CSRD may change with the time since both organizations and case company will learn more about the reporting. The chapter concludes all the different processes completed on this study, and answers to the research question of how sustainability reporting should be made. The picture 15 summarizes the chapter 5 in a one picture.

From the future orientated perspective, sector specific standards ensures that organizations on the same industry report of the same standards which increase the transparency and comparability (European Commission, 2023b; EFRAG, 2024e). The first cycle of CSRD provided valuable data of the process both to the case company and to the metal industry. This chapter continues and ends to the discussion and managerial implications.

5.5 Discussion and managerial implications

This chapter discusses about the CSRD implementation process and the managerial implications. Additionally, chapter presents ideas for the future studies. With this study the first sustainability report was built with the already existing data. Sustainability report disclosed the key sustainability topics based on information today. In the future, the sustainability report should be built so that the CSRD requirements are taken into account, and the process to build the report should be a similar process than presented on this

study. That ensures the audit trail, requirement of DMA are met and that good accounting principles noticed. This study showed that the CSRD sets new requirements for SMEs and there are still gaps on the CSRD reporting process in the case company (Dragomir et al., 2024; European Commission, 2023b; EFRAG, 2024acd; Niskala & Palmuaro, 2023).

The ESRS standards presents requirements of CSRD, and includes multiple other standards, frameworks, and directives that guide organizations with the sustainability work, and implementation of the reporting routines (European Commission, 2023b). These frameworks of ESRS standard should be seen as a help to reach the target of EU Green Deal. From the case company's point of view, sustainability reporting (CSRD) becomes mandatory in 2026 or 2027, dependent on the revenue, balance, and the number of employees on the fiscal year (European Commission, 2023b; Niskala & Palmuaro, 2023). Consequently, the case company have still time to continue with the CSRD reporting development. CSRD is a way to standardize sustainability accounting.

The Corporate Sustainability Reporting directive (CSRD) is a new mandatory regulatory frame and the development of it should be one of the essential operations in the organization (EcoOnline, 2023; Beske et al., 202; Dragomir et al., 2024). To get the best profit for CSRD, the sustainability reporting routines should be implemented to the KPIs and noticed in the business culture and strategy (KPMG, 2024a). The CSRD is a wide regulatory frame which means that the implementation of CSRD should happen in phases (KPMG, 2024a). Because of that the implementation should start on time (KPMG, 2024a). CSRD reporting is a part of an organizations strategy, values, mission and vision (KPMG, 2024a). To summarize, CSRD presents undertaking's corporate culture with the help of sustainability disclosure with harmonized standards which ensure that stakeholders get an actual picture of capabilities organization has related to sustainability (KPMG, 2024a). This study presented that implementation of CSRD is a wide process which supports the previously presented thoughts.

How does sustainability reporting affect corporate sustainability performance then? According to PwC (2024f), stakeholders expect organizations to be transparent with their sustainability work. And the statistics by PwC (2024f), presented that 60 percent of stakeholders find it important to be informed of social and environmental sustainability. Along with that, approximately 70 percent of respondents expected to have information of how sustainability is connected to the undertakings business model, and which kind of financial risks organization may meet and which kind of estimation they have used (PwC, 2024f). Also, the opportunities of the operations found interesting according to this same statistic of PwC (2024f). According to PwC (2024f), over 70 percent find it important to get information about the costs to prepare sustainability statements. CSRD can be connected to the statistics and the CSRD was implemented to increase the transparency of the sustainability operations (European Commission, 2023b; 2024a; Niskala & Palmuaro, 2023). These thoughts can be connected to the main aim of CSRD which is to increase transparency of the sustainability operations (Niskala & Palmuaro, 2023; European Commission, 2024a).

The case company of the study has started the sustainability work by publishing a sustainability strategy in 2023. As a continuum to the continuous sustainability work, this study presented implementation process of CSRD. Study concentrated on the sustainability reporting standards (ESRS) becoming mandatory in the first reporting year for the case company and the final sustainability report was built with the existing sustainability data. With this limitation, the implementation of CSRD happens in phases in the case company (Niskala & Palmuaro, 2023; Herremans, 2019). That does not mean that organizations do not have to start the report at this point, without organization needs milestones, to control the implementation (KPMG, 2024a). Since, ESRS standards include over a thousand datapoints, the limitation for the first implementation phase was needed (EFRAG, 2024b). The implementation should continue in the future.

To start the implementation of CSRD, the study piloted the double materiality analysis (DMA). After the double materiality analysis, the study piloted gap analysis. Before the

gap and double materiality analyses the study investigated ESRS 2 to understand the gaps on this cross-cutting standard. The implementation process is presented with the help of flow chart, the process for how to build sustainability are supported by the theory by Niskala and Palmuaro (2023) and Herremans (2019). Both publications present that the sustainability reporting process builds up from different key operations and the final output is the final sustainability report (Niskala & Palmuaro, 2023; Herremans, 2023). This theory can be adapted in practice on the case company, and the theory of sustainability reporting is strongly connected to CSRD (European Commission, 2023b). That underlines the CSRD is a sustainability accounting methodology but the requirements are standardized but the methodology is still same than before. CSRD is a standardized way to account sustainability (Niskala & Palmuaro, 2023). This study did not pilot whole the gap analysis but to interpret the gap analysis with one ESRS E standard. The main aim of it is to mirror the current operation to the requirements of the specific ESRS standard (Niskala & Palmuaro, 2023). That gives an understanding of what is missing and which operations organizations already have implemented (Niskala & Palmuaro, 2023). The gap analysis should be completed in the future so that the data of sustainability topics can be prepared.

The key findings of the study are that sustainability reporting, and its implementation, and development should happen in phases, and the results of the study presented possible process flow and models to complete each part of the sustainability reporting process. Additionally, the first sustainability report was published. This study did not complete the implementation of CSRD in the case company and the development will continue. To analyze the implementation process made on this study, this study underlines the importance of a carefully made DMA (Dragomir et al., 2024; Mezzanotte, 2023; Niskala & Palmuaro, 2023). Without the materiality assessment (DMA) organization cannot complete accounting and identify material sustainability topics (European Commission, 2023b; Niskala & Palmuaro, 2023; Mezzanotte, 2023). Even though the double materiality analysis is a small part of sustainability reporting and sustainability work in the

case company, its relevance is huge. Without the double materiality analysis and material topics, the reporting process cannot continue and case company cannot publish sustainability disclosure externally. This same finding is presented on the studies by Dragomir et al. (2024) and Mezzanotte (2023). The double materiality analysis defines the material topics which should be reported on the final sustainability report (Niskala & Palmaro, 2023; Dragomir et al., 2024; Mezzanotte, 2023).

Materiality was assessed via double materiality analysis which identified the material topics for case company. Altogether, 91 ESRS topical topics were analyzed on this double materiality analysis. The double materiality analysis showed that 23 ESRS topical topics are material for the case company (see limitations of the study on chapter 5). In comparison to PwC (2024d) statistics, with the limitations of this study, the number of material topics remains valid and reliable. According to PwC (2024d), the most of the undertakings have identified 21 to 60 material topics, and evaluated them with the help of threshold. On this study, the threshold to be material was 3,0 and according to EFRAG (2024ac) threshold should be a suitable for the organization so that it presents an actual picture of key impacts, risks and opportunities. If the threshold would be 3,5 would that considerably affect to the result by reducing the material topics distinctly. Because of that the lower threshold was selected to include high and very high impacts to the analysis. Additionally, in a scale 1 to 5, threshold 3,5, would be slightly too high (see table 4). The gap analysis pilot presented a tool to complete the analysis and that was piloted with one ESRS standard (E1).

This study was limited to the categories E1, E2, E3, E5, S1, and G1 because of the phase in possibility (European Commission, 2023b). Of these categories the study identified impacts on each category. All the sub-topics of standards were not material for the case company. The requirements of each topic were not investigated in detailed, and as a suggestion the implementation of CSRD should continue to comprehensive gap analysis to investigate which datapoints should be reported, collect and implement these operations which is missing. Of all ESRS standards E2, E3 and E5 were found challenging among

organizations (PwC, 2024d). These standards are partially material for the case company. Approximately 20 percent of respondents felt uncomfortable to report requirement of those categories which underlines that the development and investigation of those categories should continue on case company after the study (PwC, 2024d).

The relevance and reliability of the double materiality analysis and the output of the study can be compared with SASB (2024) materiality finder. This tool is not conversion on CSRD, and because of that this tool cannot be used as a control tool to verify the results of DMA (SASB, 2024). On this chapter this tool is used as a help to critically evaluate and contest results. According to SASB (2024), on the mining and metal industry all the environmental related topics are material. On this study, all the environmental standards were identified material or some of the sub-topics were material. Additionally, ethics and incident risks were suggested to be material (SASB, 2024). In this study, corporate culture, corruption and bribery, support of the whistleblowers and relationships with supplier was identified material. On the SASB (2024) estimation categories ethics and incidents are estimated to be material. These concepts are broader headers which covers for example bribery and whistleblowing. Overall, the results of the double materiality analysis pilot compared to SASB (2024) estimations seem to be in line. After the first reporting year, the implementation of CSRD should continue to the second year of implementation. During the second reporting year, the scope of mandatory standards will be wider, and because of that the development of CSRD should continue (European Commission, 2023b; KPMG, 2024a).

This study concentrated on the operations of the case company. Consequently, new data of the operations during the value chain were not collected. The ESRS 1 requires organization to include the impacts during the value chain to the sustainability disclosures (European Commission, 2023b; EFRAG, 2024ad). The scope of the reporting should be wider in the future. To be aligned with the CSRD, the future development should investigate the value chain, how the operations on upstream and downstream impact the reportative organization via its products or produced materials, and which standards are

material for the case company via value chain (European Commission, 2023b, p.13-15; EFRAG; 2024a). This was already investigated on this study base on the current knowledge of impacts, risks and opportunities during the value chain. Additionally, future studies could investigate emission calculations on the ESRS E (environmental) standards, and especially scope 3 improvement, or different types of environmental taxations (carbon taxes, plastic taxes) since taxation is not mentioned on CSRD (European Commission, 2023b; Niskala & Palmauro, 2023; PwC, 2024c). Also, the best practices of audit and assurance of CSRD can be investigated. After 2026 when the sector-specific standards are published, could they be researched (Charluet, 2024; EFRAG; 2024e). Other improvements can focus on to ensure quality of reported data and the differences of the reporting routines between large-, medium and small-sized organizations. Even the development of reporting routines is an interesting research topic to research in the future when SMEs starts to publish sustainability reports.

Lastly, according to the European Commission (2023b), stakeholder engagement should help organizations to identify the sustainability topics. According to Mezzanotte (2023), that may include risks for the organization. Because the quality of information is challenging to ensure and separate (Mezzanotte, 2023). It is important to understand the difference between stakeholder engagement during the materiality assessment, and the organization's external commitments which are legally binding (Mezanotte, 2023). The stakeholder engagement on this study starts by publishing the first sustainability disclosure. With the help of the first sustainability disclosure case company may continue engagement with stakeholders to identify their expectations and connect them to the ESRS topics (Herremans, 2019; Mezzanotte, 2023). This sustainability reporting process is made with the case company of the study, and because of that it is not tested on other companies. While adopting similar the methods of the study the sample and nature of the study and case company should be noticed.

6 Conclusion

This chapter concludes the study and presents the key findings. This research investigated the implementation process of the Corporate Sustainability Reporting directive (CSRD) in a SME in Finland and presented best practices to complete sustainability reporting. To complete reporting the study presented excel tables which was developed to collect data of sustainability standpoints. The study is made with the help of design science methodology (DS) which aims to explore the researched problem and present new theories and ways to solve problems (Kalaiarasan et al., 2023). The design science methodology is shared to CIMO categories which was used on this study (Kalairasan et al., 2023). A deep understanding of the literature, and requirements of CSRD are essential to succeed with reporting and to understand the context (C). Theoretical understanding enables built models and processes (Kalaiarasan et al., 2023). With the understanding of the theory, inventions, mechanism and output were presented on the chapter 5.

In the sustainability reporting context, CSRD is a mandatory sustainability accounting legislation which was implemented to Finnish law in the beginning of 2024 (Niskala & Palmuaro, 2023; European Commission, 2023b). The directive obligates enterprises in EU regions, in different phases, to publish sustainability reports according to requirements on ESRS standards (Niskala & Palmuaro, 2023; European Commission, 2023b). The CSRD set guidelines of how the sustainability disclosures should be build and which analysis should be included to the process (Niskala & Palmuaro, 2023; European Commission, 2023b; Herremans, 2019). The final sustainability disclosure summarizes the sustainability work of the organization with the help of these ESRS guidelines (Niskala & Palmuaro, 2023; European Commission, 2023b; Herremans, 2019). CSRD is a sustainability accounting methodology which ensures that good accounting principles are notices while working with sustainability disclosure (Niskala & Palmauro, 2023; European Commission, 2023b; Greenhouse gas protocol, 2024).

From the accounting perspective, CSRD is connected to the good principles of accounting (Greenhouse gas protocol, 2024). These principles are reliability, completeness, consistency, transparency and accuracy which are presented on the ESRS 1 (Greenhouse gas protocol, 2024; European Commission, 2023b). Additionally, ESRS 1 sets guidelines for the sustainability reporting process to ensure that these characteristics of accounting are met during the process which ensures that sustainability disclosure gives an actual picture of the operation of the organization to the stakeholders (Greenhouse gas protocol, 2024; Niskala & Palmuaro, 2023). CSRD harmonizes and controls sustainability reporting in a similar way than other financial disclosures.

The essentialness is the key idea of accounting. Consequently, the essentialness is in the center of sustainability reporting, and only the essential material topics should be disclosed on the final sustainability report (European Commission, 2023b, Niskala & Palmuaro, 2023). Consequently, CSRD can be summarized to a well-structured accounting practice. How the sustainability topics were identified on this study and how the final sustainability reporting process looked.

On this study, CSRD is investigated from a SME point of view, and the case company operates in metal industry. The three organizations of the case company took a part of the study. Because of the key ratios related to revenue, balance and number of employees the case company is a part of the second or third reporting phase (European Commission, 2023b; Niskala & Palmuaro, 2023). To full-fill the requirements of CSRD, case company should build a sustainability report which presents the identified sustainability risks, opportunities and impacts transparently, comparable and so that the report is understandable (Niskala & Palmuaro, 2023; European Commission, 2023b; 2024a; Dragomir et al., 2024). The main aim of sustainability reports is to present organizations main challenges and opportunities related to sustainability on the final sustainability disclosure (Suomen Tilintarkastajat, 2021; Niskala & Palmuaro, 2023; European Commission, 2023b Herremans, 2019). Sustainability is not only emission reductions without responsibility and

sustainability on CSRD takes into account all ESG dimensions (Silvola & Ström, 2023; European Commission, 2023b). To identify the material topics, the organization should complete the double materiality analysis (Niskala & Palmuaro, 2023; Mezzanotte, 2023). The double materiality analysis enables organization to focus on the material topics and their development so that they sustainability work is moving towards international guidelines and agreements (European Commission, 2023b). To understand the current situation and future possibilities the gap analysis concludes the current situation. With these the study aimed to identify the best practices to complete formerly presented complexities.

In the center of CSRD is the international Climate change targets, Climate neutrality goals, Paris Agreement, OECD Guidelines, ILO agreements and Human Rights protocols and with reporting EU ensures that sustainability work is made towards these frameworks (European Commission, 2023ab; 2024a; Hummel & Jobst, 2023). Additionally, ESRS standards includes multiple refers to other standards, principles and initiatives which should be noticed on the sustainability work. A sample of these frameworks are presented on the study in a brief level. Because of the limitation of the study each framework mentioned on ESRS standards could not be investigated. ESRS standards CSRD aims to guide organizations to rethink and develop operation so that these principles, directives and conventions are taken into account on operations (European Commission, 2023b; Hummel & Jobst, 2023).

The purpose of the study was to investigate the process to build a sustainability report on the case company. The development of CSRD reporting was started with the help of two research questions.

1. How to the building of a sustainability reporting model in case company and what are the principles, standards and frameworks which should be taken into account to build a sustainability report in case company?

2. Which ESRS standards are material for case company and how they can identify material topics of ESRS?

To answer these questions this study started with a deep literature review to understand the requirements of CSRD (European Commission, 2023b). The literature review included mostly articles, journals and publications from the past three years. The publications of EFRAG and European Commission had a huge weight on this study, and the literature reviewed concentrated to CSRD, ESRS and implementation and building a sustainability report. With this the theory of sustainability reporting was presented on the literature review.

The first research question is wider while the second research question which is more specific. Although, the first and second research question support each other. Without the second research question which investigates the double materiality analysis, the reporting is not getting forward. Material topics are the topics which should be presented on the sustainability report (Herremans, 2019; Mezzanotte, 2023; Niskala & Palmauro, 2023). Via DMA case company identifies the material topics that should be included to the final sustainability report (Mezzanotte, 2023). To build the sustainability reporting process the implementation process was shared to smaller parts and compared to the theory of sustainability reporting and CSRD (KPMG, 2024a; Niskala & Palmauro, 2023; KPMG, 2024a). On this study the DMA was made with the help of excel tables.

From the intervention (I) and mechanism (M) perspective, the study presented following insights. CSRD requires that the impacts should be evaluated from inside-out and outside-in which means that risks, opportunities and impacts for the organization which affects to the organization and outside to the society and environment should be evaluated (European Commission, 2023b; Niskala & Palmauro, 2023; Dragomir et al., 2024; Mezzanotte, 2023). This methodology is called double materiality which was piloted on this study (Niskala & Palmauro, 2023). To pilot the double materiality analysis a suitable tool was built and piloted on this study. The excel table was the intervention (I) of the

study, and enabled to identify the material topics. The mechanism (M) of the CSRD interpret on the study, enabled to collected data present following results. Without suitable tools the results cannot be presented. Results from the double materiality analysis showed that the most of the analyzed ESRS topics are material for case company. Together 42 ESRS topics were included to the double materiality analysis and 23 of them were material to the target organization. The threshold of materiality on this study was 3,0 or higher which was selected to present essential material topics (EFRAG, 2024ac). With the higher threshold 3,5 only 14 sustainability topics would be material which could reduce the material topics so that the higher threshold gives a better picture to stakeholders (EFRAG, 2024ac). The research process continued by piloting the gap analysis with couple of paragraphs of ESRS E1 (European Commission, 2023b). Similarly like on the gap analysis a suitable excel table was developed or the gap analysis. The ESRS 2 was analyzed in the begging of the study to understand the gaps on that standard there. For the ESRS 2 this study developed a mechanism (M) in early stages of the study, to evaluate gaps on ESRS 2. With the double materiality and gap analyses, and the identification of material topics the process of implementing CSRD can continue to the presentation of output (O) to the first research question which is the final sustainability report and the process to build it.

The first research question of the study determines the process of how the sustainability report according to CSRD should be made. The implementation of a sustainability reporting model started in the fall 2023, CSRD was then unfamiliar sustainability reporting standard, and the case company did not have published a sustainability before. Because of the mandatory reporting regulatory CSRD other voluntary initiatives were scoped out of the study. The Nordic sustainability reporting standards (NSRS) (2023) which was reviewed in the early stages of the study, but was not developed forward because of the difference between CSRD and NSRS. Voluntary or before used standards and initiatives may help organization to reach the long-term targets and some of them may be convertible and a part of CSRD (European Commission, 2023b; Niskala & Palmuaro, 2023). For example, United Nations (2023b) SDGs was connected to the sustainability statements

on the case company. Other voluntary initiatives were not investigated on this study, but that could be an interesting research question and development in the future for those organization which already have published a sustainability report and have sustainability reporting practices. CSRD have connection to other principles, frameworks and directives that supports the sustainability work towards EU Climate targets and EU Green Deal (Hummel & Jobst, 2024; European Commission, 2023b). The main target of CSRD is to reform sustainability reporting so that targets of Green Deal can be reached.

On this study, the first implementation cycle included only the standards that are mandatory on the first mandatory reporting (European Commission, 2023b). The first implementation cycle of CSRD included analysis of ESRS standards, double materiality analysis and modeling of a suitable platform to collect and work with the sustainability data. Additionally, this study presented a possible way to complete the gap analysis. This is the best practice to build the report.

The study underlines the importance of implementing cycles which was presented in other publications as well. That means that each implementation cycle completes the sustainability reporting process until the case company has full-filled the requirement of CSRD (KPMG, 2024a). The theory of implementation of sustainability reporting according to Herremans (2019) and Niskala and Palmuaro (2023) supports that. On this study the development of CSRD started by understanding ESRS 1 and ESRS 2, and double materiality analysis. After the double materiality analysis, the CSRD development process should continue to the gap analysis and to a data collection process (Niskala & Palmuaro, 2023). This chapter answers to the research question of how sustainability reporting should be started. Together, smaller processes build the complete sustainability reporting process. Smaller sub-operations ensure and help organizations with audits (Niskala & Palmuaro, 2023). From the SMEs point of view, this study showed that the transition rules enable SMEs can start the implementation of CSRD from their own operations point of view by evaluating their own impacts, risks, and opportunities related to society, and

environment. And after the first reporting year SMEs should wide the scope to the upstream and downstream value chain and which are their impacts. To summarize, this study answered to the research questions and the selected method, design science, was suitable for the study.

The relevance of the study. Sustainability reporting is researched a lot among large-sized enterprises since sustainability reporting has been mandatory for them (Niskala & Palmauro, 2023). Because of the implementation of the CSRD, the scope of mandatory reporting will be adjusted (EFRAG, 2024b; Niskala & Palmauro, 2023). The wider scope of compulsory sustainability reporting set the need and importance of this study. The sustainability reporting process on SME should be investigated and this study aimed to answer to this research gap. The literature review did not find studies where specifically CSRD would be investigated from SMEs point of view but the recently made studies support the importance of this study. The most of the studies have investigated CSRD or other sustainability reporting standards from a large-sized points of view. According to literature, small and medium-sized enterprises are the biggest group of organization and only few of them publishes a sustainability report (Granly & Welo, 2014; Arena & Azzone, 2012; European Commission, 2023b). Consequently, this study is made to answer that research gap and publish a study that investigates sustainability reporting from SME point of view. Since research from the sustainability reporting from SMEs point of view is not published so much at this point, the study included publications and articles written from large-sized organizations point of view which already have routines for sustainability reporting. This study showed that Herremans (2019) and Niskala and Palmauro (2023) sustainability reporting theory and implementation can be used among SMEs. The research gap remains smaller.

Reliability and validity. This study is made in collaboration with a Finnish SME, and the data to the relevance analysis and double materiality analysis is provided by the case company. The analyses are made with the help of ESRS 1 requirements which increases the reliability of the study (European Commission, 2023b). Study presents the results to

the main objectives presented on the chapter 1, and the methodology supports the researched topic which express the validity of the study. The analyses are made based on the requirements on ESRS and literature. The methodology to assess materiality can be used on other industries, and organization, but the results of the study cannot be applied on another organization directly. This presents the validity of the study. Along with that, the reporting model can be applied on other organization, but because of the nature of the organization the model may be adjusted to answer the need of other reportative organization.

In conclusion, this research process ended to a sustainability report. Besides the implementation of CSRD, the first sustainability report was built with the help of existing data from fiscal years 2020, 2021, 2022, and 2023. At this point, the first sustainability report summarized the most important policies and statements the case company has set related to sustainability on ESG categories. To conclude, from the sustainable governance point of view, organization's ethics and code of conduct was presented. Additionally, whistleblowing channel, and corporate culture were presented. Along with that, social sustainability and safety was presented in the sustainability report on the S category. Environmental (E) sustainability presented policies, sustainability related actions and sustainability statements and strategy. Additionally, environmental managements systems and DMA development were presented on the sustainability disclosure. The sustainability report is shared to the three ESG categories which support the finding of the double materiality analysis and shows that case company should include E, S, and G categories to their future CSRD reports.

This study is the first step to implement CSRD to a case company. The research showed that the theory of sustainability reporting can be adapted in practice for SMEs to complete the sustainability reporting. The study showed that some steps should be added to completed CSRD reporting in the case company. To improve the sustainability report in the future, the narrative and numerical disclosures should be prepared according to CSRD. Gap analysis helps to complete reporting (European Commission, 2023b; Niskala

& Palmuaro, 2023). The implementing journey collected valuable information of CSRD and ESRS to the case company and the implementation should continue in the future (KPMG, 2024a). From the SMEs' point of view, this study pursues to be a forerunner of sustainability reporting implementation among SMEs. Because of that, this study aims to transparently present the operations built to complete CSRD sustainability reporting requirements this far. The results of the study cannot be implemented directly in another organization because the materiality of sustainability topics differs from the case company to another. On the other hand, the methods to evaluate and collected data can be used in other SME. Sustainability reporting should be one KPI on the management system of the organization (Herremans, 2019; KPMG, 2024a; Niskala & Palmuaro, 2023; KPMG, 2024a; Mezzanotte, 2023).

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