TURUN YLIOPISTO
Kauppakorkeakoulu

SUSTAINABILITY REPORTING UNDER THE EU'S NEW DIRECTIVE

Conducting a double materiality analysis

Emma Silaskivi

TURUN KAUPPAKORKEAKOULUN JULKAISUJA
SARJA E-2:2025

TURUN
YLIOPISTO
UNIVERSITY
OF TURKU

ISBN 978-952-249-651-5

TURUN YLIOPISTO
Tekijä: Emma Silaskivi
Otsikko: Sustainability reporting under the EU's new directive. Conducting a double materiality analysis
Julkaisun tiedot: Turun Kauppakorkeakoulun julkaisuja. Sarja E-2:2025

TIIVISTELMÄ

Vastuullisuusraportointi on kehittynyt viime vuosina merkittävästi. Aiemmin vapaaehtoisesta raportoinnista on siirrytty lakisääteiseen raportointiin, mikä tarkoittaa, että yritysten on nyt raportoitava vastuullisuudestaan Euroopan Unionin kestävyysraportointidirektiivin mukaisesti. Tämä direktiivi vaatii yrityksiä raportoimaan sekä ympäristö- että sosiaalisista vaikutuksistaan sekä siitä, miten nämä vaikutukset voivat vaikuttaa yrityksen taloudelliseen tilanteeseen. Tätä kutsutaan kaksoisolennaisuudeksi. Monet yritykset kohtaavat haasteita ymmärtää, kuinka kaksoisolennaisuusarviointi tulisi suorittaa ja mitkä kestävään kehitykseen liittyvät vaikutukset, riskit ja mahdollisuudet ovat heille olennaisia. Sidosryhmien kasvava tarve vastuullisuustiedolle on myös korostanut tarvetta ymmärtää tätä kaksoisolennaisuuden periaatetta ja vastuullisuuskysymysten merkittävyyttä eri toimialoilla.

Tällä hetkellä vastuullisuusraportointi perustuu olennaisuuteen, joka on kehittynyt uuden EU-direktiivin myötä, kun on otettu käyttöön kaksoisolennaisuuden periaate. Tämä lähestymistapa yhdistää vaikutusten ja taloudellisen olennaisuuden merkityksen koko arvoketjussa. Ensimmäinen askel on arvoketjun kartoitus, joka auttaa yrityksiä ymmärtämään paremmin, miten erilaiset tekijät vaikuttavat eri sidosryhmiin. Tämän jälkeen yritykset voivat tunnistaa ne vastuullisuusteemat, joihin niiden toiminta vaikuttaa, sekä mahdolliset taloudelliset riskit ja mahdollisuudet.

Tämä raportti esittelee kehitetyn työkalun, jota yritykset voivat hyödyntää kaksoisolennaisuusanalyysin tekemisessä. Työkalussa huomioidaan toimialakohtaiset vastuullisuuskysymykset ja arvioidaan sidosryhmien vastuullisuusvaikutukset koko arvoketjussa. Tutkimus korostaa myös olennaisten vastuullisuusteemojen tunnistamisen merkitystä niin sidosryhmille kuin yritykselle itselleen. Hyvin tehty kaksoisolennaisuusarviointi voi edesauttaa vastuullisuusraportoinnin ja -strategian kehittämistä myös tulevaisuudessa.

ASIASANAT: Kaksoisolennaisuus, kaksoisolennaisuusanalyysi, kestävyysraportointidirektiivi, vastuullisuusraportointi

UNIVERSITY OF TURKU
Authors:
Title: Sustainability reporting under the EU's new directive. Conducting a double materiality analysis
Publication: Turun Kauppakorkeakoulun julkaisuja. Sarja E-2:2025

ABSTRACT

Sustainability reporting has evolved drastically, especially in recent years, moving from voluntary reporting to legal obligations. Businesses must now report on sustainability in accordance with the new EU Directive on corporate sustainability reporting (CSRD). This directive requires companies to report on their sustainability according to a double materiality perspective. However, firms face challenges in understanding what is double materiality, and which impacts, risks and opportunities regarding sustainability are relevant for them. Increasing demand for this sustainability information from various stakeholders has highlighted the growing need to understand the nature of double materiality and context of sustainability issues specific to different sectors.

Currently, the foundation of sustainability reporting lies in materiality, which has evolved into a concept of double materiality under the new EU directive. Double materiality means that businesses are required to report not only on their environmental and social impacts, but also on how these impacts may affect them financially. This linkage integrates both impact and financial materiality and a holistic understanding the whole value chain in the same process. By first mapping their value chain, organisations can better understand how different issues impact various stakeholders. This approach helps identify issues the company influences as well as impacts that create either risks or opportunities for the company.

The report provides insights a devised tool that can be utilized by companies to conduct a double materiality assessment. The tool considers how sector specific sustainability issues can be addressed while understanding impact of stakeholder sustainability throughout the value chain. Moreover, the study provides valuable information on the identification of relevant sustainability issues across stakeholders and company operations enabling the development of sustainability reporting and strategy.

KEYWORDS: CSRD, double materiality, double materiality assessment, sustainability reporting

Table of contents

List of abbreviations

CDP	Carbon Disclosure Project
CSR	Corporate Social Responsibility
CSRD	Corporate Sustainability Reporting Directive
DMA	Double Materiality Assessment
EFRAG	European Financial Reporting Advisory Group
ESRS	European Sustainability Reporting Standards
EU	European Union
GRI	Global Reporting Directive
IRO	Impacts, Risks and Opportunities
NGO	Non-Governmental Organization
NFI	Non-Financial Information
NFRD	Non-financial Reporting Directive
SASB	Sustainability Accounting Standards Board

1 Introduction

1.1 The development of sustainability reporting in the EU

Communicating about sustainability is no longer optional for businesses as European Union (EU) has mandated almost all companies to disclose details about their sustainability efforts in their reporting (European Commission: Corporate sustainability reporting). However, many companies face significant challenges in implementing these reporting requirements and applying them effectively in practice. Until now, companies have been able to report on sustainability relevantly freely, but the EU has aimed to harmonize reporting, which means that the reporting process and the required measures can be perceived as demanding.

The development of EU's sustainability regulation acts as a catalyst for making Europe the world's first climate-neutral continent. The review of Directive 2014/95/EU (The NFRD, Non-Financial Reporting Directive) and the European Green Deal were the first part of the package of sustainability initiatives that aimed to lead the way. (European Commission: Corporate sustainability reporting.) This was subsequently followed by a proposal for the Corporate Sustainability Reporting Directive (CSRD) in 2021 which aims to update the NFRD to enhance transparency on corporate sustainability (Dihn et al. 2023, 1). Publicly traded large enterprises with more than 500 employees need to start complying with the CSRD in the 2024 financial year, which means their first CSRD-compliant report will be published in 2025. After that the compliance will roll out in waves until 2028. (European Parliament and Council 2022.) Aim of the CSRD is to have sustainability information available for stakeholders and investors and to harmonize currently very fragmented reporting. (European Commission: Corporate sustainability reporting.) However, there is very little existing material on CSRD compliant reports, as the first companies are reporting according to it in the early 2025.

The significance of this directive is highlighted by the fact that sustainability reporting is being elevated in to the same level as financial reporting. Jaana Lindman (2024) states in an article in Suomen Tilintarkastajat (eng. Finnish Association of Authorised Public Accountants) that the CSRD will strongly direct organizations' sustainability reporting in the upcoming years. An important aspect of the CSRD is that sustainability information will be included in the management report and the board will need to sign the sustainability report similarly to the financial statement and that sustainability information shall be assured. This further signifies that sustainability reporting is no longer voluntary as legally mandated sustainability reporting is becoming the standard (Barker 2024, 34). Preparing for the reporting should therefore be initiated well in advance.

Companies governed by the CSRD must report in accordance with the European Sustainability Reporting Standards (ESRS) which set guidelines on the social and environmental information that companies must disclose. (European Commission: Corporate sustainability reporting.) These standards can be complex to understand and encompass a vast number of specific data points. The standards also define the significance of double materiality for the reporting. This means the double materiality assessment is a separate exercise from the reporting itself. Double materiality assessment determines what is reported but is not only a reporting exercise but rather a strategic exercise (Nielsen 2023, 3-4.)

Materiality analysis is an integral part of sustainability reporting (Hsu et al. 2013, 150) because it gives perspective on what sustainability information ought to be included in the report. Materiality analysis means identifying which aspects and indicators are important for a firm's impact on society, the economy and the environment and which aspects and indicators influence stakeholders' decisions (Marimon et al. 2012, 135). Materiality can be single or double. Single materiality means sustainability information that is reported only from either impact or financial perspective whereas double materiality perspective recognizes both impact and financial materiality of different environmental, sustainability and governance (ESG) issues. Financial and impact materiality are separate but double materiality seeks to combine the two under the same reporting obligation. Double materiality means businesses need to comprehend not only their effects on the environment and society but also the impact these can have on its business. (De Cristofaro & Gulluscio 2023, 3-4; Elkins et al. 2024, 147.)

Double materiality forms the foundation of sustainability reporting under the CSRD (European Parliament and Council 2022, 8). For many companies this represents an entirely new perspective on what sustainability issues should be reported. Moreover, defining sustainability issues through double materiality is a new exercise for most companies, and its implementation may present challenges. This topic will increase its relevance in the coming years as the companies reporting and double materiality assessment practices are published. (De Christofaro & Gulluscio 2023, 8.)

1.2 Aim of the report

This report helps to highlight a possible way to implement a double materiality assessment which is viewed as the baseline of CSRD compliant sustainability reporting (European Parliament and Council 2022, 8). The report focuses to present the nature of double materiality and its assessment in companies but also the strategic aspect of sustainability reporting. The double materiality assessment is not only an exercise for mandatory reporting but rather a strategic exercise to identify key sustainability issues in the whole value chain (EFRAG 2023, 10). While there is recognition of the concept of double materiality there is very little empirical understanding how companies can and have applied the double materiality assessment (De Cristofaro & Gulluscio 2023, 2).

Therefore, this report aims to answer and find solutions to the following main research question: *How can a company develop its sustainability reporting in the light of EU's new corporate sustainability reporting directive?* The sub-questions are:

1. What is new in the corporate sustainability reporting directive?
2. How can companies identify, and address sustainability matters based on the double materiality principle?

With these objectives, the report seeks to comprehend the present state of sustainability reporting and to gain useful insights of the basic concepts of sustainability. Thus, this study will offer principles for identifying sustainability matters according to the double materiality concept. In identifying double materiality, other materials besides the ESRS are used, as previous voluntary reporting standards have often addressed certain areas of the ESRS in a more comprehensive and understandable manner. A broader viewpoint is considered when discussing the development of sustainability reporting frameworks.

This report is specifically aimed at companies that have not yet conducted their double materiality assessment or are planning to do so. It can also serve as a benchmark for those who have already conducted the assessment, helping them consider whether they have considered the right aspects and how they can use their assessment as a strategic tool to develop their sustainability work.

2 Navigating the changing landscape of sustainability reporting

2.1 Understanding current sustainability reporting standards

Reporting about sustainability has evolved in recent decades. Sustainability reporting dates to the 1980’s when the Brundtland Commission introduced the concept of sustainable development. Sustainability reporting has developed as a mean for firms to harmonize their operations with environmental and societal concerns (Christofi et al. 2012, 158.) However, for almost decades, sustainability reporting stayed same without clear guidelines on the reporting. Over time, several distinct reporting concepts emerged: sustainability reporting, non-financial reporting, integrated reporting and climate reporting. Initially, sustainability encompassed all ESG-issues without clear guidelines on the final form of reporting.

In 2015, the European Union adopted the 17 Sustainable Development Goals (SDGs) and signed the Paris Agreement at the United Nations Framework Convention on Climate Change. Then in 2017, EU Commission published guidelines for non-financial reporting (NFI) which required companies in the EU to report also about the connection between non-financial and financial information. These guidelines oblige companies to report under the NFI Directive about their ecological and social impacts but lacked reporting guidelines. This was followed by integrated reporting that aimed to align the environmental, social and economic performance of a company for reporting purposes with an emphasis on different time horizons and financial matters. Climate reporting, introduced alongside non-financial and integrated reporting, was pioneered by non-government organizations during the 2010s. (Baumüller & Sopp 2022, 11–13.) It can be assumed that the EU’s new reporting standards, ESRS, have taken pointers from all these concepts.

Before the current EU’s sustainability reporting standards came into place, both investors and executives believed that there are too many sustainability-reporting standards, and they agreed that there should be fewer standards in place. (Bernow et al. 2019.) This meant that voluntary reporting standards, such as implementation of the Global Reporting Initiative (GRI) guidelines did not improve the quality of reported material topics. As the use of GRIs is voluntary companies may have altered the disclosed material topics to focus on more positive aspects and less critical information, thereby aiming to conceal their weak performance. (Zharfpeykan & Akroyd 2023, 1112.) This is what differentiates EU countries from others is that EU legislative decisions on sustainability add to other national and regional regulations on country level whereas in other continents such as in the US sustainability reporting has been primarily voluntary throughout the years (Dinh et al. 2023).

Even though sustainability reports are driven by various of different drivers, company size, media exposure and ownership structure are the most critical ones of them. Internal structures e.g., influence of sustainability committees or board composition seem to have less or no influence on sustainability reporting. Firm size is a driving element for sustainability reporting as larger companies, especially if publicly listed, are required to publish information to inform their stakeholders and the capital market about their current state and operations. Media visibility on the other hand can be explained through external pressure to inform stakeholders to avoid negative publicity. For ownership structure there is no clear conclusion what type of structure benefits sustainability reporting, however different types of ownership structures may influence both the likelihood of publishing a sustainability report and its quality. This is ultimately driven by individual motivation and incentives. (Dienes et al. 2016, 167, 170-172.)

The reason behind the CSRD comes from the European Commission's idea of reliable and comparable sustainability data and the pressure for comparable ESG data and rankings comes from ESG investing (Adams & Abhayawansa 2022, 2). The predecessor of CSRD, NFRD, did contain specific reporting guidelines but rather set out only the basis of the topics to be reported. The CSRD seeks to increase not only the granularity of sustainability information but also to make it machine-readable in digital formats in the future. (Lee et al. 2023, 476.) The CSRD obliges companies to disclose information that previously was considered a recommendation (Primec & Belak 2022, 9), and the actual set of sustainability reporting standards aligned with the CSRD are created with the help of European Financial Reporting Advisory Group (EFRAG). It is a non-profit organisation that is known for their expertise on corporate reporting and coordination of Union sustainability reporting standards and international initiatives. The final set of sustainability reporting standards, i.e., the ESRS, cover all sustainability topics from a double materiality perspective. (Official Journal of the European Union 2022, 27).

The new CSRD reporting is not necessarily an easy exercise to carry out for companies. Not only does the CSRD increase the reporting burden, but it can also create unexpected costs and considerable challenges. (Baumüller & Sopp 2022, 8.) As the CSRD is built upon the double materiality principle, companies also need to conduct a double materiality assessment before they can successfully report according to the CSRD. The assessment should help companies to comprehend their own business opportunities related to sustainability and identify issues that are relevant for their key stakeholders and employees. In addition, the key idea is to link sustainability into the firm’s core business and strategy to understand that sustainability issues are not only something that needs to be reported but rather something that have a financial impact and possible competitive advantage. (Deloitte 2022.) Double materiality forms the foundation of the sustainability disclosures and what companies need to report about according to the new legislation (Commission Delegated Regulation 2023, 7). The next section will discuss what is double materiality and how it is presented in sustainability reporting.

2.2 Double materiality in sustainability reporting

Overall, the CSRD has stimulated the discussion whether companies should report under single or double materiality (Elkins et al. 2022, 144). Especially sustainability report preparers have proposed double materiality as the optimal solution to align sustainability reporting standards and materiality (Adams & Abhayawansa 2022, 3–5). The CSRD requires a company to document not only data that is essential to grasp the evolution, performance and position of the business but also information necessary to comprehend its impact on ESG-issues. Simply, this means that companies report both on the effects of their activities on ESG-issues and on how these sustainability concerns affect the company itself, in other words both impact and financial materiality. (Official Journal of the European Union 2022, 24.) This also means impacts on the value chain, and consequently a double materiality assessment requires prior understanding of all relevant stakeholders and the value chain (Canning et al. 2019, 12).

Compared to single materiality, the double materiality has a new perspective to consider which is the financial impact of different risks and opportunities (De Cristofaro, T., & Gulluscio, C. 2023, 3-4). A topic can be material from both impact and financial materiality perspectives as the assesments are interrelated (Commission EFRAG 2023, 11; Commission Delegated Regulation 2023, 7.). If a matter is relevant for the company and it thereby has an impact on the planet or society, the issue is material from an impact materiality perspective. Whereas, if a matter has an impact on the company’s business either as a risk or an opportunity, the topic is material from a financial perspective. (Commission Delegated Regulation 2023, 10; EFRAG 2023a, 28.) To determine and identify all relevant impacts, risks and opportunities (IROs) in the company’s value chain, it should consider and target areas in the value chain where IROs often arise based on its operations, business connections, geography or other factors. See Figure 1 to better understand the double materiality perspective.

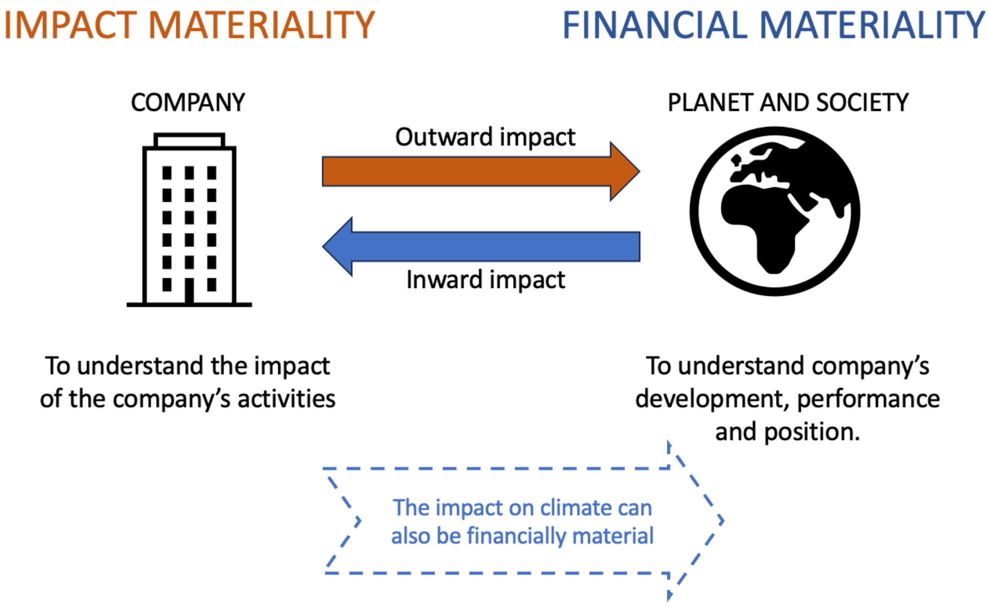

Figure 1 The double materiality perspective (Modified from De Cristofaro, T., & Gulluscio, C. 2023, 4).

Figure 1 illustrates the discussed two perspectives of double materiality. Impact materiality demonstrates the “inside-out” perspective of impacts whereas financial materiality indicates the “outside-in” perspective of sustainability matters. (Fiandrino 2022, 671.) These aspects must be analyzed by a company in its double materiality assessment. The outward impact means all sustainability issues a company can have an impact on whereas inward impact means all sustainability issues that can impact a company. These outward impacts can pose a positive or negative impact to the planet or society. Then again, outward impacts pose risks or opportunities to the company and they can be financially material. Risks can affect a firm's financial performance, cost of capital, cash flows or increase costs directly or indirectly, whereas opportunities can create positive financial effects by driving innovation or enhance comptetitiveness (Commission Delegated Regulation 2023, 273, 276,).

Also, other sustainability standards and disclosures such as the GRI and the CDP believe that companies should disclose information on impacts they have on the environment and people and to the overall economy as well. (Elkins et al. 2022, 144; De Christofaro & Gulluscio 2023, 23). The supporters of double materiality also emphasize that the double materiality standard has already been taken into practise in the ESRS and CSRD, so a single materiality aspect would fall short from the best practice. (Elkins et al. 2022, 144). Thus, many stakeholders and users of the sustainability reports prefer the double materiality perspective to single materiality (De Christofaro & Gulluscio 2023, 7).

Even though monetising sustainability issues may seem difficult, it should be understood what and how different environmental and sustainability issues can impact company's financial performance. Moreover, the increasing corporate transparency underlines the importance for companies to provide proxies for their material ESG-issues, rather than omitting them from their reporting. (Deloitte 2022.) This should be considered because according to a study by Correa-Mejía et al. (2024, 322) the majority of European companies do not provide information about their impact and financial materiality fully according to the ESRS and double materiality definition defined in the ESRS.

Chiu (2022, 102–103) argues that the development of double materiality metrics may face resistance from the private sector as there is too little incentive to deviate from single materiality. The shift to double materiality would require a shift in mindset and resources. Therefore, Chiu (2022, 102–103) proposes that EU should provide clarification on the materiality of governance features and the compatibility between single materiality metrics used by the private sector worldwide and the EU's own double materiality metrics. Similarly, SASB (2020, 2) recommends EU to align its work with the work different organisation have done around the world related to new regulation and market forces. This would establish the notion of double materiality as the universal foundation of sustainability reporting.

As sustainability reports and disclosure may be certified by an auditor, consultant, or another external assurance provider (Christensen et al. 2021, 1182) companies often use those same providers to draft their first double materiality assessment. Smaller companies can carry out their materiality analysis themselves or with the help of some external assistance (Chirex & van Vrede 2024). According to the CSRD it is crucial to have statutory auditors and audit firms to assure sustainability information as this will help to ensure that financial and sustainability information are coherent and consistent. However, the Commission recognizes the potential for further consolidation in the audit market (Official Journal of the European Union 2022, 35.), most likely referring to the Big Four, the four largest accounting firm, Deloitte, EY, KPMG and PwC. Big 4 firms have a significant market share as sustainability assurance providers (Canning et al. 2019, 2). Thus, Commission also indicated its intention to take steps to improve not only the audit integrity and foster a more transparent and varied audit market (Official Journal of the European Union 2022, 35). Until this practice the power to interpret double materiality assessments will largely remain with the current players in sustainability reporting assurance. The next section will focus on the role of voluntary reporting standards after the implementation of the CSRD.

2.3 Voluntary sustainability reporting frameworks

Before the reporting standard introduced by the EU, companies have often relied on multiple standards simultaneously to address their sustainability topics. The Global Reporting Standards (GRI) and Sustainability Accounting Standards Board (SASB) are the two most widely used sustainability frameworks and standards (Gamsjäger and Ray 2021). Voluntary reporting standards can be used to complement each other as no single standard is sufficient to cover all the needs of an organizations and its stakeholders (GRI & SASB 2021, 38). Neither of these voluntary standards fully meet the requirements of the ESRS, they can be utilized as a as foundational tools for impact and financial materiality. Moreover, the ESRS draws on both of these voluntary standards in many respects, and they have been used as benchmarks in its development.

Each voluntary reporting framework and standard has been made to address a certain aspect of sustainability (Goswami et al. 2023, 35) Therefore, standards themselves have also advised and instructed on the consolidation of this reporting and materiality (GRI & SASB 2021, 5.) GRI standards have previously been considered as the widely accepted standard to report on impact materiality whereas financial materiality has been considered through the SASB standards which have taken the investors and sector-specific perspective into account. (Baumüller & Sopp 2022, 12-13.) Today, GRI and SASB can be seen more complementary than conflicting (Pizzi et al. 2023, 1655; GRI & SASB 2021, 5.)

Companies have generally used GRI Standards to comprehend what material sustainability information they should report. GRI states that companies can use all standards to help determine what topics are material for them. In total, GRI has 36 Standards which three of them are universal standards GRI 101 on Foundation, GRI 102 no General Disclosure and GRI 103 on Management Approach (de Villiers et al. 2023, 731). Then it has topic-specific standards GRI 200: Economic, GRI 300: Environmental and GRI 400: Social. Under these topic-specific standards are multiple disclosures relevant to that specific topic. (GRI Standards 2021.) Topics are listed in Table 1 below.

Table 1 List of GRI Topic Standards (GRI Standards: Standards.)

GRI 200: Economic	**GRI 300: Environmental**	**GRI 400: Social**
Economic performance Market presence Tax Anti-competitive Behaviour	Materials Energy Supplier Environmental Assessment	Employment Labor/Management Relations Occupational Health and Safety

Procurement practices Anti-corruption Indirect Economic Impacts	Environmental Compliance Emissions Biodiversity Waste Water and effluents	Training and Education Diversity and Equal Opportunity Non-discrimination Freedom of Association and Collective Bargaining Child Labour Forced or Compulsory Labor Security Practices Rights of Indigenous People Human Rights Assessment Local Communities Supplier Social Assessment Public Policy, Customer Health and Safety Marketing and Labelling Customer Privacy Socioeconomic Compliance

To make it easier to comprehend what sustainability topics a company should analyse it can be beneficial to look at the GRI Topic Standards listed in the table above. The GRI is a voluntary reporting standard. A closer look reveals, for example, that engagement with suppliers is split between economic, environmental, and social themes and those all should be considered. Social issues are clearly the most listed, but environmental issues are also very complex. Thus, GRI Standards could be rather used to understand the multi-stakeholder perspective of double materiality than to identify all material topics according to the Standards as companies lack to disclosure all material issues (de Villiers et al. 2023, 733, 738). GRI guidelines can be criticized for being too general as the main problem with the GRIs has been that they lack quantifiable measures and detailed information needed by some stakeholders (Levy et al. 2010).

Even though SASB standards are focused on a single materiality approach with industry specific reporting disclosures (Elkins et al. 2022, 146) it has supported the European Commission's development of ESRS standards (SASB 2020). The use of SASB standards is also useful, as they are expected to expand globally (Xie et al. 2023). SASB website allows to search publicly listed companies to find the relevant industry standard and financially material topics for the company of choice (SASB: Materiality Finder).

SASB and GRI can be used as a source to consider sector-specific disclosures and double materiality (EFRAG 2023, 31). Financial and impact materiality are separate but double materiality seeks to combine the two under the same reporting obligation. SASB and GRI can be used to make a dual determination. SASB focuses on measuring economic materiality and metrics whereas GRI focuses more on existing CSR mechanisms. By combining both SASB and GRI company can best communicate with different stakeholders through its sustainability reporting. (Pizzi et al. 2023, 1668; SASB 2023, 6-7) GRI reporting standards are seen as the most comprehensive and they cover a wide range of sustainability topics. In addition, the standards take different stakeholders into account when considering different aspects of sustainability issues. (Goswami et al. 2023, 56.) On the other hand, companies that want to evaluate their financial materiality should use the SASB standards to understand their financially material risk. SASB standards can be especially useful to identify companies' ESG risks, especially risks related to the environment (Xie et al. 2023, 2939.) Both GRI and SASB are rather general sustainability initiatives (Gamsjäger and Ray 2021). Therefore, it is important to understand how sustainability reporting is monitored and managed, which will be discussed in the next section.

2.4 Governance and assurance of sustainability reports

Sustainability information should be clear and concise so that users of that information can easily comprehend the reported details. Moreover, the users should be able to comprehend all relevant impacts, risks and opportunities and reasoning behind them if that can affect their decision-making. (Commission Delegated Regulation 2023, 30, 32.) Impacts, risks and opportunities means those topics that become material for company to report on after conducting a double materiality assessment.

Research shows that publishing comprehensive sustainability information for investors especially material sustainability information improves the informative value of share prices. (Schiehll & Kolahgar 2021, 841.) Even though assurance of information is an important part and update for the users of sustainability information (Official Journal of the European Union 2022, 35), the CSRD and its integrated double materiality principle, relies heavily on market-driven governance to achieve public interest objectives in sustainable finance (Chiu 2022, 117).

To this day, sustainability reporting and disclosures have been voluntarily assured. Stakeholders' opinions differ whether sustainability information should be externally assured in the future (Elkins et al. 2022, 148.). EU Taxonomy is a first attempt to measure the governance of non-financial corporate reporting. When reporting compliance with the Taxonomy Regulations, companies need to disclose certain expenditure levels connected with the sustainable activities. This helps the users of this information to understand the actual levels of commitment to sustainable activities. (Chiu 2022, 108-110.) However, Primer and Belak (2022) state that EU has not developed a similar governance model to the CSRD which is why

EU should ensure that the development of the metrics undergo inclusive discussions and monitoring that not only supports the concept of double materiality but also acknowledges single materiality. Especially since qualitative information of sustainability reporting is not as reliable compared quantitative data. However, according to the current information, the CSRD requires companies to externally assure their CSRD-compliant sustainability reports (Official Journal of the European Union 2022, 34–35)

This trend of assurance is particularly supported by accounting professionals, while users and preparers favour a lower level of assurance. The reasoning may be that accounting professionals see this as a business opportunity and the only way sustainability reporting can be reliable, whereas users and preparers do not see assurance as a necessary step of sustainability reporting. Whatever the case is, it appears to become a market practice to verify sustainability information, also in the EU, as CSRD requires companies to externally assure their sustainability reporting. (Elkins et al. 2022, 148.) Monitoring sustainability has a central role if it is expected that the reporting mandate includes the financial impact of different sustainability impacts (Christensen et al. 2021).

Before reporting, however, it is good to comprehend that no framework or reporting standard recommends that all topics should be reported on. The determination of whether a topic is reported is determined by materiality. Materiality as a basis for reporting and how to identify different types of impacts, risks and opportunities (IROs) are discussed in the next chapter.

3 Materiality as a basis for sustainability reporting

3.1 Determining materiality

If business information is material, company must disclose it in its sustainability reporting (Clark 2021, 378). A company should aim to report information that is not only valued by the investors but also that may help lead the business through future transitions. Therefore, sustainability reporting should not be a separate exercise for the company but create actual value. (Barker 2024, 35.) CSR and thus sustainability reporting is an integral part of corporate strategy and strategic objectives (Dathe et al. 2022, 17). As seen in Figure 2, CSR should be part of each step in the strategic pyramid. The figure also shows that a materiality analysis of relevant sustainability topics is the basis for all sustainability work in the company.

Figure 2 Pyramid of sustainability goals (Modified from Dathe et al. 2022, 17)

Materiality analysis should be conducted before a company can set any sustainability goals or strategy. This is because the materiality analysis serves as a basis for all sustainability work. Without this measure of materiality, it is difficult for a company to understand which areas of sustainability to focus on and which topics are important for it as illustrated in Figure 2 (Clark 2021, 379). Therefore, materiality analysis is added at the foundation of the sustainability goals pyramid. Next, it is vital to set clear targets and key performance indicators to measure, monitor and achieve the desired sustainability goals. Strategic infrastucture, such as resources, network and innovation, is essential to achieve these objectives. Performance indicators and targets should be then integrated into strategic objectives and long-term plans. Achieving these goals requires leveraging core competenties that enable the company to gain competitive advantage or are difficult for competitors to replicate. Objectives should be quantified and concrete. These will form the final sustainability goals and values, grounded on the clear vision and mission of this CSR strategy. (Dathe et al. 2022, 17–19.)

Recently, the concept of materiality has developed from single materiality to double materiality (Fiandrino et al. 2022, 669), which is relevant for this study. Different sustainability standards have provided frameworks on defining materiality that largely respond to materiality through single materiality perspective. (Fiandrino et al. 2022, 668-669.) Most companies have often assessed their materiality with the GRI materiality principle and SASB standards. The SASB standards focus on financial aspect of the impacts with the consideration what topics are material to investors. The GRI materiality principle on the other hand focuses more on the stakeholder-based approach that takes stakeholders' influence and opinion more into consideration. (Guix et al. 2019, 2322-2323.) Similar, to the ESRS, both SASB and GRI standards note that user focus is an important aspect of the materiality assessment, as the objective of the reporting is to aid those who use the report in their decision-making.

There are no clear guidelines on how materiality is determined but materiality can be determined either by understanding a narrow or a wide stakeholder group. In this study materiality requires consideration of a wide range of stakeholders because only by taking into consideration the whole value chain which includes a wide range of different stakeholders, can a company express and understand the complexity of sustainability in its operations. (Reimsbach et al. 2020, 641-642.) To determine most material sustainability topics and their goals, a company should initially address the following: What are the most significant and material sustainability concerns where setting objectives and goals will make the greatest impact? Are there areas or issues we should be addressing but currently are not? After these questions, companies need to comprehend what external stakeholders they consider the most relevant. The views of these external stakeholders should not exclude but rather add value to those of internal stakeholders. (Isaacs et al. 2024, 24.) The next section presents all the topics addressed in the ESRS standards, from which companies select the most relevant ones for their specific context.

3.2 Sustainability topics arising from the European Sustainability Reporting Standards

Companies need to identify if a topic, sub-topic or sub-sub-topic is material for them because it is a material impact, risk or opportunity or both (EFRAG 2023, 16). In the Commission Delegated Regulation (2023, 27-29.) the ESRS are divided in 10 different ESG-issues. There are five different environmental topics, three social topics and one governance-related disclosure topic. The topics are the following:

- ESRS E1: Climate Change

- ESRS E2: Pollution
- ESRS E3: Water and marine resources
- ESRS E4: Biodiversity and ecosystems
- ESRS E5: Circular economy
- ESRS S1: Own workforce
- ESRS S2: Workers in the value chain
- ESRS S3: Affected communities.
- ESRS S4: Consumers and end-users
- ESRS G1: Business conduct

The ESRS also categorizes the above topics into sub-topic and sub-sub-topics which means that under for example ESRS S1 there are sub-categories related working conditions and those categories can be also categorized to subareas. The full list of topics is described in ESRS 1 paragraph AR 16 (see Appendix 1).

Climate change disclosures aim to give users of the sustainability report information about the company's effects on climate change and actions to mitigate global warming by contributing to limiting global warming to 1,5 degrees Celsius (Commission Delegated Regulation 2023, 73). Other environmental issues can hazardous substance management, water conservation measures, eco-efficiency and environmental management. What is surprising is that less than half of the companies consider biodiversity as a risk for their company. The importance of this sustainability topic will increase in the future, but as of now the level and quality of reporting lacks from other sustainability reporting standards. (KPMG 2022, 14, 20.) Circular economy can influence the use of virgin materials, recycling of waste and emissions (Korhonen et al. 2018, 40).

Social impacts include own workforce, workers in the value chain, affected communities and customers and end-users, and the goal of social sustainability of the workforce can be seen as minimising negative impacts for all key stakeholders which includes measuring e.g., subjective well-being, psychological capital and continuous learning. (Lasisi et al. 2022). Workers and their representatives are seen as key stakeholders (EFRAG 2023a, 22). Then again there are different measures that can be applied when analysing fair treatment of workers in the supply chain.

Labor equity, healthcare, safety and philanthropy are listed as topics that are a good starting point for a company to establish a thorough social sustainability framework (Hutchins & Sutherland 2008, 1697) and therefore analyze their sustainability impacts in their supply chain. Consumers and end-users' disclosures aim to understand what impacts the products of a company can cause and what actions the company is doing to prevent or mitigate any potentially negative impacts

(Commission Delegated Regulation 2023, 233). Own workforce, suppliers and end-users are not the only ones affected in a company's value chain. Also affected communities should be taken into consideration if the company impacts their lives in one way or another. Possible effects can be e.g., environmental safety issues, health problems otherwise irreversibly influencing the community concerned (Martin et al. 2020.)

Governance means business conduct including responsible supply chain, anti-corruption and political engagement. Possible impacts and risks can be e.g., favouritism of suppliers, bribery, lack of inadequate due diligence procedures or violation of local environmental regulations (OECD 2016, 57–62). Moreover, company should for example consider if it operates in countries that have a higher risk of corruption and bribery compared to other countries (EFRAG 2023a, 41).

A good way to find out what is relevant to a company is to look at the media and literature on sustainability issues specific to the sector, because media attention and stakeholder pressure drive improvements in sustainability reporting (Hahn & Kühnen 2013, 11). Topics that arise from the media reports, analysis of peers and publications often help companies to identify sector-specific impacts, risks and opportunities (EFRAG 2023a, 20). The upcoming section aims to highlight the involvement of other stakeholders in sustainability and how stakeholders should be taken into consideration in double materiality.

3.3 Materiality for different stakeholders

Stakeholder can either mean an individual or a cluster of people who affect or are affected by a business. They can for example own a share in a business or they are people who are who are involved with the business such as an employee, customer, or citizen and thus have a direct stake in the company's progress (Freeman 2010, 5, 47.) The stakeholders have power to influence the relationship (Mitchell et al. 1997, 865). That makes stakeholders as persons who the company interacts with to maintain its operations and business. Traditionally, companies have categorized their stakeholders into suppliers, employees, customers, society and financers e.g., investors, banks (Dathe et al. 2022, 144; Freeman 2010, 9). Society can mean public authorities, regulators, supervisors and the central bank and customers can be also end-users and consumers of the possible product (Commission Delegated Regulation 2023, 24).

The ESRS describe stakeholders as "those who can affect or be affected by the undertaking". It separates stakeholders into two different categories. First group are the persons/groups who can be influenced either positively or negatively by the business and its activities. This can mean either direct or indirect business connections in the value chain. Second group are the users of the sustainability statement. Generally, this means the users of financial reporting e.g., investors, creditors and insurance providers. However, there are also other users such as business partners, NGOs, analysts, academics, trade unions and civil society. (Commission Delegated Regulation 2023, 7.) Therefore, the ESRS standards encourage to use a broader definition of a stakeholder than previously.

Stakeholders who are affected positively or negatively by a company and its activities can be classified into internal and external stakeholders. Internal stakeholders are not only the employees of a company but also managers and owners while external stakeholders can be categorized into suppliers, government, competitors, investors, creditors, unions, media and customers. (Dathe et al. 2022, 146.) Different stakeholders have different expectations regarding sustainability and thus sustainability reporting (Goettsche et al. 2016, 152).

Company should identify all its material stakeholders as clearly as possible which means companies cannot only report about positive impacts, because there needs to be a balance of both positive and negative impacts in the retrospect they are valued in the materiality analysis. (Canning et al. 2019, 12.) It is crucial that identification of impacts remains consistent across all stakeholders (Johnson et al. 2023, 669). It is important to engage with every stakeholder of a company to better evaluate the impacts, risks and opportunities it has regarding sustainable development (Lee et al. 2023, 484). Especially large companies that have a diverse group of stakeholders have the need to inform and engage with their stakeholders to secure their legitimacy e.g., through sustainability reporting (Hahn and Kühnen 2013, 14).

Also affected stakeholders differ depending on which sustainability topic is in question. In regard of biodiversity, Commission Delegated Regulation (2023, 148) mentions the following as possibly affected stakeholders: suppliers, retailers, competitors, other business partners, authorities and government bodies and affected communities. Regarding circular economy the Commission Delegated Regulation (2023, 161, 7) mentions local communities, other business partners competitors, customers, retailers, suppliers, authorities and government departments. Own workforce is always a key stakeholder as they are directly impacted by the company.

If a company has not conducted a stakeholder analysis, to help identification of key stakeholders, a company can conduct an analysis of existing stakeholder initiatives and mapping the stakeholders affected by the company's operations and business relationships (EFRAG 2023, 20). If not, all relevant stakeholders should be identified before considering materiality, to ensure nothing is overlooked. As company has exchange between each of its stakeholders it also has limits. This means that a company can only influence up to a certain point through its own actions. For example, a company may require its suppliers to meet certain environmental requirements to continue cooperation, but its influence often ends there. (Hutchins & Sutherland 2008, 1693.) This boundary can also be used to comprehend what stakeholders can expect from a company and what are the company's limits in stakeholder engagement. However, these stakeholders are often spread across the value chain.

Stakeholders are part of the company's complex value chain. The main difference is that the value chain is about creating value for customers and stakeholders, while the supply chain is primarily concerned with delivering the product or service. (Porter 2001.) Supply chain often only means upstream of the value chain but to consider the whole value chain also downstream entities should be considered and what is the company's competitive advantage (EFRAG 2023b, 8.) Sustainability is part of the value chain, whereas sustainability reporting and measurement is often considered to be more part of sustainable supply chain management. However, these terms are used interchangeably.

Sustainability topics that should be considered through the value chain can arise with different stakeholders. These topics are related to all ESG themes, including the environment, labour conditions, human rights, social standards, anti-corruption, intellectual property and compliance with laws. (Dathe et al. 2022, 43.) On-site visits and audits are important as relationship and customer capital are the value of knowledge in overseeing connections between a firm and other business stakeholder. It acknowledges the increasing significance of strategic collaborations among suppliers, buyers, customers, and service providers within the value chain of a product. (Choucri et al. 2007, 189.) All these stakeholders should be taken into account and valued also in the double materiality assessment.

There should be dialogue between the company and its the key stakeholder groups so that stakeholders can bring up new material issues easily (Guix et al. 2019, 2332), because currently, there is a noticeable disconnection between stakeholder engagement disclosure and sustainability throughout the value chain (Ardiana 2023, 360). Cooperation and engagement with all possibly affected stakeholders is an integral part of the sustainability materiality assessment (Commission Delegated Regulation 2023, 8), but the ESRS do not require specific form of stakeholder engagement (EFRAG 2023a, 39). Although there are no thresholds or precise definitions for this engagement, it is crucial to understand how stakeholders are involved in the actual double materiality process which is discussed in the following chapter.

4 Double materiality assessment process

4.1 Conducting a double materiality assessment

There is no clear process defined in the ESRS how a double materiality assessment should be conducted, because currently there is no process that would suit all companies (Commission Delegated Regulation 2023, 9-12; EFRAG 2023, 18). The purpose is that the double materiality assessment process should include consultation with affected stakeholders, taking into account those who affect both own operations and value chain while understanding different activities, business relationships and geographies. (Commission Delegated Regulation 2023, 51)

A double materiality assessment, consistent with the ESRS can be summarized in four steps:

1. Understanding company context and business relationships
2. Assessment and evaluation of actual and potential impacts, risks and opportunities related to sustainability issues.
3. Evaluating and deciding on the significant effects, risks and opportunities concerning sustainability topics.
4. Reporting based on double materiality.

To grasp the context, it is essential to understand relevant activities and business connections as well as the stakeholders affected. Identification of actual and potential IROs should be considered throughout the value chain. Assessment and determination of material IROs should happen by separating impact materiality and financial materiality assessment and score the IROs by relevant criteria. The consolidated findings of the assessment with appropriate threshold results in a successful double materiality analysis that can be used as a basis of sustainability reporting. (EFRAG 2023, 19).

The focus is on identification of impacts, risks and opportunities and not only impacts (EFRAG 2023, 19.) Looking at the reporting itself there is not a major difference in the amount of disclosed material topics between single and double materiality, but double materiality assessment has changed the prioritisation of those topics (Correa-Mejía et al. 2024, 310). Figure 3 shows how topics listed in ESRS 1 paragraph AR16 can be used to evaluate and identify material impacts, risks and opportunities.

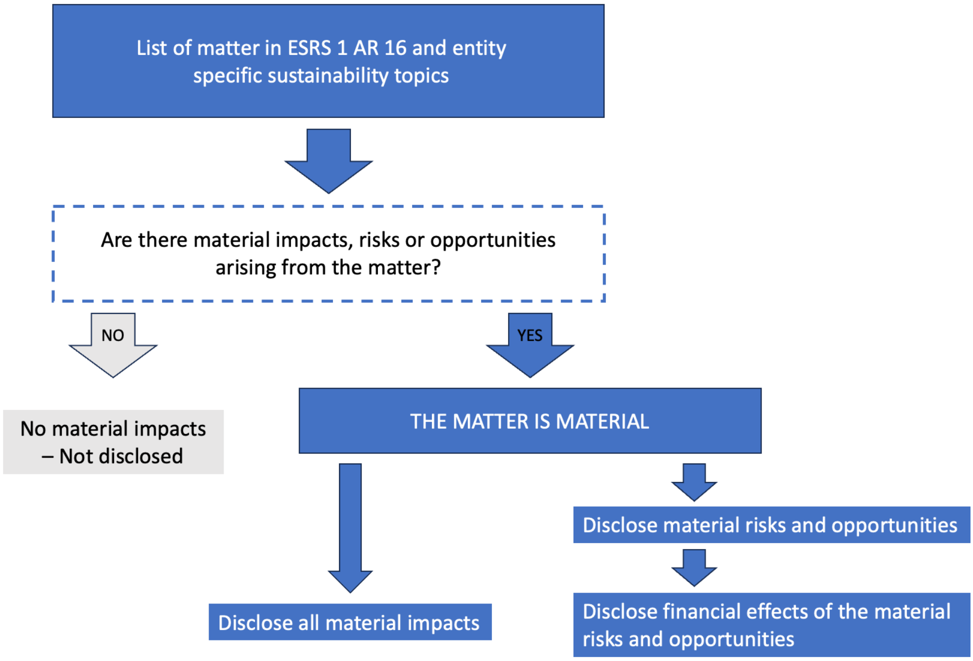

Figure 3 Identification of material IROs (Modified from EFRAG 2023a, 13)

As illustrated in Figure 3, all sustainability topics, categories and subareas should be considered with the same criteria of time horizons and value chain whether they are material from impact or financial perspective or both (EFRAG 2023a, 18). A sustainability impact is considered material when it involves the company's significant actual or potential effects, whether positive or negative, on people or the environment in the short-, medium- or long-term. These impacts can happen either in the company's own operations or the value chain. Materiality of an actual negative impact is determined by the severity of the impact while potential impacts are assessed on both their severity and the probability of occurrence. Severity is based on two or three factors depending on if the impact is negative or positive. If the impact is negative, the factors are scale, scope and irremediability. If not, severity is based on scale and scope. Therefore, positive actual impacts are based on severity and positive potential impacts on severity and likelihood. (Commission Delegated Regulation 2023, 10.)

A sustainability impact is material from the financial perspective if it will have a financial effect for a company. This happens when a sustainability issue represents risks or opportunities that have a significant impact, or are awaited to have a significant impact, on the company's growth, cash flows financial position and performance, availability of financing or cost of capital in the short-, medium- or long-term. (Commission Delegated Regulation 2023, 10–11.) Materiality can be determined by probability of the occurrence and potential magnitude of the financial effect (EFRAG 2023a, 28). In addition to risks, companies should report about their dependencies on not only natural resources but also human and social resources that may affect the company's operations or trust in the relationships that are essential to business processes. (Commission Delegated Regulation 2023, 10–11).

Identification of sustainability matters in both impact and financial materiality perspective should include a consideration of time-horizons. The consideration should include an analysis whether that impact happens in the short-, medium- or long-term. The time intervals can be divided as following:

- Short-term: Same as reporting period for financial statements, so less than 1 year.
- Medium-term: From the end of the short-term reporting period up to 5 years, so 1–5 years.
- Long-term: More than 5 years. (Commission Delegated Regulation 2023, 15.)

There are also other criteria that can be considered to analyze materiality. The analysis can consist of three main criteria that are:

- Percentage of interested stakeholders for each issue from very low to very high
- The level of stakeholder concern form very low to very high
- Criteria for assessing severity and the impact of issues on strategic communication objectives from very low to very high.

The scale in all criteria is a five-step scale where very low = 2, low = 4, moderate = 6, high = 8 and very high = 10. The weights of each criterion can be defined by the expert group conducting the sustainability materiality assessment. (Hsu et al. 2013, 146–147, 150.) These criteria align with EFRAG's (2023a, 28) five-step scale criteria on impact materiality where severity is also considered from low to high. Although EFRAG guidelines do not give the same weight to the scoring from stakeholders (i.e., criteria one and two of Hue et al. (2013) materiality analysis), it is important to evaluate the impacts throughout the value chain and business relationship

(Commission Delegated Regulation 2023, 10) which can be done by measuring the percentage of interested stakeholders and level of stakeholder concern.

In the context of double materiality, a sustainability matter becomes material when the information is relevant and has potential influence in the decision of users of the sustainability report (Commission Delegated Regulation 2023, 28). The double materiality aims to meet the needs of all stakeholders (De Cristofaro & Gulluscio 2023, 5). Companies that only assessed and updated their previous material issues and draw conclusions from that analysis to update their materiality to fulfill the double materiality assessment criteria, do not actually disclose information as it is defined in the ESRS (Correa-Mejía et al. 2024, 310).

The CSRD does require to update the double materiality on a yearly basis, but companies need to disclose if the process has or material topics have changed compared to prior reporting period or if there has been a a significant change affecting the business (Commission Delegated Regulation 2023, 52). However, it is believed that once CSRD is fully enforced, large EU companies will update their materiality analysis every 2–3 years (Fantini et al. 2023, 6). Consequently, the next section ultimately aims to showcase how DMA and material impacts can be presented in the final sustainability reporting, because the process of double materiality is complex and ambiguous.

4.2 Presentation of double materiality assessment and material impacts in sustainability reporting

Materiality is the basis of sustainability reporting (Commission Delegated Regulation 2023, 8). Even though the ESRS from European Parliament and Council (2022) give guidance on what material information needs to be disclosed and what data points need to be present in the report, it does not give a certain model or framework on how the final sustainability information based on the material topics needs to be presented. Material topics can be presented both visually and literally in many ways depending on the desire of the company. Often a common market practice has been the materiality matrix which is a tool to visualize a sustainability strategy and prioritisation of sustainability themes. De Cristofaro and Raucci (2022, 18) study the evolution of materiality matrix and summarize that even though materiality matrix is omitted from the recommendation of GRI, the use of it has been a common market practice. In addition, the EFRAG (2023a, 28) guidance on the implementation of double materiality differs from the GRI and gives a sample of a matrix as a possible approach to visualize material topics of impact materiality. However, reporting about sustainability is not only based on performing a good double materiality assessment but ultimately companies also must choose whether they want to simply comply with sustainability regulation or fully explain their sustainability practices to their stakeholders (Lee et al. 2023, 491).

Materiality matrix is not used to visualize material opportunities and risks but rather only the impact materiality which is based on severity and likelihood (De Cristofaro & Raucci 2022, 18; EFRAG 2023a, 18). The concept of materiality matrix is also criticized for being too limited as it is a value-loaded consideration what matters the most, minimising the complexity of the materiality assessment, stakeholder engagement and societal impact. (Puroila & Mäkelä 2019, 1061). Different stakeholders consume and value different sustainability information which means that the material matrix can create a too narrow picture of the company's most material sustainability impacts.

In De Christofaro and Gulluscio's study (2023, 16) most companies include a visualization of the double materiality assessment process that allows the users of that information to comprehend the phases of the DMA. All the phases are not described in detail as that analysis includes a lot of possible confidential information. Many companies inform impacts' intensity with a three-scale scoring: low/medium/high and others with a yes/no answer. (De Christofaro & Gulluscio 2023, 17-18.)

As double materiality requires to report sustainability issues that are material from both the impact perspective and financial perspective, companies have a risk of redundant reporting, since these sustainability risks are often an obligatory aspect of risks management reporting (Baumüller & Sopp 2022, 22). However, there also should be sufficient reasoning if some topics are considered as not material (Commission Delegated Regulation 2023, 52). Companies should also disaggregate impacts, risks and opportunities by country if these vary a lot from country to country. In addition, it should disaggregate the reported information by possible significant site if it is relevant information for the user of that sustainability reporting. (Commission Delegated Regulation 2023, 11–12.)

Stakeholders should be taken into consideration when reporting about material sustainability topics. Firms that align their disclosures of stakeholder involvement to those of ESG-issues are very limited. The limited stakeholder engagement disclosures shows a lack of understanding of how practical actions are expressed in reporting. (Ardiana 2023, 355, 360.) Moreover, companies do not disclose sufficient information on the connection of business model and sustainability risks in their sustainability reports. Especially some companies lack information on the time frames and possible financial impacts of those risks (Glaveli et al. 2023.) This is especially concerning as those who rely on sustainability reports are essentially the main audience for general financial reporting. These include current and potential investors as well as other creditors such as credit institutions, asset managers and insurance companies. In addition, this group includes other stakeholders such as the company’s business associates, labour unions, social partners, civil society, non-governmental organizations (NGOs), analysts, researchers and governments. (Commission Delegated Regulation 2023, 281.)

EFRAG (2021, 28, 29) guides that companies should provide perspectives on their strategy and its links to value creation in all time horizons. Sustainability strategy should have targets, KPIs and those progress should be monitored. Such KPIs can be for example carbon footprint, sulfur dioxides and nitrogen oxides emissions for environment, employee satisfaction, health and safety and diversity rate for social and production site certification and supplier rejection rate for governance (Hristov & Chirico 2019, 8). Organization’s progress towards sustainability involves successive transitions between different configurations. However, external factors such as recent mergers, acquisitions or sudden CEO changes have a significant impact on these transitions. (Gond 2012, 220-221.) Thus, it is crucial that companies publish relevant, comparable, and reliable sustainability data (Official Journal of the European Union 2022, 16). This will also help readers of the report to comprehend the background and progress of the sustainability strategy.

For users of the sustainability report, it is important to disclose comprehensive sustainability information because it may influence the user’s decision (Reimsbach et al. 2020, 626). Companies should disclose a comprehensive description of the business model and potential time horizons of that business model. Moreover, it is valuable to give information on the dependencies and impacts of sustainability as well as material issues that are likely to be financially material for the company. Risks and opportunities are valuable information as well, but everything should be guided by strategy, set objectives, KPIs that are tracked. (EFRAG 2021, 29.)

4.3 Conceptual framework for developing sustainability reporting

The purpose of this section is to summarize literature on double materiality and present a conceptual framework for the focal study. Conceptual framework can demonstrate and explain the key topics under investigation and their assumer interrelation. It can help to understand which variables can be considered as the most important and map what is studied. (Miles & Huberman 1994, 20-21.) In this case the framework is built from the mentioned concepts of sustainability reporting and materiality to address the primary research question “*How can a company develop its sustainability reporting in the light of EU’s new corporate sustainability reporting directive?”.* The illustrated framework (Figure 4) presents an understanding of how a company can identify material sustainability topics for them and thus develop their sustainability reporting.

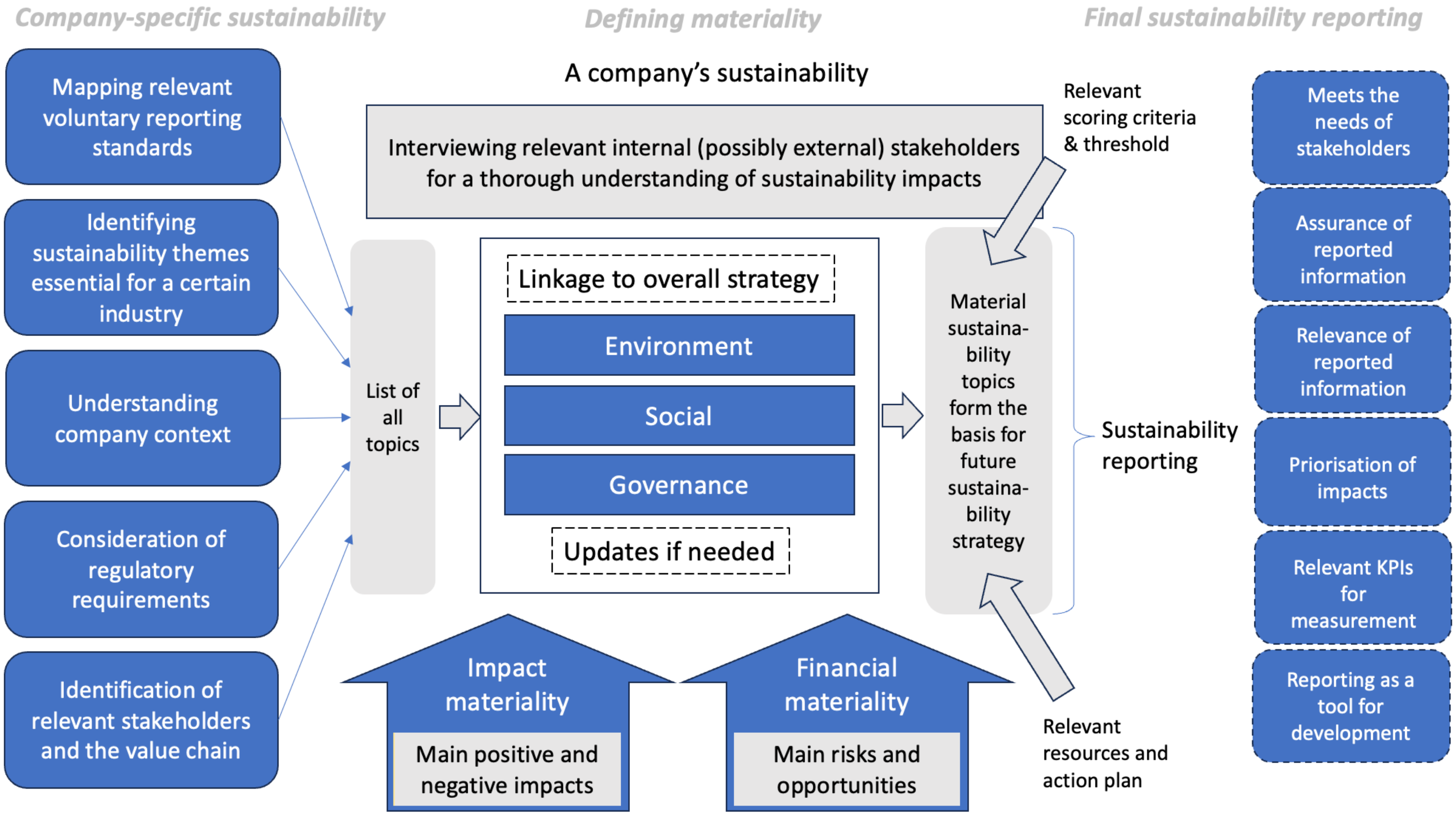

Figure 4 Conceptual framework for developing sustainability reporting

This framework presents the development of sustainability reporting as a linear model where relevant sustainability impacts must be understood from a double materiality perspective before reporting. The process includes identification of matters that are specific for the company, from those defining materiality that will end in final sustainability reporting.

Considering double materiality assessments there is no clear process how it should be conducted (Commission Delegated Regulation 2023, 9-12; EFRAG 2023, 18) as long as both impact and financial materiality are considered in the process (Fiandrino 2022, 671). However, without separately analysing positive and negative impacts as well as risks and opportunities, the other can unwittingly remain unanalysed. Double materiality assessment should not just define material sustainability topics but rather form a basis for future sustainability strategy for a company which sustainability reporting is part of. In this, the company's own expertise and knowledge of its entire operations and value chain are crucial.

Before defining materiality company specific sustainability needs to be considered. This includes understanding the company context and identifying sustainability that are relevant for a certain company. This can be achieved by having a comprehensive picture of a company's current state from internal and external determinants. (GRI Standard 2023, 7.) By reviewing company's current sustainability work and materials as well as comprehension what is said in media, company can create a picture where they are currently. Furthermore, considering regulatory requirements and mapping relevant voluntary reporting standards is essential to determine company-specific sustainability. Here to help is the ESRS which is based on the CSRD as well as GRI and SASB which both are voluntary reporting standards. (European Commission: Corporate sustainability reporting; Fiandrino et al. 2022, 668-669; SASB 2020, 3.) Moreover, industry-specific data, materials and competitors should be assessed to determine which ESG-issues typically arise as material in different sectors. For instance, for a company operating internationally in the health technology sector, key sustainability issues often include the social impact of preliminary health care, environmental impacts of manufacturing and shipping processes, employee well-being and fair labour practices throughout the value chain, end-user safety and regulatory compliance as well as data privacy.

Then a long list of topics is formed which can be classified into environmental, social and governance topics. Assessment of double materiality can be carried out after this categorization from the first part of company-specific sustainability. Categorization is often done to ESG-issues (Dathe et al. 2022, 112, 118). This helps to break down what is affected by which impact. Moreover, the company's strategy, current risks and future prospects should also be taken into account at this phase and how ESG-issues are taken into account in it. This comprehensive groundwork will enable the double materiality itself to be targeted at right issues without missing any relevant topics. Then categorisation and prioritisation can be done to identify main negative and positive impacts and main risks and opportunities. A more detailed scoring system can help in categorising the significance of various ESG-issues, which enables a more effective prioritisation of these sustainability issues.

Additionally, identification of relevant stakeholders and the value chain is essential in order to carry out the double materiality assessment where material sustainability topics are defined (Canning et al. 2019, 12). Literature defines that double materiality assessment should include all relevant stakeholders. Stakeholders have varied expectations about sustainability, which leads to differences in what they expect from sustainability reporting (Goettsche et al. 2016, 152) and identification should be consistent across all stakeholders (Johnson et al. 2023, 669). Especially, large companies that have a wide range of stakeholders should inform and engage with their stakeholder (Hahn and Kühnen 2013, 14). Connected to defining materiality, by interviewing external stakeholders, it becomes feasible to attain a more comprehensive understanding of overall impacts that were not initially covered in the framework. Contrary to the initial findings, informants also shared that the overall process and sustainability reporting development is or should be linked to the overall strategy rather than having it as a separate strategy.

On this basis, the double materiality assessment can be implemented based on whether a matter is material through impact or financial materiality (Fiandrino 2022, 671). These topics should be then scored to prioritise topics according to what are the most material topics. This includes setting a threshold above which a scored topic is material. (EFRAG 2023, 19.)

Finally, all material topics should be reported in the final sustainability reporting. Under double materiality principle, companies should report on all information that is relevant for them. This is further confirmed by the CSRD which requires to externally assure all reported sustainability information which aims to ensure that companies report on issues that really affect and are affected by them (Official Journal of the European Union 2022, 34–35). However, companies should not only report on topics that arose from the double materiality but to prioritise them if possible. Also, relevant KPIs for example reduction of gas emissions, resources consumption, respect of human rights, work conditions and quality of processes are essential to follow and measure the development and linkage to broader strategy (Hristov & Chirico 2019, 8; EFRAG 2021, 29).

5 Conclusions

5.1 Theoretical contribution

Given the relevance of sustainability reporting and double materiality in academic discussion in the recent years this report gives practical guidance on how companies can conduct a double materiality assessment and identify material sustainability topics. Therefore, this study makes three key contributions to the existing literature on sustainability reporting.

First, the existing literature on the CSRD and its difference compared to previous reporting standards is limited. This literature has mostly focused on comparing voluntary and mandatory sustainability reporting disregarding how they can complement each other and what they have in common (Dihn et al. 2023; Lee et al 2023; Primec & Belak 2022). On the other hand, this study focuses to compare mandatory and voluntary reporting standards so that it is easy to understand what they are designed for and how they can be used to support regulatory reporting. Many companies already report partly according to voluntary standards which is why it is important to comprehend how current reporting practices differ from reporting under the CSRD. This is also supported by the empirical findings that there is a lack of awareness among companies of what sustainability reporting means for them. There is a global non-harmonisation of sustainability reporting which raises questions on where reporting is going and how to respond to different stakeholders' demand. Having an understanding of this is crucial as listed and many large companies have already started their reporting journey according to the CSRD. (European Commission: Corporate sustainability reporting.)

Second, there is a noticeable gap in in research especially on the implementation of this double materiality assesment (De Christofaro & Gulluscio 2023, 8.) Even the ESRS does not disclose a clear process on how to conduct a double materiality assessment since the process is company specific (Commission Delegated Regulation 2023, 9-12; EFRAG 2023, 18). Therefore, this study provides an example of how double materiality assessment can be conducted comprehensively and what issues need to be taken into account. By examining both the impact of the company and its economic impact, it is possible to identify key sustainability issues.

Lastly, even though the exercise of sustainability reporting can also be seen as a strategic initiative because the double materiality assessment can be a strategic exercise to identify key sustainability issues in the whole value chain (Dathe et al. 2022; EFRAG 2023, 10) there is very little research on how companies can create value rather than having sustainability reporting as a separate exercise (Barker 2024, 35). This study demonstrates that as part of double materiality assessment companies can identify their value chain and key stakeholders and comprehend how to measure relevant sustainability issues throughout the value chain. This is useful as sustainability reporting can make different control systems available to the company through, among other things, relevant KPIs (Official Journal of the European Union 2022, 17). Inclusion of sustainability in the control systems is a good way to improve the sustainability strategy (Gond 2012, 221).

In conclusion, the focal report illustrates the link between double materiality and development of sustainability reporting. Material sustainability topics can form a basis for future sustainability reporting that if used correctly can be used as a tool for development. Without identification of relevant stakeholders and company-specific sustainability issues this is however impossible. This is also linked to the management implications of this study, which are discussed further in the following section.

5.2 Managerial implications

This report observed the current state of sustainability reporting and double materiality approach presented by the EU. There is a growing interest for reported sustainability information not only among investors and other stakeholders but also companies have started to see sustainability reporting as part of sustainability strategy development. First companies need to report their first CSRD-compliant report in 2025. To be compliant from a CSRD perspective, companies need to conduct a double materiality assessment of material sustainability topics. However, as usual in new draft legislations, there are no direct instructions on how to carry out the assessment nor has the market yet developed a well-established way of performing it. Therefore, this report focused on creating a framework for conducting a double materiality assessment. This framework can be used as a basis for conducting a double materiality assessment also by other companies. Most importantly, the company-specific issues need to be customized to fit the particular company under examination.

It could also be useful to carry out a practice run before the actual reporting to ensure that the reporting meets stakeholder expectations and legal requirements. The same providers of sustainability assurance, as discussed in the literature, can provide support. Moreover, companies should monitor market developments and the reporting of its competitors so that it can learn from them.

To conclude, the report provides a framework of how a company can carry out a double materiality assessment and what issues emerge as material for it to report on. A similar framework can be used by many companies operating in different industries and sustainability professionals by consulting their own company-specific sustainability. As illustrated in Figure 2 this materiality analysis provides a basis for the sustainability work of a company, but it is only the first level on which deeper sustainability work can be built. Setting sustainability goals and values should always be based on conducted materiality analysis. Reporting is pointless if it does not allow for tracking progress and obtaining a comprehensive overview of the company's operations. As discussed in the literature, the ESRS standards include performance indicators companies are suggested to report on. These standards help to determine relevant KPIs and set targets. On the basis on these, it is easier for a company to build a strategy infrastructure that helps to achieve these objectives and goals.

References

Adams, C.A. – Abhayawansa, S. (2022) Connecting the COVID-19 pandemic, environmental, social and governance (ESG) investing and calls for ‘harmonisation’ of sustainability reporting”. *Critical Perspectives on Accounting*. Vol. 82, 102309–.

Ardiana, P. A. (2023) Stakeholder engagement in sustainability reporting by Fortune Global 500 companies: a call for embeddedness. *Meditari Accountancy Research*, Vol. 31 (2), 344–365.

Barker, R. (2024) Get Ready for More Transparent Sustainability Reporting. *MIT Sloan Management Review*, Vol. 65 (2), 34–37.

Baumüller, J., – Sopp, K. (2022) Double materiality and the shift from non-financial to European sustainability reporting: review, outlook and implications. *Journal of Applied Accounting Research*, Vol. 23(1), 8–28.

Bernow, S. – Godsall, J. – Klempner, B. – Merten, C. (2019) More than values: The value-based sustainability reporting that investors want. *McKinsey and Company.*

Canning, M., O’Dwyer, B., & Georgakopoulos, G. (2019) Processes of auditability in sustainability assurance–the case of materiality construction. *Accounting and Business Research*, Vol. 49 (1), 1–27.

Carter, C. R., – Rogers, D. S. (2008) A framework of sustainable supply chain management: moving toward new theory. *International Journal of Physical Distribution & Logistics Management*, Vol. 38 (5), 360–387.

Chiu, I. H. (2022) The EU Sustainable Finance Agenda: Developing Governance for Double Materiality in Sustainability Metrics. *European Business Organization Law Review*, Vol 23 (1), 87–123.

Choucri, N. – Haghseta, F. – Mistree, D. – Baker, W. R. – Mezher, T. – Ortiz, C. I. (2007) *Mapping Sustainability: Knowledge e-Networking and the Value Chain*. Dordrecht: Springer.

Christensen, H. B.– Hail, L. – Leuz, C. (2021) Mandatory CSR and sustainability reporting: economic analysis and literature review. *Review of Accounting Studies*, Vol. 26 (3), 1176–1248.

Christofi, A., Christofi, P., & Sisaye, S. (2012) Corporate sustainability: historical development and reporting practices. *Management Research Review*, Vol. 35 (2), 157–172.

Clark, C. (2021) How do standard setters define materiality and why does it matter? *Business Ethics, the Environment & Responsibility*, Vol. 30 (3), 378–391.

Commission Delegated Regulation (2017) Regulation (EU) 2017/746 of the European Parliament and of the Council on in vitro diagnostic medical devices and repealing Directive 98/79/EC and Commission Decision 2010/227/EU (L 117/176).

Commission Delegated Regulation (2023) Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards. (2023). Regulation number 2023/2772, Commission Delegated Regulation (EU) 2023/2772, July 31, 2023.

Correa-Mejía, D. A. – Correa-García, J. A. – García-Benau, M. A. (2024). Analysis of double materiality in early adopters. Are companies walking the talk? *Sustainability Accounting, Management and Policy Journal*, Vol. 15 (2), 299–329.

Dathe, T. – Dathe, R. – Dathe, I. – Helmold, M. (2022) *Corporate Social Responsibility (CSR), Sustainability and Environmental Social Governance (ESG): Approaches to Ethical Management.* 1st ed. Cham: Springer International Publishing AG.

De Cristofaro, T. – Gulluscio, C. (2023) In Search of Double Materiality in Non-Financial Reports: First Empirical Evidence. *Sustainability*, Vol. 15 (2), 924–.

De Cristofaro, T. – Raucci, D. (2022) Rise and fall of the materiality matrix: Lessons from a missed takeoff. *Administrative Sciences*, Vol. 12 (4), 1–25.

Dechow, P. M. (2023) Understanding the Sustainability Reporting Landscape and Research Opportunities in Accounting. *The Accounting Review*, Vol. 98 (5), 481–493.

Deloitte (2021) Materiality Matters: ESG Explained. Blog. 15.6.2022. <https://www2.deloitte.com/hu/en/blog/esg-explained/2021/esg-explained-5-materiality-matters.html>, retrieved 15.2.2024

Dienes, D. – Sassen, R. – Fischer, J. (2016) What are the drivers of sustainability reporting? A systematic review. *Sustainability Accounting, Management and Policy Journal*, Vol. 7 (2), 154–189.

Dinh, T. – Husmann, A. – Melloni, G. (2023) Corporate Sustainability Reporting in Europe: A Scoping Review. *Accounting in Europe*, Vol. 20 (1), 1–29.

EFRAG (2021) Towards Sustainable Businesses: Good Practices in Business Model, Risks and Opportunities Reporting in the EU. October 2021. <https://www.efrag.org/Assets/Download?assetUrl=/sites/webpublishing/SiteAssets/EFRAG%20PTF-RNFRO%20-%20Main%20Report.pdf>, retrieved 29.2.2024

EFRAG (2023a) Draft EFRAG IG 1: Materiality assessment implementation guidance. <https://www.efrag.org/News/Public-471/Publication-of-the-3-Draft-EFRAG-ESRS-IG-documents-EFRAG-IG-1-to-3>, retrieved 18.2.2024

EFRAG (2023b) Draft EFRAG IG 2: Value chain implementation guidance. <https://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FSiteAssets%2FDraft%2520EFRAG%2520IG%25202%2520VCIG%2520231222.pdf>, retrieved 8.3.2024

Elkins, H. – Entwistle, G. – Schmidt, R. N. (2023) Expectations for sustainability reporting from users, preparers, and the accounting profession. *International Journal of Disclosure and Governance.* Vol. 21 (1), 143–164.

European Commission: Corporate sustainability reporting. <https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en>, retrieved 14.1.2024.

European Parliament and Council (2022) Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting

Fantini, L – Leiendecker, J – Testino, B (2023) The New Double Materiality Assessment. Boston Consulting Group. White paper. <https://media-publications.bcg.com/New-Double-Materiality-Assessment-final-21.02.23.pdf>, retrieved 1.3.2024

Fiandrino, S. – Tonelli, A. – Devalle, A. (2022) Sustainability materiality research: a systematic literature review of methods, theories and academic themes. *Qualitative Research in Accounting & Management,* Vol. 19 (5), 665–695.

Freeman, R. (2010) *Stakeholder theory : the state of the art.* Cambridge University Press, Cambridge.

Gamsjäger Lea – Ray David (2021) GRI, SASB, CDP – Making sense of overlapping sustainability and climate disclosures. Nordea 5.10.2021. <https://www.nordea.com/en/news/gri-sasb-cdp-making-sense-of-overlapping-sustainability-and-climate-disclosures>, retrieved 5.3.2024

Glaveli, N. – Alexiou, M. – Maragos, A. – Daskalopoulou, A. – Voulgari, V. (2023) Assessing the Maturity of Sustainable Business Model and Strategy Reporting under the CSRD Shadow. *Journal of Risk and Financial Management*, Vol. 16 (10), 445–.

Goettsche, M. – Steindl, T. – Gietl, S. (2016) Do Customers Affect the Value Relevance of Sustainability Reporting? Empirical Evidence on Stakeholder Interdependence. *Business Strategy and the Environment*, Vol. 25 (3), 149–164.

Gokten, S. – Ozerhan, Y. – Okan Gokten, P. (2020) The historical development of sustainability reporting: a periodic approach. *Zeszyty Teoretyczne Rachunkowości*, Vol. 107 (163), 99–117.

Gond, J.-P. – Grubnic, S. – Herzig, C. – Moon, J. (2012) Configuring management control systems: Theorizing the integration of strategy and sustainability. *Management Accounting Research*, Vol. 23 (3), 205–223.

Goswami, K. – Islam, M. – Evers, W. (2023) A Case Study on the Blended Reporting Phenomenon: A Comparative Analysis of Voluntary Reporting Frameworks and Standards—GRI, IR, SASB, and CDP. *International Journal of Sustainability Policy and Practice*, Vol. 19 (2), 35–64.

GRI – SASB (2021) A Practical Guide to Sustainability Reporting Using GRI and SASB Standards. Report. <https://www.globalreporting.org/media/mlkjpn1i/gri-sasb-joint-publication-april-2021.pdf>, retrieved 28.2.2024

GRI Standards (2021) A Guide for Policymakers. Global Reporting. <https://www.globalreporting.org/media/nmmnwfsm/gri-policymakers-guide.pdf>, retrieved 29.2.2024

GRI Standards: Standards. English. <https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/>, retrieved 29.2.2024

Guix, M. – Font, X. – Bonilla-Priego, M. J. (2019) Materiality: stakeholder accountability choices in hotels' sustainability reports. *International Journal of Contemporary Hospitality Management*, Vol. 31 (6), 2321-2338.

Hahn, R. – Kühnen, M. (2013) Determinants of sustainability reporting: a review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, Vol. 59, 5–21.

Hristov, I., & Chirico, A. (2019). The role of sustainability key performance indicators (KPIs) in implementing sustainable strategies. *Sustainability*, Vol. 11 (20), 5742.

Hsu, C.-W. – Lee, W.-H – Chao, W.-C. (2013) Materiality analysis model in sustainability reporting: a case study at Lite-On Technology Corporation. *Journal of Cleaner Production,* Vol. 57, 142–151.

Hutchins, M. J. – Sutherland, J. W. (2008) An exploration of measures of social sustainability and their application to supply chain decisions. *Journal of Cleaner Production*, Vol. 16 (15), 1688–1698.

Isaacs, K.– Jay, J., Gregory, J. – Olivetti, E. (2024) Set Ambitious but Realistic Environmental Goals. *MIT Sloan Management Review*, Vol. 65 (2), 22-27.

Koberg, E. – Longoni, A. (2019) A systematic review of sustainable supply chain management in global supply chains. *Journal of Cleaner Production*, Vol. 207, 1084–1098.

Korhonen, J. – Honkasalo, A. – Seppälä, J. (2018) Circular Economy: The Concept and its Limitations. *Ecological Economics*, Vol. 143, 37–46.

KPMG (2022) Survey of Sustainability reporting 2022: Big shifts, small steps. KPMG Global. <https://assets.kpmg.com/content/dam/kpmg/se/pdf/komm/2022/Global-Survey-of-Sustainability-Reporting-2022.pdf>, retrieved 14.2.2024.'

Kumar, V., & Shah, D. (2009). Expanding the Role of Marketing: From Customer Equity to Market Capitalization. Journal of Marketing, Vol. 73 (6), 119–136.

Lee, J. – Serafin, A. – Courteau, C. (2023) Corporate disclosure, ESG and green fintech in the energy industry. *Journal of World Energy Law & Business*, Vol. 16 (6), 473–491.

Levy, D. L. – Szejnwald Brown, H. – De Jong, M. (2010) The contested politics of corporate governance: The case of the global reporting initiative. *Business & society*, Vol. 49 (1), 88–115.

Lindman, Jaana (2024) Kestävyysraportointi on jo täällä – oletko valmis? Suomen Tilintarkastajat. 24.8.2023. <https://tilintarkastajat.fi/artikkelit/kestavyysraportointi-on-jo-taalla-oletko-valmis/>, retrieved 12.2.2024.

Lund, S. – DC, W. – Manyika, J. (2020) Risk, resilience, and rebalancing in global value chains. *McKinsey Global Institute.*

Magnini, V. P. – Crotts, J. C. – Calvert, E. (2021) The increased importance of competitor benchmarking as a strategic management tool during COVID-19 recovery. *International Hospitality Review,* Vol. 35 (2), 280–292.

Marimon, F. – Alonso-Almeida, M. del M. – Rodríguez, M. del P. – Cortez Alejandro, K. (2012) The worldwide diffusion of the global reporting initiative: what is the point? *Journal of Cleaner Production*, Vol. 33, 132–144.

Martin, J. – Bravo, K. E. – Van Ho, T. (2020) *Introduction. In When Business Harms Human Rights: Affected Communities that Are Dying to Be Heard*. 1–12. ed. Introduction, Anthem Press.

Migiro, S. O. – Magangi, B. A. (2011) Mixed methods: A review of literature and the future of the new research paradigm. *African journal of business management*, Vol. 5 (10), 3757–3764.

Mitchell, R. – Agle, B. –Wood, D. (1997) Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22 (4), 853–886.

Nielsen, C. (2023) ESG Reporting and Metrics: From Double Materiality to Key Performance Indicators. *Sustainability*, Vol. 15 (24), 16844-.

Official Journal of the European Union. (2022) Directive (EU) 2022/2464 of the European Parliament and of the Council amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting. December 16. L 322/15.

Pizzi, S. – Principale, S. – de Nuccio, E. (2023) Material sustainability information and reporting standards. Exploring the differences between GRI and SASB. *Meditari Accountancy Research*, Vol. 31 (6), 1654–1674.

Ponte, S. (2020) Green Capital Accumulation: Business and Sustainability Management in a World of Global Value Chains. *New Political Economy*, Vol 25 (1), 72–84.

Porter, M. (2001) The value chain and competitive advantage. *Understanding business processes*, Vol. 2, 50–66.

Primec, A. – Belak, J. (2022) Sustainable CSR: Legal and Managerial Demands of the New EU Legislation (CSRD) for the Future Corporate Governance Practices. *Sustainability,* Vol. 14 (24), 16648–.

Puroila, J. – Mäkelä, H. (2019) Matter of opinion: Exploring the socio-political nature of materiality disclosures in sustainability reporting. *Accounting Auditing & Accountability Journal,* Vol. 32 (4), 1043–1072.

Reimsbach, D. – Schiemann, F. – Hahn, R. – Schmiedchen, E. (2020) In the Eyes of the Beholder: Experimental Evidence on the Contested Nature of Materiality in Sustainability Reporting. *Organization & Environment*, Vol. 33 (4), 624–651.

SASB (2020) Response of the Sustainability Accounting Standards Board to the Public Consultation on the Revision of the Non-Financial Reporting Directive. 06/2020. <https://www.eticanews.it/wp-content/uploads/2020/06/SASB.NFRDWhitepaper.FINAL-005.pdf>, retrieved 18.2.2024

SASB: Materiality Finder. <https://sasb.org/standards/materiality-finder/find/>, retrieved 28.2.2024

Schiehll, E. – Kolahgar, S. (2021) Financial materiality in the informativeness of sustainability reporting. *Business Strategy and the Environment*, Vol. 30 (2), 840–855.

Xie, J. – Tanaka, Y. – Keeley, A. – Fujii, H. – Managi, S. (2023) Do investors incorporate financial materiality? Remapping the environmental information in corporate sustainability reporting. *Corporate Social-Responsibility and Environmental Management*, Vol. 30 (6), 2924–2952.

Zharfpeykan, R. – Akroyd, C. (2023) Evaluating the outcome effectiveness of the global reporting initiative transitions. *Sustainability Accounting, Management and Policy Journal*, Vol. 14 (6), 1101–1125.

Appendices

Appendix 1 Sustainability topics arising from the European Sustainability Reporting Standards 1 paragraph AR 16

ESRS	Topic	Sub-topic	Sub-sub-topics
ESRS E1	Climate change	Climate change adaptation Climate change mitigation Energy	
ESRS E2	Pollution	Pollution of air Pollution of water Pollution of soil Pollution of living organisms and food resources Substances of concern Substances of very high concern Microplastics	
ESRS E3	Water and marine resources	Water Marine resources	Water consumption Water withdrawals Water discharges Water discharges in the oceans Extraction and use of marine resources
ESRS E4	Biodiversity and ecosystems	Direct impact drivers of biodiversity loss Impacts on state of species Impacts on the extent and condition of ecosystems Impacts and dependencies on ecosystem services	Climate change Land-use change, fresh water-use change and sea-use change Direct exploitation Invasive alien species Pollution Others Examples: Species population size/Species global extinction risk Examples: Land degradation, desertification, soil sealing

ESRS E5	Circular economy	Resources inflows, including resource use. Resource outflows related to products and services. Waste	
ESRS S1	Own workforce	Working conditions Equal treatment and opportunities for all Other work-related rights	Secure employment Working time Adequate wages Social dialogue Freedom of association, the existence of works councils and the information, con sultation and participation rights of workers Collective bargaining, including rate of workers covered by collective agree ments Work-lifebalance Health and safety Gender equality and equal pay for work of equal value Training and skills development Employement and inclusion of persons with disabilities Measures against violence and harrassment in the workplace Diversity Child labour Forced labour Adequate housing Privacy
ESRS S2	Workers in the value chain	Working conditions Equal treatment and opportunities for all Other work-related rights	Secure employment Working time Adequate wages Social dialogue Freedom of association, including the existence of work councils Collective bargaining Work-life balance Health and safety Gender equality and equal pay for work of equal value Training and skills development Employement and inclusion of persons with disabilities Measures against violence and harrassment in the workplace Diversity Child labour Forced labour Adequate housing Water and sanitation

			Privacy
ESRS S3	Affected communities	Communities' economic, social, and cultural rights Communities' civil and political rights Rights of indigenous people	Adequate housing Adequate food Water and sanitation Land-related impacts Security-related impacts Freedom of expression Freedom of assembly Impacts on human rights defenders Free, prior and informed consent Self-determination Cultural rights
ESRS S4	Consumers and end-users	Information-related impacts for consumers and/or end-users Personal safety of consumers and/or end-users Social inclusion of consumers and/or end-users	Privacy Freedom of expression Access to (quality) information Health and safety Security of a person Protection of children Non-discrimination Access to products and services Responsible marketing practices
ESRS G1	Business conduct	Corporate culture Protection of whistle-blowers Animal welfare Political engagement and lobbying activities Management of relationships with suppliers including payment practices Corruption and bribery	Prevention and detection including training. Incidents

TURUN YLIOPISTO
Kauppakorkeakoulu

SUSTAINABILITY REPORTING UNDER THE EU'S NEW DIRECTIVE. CONDUCTING A DOUBLE MATERIALITY ANALYSIS

Emma Silaskivi

TURUN KAUPPAKORKEAKOULUN JULKAISUJA
SARJA E-2:2025

ISBN: on 978-952-249-651-5
ISSN: 2342-4796