Bridging the Gap from Policy to Practice:

An Ex-Ante Policy Analysis of Greenhouse Gas Reporting under the Corporate Sustainability Reporting Directive, in the Logistics Sector

Lisa Lynn Melman

Student number: 4800095

TU Delft

ALL CHIEFS

[white page]

“Bridging the Gap from policy to practice:

An Ex-Ante Policy Analysis of Greenhouse Gas Reporting under the Corporate Sustainability Reporting Directive, in the logistics sector”

Master thesis submitted to Delft University of Technology in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in Engineering and Policy Analysis

at the Faculty of Technology, Policy and Management

By

Lisa Lynn Melman

4800095

To be defended in public on 23rd of October 2024

Thesis Graduation Committee

Chair and First Supervisor: H. G. (Haiko) van der Voort – TU Delft

Second Supervisor: K. L. L. (Karolien) van Nunen – TU Delft

External Supervisor: Fleur Kabalt & Thijs Eddes – AllChiefs

TU Delft

The work in this thesis was made at the Faculty of Technology, Policy, and Management at Delft University of Technology

As a graduate intern at: AllChiefs

ACKNOWLEDGEMENTS

After roughly six years, I am writing this final part, that concludes my time as a student. As I am writing this, I look back on this time as both a rewarding and challenging experience, and I deeply appreciate the journey I've been on to get here. While the beginning was difficult, especially given my wide range of interests and ambitions, I am proud of how I eventually narrowed my focus with the support of many. Scoping the research down was crucial, and I'm thrilled with the final outcome, which I believe truly bridges the gap between academia and the real world—an accomplishment I am especially proud of. It was a challenge to compile all the insightful information into a cohesive narrative, but the process brought a new perspective that made the puzzle pieces fall into place for me.

I would like to express my heartfelt gratitude to my supervisors, Haiko van der Voort and Karolien van Nunen, for their invaluable support throughout this journey. Their feedback was sharp and insightful, and they complemented each other wonderfully, helping me stay on track while pushing my thinking further. I would also like to extend my thanks to Jenny Lieu and Yusuf Dirie for guiding me through the early stages of this thesis. The conversations we had were incredibly inspiring and opened my eyes to new ideas.

A special thank you to Fleur Kabalt and Thijs Eddes and my colleagues at AllChiefs. Your guidance helped me scope down the research, and the real-world insights you shared were invaluable in shaping the practical relevance of this thesis. The support from the company allowed me to ground my findings in the reality of the field, and my colleagues were always available to help whenever I had questions. Their warmth gave me the confidence and courage needed to continue this journey. I am also deeply grateful to all the respondents who generously shared their knowledge and experiences—this research would not have been possible without their openness.

Finally, I want to express my deep gratitude to my family—my mom, dad, and sister—who have always believed in me and provided unwavering emotional support, whether asked for or not. A special thanks to my best friends and to Lars, for listening to my endless discussions about this topic and the challenges I faced. Your encouragement, belief in me, and constant support meant the world to me.

As I close this chapter, I feel incredibly excited for the next steps in my journey. I am eager to apply what I've learned and continue striving to make a meaningful and positive impact in the world.

CHAPTER 0 – SUMMARY

[INTRODUCTION]

The Corporate Sustainability Reporting Directive (CSRD), introduced by the European Union, represents a significant step in improving corporate transparency regarding environmental sustainability. A core element of the CSRD is the Environmental Sustainability Reporting Standard Environment 1 (ESRS E1), which focuses on Greenhouse Gas (GHG) reporting. Within the logistics sector, a major emitter of GHGs, the CSRD presents both a challenge and an opportunity to drive meaningful sustainability change.

This research explores how logistics companies are responding to the new CSRD regulations, particularly ESRS E1, which aims to promote greater accountability in GHG emissions reporting. The research specifically investigates the alignment between the CSRD's policy goals and its implementation in practice. The study aims to identify potential barriers, (de)coupling phenomena and misalignments that may arise, offering insights into how to optimize the directive's implementation for better results. The overarching research question is: ***"How do logistics companies navigate GHG-reporting under CSRD ESRS E1, and what factors influence their ability to align with the sustainability goals of CSRD?"***

This is explored through four sub-questions:

1) What are the **key objectives** and **implementation mechanisms** of the CSRD, particularly ESRS E1, and what are the existing **sustainability practices** and **challenges** within the logistics sector?

2) What factors can signal **potential gaps** between GHG-reporting practices and CSRD ESRS E1 objectives in the logistics sector?

3) To **what extent** does the **implementation** of CSRD ESRS E1 within the logistics sector exhibit **characteristics of decoupling** (misalignment with CSRD objectives) and what **forms** does this decoupling take?

4) What **key dilemmas** do logistics companies encounter and how do these dilemmas influence their implementation of CSRD ESRS E1?

[METHODOLOGY]

This study adopts a qualitative case-study approach inspired by Eisenhardt (1989), focusing on logistics companies to analyze the implementation of CSRD ESRS E1. The research methodology

involved semi-structured interviews with key stakeholders within logistics companies, combined with a literature review. Stakeholder analysis and product design-inspired methods (such as the Convivial Toolbox) were used to examine the internal and external factors influencing the effectiveness of the CSRD implementation.

[RESULTS]

The results of the study reveal **three key decoupling scenarios** (see Figure A) in the implementation of the CSRD within logistics companies. **The first scenario** involves loose coupling between CSRD compliance and internal operations. Companies can demonstrate a superficial adherence to CSRD, primarily motivated by the need to meet compliance obligations. Internally, firms often grapple with conflicting priorities, where short-term profitability is favored over long-term sustainability. Externally, regulatory and societal pressures, including investor demands and societal expectations, can create a chaotic environment, sometimes with competing stakeholder expectations, leading companies to focus on ticking the box rather than genuine engagement with sustainability objectives. Uncertainty regarding the enforcement and auditing of CSRD standards further stimulates loose coupling.

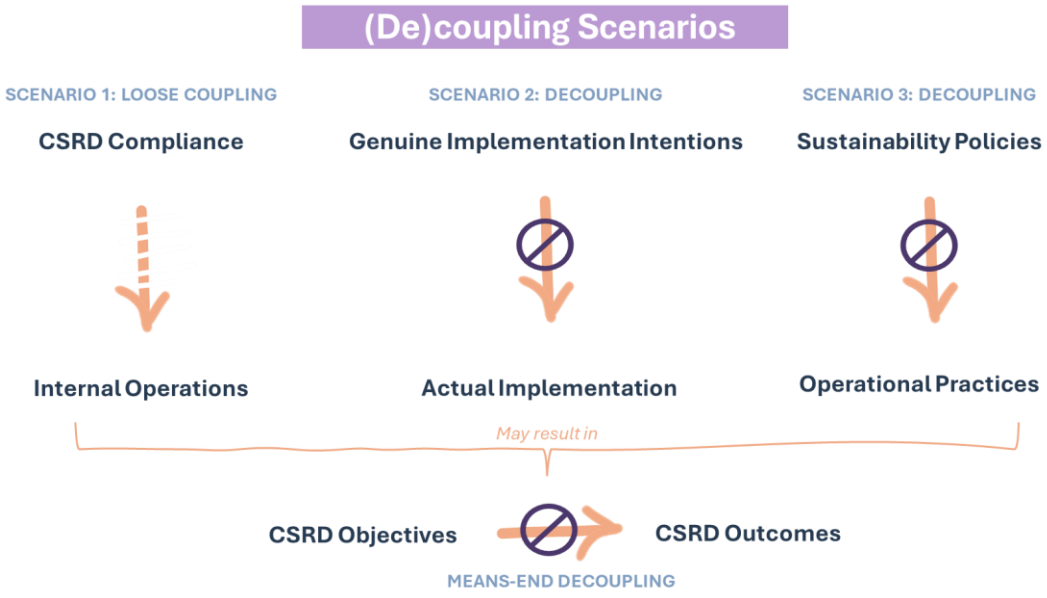


Figure A. Overview of Results

The **second scenario** relates to decoupling between genuine intentions and implementation. Many logistics companies genuinely aspire to align with the CSRD objectives but struggle with the practical realities of its implementation. Factors like the complexity and broad scope of the directive, limitations in resources, and the heavy reliance on outsourcing services contribute to this misalignment. This is particularly evident in the discrepancies between sustainability policies and actual operational practices, especially in complex areas like scope 3 emissions reporting. The **third scenario** is a decoupling between sustainability policies and operational practices. Companies

often commit to ambitious sustainability goals in their reports but fail to integrate these goals into day-to-day practices. The complexity of GHG data collection, combined with difficulties in managing a fragmented supply chain, exacerbates this decoupling. This gap between policy and practice is evident when companies report high-level goals but lack the practical capacity to implement these objectives effectively.

These internal and external factors give rise to **five overarching dilemmas** that companies face when implementing the CSRD:

- **Compliance and Sustainability vs. Internal and External Pressures**: Companies must navigate the challenge of complying with CSRD and integrating sustainability while balancing competing internal factors like operational demands and limited resources, alongside external pressures from investors and market expectations.

- **Cost of Compliance vs. Long-term Gains**: The immediate costs of complying with CSRD are weighed against the potential long-term strategic benefits and competitive advantages.

- **Transparency vs. Risk**: There is a tension between providing transparent sustainability reporting and protecting competitive and legal interests.

- **Internal Coordination vs. Departmental Silos**: Effective sustainability initiatives often require cross-departmental collaboration, but organizational silos hinder these efforts.'

- **Outsourcing vs. Internal Capacity Building**: Companies must decide between outsourcing compliance tasks or developing internal capabilities to meet long-term sustainability goals.

Ultimately, these dilemmas and forms of decoupling **may lead to means-end decoupling**, where the objectives of the CSRD are not effectively translated into tangible environmental and operational outcomes.

These findings suggest that companies' ability to align with CSRD's sustainability objectives is influenced by several internal and external factors. These factors, coupled with company-specific characteristics like sustainability maturity, determine how companies approach GHG reporting under ESRS E1 and their overall compliance trajectory.

[IMPLICATIONS OF DECOUPLING]

The study suggests that this loose coupling and decoupling of policy and practice could undermine the broader objectives of the CSRD. If companies continue to prioritize superficial compliance, they risk failing to achieve the directive's overarching goal of reducing GHG emissions and promoting long-term sustainability. The decoupling observed within logistics companies reflects a larger systemic issue where the focus on reporting overshadows the need for substantive operational change. If companies fail to fully integrate sustainability into their operations, the CSRD's potential to drive environmental progress will remain unfulfilled.

[CONCLUSION AND RECOMMENDATIONS]

The findings of this research underscore the complexities that logistics companies face in implementing the Corporate Sustainability Reporting Directive, particularly its ESRS E1 requirements for GHG reporting. It highlights the importance of addressing both internal and external factors contributing to loose coupling in the CSRD implementation process. To ensure that the CSRD achieves its intended goals, companies must move beyond minimal compliance and actively integrate sustainability into their core operations. Clearer guidelines and enforcement mechanisms, coupled with greater collaboration among stakeholders, can help reduce the risk of decoupling.

Advice For Logistics Companies:

- **Internal Capacity Building:** Companies must invest in building their internal capabilities for GHG reporting, particularly in areas such as data readiness, data management and cross-departmental collaboration. This includes improving the accuracy of emissions data collection and reporting, especially for scope 3 emissions.

- **Operational Integration:** Sustainability goals must be embedded into core business operations rather than being treated as peripheral to day-to-day activities. This requires a cultural shift within companies, where sustainability becomes a strategic priority rather than a compliance obligation.

- **Proactive Engagement:** Rather than viewing the CSRD as merely a compliance requirement, companies should proactively engage with the directive to innovate and develop tailored strategies that align with both their operational realities and long-term sustainability goals.

Advice For Policymakers:

- **Industry-Specific Adaptations:** Recognizing the unique challenges faced by different sectors, policymakers should consider adapting the CSRD framework to better fit the specific needs of industries like logistics. This may involve creating more flexible guidelines that allow companies to align their strategies with the directive while still meeting sector-specific operational constraints.

- **Clearer Guidelines and Enforcement Mechanisms:** Policymakers should provide more explicit guidance on CSRD compliance and develop consistent enforcement mechanisms to reduce the uncertainty that currently hampers effective implementation.

- **Encouraging Collaboration:** Policymakers can foster greater collaboration between regulators, businesses, and other stakeholders to support companies in achieving meaningful sustainability outcomes.

Advice For Auditors and Consultants:

- **Support for Compliance:** Auditors and consultants play a crucial role in helping companies navigate the complexities of CSRD compliance. They should provide targeted support to enhance companies' understanding of reporting requirements and offer tailored solutions to improve the alignment between policy and practice, while understanding the larger system in which companies exist. Rather than treating the company as a “black-box”, it has more added value when a systems-perspective is taken, to truly ensure that core problems are tackled and the right support is given.
- **Training and Awareness:** Consultants should focus on helping companies bridge knowledge gaps, particularly regarding the technical aspects of GHG reporting and data management. Enhanced training programs can help companies build the internal expertise needed to comply with the CSRD effectively.

In conclusion, while the CSRD presents significant challenges for the logistics sector, it also offers an opportunity to drive meaningful sustainability change. By addressing the factors contributing to decoupling and focusing on both compliance and operational integration, logistics companies can play a pivotal role in advancing the EU’s climate goals. Collaborative efforts between companies, policymakers, and auditors are essential to ensure the CSRD fulfills its transformative potential and delivers genuine environmental benefits.

Personal Motivation For Research

My passion for sustainability and making a positive impact all started back in high school, where I participated in Model United Nation conferences. These experiences opened my eyes to how far we (as a society) have come, but also what still can be done (and needs to be done). Especially, it sparked my interest in the United Nations' Sustainable Development Goals (SDGs). This early exposure laid the foundation for my academic and professional pursuits.

Throughout my time at university, I delved deep into sustainability, circularity and the energy transition. These topics not only deepened my knowledge, but also my commitment to driving change for the better. Recently, I realized that all these interests fit together like pieces of a puzzle when I encountered the concept of Environment, Social and Governance (ESG) during my internship. The holistic perspective on sustainability, social responsibility and ethical governance is not only central to my academic pursuits and the professional path I am eager to follow, but also deeply resonant with my personal values. It reflects a commitment that is truly close to my heart, driving me to contribute meaningfully to these ideals.

In the ESG-landscape I am particularly concerned with practices that undermine, hinder or weaken the ultimate goal ESG legislation is trying to achieve. From my perspective, the ultimate goal is to help stimulate the achievement of the SDGs, creating a "shared blueprint for peace and prosperity for people and the planet, now and into the future" (United Nations, 2015). Being driven by optimism, but being aware of and understanding the way the world works, I recognize the potential pitfalls where ESG could be implemented and adopted in ways that defeats its very purpose. Therefore, I am determined to bring to light potential risks, providing insights and advice that hopefully steer us clear of those pitfalls. By identifying and addressing these challenges proactively, the goal is to contribute to ESG implementation that truly fulfills its transformative potential and positive impact.

Over the past few years, I have immersed myself in the complexities of the energy transition, a field marked by intricate challenges. The interplay between supply and demand, infrastructure, and policy is vast, but so are the social dynamics and monetary flows that influence our approach to sustainability. Often, stakeholders—whether governments, companies, or individuals—tend to point fingers at each other, assigning blame for the slow pace of change. At the heart of these tensions are deeper questions about who should bear the responsibility and make the first move. Even more, it strikes me that the luxury of engaging in these discussions is not universally accessible; for many, sustainability is a secondary concern when compared to more immediate issues like economic survival.

This recognition of the energy transition's complexities has not discouraged me, but rather fueled my drive to uncover pathways that reconcile these competing demands. It is this delicate balance—between ambition and pragmatism, responsibility and opportunity—that I aim to address in my research. By exploring these dynamics, I hope to contribute to a more nuanced understanding of how we can collaboratively and effectively navigate the transition to a sustainable future.

TABLE OF CONTENTS

Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

CSRD = *Corporate Sustainability Reporting Directive*

ESG = *Environment, Social and Governance*

UN = *United Nations*

EU = *European Union*

SDG = *Sustainable Development Goal*

ESRS E1 = *European Sustainability Reporting Standard Environmental 1*

CO_2e = *Carbon Dioxide Equivalent (standard metric used to measure carbon footprints by converting different GHGs into the equivalent amount of CO_2)*

EFRAG = *European Financial Reporting Advisory Group*

GHG = *Greenhouse gas*

CHAPTER 1 – INTRODUCTION

This chapter begins by introducing the context of this thesis. Following the contextual introduction, the chapter provides an overview of the ***Corporate Sustainability Reporting Directive (CSRD)*** *(Section 1.2) and its specific focus on* ***Greenhouse Gas (GHG) emissions*** *through the* ***European Sustainability Reporting Standards (ESRS) E1 (Section 1.2.1)****. The chapter then moves on to discuss the* ***theoretical framework*** *underlying the research (Section 1.3). It introduces key concepts such as the* ***policy cycle****,* ***decoupling literature****, and potential misalignments between policy objectives and practical implementation. The idea of decoupling, both policy-practice and means-end, is particularly highlighted as a critical aspect of this research. Finally, the* ***knowledge gap, problem boundaries*** *and* ***research questions*** *are presented in Section 1.4, 1.5 and 1,6, outlining the scope of the research and the key sub-questions the thesis aims to address. The chapter concludes with a brief discussion of the* ***societal, scientific, and EPA relevance*** *of the study, emphasizing the importance of the CSRD in driving meaningful corporate sustainability change.*

1.1. Context

Climate change is not just a distant threat; it is an urgent issue with profound human consequences that are already being felt globally. According to the World Health Organization (WHO), climate change could result in an additional 250,000 deaths per year between 2030 and 2050 due to health impacts like heat stress and malnutrition (WHO, 2023). These stark figures emphasize the critical need for immediate and sustained action. In this context, businesses are increasingly recognized as pivotal players in addressing environmental challenges. The growing urgency of climate change calls upon companies to transcend traditional economic metrics and assume a proactive role in fostering sustainability and planetary well-being.

Within the crisis of climate change lies a unique opportunity—one that could define the outlines of the path for future generations. As Hannah Ritchie suggests in *Not the End of the World* (2023), while the challenges posed by climate change are immense, the progress humanity has made in renewable energy and technological innovation offers a promising pathway toward a more sustainable and equitable future. This dual narrative—of urgency and opportunity—frames climate change not only as a challenge to be mitigated but as a catalyst for transformative change (Ritchie, 2023).

There is a growing body of evidence (Brulhart et al., 2017; Camilleri, 2017; Yadav et al., 2017; Shabbir & Wisdom, 2020) suggesting that businesses can pursue both profitability and environmental responsibility simultaneously, potentially complementing and reinforcing each other.

This requires, however, that companies integrate environmental considerations into their core operations and strategies. In doing so, businesses can position themselves as leaders in a rapidly changing world, contributing meaningfully to the global response to climate change, while ensuring long-term viability and success.

1.1.1. The Complex Stakeholder Field of Climate Action

Challenges arise when tackling climate change: the transition to a sustainable future involves a complex interplay of stakeholders, each with differing objectives, resources, and constraints. Within the European Union (EU), this stakeholder field includes governments, businesses, investors, consumers, and non-governmental organizations (NGOs), all of whom play crucial roles in shaping the trajectory of sustainability initiatives (Silvestre & Ţîrcă, 2019).

Governments play a central role by setting regulatory frameworks such as the Corporate Sustainability Reporting Directive (CSRD) to drive corporate sustainability. However, these efforts are shaped by a mix of political, economic, and social considerations, leading to varied levels of commitment and enforcement across the EU (Tosun & Leininger, 2017). The role of ***investors*** is similarly complex; while some are integrating environmental, social, and governance (ESG) criteria into their investment strategies, others remain focused on short-term returns, reflecting broader tensions between immediate financial performance and long-term sustainability (Eurosif, 2020). ***Consumers***, too, present a varied landscape. While there is growing demand for sustainable products, this trend is uneven across the EU. For many consumers, particularly those facing economic hardship or living in regions with less access to sustainable options, the luxury of prioritizing sustainability is not always feasible due to the expensiveness of sustainable alternatives (European Commission, 2024). This complexity highlights that while there is momentum towards more sustainable consumption, it is not yet the dominant trend, and accessibility and affordability remain significant barriers.Lastly, ***NGOs and advocacy groups***, acting as intermediaries between public and corporation, continue to push for greater transparency and accountability, yet they face challenges such as resource constraints and the need to balance advocacy with constructive engagements (De Bakker et al., 2020). Together, these stakeholders create a complex field where progress towards sustainability is influenced by a mix of progressive and conservative forces.

1.2. Corporate Sustainability Reporting Directive

In this context, regulatory frameworks such as the new Corporate Sustainability Reporting Directive (CSRD) play a crucial role. The varying levels of commitment and conflicting interests among governments, investors, consumers and NGOs reflect the fragmented landscape in which companies must navigate sustainability efforts. It is within this complex and often contradictory environment that regulatory frameworks, such as the CSRD, emerge as a critical tool for harmonizing these diverse expectation and driving action. The CSRD, introduced by the European Union, demands companies to consistently report on non-financial data regarding environmental, social and governmental (ESG) topics (Stretton, 2024). It represents a significant shift in how businesses are expected to operate, emphasizing the integration of sustainability into core business strategies (European Commission, n.d.) The CSRD was introduced by the European Union to address the shortcomings of the previous Non-Financial Reporting Directive (NFDR) of 2014, which became applicable in 2018 (Green Finance Platform, 2021). The policy objective of NFRD is to enhance transparency and accountability in corporate sustainability practices by mandating the disclosure in non-financial information. However, several issues were identified in its implementation and impact on corporate reporting. The issues are briefly summarized:

- **Comparability issues and quality of disclosures:** the NFRD led to increased use of non-financial reporting frameworks, but the diversity of these frameworks resulted in inconsistency and non-comparable results across companies, hindering the ability of stakeholders to make meaningful comparisons (Breijer & Orij, 2022). While the NFRD increased the quantity of disclosures, it did not necessarily improve their quality. Mandatory disclosures often lacked depth and specificity, leading to superficial reporting that failed to provide valuable insights into the actual sustainability performance of the specific company (Agostini et al., 2021).

- **Implementation variability and challenges with mandatory reporting frameworks:** the NFRD allowed significant discretion to member states in its implementation, leading to variability in enforcement across the EU. This inconsistency resulted in uneven compliance and effectiveness of non-financial reporting among different countries (Voss, 2019). Also, a study comparing the implementation of the NFRD in different European countries found that while the directive provided a framework for environmental, social and governance (ESG) reporting, significant gaps remained in its practical application. These included inconsistencies in the scope and format of reporting, the definition of materiality and the verification process. These gaps undermined the directive's effectiveness in standardizing non-financial reporting practices across the EU (Jeffwitz & Gregor, 2017).

- **Limited scope and coverage**: the NFRD primarily focused on large public-interest entities, excluding smaller companies that also have a significant environmental and social impact. This limited the overall effectiveness of the NFRD in promoting widespread sustainable practices, leading to means-end decoupling (Tamm & Gurvitš-Suits, 2023).

On the other hand, there are many positive implications for companies as well, such as enhanced corporate governance by integrating sustainability into core business practices and decision-making processes (Mosca & Picciau, 2020), a potential positive impact on financial performance (Thayaraj & Karunarathne, 2021) and a higher chance of meeting stakeholder ESG-related expectations (Gond et al., 2018). In response to the shortcomings and aiming at more positive results, the CSRD was developed to enhance transparency and accountability in corporate sustainability practices.

The newly introduced CSRD holds a broader scope of companies to report on ESG aspects, incorporating over 11,000 data points from which companies must select the most relevant ones for their reporting (European Commission, n.d.). Listed companies are required to submit their first reports in 2025, covering the financial year 2024, whereafter the timeline of this directive extends to 2027, introducing a broader range of companies stepwise (see Figure 1) (Stretton, 2024).

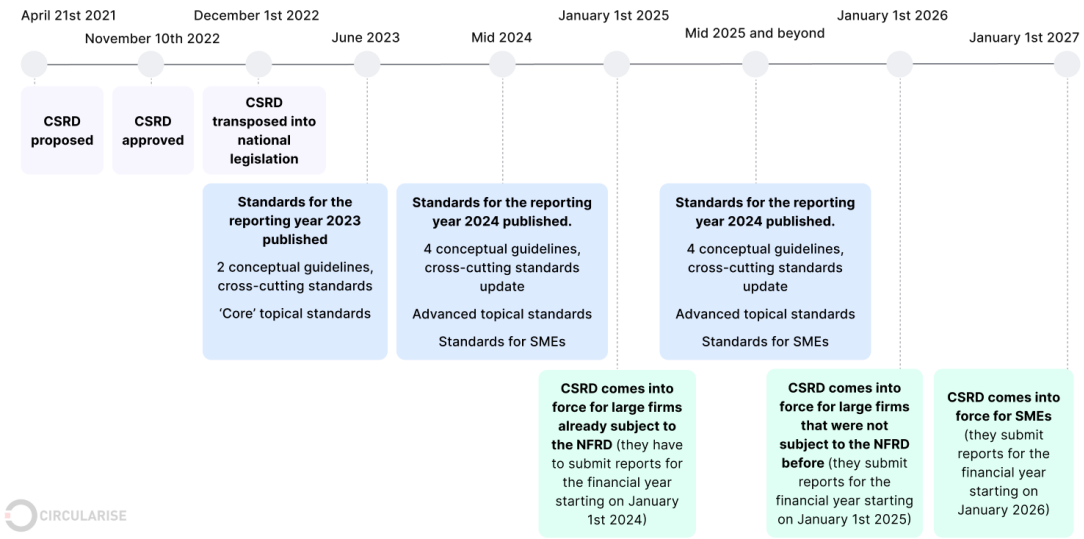


Figure 1. Timeline of CSRD implementation, extracted from Circularise (Stretton, 2024). Corporate sustainability reporting directive explained.

With the first reports due in 2025, and a phased implementation extending to 2027, companies are under increasing pressure to adapt swiftly and effectively to these new requirements (Stretton, 2024). Central to the CSRD is the European Sustainability Reporting Standards (ESRS), which provide detailed guidance on the specific reporting obligations. Among these, ESRS Environment 1 (E1) stands out as it specifically addresses climate change (see Figure 2).

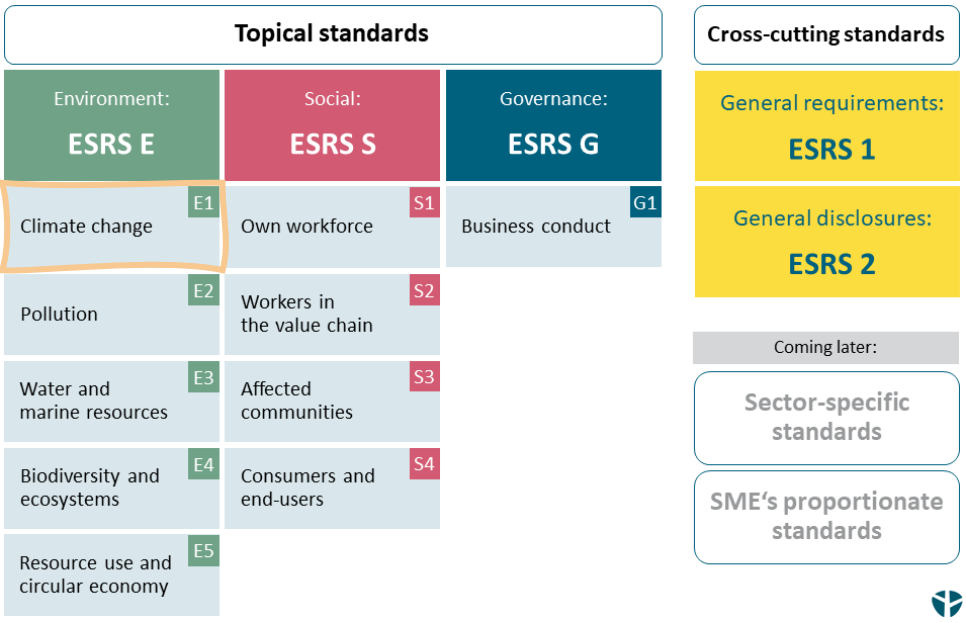
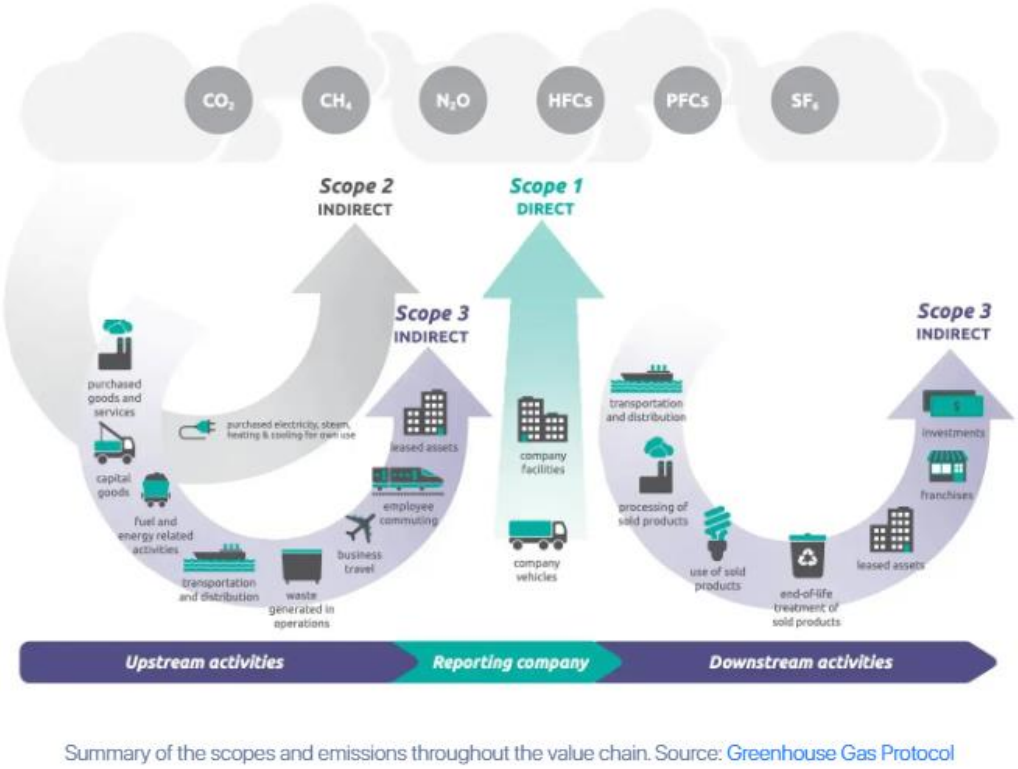


Figure 2. CSRD Framework with ESRS Sub-categories. Focus will be on the outlined ESRS E1 "Climate Change" (EY denkstatt, 2023).

1.2.1. ESRS E1

ESRS E1 focuses specifically on climate change mitigation and adaptation, setting out detailed requirements for companies to disclose their greenhouse gas (GHG) emissions, climate-related risks, and the measures they are taking to address these risks (Charluet, 2024; EFRAG 2022). The standard mandates that companies report on their direct and indirect GHG emissions (scope 1, 2, and 3) and assess their impact on global climate goals. As portrayed in Figure 3, scope 1 entails the emissions from direct emissions related to sources owned or controlled by the organization (e.g. chemical process emissions, fuel combustion company-owned vehicles). Scope 2 are indirect emissions from upstream activities; or the emissions from purchased heat, electricity, heating/cooling. Lastly, scope 3 emissions, or the value chain emissions, entail both up- and downstream activities, such as outsourced transportation, business transportation and end-of-life treatment of sold products (Environmental Protection Agency, n.d.-a; Environmental Protection Agency, n.d.-b). In this thesis, if referred to CO_2e, or carbon dioxide equivalent, a standard unit to measure carbon footprints by converting different GHGs into the equivalent amount of CO_2 is meant.



Summary of the scopes and emissions throughout the value chain. Source: Greenhouse Gas Protocol

Figure 3. Scope 1, 2 and 3 emission overview. Extracted from the Corporate Value Chain (Scope 3) Accounting and Reporting Standard from Greenhouse Gas Protocol (Pankaj et al., 2011).

Additionally, companies are expected to outline their strategies for reducing emissions, including any targets they have set and progress towards achieving them. In case information (e.g., reduction

target, GHG-baseline) is not available yet, companies have to provide a plan on how that information will be retrieved in the future.

ESRS E1 consists of nine Disclosure Requirements (DR), each detailing specific information that companies must provide. A detailed figure of how this is set-up within CSRD can be found in Figure 4. Below the DR are listed, as stated in the official EFRAG document (EFRAG, 2022).

1. **DR E1-1:** Transition plan for climate change mitigation.
2. **DR E1-2:** Policies related to climate change mitigation and adaption
3. **DR E1-3:** Actions and resources in relation to climate change, detailing the company's progress toward achieving their targets.
4. **DR E1-4:** Targets related to climate change mitigation and adaption
5. **DR E1-5:** Energy consumption and mix – Energy intensity based on net revenue
6. **DR E1-6:** Gross scopes 1, 2, 3 and total GHG emissions
7. **DR E1-7:** GHG removals and GHG mitigation projects financed through carbon credits
8. **DR E1-8:** Internal carbon pricing
9. **DR E1-9:** Potential financial effects from material physical and transition risks and potential climate-related opportunities

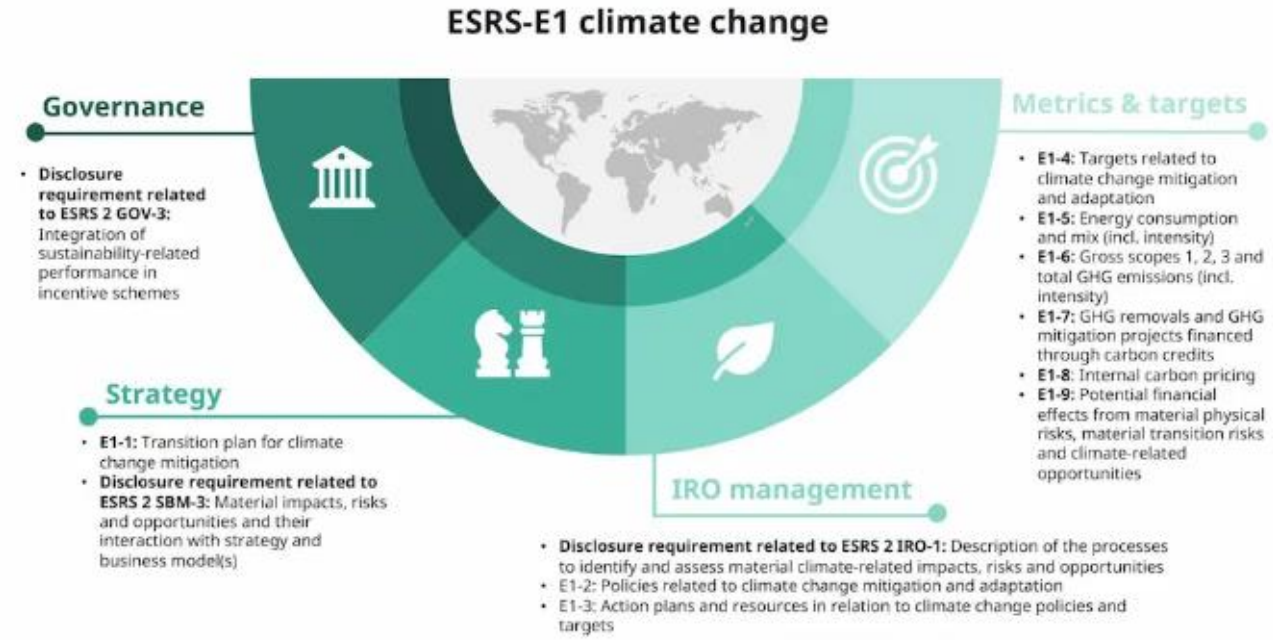


Figure 4. Overview of ESRS-E1 Climate Change extracted from website (Charluet, 2024).

As seen in Figure 4, ESRS E1-1 asks reporting on strategy, while DR 4 until 9 focus on metrics and targets, demanding different types of data and reporting. The implementation of ESRS E1 requires companies to integrate climate considerations into their overall business strategies and operations, ensuring that sustainability becomes a core element of corporate governance. This includes setting up internal systems for data collection and reporting, engaging with stakeholders, and aligning with broader environmental, social, and governance (ESG) objectives (KPMG, n.d.; Charluet, 2024). The complexity and scope of these requirements might pose significant challenges, particularly for companies in sectors like logistics, where GHG emissions are often substantial and diverse.

This thesis highlights one of these sectors: the **logistics sector**. Given its significant **contribution to global carbon dioxide (CO_2) emissions**, the logistics sector is a crucial area for environmental reporting under the CSRD. When this thesis refers to the logistics sector, it refers to companies that operate large-scale logistics networks, involving multiple hubs and supply chains, as well as companies that are significantly engaged in logistics operations. On one hand, the logistics sector plays a critical role in global trade and economic activity, while on the other hand it contributes to over a third of the global GHG-emissions, making it the largest-emitting sector in many developed countries (ISO, 2023). It accounts for 24% of global CO_2 emissions from fuel combustion, with road freight alone responsible for nearly 7% (International Energy Agency, 2020). This dual role as an economic enabler and an environmental burden makes the logistics sector a pivotal area for implementing sustainability initiatives, particularly in the context of the Corporate Sustainability Reporting Directive (CSRD) and its focus on GHG reporting under ESRS E1. However, the successful implementation of these regulations does not occur in isolation. It is deeply influenced by the broader dynamics between governmental regulatory frameworks and corporate responses.

1.2.2 The Interplay Between Government and Business

At the heart of these dynamics lies the relationship between government and business. The CSRD establishes a regulatory framework aimed at guiding corporate behavior towards sustainability (European Commission, n.d.), however as highlighted in the previous discussion, these regulatory efforts are shaped by a diverse and sometimes conflicting array of political, economic, and social considerations. Therefore, its effectiveness depends significantly on how businesses interpret and implement these regulations. For businesses, the CSRD presents both challenges and opportunities. Some companies might see it as a chance to innovate and lead in a market increasingly focused on sustainability, while others view it as a burden, especially in regions with less consumer or investor demand for sustainable practices – as sustainability initiatives have previously been perceived (Ervin et al, 2013). This divergence in perspectives highlights the broader tension between progressive and conservative forces within the corporate sector.

Moreover, the success of the CSRD might potentially be complicated by uneven environmental policy enforcement across EU member states and varying levels of support for compliance (Knill & Liefferink, 2021). In this environment, the directive's effectiveness will depend not only on the robustness of the regulatory framework but also on the willingness and capacity of businesses to align their strategies with sustainability goals, supported by investors, consumers, and other stakeholders. History demonstrates that crises can drive significant societal transformations, as seen in the Industrial and Digital Revolutions, where disruption eventually led to technological advancements and economic growth (Joel, 2016). These precedents suggest that, in the face of

climate change, similar shifts are possible if societies can innovate and implement effective policies (Geels, 2002). The CSRD presents a step toward such change, potentially guiding businesses toward greater sustainability. However, its impact will depend on how effectively it is integrated into business practices and supported by broader policy frameworks. Realizing this potential requires more than mere compliance; it necessitates a deep integration of the CSRD's requirements into the strategic, operational, and cultural frameworks of businesses. As Eccles, Ioannou, and Serafeim (2014) suggest, the transformative impact of sustainability initiatives is contingent upon how thoroughly these principles are embedded within the core functions and values of an organization

Rather than simply assessing compliance, this research project adopts a constructive approach, aiming to identify how the implementation of the CSRD can be optimized to enhance its effectiveness. With effectiveness, the ultimate goal stated by the European Union (EU) about the CSRD is meant: "**promoting transparency and accountability on emission reduction in companies**" (European Commission, n.d.). By exploring the nuances of corporate responses, this study seeks to provide insights into how businesses can move beyond mere compliance and leverage the CSRD as a tool for genuine sustainability transformation. In doing so, it contributes to the broader discourse on the role of regulation in fostering sustainable business practices and offers practical recommendations for improving the implementation of the CSRD.

1.3. Theoretical Framework

This section lays the foundation for understanding the complexities of implementing sustainability policies such as the CSRD. By examining relevant theoretical frameworks and reviewing literature, this section aims to identify gaps in the current understanding of policy-practice alignment and the potential for decoupling in the implementation of CSRD ESRS E1 (GHG-reporting), within the logistics sector.

1.3.1. Policy Cycle

Academic literature describes that often, policies are developed and implemented without **proper alignment** with actual practices. This phenomenon results in many policies failing to achieve their intended objectives (Mugambwa et al., 2020). To understand these challenges and effectively address them, it is essential to take a broader perspective and look into the policy cycle. The policy cycle is a framework that outlines the stages through which a policy goes. An example of a policy cycle can be found in Figure 5, inspired by Knill & Tosun (2008). It can be seen that after problem formulation, it starts with agenda setting, followed by policy formulation, policy adoption, implementation and evaluation.

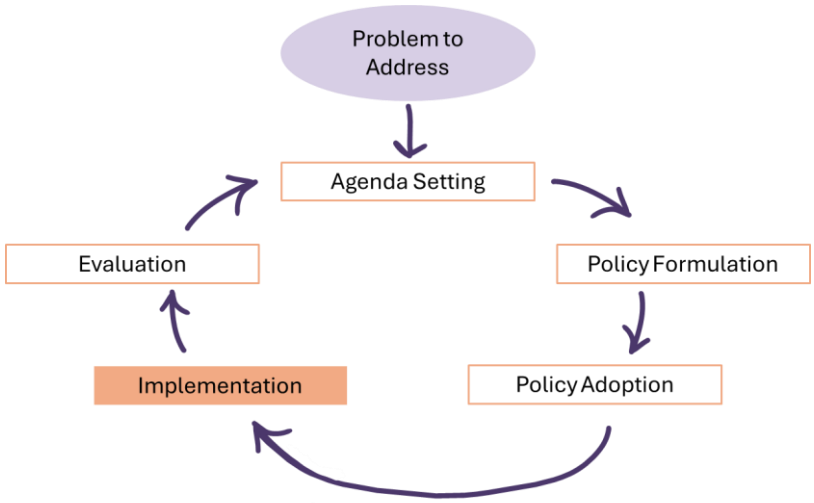


Figure 5. The policy cycle adapted from Knill & Tosun (2008). Policy making. Annotated & tailored to context

A critical stage is the implementation phase, where the policy is translated into actions and practice to achieve the desired outcomes, the stage of which CSRD is in at the time of writing this thesis. Effective implementation requires coordination among various stakeholders, including government agencies and civil society organizations (Hill & Hupe, 2002). Misalignments within the **implementation** and **policy formulation** phases may result into difficulty in policy compliance for the target actors. Literature often describes this as the "policy-practice gap" or the "implementation gap" (Bullock et al, 2021; Hudson et al., 2019; Indiahono et al., 2018, Mugambwa et al., 2020; Colgan et al., 2016). Weaver (2009) identifies several challenges regarding policy compliance, including high compliance costs, insufficient resources, lack of decision-making autonomy, inadequate information and attitudinal issues such as hostility and mistrust of stakeholders. Policies that fail to consider the diverse objectives of stakeholders are likely to encounter misalignment. Stakeholders such as employees, management and external partners may have conflicting interests and priorities that the policy does not address, leading to resistance and a lack of cooperation. For example, a policy aimed at reducing carbon emissions may face opposition from industry stakeholders if it poses a threat to their economic interests or operational efficiency (Indiahono et al., 2018; Schröder, 2024). Effective stakeholder engagement and collaboration are essential to mitigate these misalignments and ensure that the policy is comprehensive and inclusive (Colgan et al., 2016).

Additionally, these misalignments may also arise due to contradictions with existing policies or operations. For instance, the implementation of new environmental regulations, such as the ESRS E1, may clash with established industrial processes. Operational changes are necessary, which can be costly and complex to implement, leading to resistance and potential non-compliance (Henderson 1996; Walter, 2023). Such contradictions can disrupt the continuity of operations and creates a significant barrier to achieve policy goals.

1.3.2. Decoupling Literature

Literature often refers to the previously described policy-practice misalignment phenomenon as **decoupling**. Literature takes on many forms and definitions of decoupling, however according to Bromley and Powell (2012), decoupling can be classified into two types: policy-practice decoupling and means-ends decoupling (see Figure 6). Policy practice-decoupling occurs when there is a misalignment between a policy and actual daily practices (Figure 6(1)). Means-end decoupling, on the other hand, refers to the disconnect between the goals of a policy and the outcomes it produces (Figure 6(2)). Many studies, such as Luan (2024), Weijen (2014), Conrad & Holtbrügge (2021), García-Sánchez et al. (2022) and Onkila et al., 2018 have focused on means-end decoupling within sustainability reporting. What is often described is that decoupling in this context can result in "**window-dressing**". The term window-dressing generally refers to the practice of manipulation or mispresenting information in a way that makes it appear more favorable than it actually is. This term is widely used in both financial and non-financial reporting contexts to describe actions, often by management, which create a positive impression that is misleading (Chen et al., 2016; Kolk & Perego, 2014).

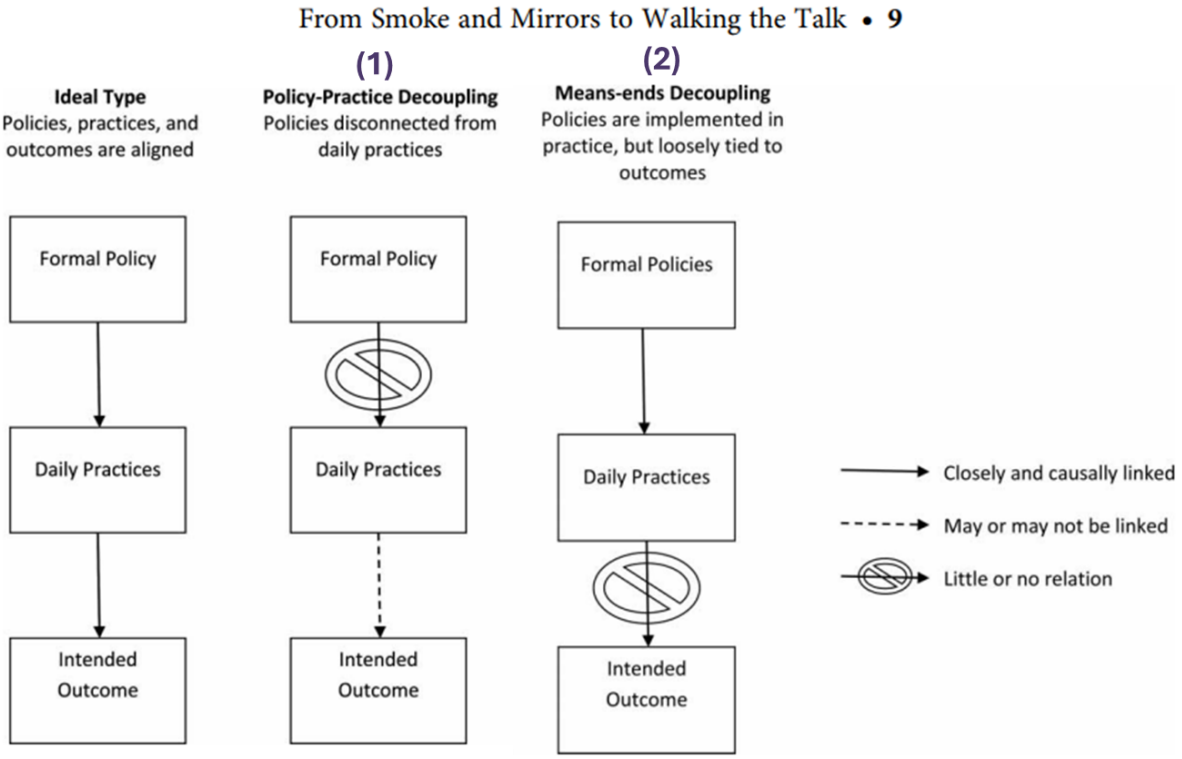


Figure 6. Two types of decoupling described by Bromley & Powell; policy-practice decoupling and means-ends decoupling. Extracted + edited. (1) Policy-Practice Decoupling. (2) Means-Ends Decoupling.

This behavior, often not driven by negative intentions, can stem from pressures to meet reporting requirements (Delmas & Toffel, 2008). Specific types of window-dressing examples are companies

might highlight their most successful projects while leaving out the details of less successful venture to appear compliant with sustainability standards, often referred to as greenwashing (Yang et al., 2020). An industry example is the Volkswagen emissions scandal. It involved the company installing devices in diesel vehicles to cheat on emission tests, aiming to appear more sustainable. This resulted in significant reputational damage, financial losses and highlighted the need for stronger regulatory oversight. This case underscored the severe consequences of corporate actions on the road of environmental compliance (Lynch et al., 2016; Backmann et al., 2023). Further results of policy misalignment from academic literature indicate that such decoupling can undermine the effectiveness of sustainability initiatives, increase stakeholder mistrust and lead to regulatory penalties (Boiral, 2016; Delmas & Burbano, 2011).

However, recent research (Talpur et al., 2023) suggests that decoupling in sustainability reporting is a multifaceted phenomenon, encompassing more than just window-dressing. While window-dressing represents a clear form of decoupling, other forms may be more nuanced and may arise from organizational complexity, resource constraints, or misalignments between strategic goals and operational realities (Bromley & Powell, 2012; Wijen, 2014). For instance, some companies may engage in **loose coupling** (Orton & Weick, 1990), where sustainability goals are acknowledged at a strategic level but are not fully integrated into day-to-day operations due to practical limitations. This kind of decoupling can occur without the intent to deceive, but rather as a result of the challenges inherent in aligning long-term sustainability goals with short-term business pressures. Additionally, as noted by Crilly et al. (2012), some firms may experience "symbolic management," where they adopt sustainability practices more as a means of managing external perceptions than achieving substantive change.

These complexities suggest that while window-dressing is an important concern, it is only one aspect of the broader issue of decoupling in sustainability reporting in the corporate sector. Understanding the diverse forms of decoupling and the factors that contribute to them is crucial for developing more effective sustainability frameworks and improving the alignment between corporate practices and environmental goals.

1.4 Knowledge gap

The implementation phase of policymaking remains relatively under-studied due to challenges in isolating it from other policy stages and a lack of conceptual consensus (Bullock et al., 2021; Hill & Hupe, 2002). This thesis will therefore explore the dynamics of this implementation, with a particular focus on the ESRS E1 standards for GHG reporting. Despite of the extensive literature on policy-specific decoupling situations, policy implementation conflicts and policy-practice misalignment, there lacks literature **specifically addressing the Corporate Sustainability Reporting Directive (CSRD).** It also lacks literature of GHG-reporting specifically **within the logistics sector**.

This research adopts a people-centered case study approach within the logistics sector to explore potential misalignments between the Corporate Sustainability Reporting Directive (CSRD) and its practical implementation. The central research question is**: "How do logistics companies navigate GHG-reporting under CSRD ESRS E1, and what factors influence their ability to align with the sustainability goals of CSRD?"** By examining stakeholder perspectives and interactions, the study aims to identify explanatory variables that highlight the discrepancies between policy intentions and real-world practices. The ultimate objective is to provide actionable recommendations for businesses, policymakers, and other stakeholders, contributing to a more sustainable and resilient global economy.

The challenges highlighted by previous obstacles under the Non-Financial Reporting Directive (NFRD) underscore the growing importance of precise GHG emission reporting. Additionally, EU-wide initiatives such as the Fit for 55 package, which aims to reduce GHG emissions by at least fifty-five percent by 2030 (European Commission, n.d.), further emphasize the need for accurate and transparent environmental reporting. This study will critically analyze the CSRD, its objectives, and the implications of its implementation within the logistics sector, focusing on how well the policy aligns with operational realities and stakeholder engagement. Through a qualitative research approach, incorporating sector-specific expertise, literature review, and insights gained from the Engineering and Policy Analysis Master's program, this study will assess the potential for genuine implementation of the CSRD and provide insights into effective policy-practice alignment.

1.5. Problem boundaries and conceptualization

When looking at the overarching research question, by "**sustainability goals"**, this thesis refers to objectives of CSRD to speed up companies' GHG-reduction ambitions, guide organizations in better reporting practices and ultimately contribute to sustainable development (European Commission, n.d.). Using the **logistics sector** as a case study, the thesis will investigate the potential mechanisms of decoupling and aims to identify the factors contributing to that, within this specific context. In this thesis, the term "(sustainable) logistics sector" refers to companies that operate large-scale logistics networks, involving multiple hubs and supply chains, as well as companies that are significantly engaged in logistics operations. For example, this includes logistics service providers managing complex transportation networks, a food company distributing multiple products across Europe, or a clothing brand with supply chains spanning various regions. These companies face unique challenges in integrating sustainability into their logistics operations, making them relevant for this study.

The study will delve into identifying and addressing potential decoupling risks related to the implementation of ESRS E1 and exploring how the coupling of policies and practices can achieve the right balance. By doing so, it aims to contribute to more effective and transparent environmental reporting under the CSRD, ultimately contributing to SDG number 13: Climate Action (United Nations, 2015).

1.6. Sub-Questions

To address the overarching question, the research will focus on **four sub-questions**:

Sub-Question 1: What are the key objectives and implementation mechanisms of the CSRD, particularly ESRS E1, and how do they relate to the existing sustainability practices and challenges within the logistics sector?

Sub-question 1 is essential to addressing the main research question as it lays the groundwork for understanding the objectives and mechanisms of CSRD, particularly the ESRS E1 standard, within the logistics sector. By dissecting both the regulatory framework and existing sustainability practices, this sub-question provides insight into how well-aligned (or misaligned) the CSRD is with the sector's operational realities. This understanding is crucial for identifying potential barriers to effective implementation, as well as for determining how logistics companies might adapt their practices to meet the sustainability goals set by the CSRD.

Sub-Question 2: What factors can signal **potential gaps** between GHG-reporting practices and CSRD ESRS E1 objectives in the logistics sector?

This sub-question is relevant because it helps pinpoint specific areas where logistics companies might struggle to align their reporting practices with the directive's sustainability goals. By identifying factors that signal these potential misalignments, barriers, obstacles and potentially opportunities to address these, can be brought forward.

Sub-Question 3: To **what extent** does the **implementation** of CSRD ESRS E1 within the logistics sector exhibit **characteristics of decoupling** (misalignment with CSRD objectives) and what **forms** does this decoupling take?

By understanding the extent and characteristics of decoupling in the implementation of CSRD ESRS E1, potential gaps between policy adoption and actual practice within logistics companies can be identified. This sub-question is relevant because it sheds light on the areas that might hinder the effectiveness of CSRD.

***This thesis specifically focuses on** searching for the potential of decoupling between reporting and actual sustainability practices (Figure 7a), for the potential of decoupling CSRD ESRS E1 implementation with CSRD objectives (Figure 7b) and the factors that influence both alignments. Understanding the framework and expectations of ESRS E1 is crucial for interpreting the results and insights presented in the subsequent chapters. These types of decoupling are inspired by Bromley and Powell (2012), but tailored to and interpreted within the context of this thesis.*

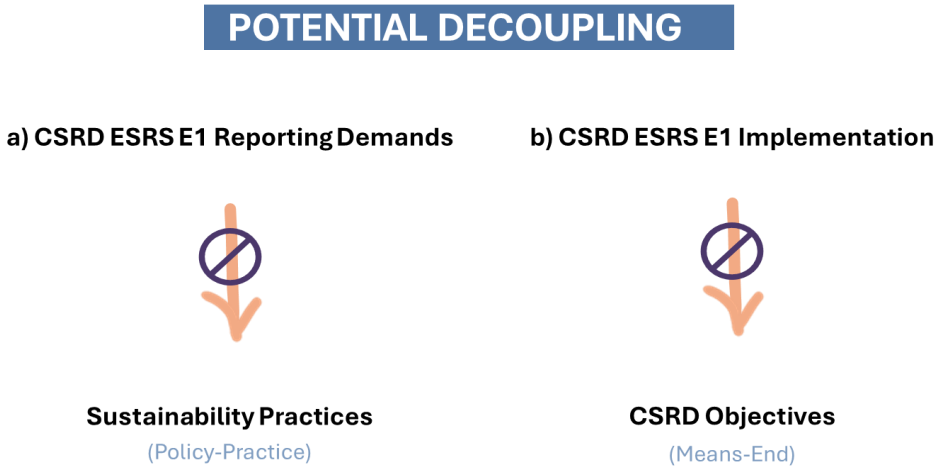


Figure 7. Schematic overview of decoupling focus. a) Policy-practice decoupling of CSRD ESRS E1 Reporting Demands and Sustainability practices. b) Means-end decoupling of CSRD ESRS E2 Implementation and CSRD objectives.

Sub-Question 4: What **key dilemmas** do logistics companies encounter and how do these dilemmas influence their implementation of CSRD ESRS E1?

This sub-question is essential for the main research question as it reveals the specific challenges logistics companies face during CSRD ESRS E1 implementation. Understanding these dilemmas helps explain how they influence the alignment with CSRD objectives, providing insights into barriers that hinder effective adoption.

These sub-questions will guide the research in identifying potential gaps and challenges in the future implementation of the CSRD, detection of preliminary obstacles and deceptive practices and methodological approaches for proactive policy analysis.

Additionally, since there is no established method for performing ex-ante policy analysis specifically for the CSRD ESRS E1 within the logistics sector, this thesis aims to contribute to the academic field empirically by:

1. Examining whether we can expect (de)coupling between policy and practice/outcome and what factors might contribute to that phenomenon.
2. Developing a method to analyze policy ex-ante for CSRD ESRS E1.

1.7. Societal, Scientific and EPA Relevance

[Societal Relevance]

The societal relevance of this thesis lies in its focus on the CSRD and its potential to drive meaningful change in corporate sustainability practices, positively affecting society. As climate change continues to pose significant risks to societies worldwide, the effective implementation of sustainability policies within the business sector becomes increasingly critical. By examining the dynamics of how businesses interpret and implement the CSRD, particularly in the context of GHG reporting (ESRS E1), this research contributes to broader efforts to enhance transparency, accountability, and environmental stewardship in the corporate world. The findings have the potential to inform policymakers, businesses, and stakeholders on the necessary steps to ensure that regulatory frameworks like the CSRD translate into real-world environmental benefits, ultimately contributing to the creation of a more sustainable future for all.

[Scientific Relevance]

The scientific relevance of this thesis is rooted in its contribution to the existing body of knowledge on corporate sustainability and regulatory compliance. By analyzing the implementation of the CSRD within the logistics sector, this research provides empirical insights into the challenges and opportunities associated with integrating sustainability reporting into the corporate sector. It also advances the academic discussion on the effectiveness of regulatory frameworks in driving sustainable business practices. Moreover, this study offers a nuanced understanding of the interplay between regulation, corporate behavior, and sustainability outcomes, which can serve as a foundation for future research on improving the impact of sustainability directives in various sectors.

[EPA Relevance]

Within the framework of the master *Engineering and Policy Analysis,* the Thesis subject fits the requirements because it tackles a *Societal Grand Challenge (SGC)*. Before going into further detail, it is important to explain what a SGC is. As learned over the course of the master, A SGC characterizes itself as a problem that brings to light multiple perspectives when seeking for an answer (i). Also, it requires multiple stakeholders with different objectives, values and agenda's(ii).

i. *Multiple perspectives:* The CSRD, particularly in the context of ESRS E1 focused on climate change and GHG reporting, as discussed, inherently brings together diverse perspectives. The CSRD requires businesses to integrate environmental sustainability, social responsibility, and robust governance into their operations, which involves balancing the viewpoints of different sectors, including government, industry, and civil society. This integration reflects the interdisciplinary nature of sustainability challenges, mirroring the complexity of addressing global environmental issues like climate change through coordinated policy and corporate action.

ii. *Multiple stakeholders with diverse objectives:* The effective implementation of the CSRD necessitates collaboration among a wide range of stakeholders, including EU regulatory bodies, businesses, investors, NGOs, and civil society. Each stakeholder group brings distinct objectives and values to the table—governments may prioritize regulatory compliance and environmental protection, while businesses might focus on economic performance and operational feasibility. NGOs and civil society advocate for transparency and accountability, often pushing for more ambitious sustainability targets. The need to reconcile these diverse interests highlights the SGC nature of implementing

the CSRD, as achieving meaningful outcomes requires the active cooperation and alignment of these various stakeholders.

In tackling this thesis, the research draws upon the analytical frameworks and problem-solving approaches developed throughout the EPA program. By analyzing how the CSRD is interpreted and implemented by different stakeholders, the research not only addresses a pressing societal challenge but also contributes to the broader understanding of how engineering and policy analysis can be applied to create effective, collaborative solutions to complex, real-world problems.

1.8 Thesis Report Outline

The outline of the thesis research report can be found in Figure 8.

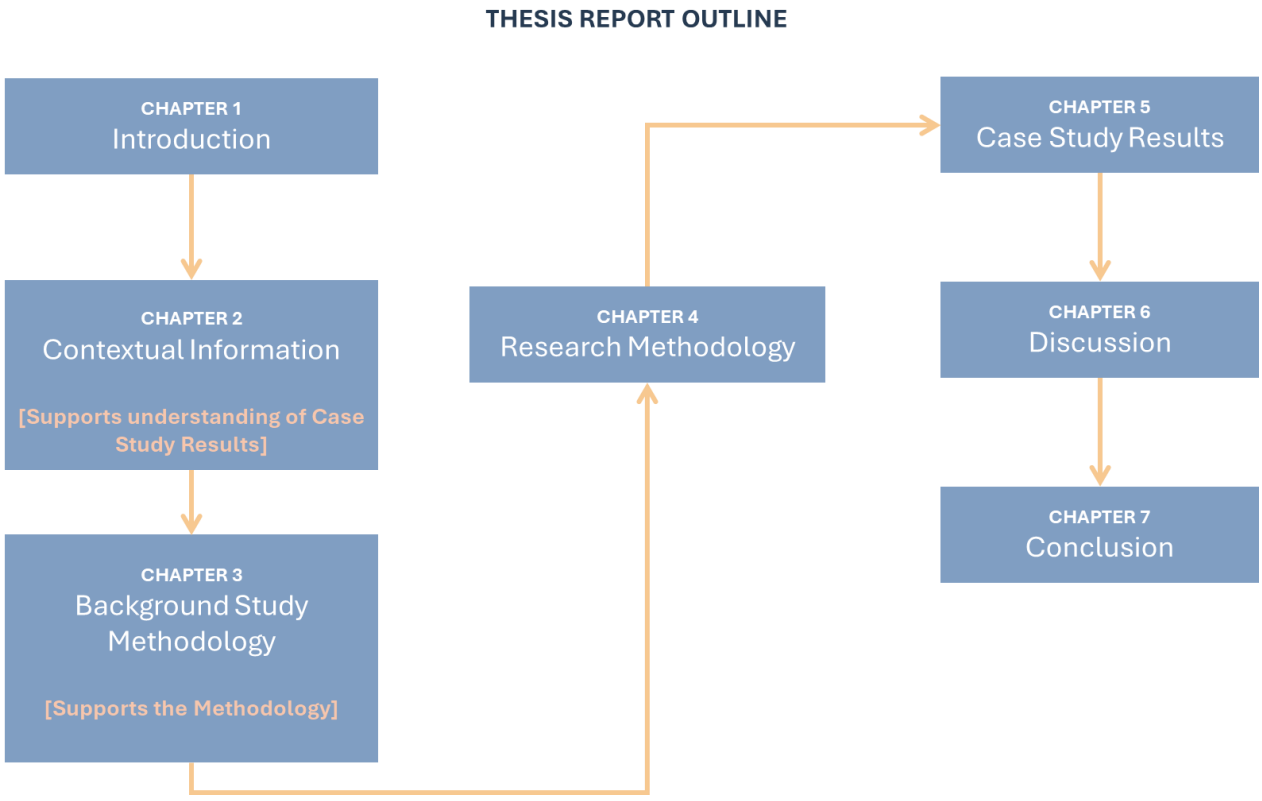


Figure 8. Thesis Report Outline

CHAPTER 2 – CONTEXTUAL INFORMATION

This chapter provides a comprehensive understanding of the Corporate Sustainability Reporting Directive, particularly focusing on E1, and its interplay with the logistics sector. To effectively address the first sub-question, it is essential to dissect the CSRD's objectives and its implementation mechanisms, then examine how these align or conflict with the existing sustainability practices within the logistics industry. It therefore ***tackles sub-question 1:*** *What are the key objectives and implementation mechanisms of the CSRD, particularly ESRS E1, and to how do they relate to the existing sustainability practices and challenges within the logistics sector?*

The chapter is structured into three main parts (as portrayed in Figure 9):

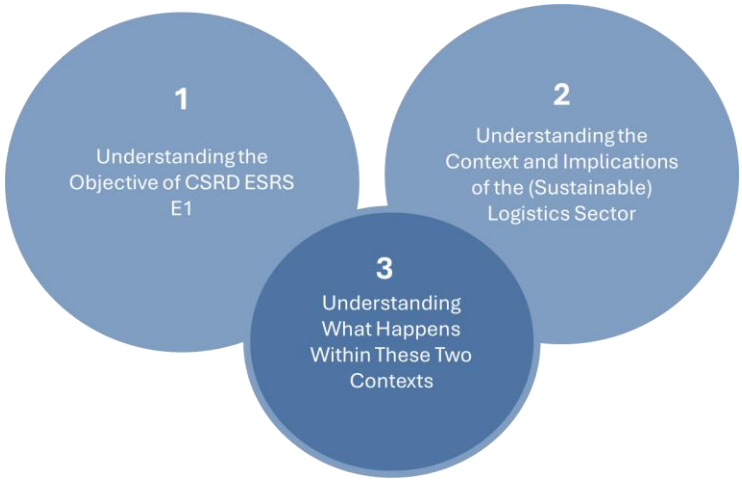


Figure 9. Areas to understand

1. **Understanding the context of CSRD ESRS E1**: This section explores the historical context and core objectives of the CSRD, culminating in an analysis of the ESRS E1. Using an objective tree, primary goals of ESRS E1 are identified, followed by a means-end analysis to establish the criteria for evaluating its effectiveness. This part also delves into the implementation cycle of ESRS E1, outlining how companies are expected to integrate and report their GHG-emissions.
2. **Sustainable Logistics Sector**: Next, the focus shifts to the logistics sector, highlighting its dual role as both a critical component of global trade and a significant contributor to GHG emissions. The current sustainability trends and challenges faced by the sector are analyzed, providing a detailed account of how logistics companies are navigating the transition towards greener practices. This segment underscores the existing gaps and opportunities for alignment with the CSRD's sustainability goals.

3. **Combined Contexts**: The final part delves into the specific stakeholders that influence and are impacted by the intersection of CSRD ESRS E1 and the logistics sector. Building on the broader stakeholder field discussed earlier, this section delves into the actors relevant to this context. It concludes with a conceptual overview inspired by systems thinking and systems engineering, offering a framework that visualizes the dynamic interactions within the system.

Through this structured analysis, Chapter 2 sets the stage for a deeper exploration of how the logistics sector can effectively implement CSRD ESRS E1, ensuring that the directive's ambitious sustainability objectives are not only met but integrated into core business practices.

2.1. Understanding the context of CSRD ESRS E1

This section aims to help understand the context of CSRD ESRS E1 by providing an objective tree (Section 2.1.1), doing a means-end analysis (Section 2.1.2) and by diving into the implementation roadmap (Section 2.1.3).

2.1.1. Objective Tree CSRD ESRS E1

The Corporate Sustainability Reporting Directive plays a key role in the European Union's broader climate action efforts, particularly through its "Environment Sub-Category" that focuses on enhancing transparency and accountability in corporate emission reduction. As illustrated in Figure

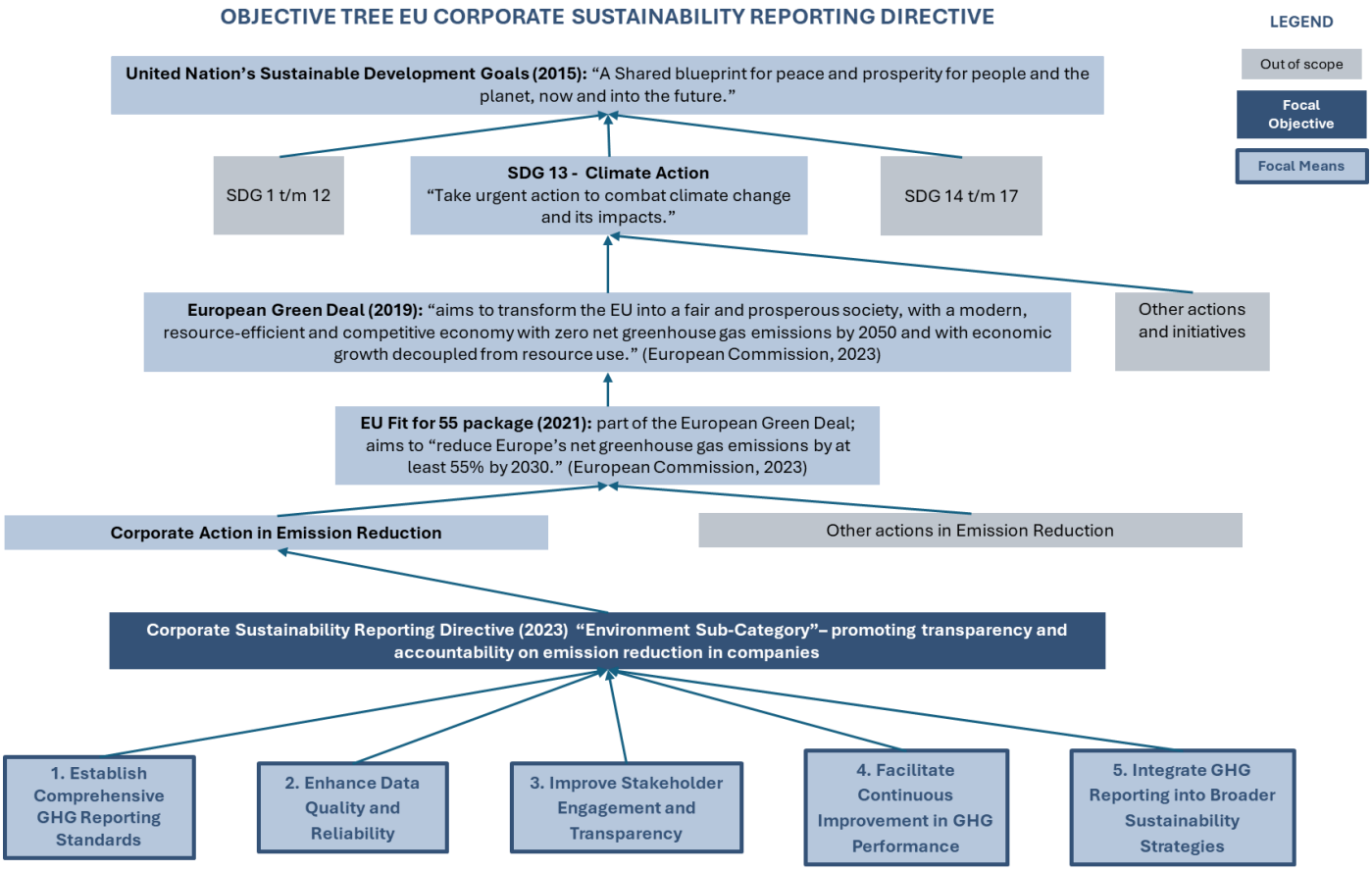


Figure 10. Objectives Tree CSRD – Environment

10, the CSRD contributes to the overarching goals of the European Green Deal and the United Nations Sustainable Development Goals (SDGs), especially SDG 13:

Climate Action. This directive is not solely focused on GHG reduction but also covers a wide range of environmental, social, and governance (ESG) aspects. However, the scope of this thesis narrows to GHG reporting and reduction as part of CSRD's environmental objectives.

Positioned within the EU's "Fit for 55" package, the CSRD supports the EU's goal of reducing net GHG emissions by at least 55% by 2030 and achieving climate neutrality by 2050. The directive establishes comprehensive GHG reporting standards, ensures data quality and reliability, improves stakeholder engagement, and integrates GHG reporting into broader sustainability strategies (European Commission, 2023). As shown in the objective tree (Figure 10), the focal objective is to ***promote transparency and accountability in corporate emission reduction***, and the focal means include five key elements, such as enhancing GHG data and facilitating continuous improvement in GHG performance.

By emphasizing these components, the CSRD aligns corporate practices with the EU's ambitious environmental goals and helps close the gap between business operations and climate action efforts. The directive's successful implementation is essential for achieving meaningful progress within the framework of the European Green Deal and SDG 13 (European Commission, 2023).

2.1.2. Means-end analysis ESRS E1

From the EU's point of view, success is defined by the effective integration of corporate sustainability reporting practices that align with broader EU climate goals, such as the European Green Deal and the Fit for 55 package. These initiatives aim to promote transparency, accountability, and significant reductions in greenhouse gas emissions across sectors. A means-end analysis helps clarify the pathway between the means (actions) and the end goals of a policy. In the context of ESRS E1, this analysis is crucial for understanding how specific actions can lead to the desired outcomes, such as improved transparency in GHG reporting and substantial emission reductions. It provides a structured way to assess whether the implemented measures are likely to achieve the intended sustainability objectives. The means-end diagram, from the perspective of EU (European Union, n.d.), is shown in Figure 11.

The focal means for achieving this, as shown in the objective tree in Figure 10, include establishing reliable GHG reporting standards, enhancing data quality, improving transparency, and integrating GHG reporting into broader strategies.

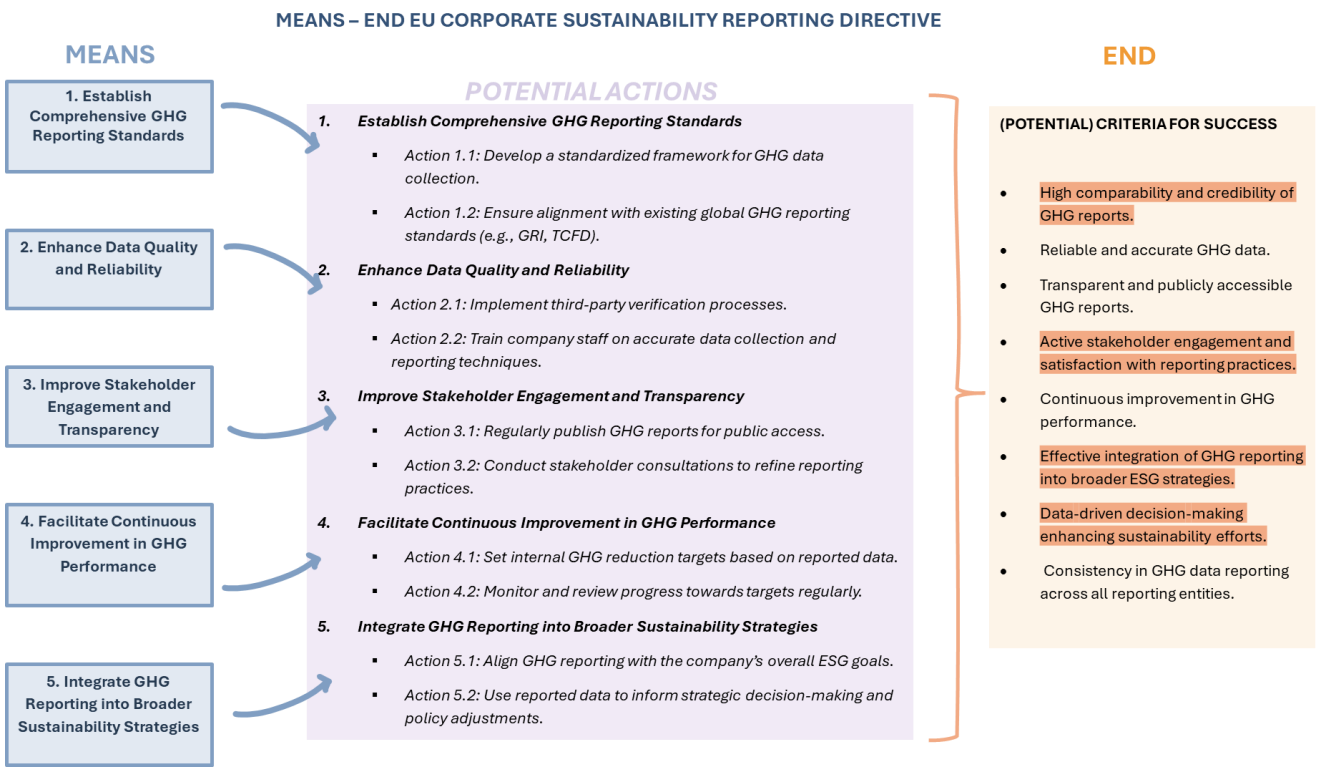


Figure 11. Means-End Diagram, perspective: European Union.

Within this research, the following "ends" will be utilized as criteria to analyze the decoupling potential:

- ***Consistency in GHG data reporting across all reporting entities***
- ***Reliable and accurate GHG data***
- ***Active stakeholder engagement and satisfaction with reporting practices***
- ***Effective integration of GHG reporting into broader ESG strategies.***

These criteria are chosen, because if decoupling occurs within one or more of these actions, reaching the ultimate objective of CSRD; "**promoting transparency and accountability on emission reduction in companies**" (as stated in the objective tree in Figure 10) might be endangered.

2.1.3. CSRD Implementation process flow/roadmap

By combining the implementation information provided by many consultancy articles (Charluet, 2024b; KPMG, n.d.; JARO, 2024; Euronext Corporate Services, 2024; Wyver et al., 2024; AMCS, 2024), the following nine-step implementation cycle provides a structured approach for companies to integrate CSRD requirements, particularly GHG reporting, into their operations. A detailed explanation per step will follow. The full cycle, as interpreted from these sources is portrayed in Figure 12.

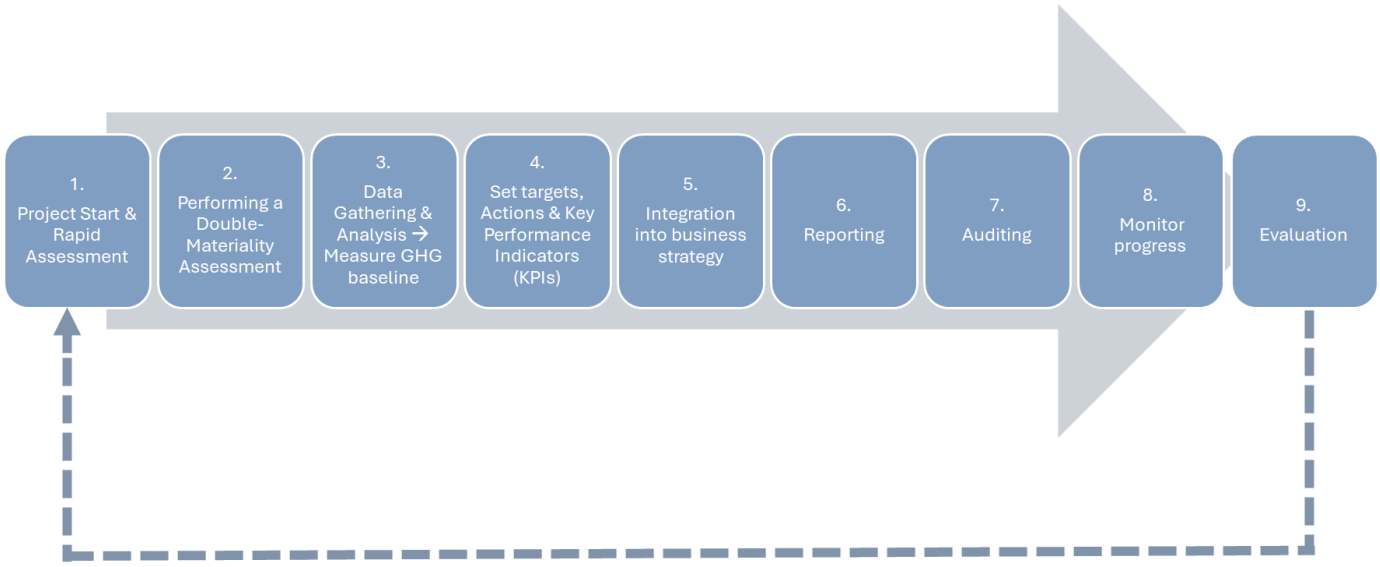


Figure 12. CSRD Implementation Roadmap.

Step 1: Project Start

The initial phase of the CSRD implementation process begins with a project kick-off and a rapid assessment. In this stage, companies assemble the project team, outline the scope of the CSRD reporting requirements, and perform a preliminary evaluation of their current capabilities and any existing gaps. This quick assessment is essential for pinpointing immediate risks and opportunities, laying the groundwork for a more comprehensive materiality assessment in the next phase. Additionally, it helps to align internal stakeholders with the project's goals and timelines.

Step 2: DMA

The double-materiality assessment (Figure 13) is a core requirement under CSRD and involves evaluating both the impact of the company's activities on climate change (environmental materiality) and the financial implications of climate change on the company (financial materiality).

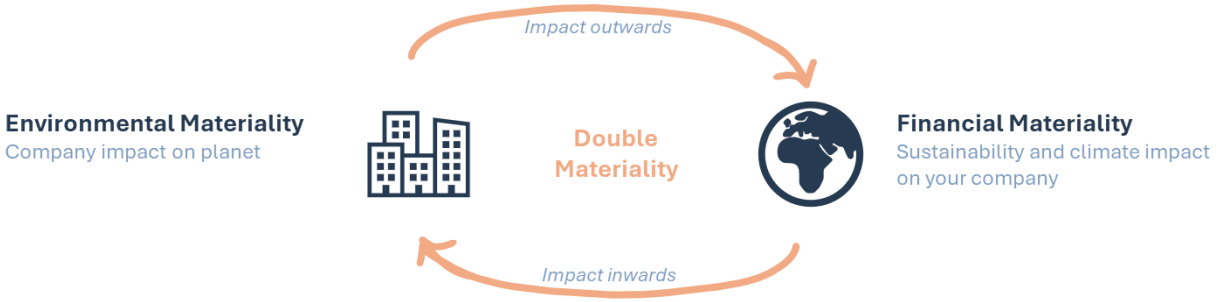


Figure 13. Double Materiality Analysis

This dual approach ensures that companies address the broader environmental impacts of their operations while also considering the financial risks associated with climate-related factors. The assessment typically involves internal and external stakeholder engagement and scenario analysis. This process helps companies identify the key ESG issues that are material both from an impact and financial perspective, thereby ensuring that their reporting is comprehensive and aligned with stakeholder expectations. The double-materiality assessment serves as a foundation for subsequent steps, particularly in setting targets and defining key performance indicators (KPIs).

Step 3: Data Gathering & Analysis

Once the materiality assessment is complete, companies must gather and analyze relevant data to establish their GHG emissions baseline. This baseline measurement is critical as it provides a reference point against which future emissions reductions can be measured. The data collection process involves sourcing information from various departments, including e.g. energy usage, waste management, and supply chain operations. Advanced data analytics tools are often employed to ensure accuracy and consistency in the data. If data is not available, companies must report on how they plan to receive the data in the future. The resulting GHG baseline serves as the starting point for setting reduction targets and tracking progress over time.

Step 4: Targets & KPI's

With the GHG baseline established, companies then set specific targets for reducing their emissions. These targets are preferably aligned with international standards such as the Science Based Targets initiative (SBTi). Alongside these targets, companies must also define actions and initiatives that will drive emissions reductions, such as energy efficiency programs or transitioning to renewable energy sources. KPIs are established to monitor progress towards these targets, providing a clear framework for measuring success and ensuring accountability.

Step 5: Integration into business strategy

For the CSRD implementation to be truly effective, sustainability must be integrated into the company's overall business strategy, ensuring alignment between company policy and practice. This involves embedding sustainability goals into core business processes, decision-making frameworks, and corporate governance structures. By embedding GHG reduction goals into the broader business

strategy, companies can position sustainability as a core component of their operations and long-term planning, rather than treating it as a secondary concern.

Step 6: Reporting

Reporting is a critical stage in the CSRD implementation cycle, where companies publicly disclose their GHG emissions, progress towards sustainability targets, and the actions they have undertaken to reduce their environmental impact. This stage involves preparing reports that are in compliance with the ESRS E1 standards, ensuring that the data is transparent, accurate, and aligned with stakeholder expectations.

Step 7: Auditing

Auditing is essential to ensure the credibility and accuracy of the GHG emissions data and the overall CSRD report. This process typically involves both internal and external audits, where independent auditors verify the data and assess the company's compliance with the reporting standards.

Step 8: Monitor Progress

As the company begins to implement its sustainability initiatives, continuous data gathering, and analysis are essential to monitor progress towards the established GHG reduction targets. This stage involves regularly updating and analyzing emissions data to track the effectiveness of the actions taken. This is important, because companies may need to adjust their strategies based on this ongoing monitoring to ensure they remain on track to meet their goals.

Step 9: Evaluation

The final stage of the CSRD implementation cycle is evaluating the process. This includes assessing the effectiveness of actions taken, reviewing progress toward GHG reduction targets, and determining if sustainability goals were met. The evaluation provides feedback to inform future strategies and allows for adjustments to improve outcomes. This stage is crucial for maintaining momentum and long-term commitment to sustainability objectives.

2.2 Understanding the Sustainable Logistics Sector

As mentioned in Chapter 1, this thesis defines the logistics sector as companies that manage extensive logistics networks, characterized by multiple hubs and complex supply chains, as well as those that are heavily involved in logistics activities. One of the primary challenges in the logistics sector is its complex global supply chains. These supply chains involve multiple stages of transportation and warehousing, each contributing to the sector's overall environmental footprint. In Figure 14, a fictive example is created to help illustrate the context. A company operating within the logistics sector typically has a global supply chain, involving several hubs and transport modes.

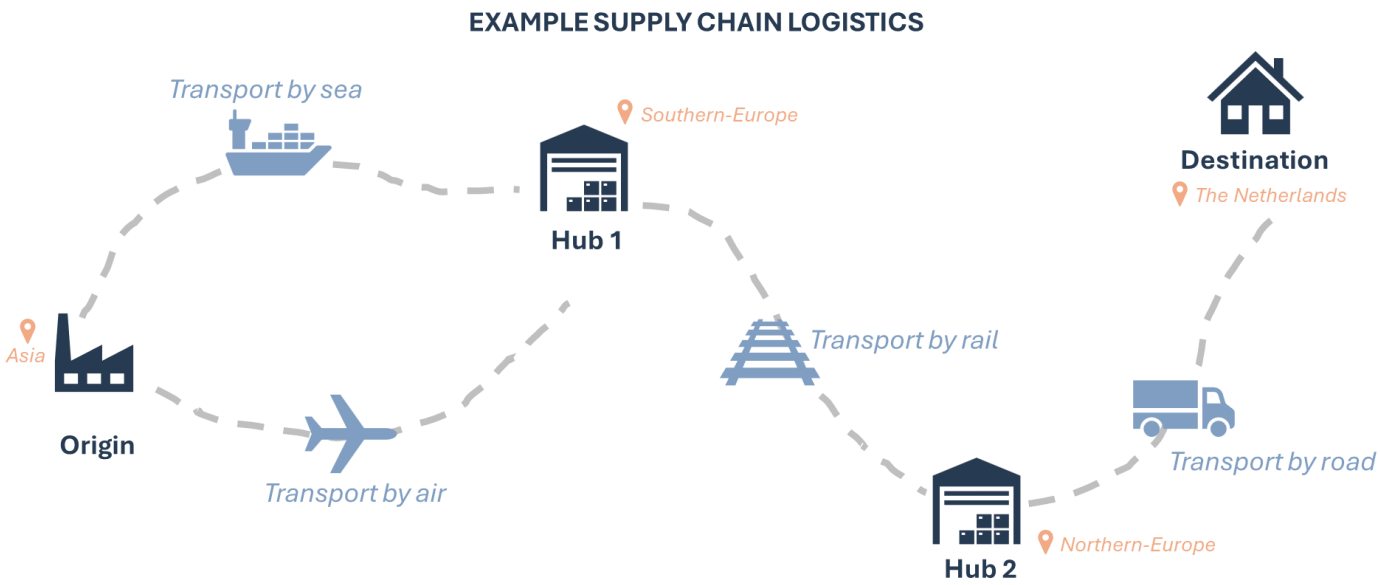


Figure 14. Fictive Example of Supply Chain Logistics.

The complexity of these operations presents significant challenges for companies attempting to track and reduce their GHG emissions, as data collection and reporting are complicated by the need to coordinate across various entities and jurisdictions. Moreover, the sector faces technological and operational barriers, such as the high costs associated with transitioning to low-emission vehicles and the lack of infrastructure for alternative fuels (World Bank, 2020; Rodrigue, 2020). Despite these challenges, the logistics sector also presents significant opportunities for innovation in sustainability. From a systems perspective, a company can do two major things to become more sustainable: optimization of process efficiency (1) and carbon reduction (2). In Figure 15 that systems perspective is taken and it can be seen that the total amount of GHG emissions is determined by the **weight, distance** and the **amount of CO_2-equivalent per kilometer** is emitted. Reducing either, or all three, will result in a lower amount of **total emissions**. Practically this would for example mean; the adoption of green technologies, such as battery-electric vehicles (BEVs) and renewable energy-powered warehouses or making more efficient transport routes. Implementing these actions can drastically reduce emissions and improve operational efficiency.

The relevance of the logistics sector as a case study for CSRD implementation lies in its substantial environmental impact and the unique challenges it faces in achieving sustainability. This sector's complexity, coupled with its significant contribution to global GHG emissions, makes it an ideal context for examining how businesses navigate the requirements of the CSRD, particularly in relation to ESRS E1 standards for GHG reporting.

The logistics sector offers a compelling case for examining (de)coupling, where gaps may emerge between the adoption of sustainability practices and their practical execution. With its diverse activities, including long-haul transport, last-mile delivery, and warehousing, there are multiple

opportunities for (de)coupling to occur. This makes the logistics sector a prime example for examining the broader issues of policy implementation and the practical incorporation of regulatory requirements into daily operations.

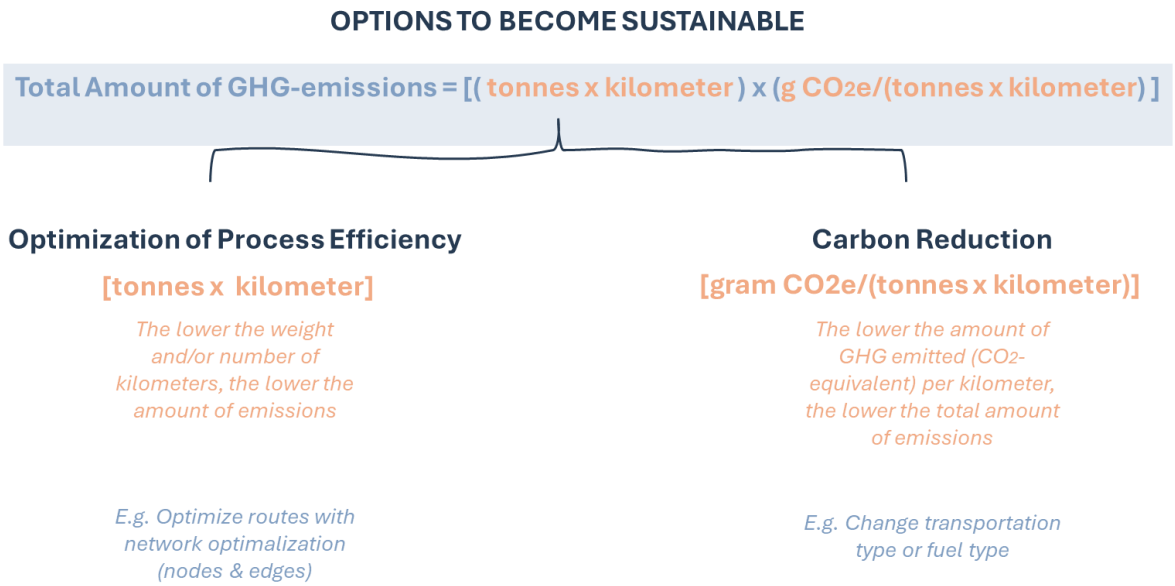


Figure 15. Illustration of how companies can become more sustainable. Two main options: optimization and reduction.

2.3. Understanding the Interplay of CSRD – ESRS E1 and the Sustainable Logistics Sector

This section will focus on combining the CSRD-related information (Section 2.1) and the sustainable logistics information (Section 2.2). It will first include an in-depth stakeholder analysis (Section 2.3.1), then it will provide a conceptual system overview (Section 2.3.2). In Section 2.3.3 it will discuss internal and external factor influencing that system, whereafter examples will be given.

2.3.1. Stakeholder Analysis

The implementation of the CSRD ESRS E1 occurs within a multifaceted institutional context, where various stakeholders interact in shaping, enforcing, and complying with the directive. These interactions reflect broader socio-political and economic structures, with the European Union (EU) acting as a central regulatory body and businesses, regulators, consultants, and civil society all playing critical roles. An overview of the primary stakeholders (Figure 16), their roles within the institutional context, and their interactions with one another will follow.

1. BUSINESSES (Eccles et. Al, 2014; Boiral, 2016)

- **Institutional Role**: As the central subjects of CSRD, businesses are tasked with implementing its requirements. This entails integrating GHG reporting into their operations and broader sustainability strategies, which directly affects their positioning within markets and regulatory environments.
- **Interaction**: Businesses engage with multiple stakeholders, including regulators, auditors, and consultants, to meet compliance requirements. This interaction often involves navigating tensions between operational constraints and regulatory expectations.
- **Challenges**: While businesses are the focal point of compliance, their ability to meet the directive's standards is influenced by both internal resource limitations and external pressures, including investor demands and the availability of compliance tools from consultants and software providers.

2. EFRAG (European Financial Reporting Advisory Group) (EFRAG, 2022; EFRAG, 2024)

- **Institutional Role**: EFRAG is a private association, encouraged by the European Commission, which has the goal to serve public interest. It is responsible for developing the **European Sustainability Reporting Standards (ESRS)**, including the critical ESRS E1, which focuses on climate-related disclosures such as GHG reporting. EFRAG operates within the institutional framework of the EU but maintains close interactions with the business community to ensure its standards are both rigorous and implementable.
- **Interaction**: The organization is a key intermediary between the **EU Commission** and private sector entities.
- **Challenges**: Balancing the need for strict, uniform standards with the flexibility required by businesses from various sectors poses a significant challenge for EFRAG.

3. CONSULTANTS (Delmas & Toffel, 2008; Gunarathne & Lee, 2015)

- **Institutional Role**: Operating within a semi-formal institutional framework, consultants bridge the gap between regulatory demands and business capabilities. They assist companies in navigating complex reporting requirements and ensuring that CSRD obligations are met efficiently.
- **Interaction**: Consultants frequently interact with businesses and auditors, helping to translate policy into practice.
- **Challenges**: The consultant's role is influenced by the varying levels of readiness and resource availability within different companies, making their work highly context dependent. Ensuring that their guidance aligns with EFRAG standards and auditor expectations adds complexity to their role.

4. REGULATORY AUTHORITIES (European Commission, 2021)

- **Institutional Role**: Regulatory bodies, working within the broader EU framework, are responsible for overseeing CSRD implementation and enforcing compliance. They monitor whether businesses meet their reporting obligations and may impose penalties for non-compliance, making them crucial enforcers within the institutional context.
- **Interaction**: Regulators interact primarily with businesses and auditors, ensuring compliance with CSRD guidelines. They also coordinate with the EU to ensure that enforcement mechanisms are consistent across member states.
- **Challenges**: Maintaining consistent enforcement across sectors and countries is challenging, particularly when companies vary significantly in size, sector, and resources.

5. AUDITORS (Briem & Wald, 2018)

- **Institutional Role**: Auditors play a pivotal role in verifying that companies' GHG reports are accurate and compliant with CSRD standards. As part of the formal institutional process, auditors need to ensure transparency and reliability in sustainability disclosures.
- **Interaction**: Auditors work closely with businesses to validate their reporting, and with regulatory bodies to ensure that companies meet legal requirements. They may also communicate with EFRAG to align auditing practices with evolving standards.
- **Challenges**: Inconsistent auditing standards across different regions and sectors complicate the enforcement process. Auditors are often caught between providing flexible interpretations for businesses and enforcing strict regulatory standards set by EFRAG.

6. KNOWLEDGE PARTNERS (Schaltegger & Burrit, 2018)

- **Institutional Role**: Universities, think tanks, and research institutions contribute to policy development and offer innovative solutions to address the challenges of implementing sustainability reporting.

- **Interaction**: Knowledge partners collaborate with EFRAG, businesses, and NGOs to develop new methodologies and provide insights into best practices. They offer research that informs policy refinement and help align academic research with practical industry needs.

- **Challenges**: Their insights may not always translate seamlessly into business operations, and their research may be underutilized if not effectively communicated to other stakeholders.

7. NON-GOVERNMENTAL ORGANIZATIONS **(NGOs)** (Doh & Guay, 2006)

- **Institutional Role**: NGOs serve as watchdogs and advocates for environmental sustainability. They pressure businesses and regulatory bodies to ensure that sustainability goals, such as those outlined in the CSRD, are met in a meaningful way.

- **Interaction**: NGOs often engage with businesses, regulators, and civil society to hold organizations accountable for their GHG emissions and overall sustainability practices. They also play a role in shaping public opinion, which in turn influences investor and consumer behavior.

- **Challenges**: NGOs may face resource constraints, making it difficult to monitor all industries equally. Additionally, their advocacy can sometimes be seen as adversarial, leading to conflicts with businesses and other stakeholders.

8. SOFTWARE PROVIDERS (ESGFLO, 2024)

- **Institutional Role**: As part of the market-driven institutional landscape, software providers offer essential tools for automating and streamlining GHG data collection and reporting, thus facilitating CSRD compliance.

- **Interaction**: They interact with businesses, consultants, and auditors to ensure that their platforms meet the technical and legal requirements of CSRD reporting.

- **Challenges**: Software providers must continuously adapt to changing regulatory standards, ensuring that their products remain relevant and compliant with the latest updates from EFRAG and regulatory bodies.

9. EUROPEAN UNION **(EU)**

I. **Institutional Role**: The EU is the primary governing body responsible for the creation and enforcement of the CSRD as part of its broader sustainability agenda, including the **Fit for 55 package** and the **European Green Deal**.

II. **Interaction**: The EU interacts with regulatory bodies, businesses, and EFRAG to ensure cohesive and effective implementation of CSRD across all member states.

III. **Challenges**: Ensuring consistency in enforcement across different nations and sectors is a significant challenge, as is balancing the diverse interests of member states with the overarching goal of reducing GHG emissions.

10. SOCIETY (Bebbington & Unerman, 2018)

- **Institutional Role**: Society plays an indirect yet crucial role in the success of the CSRD by demanding greater transparency and accountability from businesses in their environmental practices. Public opinion can influence how aggressively companies pursue sustainability targets.
- **Interaction**: Society interacts with NGOs, investors, and businesses, primarily through consumer choices and advocacy efforts. Public sentiment can also sway regulatory changes or pressure companies to exceed minimum compliance standards.
- **Challenges**: Public understanding of complex reporting standards like the CSRD is often limited, which can make it difficult for consumers to fully assess the sustainability performance of companies.

11. INVESTORS

- **Institutional Role**: Investors play a crucial role in pushing companies towards compliance by factoring ESG criteria into their investment decisions. They often drive companies to enhance transparency and sustainability to attract capital.
- **Interaction**: Investors interact with businesses, auditors, and consultants to assess a company's sustainability profile based on CSRD disclosures. They also influence company behavior through their investment strategies.
- **Challenges**: The tension between short-term financial returns and long-term sustainability goals can make it difficult for investors to consistently prioritize sustainability. Additionally, investors depend on the accuracy of CSRD reports to make informed decisions, making them vulnerable to incomplete or superficial compliance.

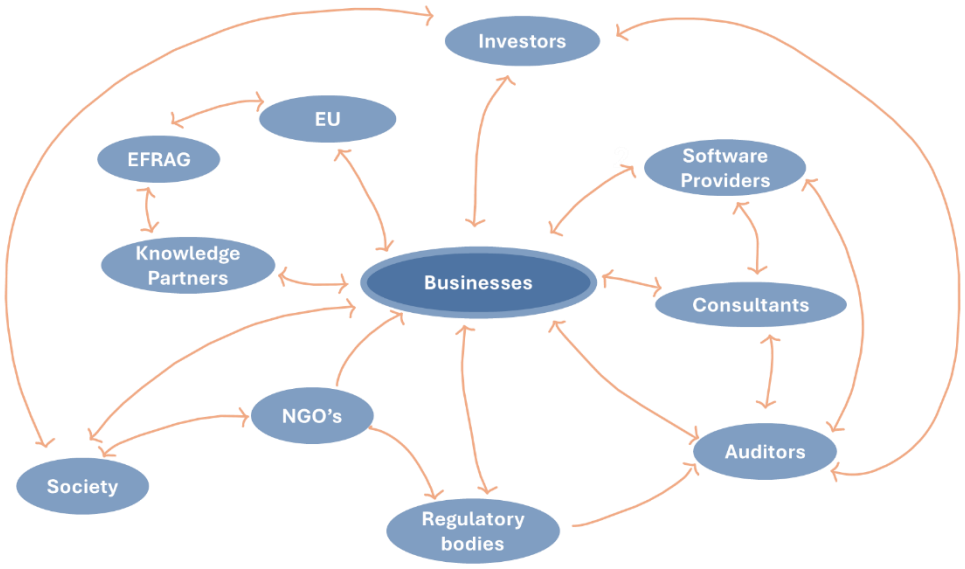


Figure 16. Stakeholder overview within context of CSRD with corresponding interactions.

Figure 16 illustrates that businesses are at the core of a complex stakeholder web, interacting with various entities including; the EU, EFRAG, knowledge partners, regulatory bodies, investors, NGOs, auditors, consultants, auditors, software providers, knowledge partners, and society. These stakeholders exert influence in different areas, reflecting the interconnected nature of sustainability reporting under the CSRD framework. The central position of businesses highlights their critical role in navigating and aligning with the expectations and requirements of multiple, often interrelated, stakeholder groups.

2.3.2. Conceptual system overview

Combining the knowledge about the stakeholders and to further clarify the scope of this research, Figure 17 provides a conceptual system that illustrates the focal point of this thesis, inspired by systems engineering. The "*system of interest*" is represented by a company's organizational structure, based on Mintzberg's framework. This includes several key elements: the strategic apex, middle line, techno-structure, support staff, and the operating core (Mintzberg, 1989). However, in the context of modern sustainability initiatives, an additional layer has emerged — the sustainability team. The exact placement of this team within the company's structure remains ambiguous and is likely to vary across organizations.

What this figure also emphasizes is the multitude of external pressures from stakeholders, as discussed previously in Section 2.3.1 and shown in Figure 16, combined with factors such as safety & quality demands. With the implementation of CSRD ESRS E1, businesses are facing new sustainability reporting demands, adding to the existing pressures. Institutional Theory suggests that organizations are heavily influenced by external pressures, such as regulatory requirements, industry norms, and cultural expectations (Amenta & Ramsey, 2010).

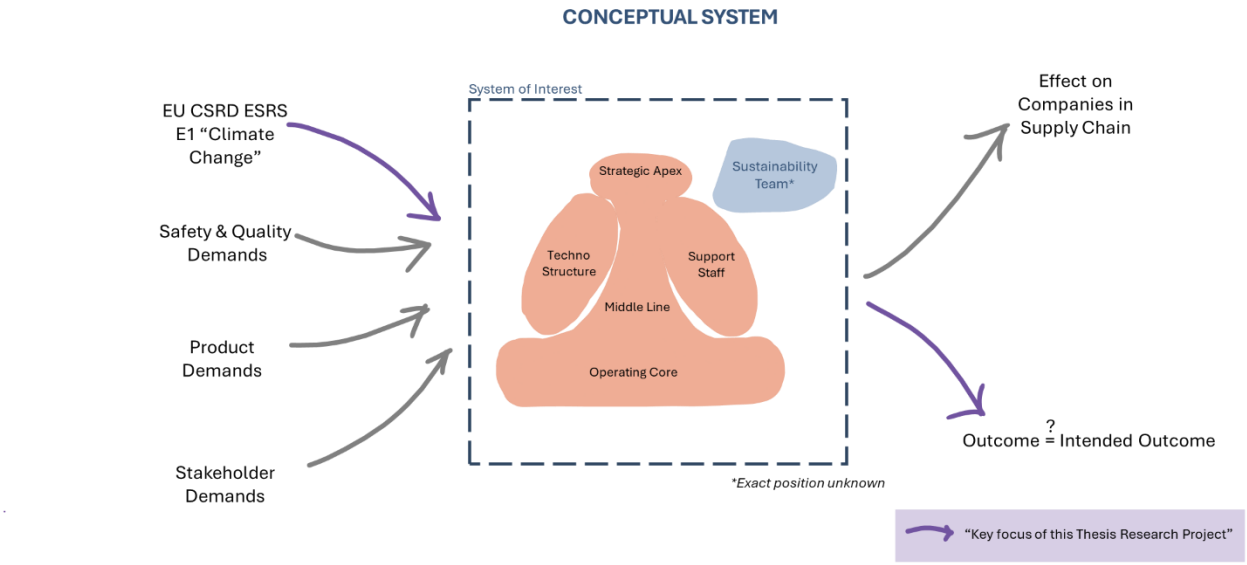


Figure 17. Conceptual system and scope of this thesis.

Sometimes these external pressures can be described as contradictory. For example, some investors demand increased transparency on sustainability related subjects, while others demand a high return on investment. Companies are not only compelled to comply with the stringent reporting requirements but also to align their operations with the growing emphasis on environmental and social governance.

2.3.3. Internal vs. External Factors Influencing CSRD Implementation

It is essential to differentiate between the factors that influence CSRD implementation from outside the company and those that originate within the company. Externally, the factors may have a significant influence. Likewise, internally, factors such as organizational culture, resource availability, and the alignment of sustainability goals with business objectives play critical roles.

These internal factors determine how effectively a company can integrate CSRD requirements into its operations. See Figure 18 for an illustration.

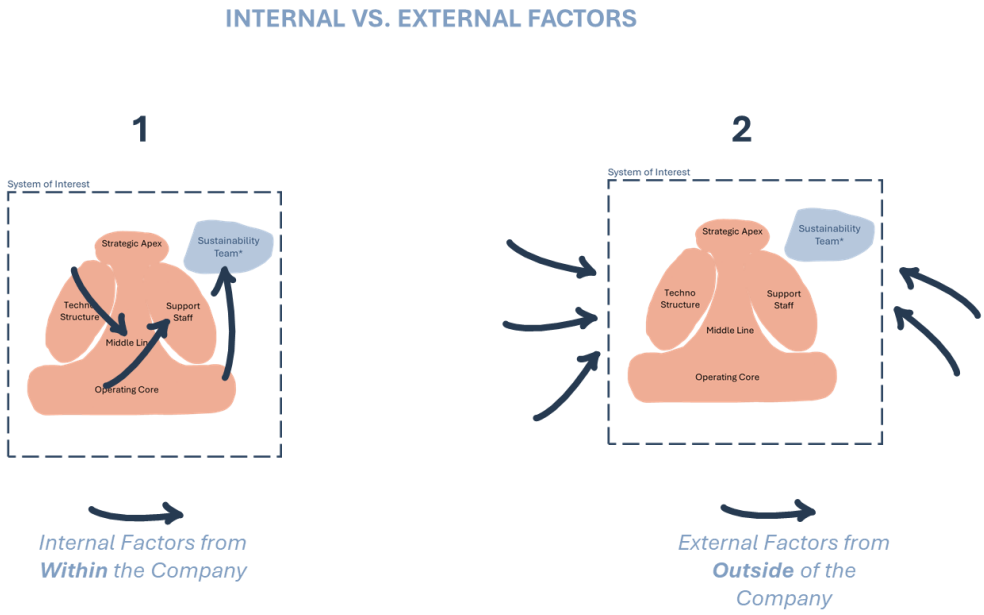


Figure 18. Internal vs. External factors that can influence a company.

The interaction between these external and internal factors can either facilitate or hinder the implementation of CSRD ESRS E1. For example, a company with a strong sustainability culture and adequate resources may be better positioned to integrate CSRD requirements fully. In contrast, a company with limited resources and a culture that prioritizes short-term profitability over long-term sustainability may struggle to move beyond superficial compliance.

2.3.3.a Internal Organizational Dynamics and Institutional Logics

Within organizations, different institutional logics, such as economic, environmental, and social logics, often compete, influencing how a company responds to these external pressures. For instance, the logic of profitability, which prioritizes financial returns, may conflict with the logic of sustainability, which emphasizes long-term environmental and social impacts (Figure 19). This tension is particularly evident in the logistics sector, where the need to minimize costs and maximize efficiency can sometimes clash with the requirements for comprehensive and transparent GHG reporting under CSRD.

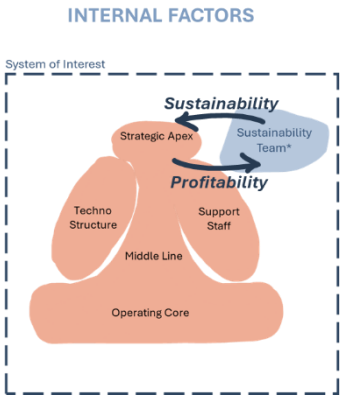


Figure 19. Example of conflicting internal logics.

2.3.3.b External Pressures

External pressures play a crucial role in shaping how companies approach the implementation of CSRD ESRS E1. The regulatory framework serves as a significant institutional pressure, mandating companies to comply with detailed sustainability reporting standards. These regulations are further reinforced by investor demands for greater transparency in environmental, social, and governance (ESG) practices. Investors are increasingly prioritizing sustainability, which compels companies to enhance their reporting and align with CSRD requirements. Additionally, societal expectations for sustainability have grown, with consumers, NGOs, and other stakeholders urging companies to demonstrate genuine commitment to environmental stewardship and social responsibility. This triad of pressures—regulatory, investor-driven, and societal—creates a powerful external environment that drives companies toward compliance with CSRD ESRS E1 (see Figure 20).

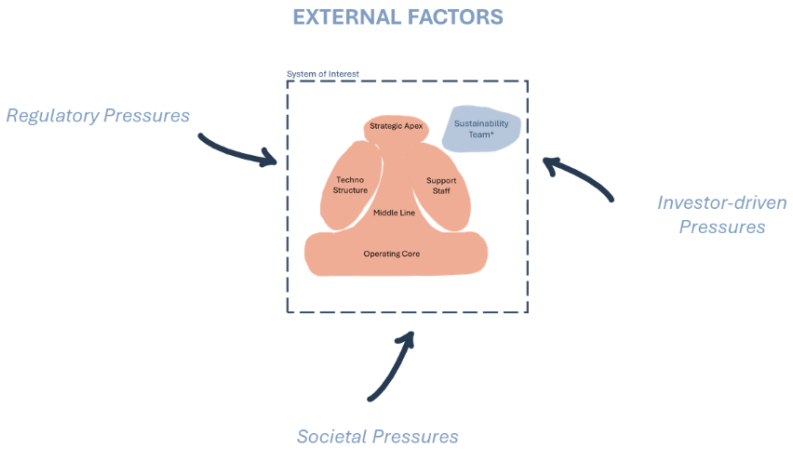


Figure 20. External factors contributing to pressure on companies.

This thesis aims to examine whether the intended outcomes of the CSRD ESRS E1 regulations align with actual corporate responses, and which internal and external factors influence the ability of companies to meet these sustainability goals. The research will investigate how organizations navigate these pressures and how the positioning and function of the sustainability team within the organization might impact the alignment between policy and practice.

CHAPTER 3 – BACKGROUND STUDY METHODOLOGY

*To find a methodology that can be applied to conduct an ex-ante analysis of this specific policy, it is first important to understand what the **state-of-art methods** within the academic world are **(a).** Additionally, **potential parallels** between the policy field and **other academic disciplines** are explored to gain further inspiration **(b).** The process of the steps that have been taken will be discussed in this chapter. The goal of this specific part is to lay the foundation of the research methodology in Chapter 4.*

3.1. Exploration with Consensus AI Tool

The flowchart of each step taken can be found in Figure 21.

3.1.1. Step 1: Initial Literature Exploration Using Consensus AI Tool within ChatGPT

The first step in the methodology involves using the Consensus AI tool integrated within ChatGPT. This approach is chosen because it leverages the extensive knowledge base and natural language processing capabilities of ChatGPT, ensuring a broad and insightful exploration of the literature. The tool efficiently synthesizes information from a wide array of academic sources, making it ideal for gaining an initial understanding of the state-of-the-art ex-ante policy analysis methods and their intersection with other academic disciplines.

- **Question (a) Prompt Used:** "What state-of-art ex-ante policy analysis methods does literature discuss?"
    - **Purpose:** This prompt aims to identify the most current and recognized methods in ex-ante policy analysis, drawing from a broad array of literature.
- **Question (b) Prompt Used:** "Does literature discuss any overlap between policy and another academic discipline?"
    - **Purpose:** This prompt intends to uncover any interdisciplinary connections between policy analysis and other fields, potentially highlighting innovative methodologies or collaborative approaches that might be relevant.

Then, the generated output is **reflected upon** by taking the following steps:

1. Checking the source of the paper, does it exist?
2. Retrieve full paper and read abstract to understand the context
3. Check if the information within the generated output is in the paper

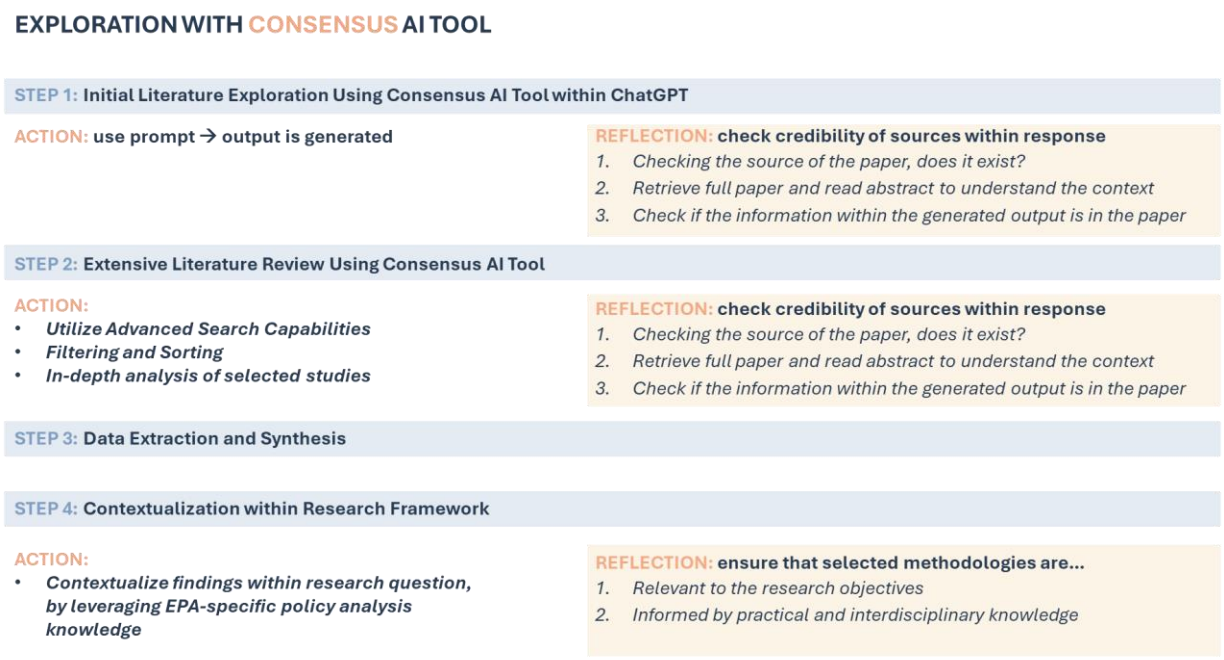


Figure 21. Steps for exploration using Consensus AI tool.

3.1.2. Step 2: Extensive Literature Review Using Consensus AI Tool

After the initial exploration, the next step in the methodology is a more comprehensive and thorough literature review, utilizing the advanced features of the Consensus AI tool. The goal of this step is to ensure that the initial literature review was expanded to include all relevant and significant studies, perspectives, and methodological advancements that might not have been captured in the initial exploration.

The Consensus AI app is chosen for its enhanced functionality in searching, filtering, and analyzing academic sources. Unlike traditional databases, the app uses AI algorithms (language models and purpose-built search technology) to prioritize the most relevant and up-to-date research, synthesizing findings from multiple disciplines and providing a broader perspective on the subject matter (Consensus, 2024).

KEY PROCESSES:

- **Utilize Advanced Search Capabilities:** The app's advanced search function is employed to explore specific subfields within ex-ante policy analysis, such as environmental policy, modeling, and impact assessments. By using tailored search strings, the literature review could delve into niche areas that are crucial for a robust understanding of ex-ante policy evaluation.
    - **Search Terms Used:**

"What does literature say about..."

- *...Ex-ante policy analysis and environmental sustainability*
- *...Ex-ante assessments in policy formulation*
- *...Cross-disciplinary methods in ex-ante policy evaluations*
- *...Ex-ante Policy analysis methods*

- **Purpose:** The goal is to capture a wide array of methodologies, particularly those that span multiple disciplines or apply innovative techniques in assessing future policy outcomes. The search also targets case studies and empirical evaluations of these methodologies in different sectors, such as environmental protection, energy, and public health, to highlight their practical applications.

- **Filtering and Sorting:** The app's filtering feature enables the narrowing down of results by peer-review status, citation count (more than 10), and relevance to ensure the literature selected was academically credible. The filtering also focuses on studies that had been frequently cited in high-impact journals, providing a foundation for the review.

- **In-Depth Analysis of Selected Studies:** After filtering, the selected papers are analyzed for their contributions to the field of ex-ante policy analysis. The studies are evaluated based on the methodologies they employ, the challenges they identify, and the innovations they propose. This step allows for a granular understanding of how different fields apply ex-ante analysis and what gaps or opportunities exist for improvement.

Then, the generated output is **reflected upon** by taking the following steps:

- *Checking the source of the paper, does it exist?*
- *Retrieve full paper and read abstract to understand the context*
- *Check if the information within the generated output is in the paper*

3.1.3. Step 3: Data Extraction and Synthesis

After identifying relevant studies, key data are extracted, including the types of ex-ante policy methods discussed, their application areas, and any methodological innovations or gaps identified in the literature. The extracted information is synthesized to provide a clear and structured overview of the current state of ex-ante policy analysis.

3.1.4. Step 4: Contextualization within Research Framework

The final step involves contextualizing the findings within the specific research question, leveraging extensive knowledge of ex-ante policy analysis gained from the EPA study. This step ensures that the selected methodologies are relevant to the research objectives and informed by practical, interdisciplinary knowledge.

3.2. Results Question (a) "State-of-art ex-ante policy analysis methods"

Ex-ante policy analysis is essential for evaluating the potential impacts and feasibility of a policy before its implementation. Literature outlines several methods for conducting ex-ante policy analysis:

1. **(SOCIAL) COST-BENEFIT ANALYSIS ((S)CBA):** This method assesses either the economic efficiency of socio-economic efficiency of a policy by comparing its (social) costs and benefits (Boardman et al., 2018).
2. **SCENARIO ANALYSIS:** This approach examines various potential future scenarios to understand possible policy outcomes (van der Heijden, 2005).
3. **STAKEHOLDER ANALYSIS:** This method identifies and evaluates the interests and influences of different stakeholders on policy outcomes (Brugha & Varvasovszky, 2000).
4. **RISK ANALYSIS:** This analysis identifies potential risks and uncertainties associated with policy implementation (Aven, 2016).
5. **MODELING AND SIMULATION:** This technique uses computational models to simulate the effects of a policy under various conditions (Sterman, 2000).

However, these methods have limitations in this specific context. CBA is not suitable as the focus is not on (social) costs and benefits. Scenario analysis is challenging due to the lack of sector-specific knowledge and insufficient data for an ex-ante assessment. Modeling and simulation are also problematic because accurately modeling human behavior and organizational dynamic is difficult, especially without robust data. This method is effective in situations with extensive datasets or where game-theory dynamics are applicable – conditions not present in this study.

While **stakeholder analysis** and **risk analysis** offer valuable insights into the dynamics of policy implementation and the identification of potential challenges, they do not fully capture the complex, multi-faceted nature of the research at hand, which involves understanding the process of aligning GHG reporting practices with the CSRD ESRS E1 standards and goals, within the logistics sector.

The limitations identified in these traditional ex-ante policy analysis methods point to a need for a research framework that can address the complexity and context-specific challenges of this study. The characteristics that are crucial but missing from the methods include:

- **Contextual depth:** the ability to adapt for a deep understanding of the sector-specific and organizational contexts during the implementation phase.
- **Flexibility in data collection:** the ability to adapt and refine data collection strategies as new insights emerge, which is crucial in dynamic and evolving policy environments.
- **Exploratory capability:** a framework that supports the exploration of complex phenomena where the variables and outcomes are not fully understood or predefined.

- **Theory generation:** an approach that not only explains what is happening in the field, but also contributes to building or refining theory based on empirical data.

These characteristics are inherent in the “Theory building by case-study” approach proposed by Eisenhardt (1989). This method is particularly well-suited for studying phenomena where existing theories are inadequate or where new insights are needed to understand complex, context-dependent processes, as articulated by Eisenhardt (1989).

3.2.1. Proposal Methodology: Eisenhardt’s case-study approach

Eisenhardt’s approach enables the in-depth exploration of the implementation process within its real-life context, allowing for a comprehensive and structured exploration of the potential challenges and misalignments in the implementation of CSRD ESRS E1 within the logistics sector. It also provides the flexibility to adjust the research design as new data becomes available, ensuring that the study remains responsive to the realities of the field. By focusing on case studies, this method facilitates a nuanced understanding of the organizational and sectoral dynamics at play, thereby addressing the gaps left by other ex-ante analysis methods.

The case study method is well-suited for addressing "*how and why*" questions, as supported by Edmonson and McManus (2007). This approach enables a deep understanding of underlying mechanisms and contexts, making it appropriate for this research.

The research is focused on developing theory rather than testing existing ones, which supports use of theoretical sampling. Theoretical sampling will be selected based on their potential to provide insights, understanding and ultimately contribute to the development of theory (Eisenhardt, 2007).

As Eisenhardt (2007) argues; theoretical sampling of single cases is justified when these cases are exceptionally revealing or represent extreme examples. Such cases offer unique opportunities to explore rare circumstances and deepen theoretical understanding.

Qualitative data are critical for understanding the complex social processes within companies regarding policy implementation. Detailed internal data on company experiences are necessary but are currently unavailable due to the early phase of CSRD implementation. This necessitates an exploratory approach to gather insights from within companies.

3.3. Results Question (b) “potential parallels between the policy field and other academic disciplines”

The design of this case study draws parallels with market research and product design, where iterative processes, stakeholder engagement, balancing multiple objectives, systematic approaches, and the impact of context and technology play crucial roles. Both fields involve refining initial ideas through development stages, engaging stakeholders to gather input, balancing objectives like aesthetics and functionality in product design or effectiveness and equity in policy design, and using systematic frameworks such as design thinking or policy evaluation (Bloch, 1995; Homburg, Schwemmle, & Kuehnl, 2015; Liedtka, 2000).

The recognition of potential overlaps between product design and the policy cycle led to further exploration of methodologies that could enhance the research framework. To better understand these intersections, a UI/UX expert from TU Delft was consulted. This involved one interview and a subsequent brainstorming session, where the expert proposed the use of the "Convivial Toolbox" from product design. This toolbox, known for its participatory and iterative approach, offered a novel way to address the complexities of policy implementation.

Building on this suggestion, a follow-up brainstorming session was conducted, which drew additional inspiration from the "Delft Design Guide," a comprehensive resource in product design methodologies. This collaborative process led to the development of a new, tailored approach that integrates the strengths of both policy analysis and product design.

3.3.1. Convivial Toolbox Inspiration from Product Design

Due to the discussed parallels between product design and policy design, a theory from product design will be adapted and tailored to the needs of a policy. The convivial toolbox approach from product/UI/UX design will be employed to peel back layers of the policy implementation process, foresee obstacles, and emphasize them using a red flag This approach helps in systematically addressing potential challenges and ensuring a comprehensive understanding of the policy's impact. A schematic overview of this approach is illustrated in Figure 22.

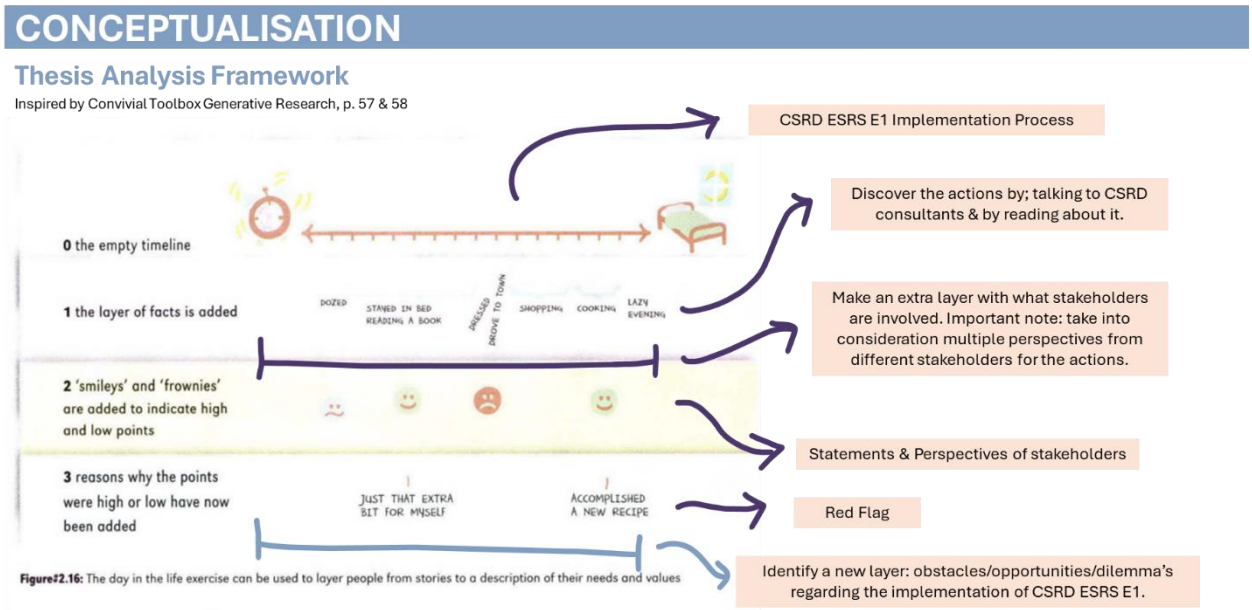


Figure 22. Conceptualization of Thesis Analysis Framework for Sub-Q 2 & 3, inspired by Convivial Toolbox method from Generative Research.

As portrayed in Figure 22, the framework starts with a timeline (e.g. from waking up until going to bed). The tailored framework will use the CSRD ESRS E1 implementation process as its timeline. Then, the "layer of facts" is added, including all the actions that are taken within that timeline. Whereafter an extra layer is added with stakeholders, due to the multi-stakeholder nature of the

implementation process. Instead, layer 2 “smileys and frownies”, this layer will be used to include perspectives and statements of stakeholders. Specific statements that can potentially indicate an obstacle, opportunity or dilemma will be identified with a “red flag”. Due to the ex-ante nature, it is expected that this process will be iterated during the process, therefore this framework will be used as a guideline rather than a set-in-stone method.

CHAPTER 4 – RESEARCH METHODOLOGY

The research questions will carefully be explored using Eisenhardt's (1989) eight-step methodology (Figure 23). Each relevant step will be discussed in the next sections.

Table 1
Process of Building Theory from Case Study Research

	Step	Activity	Reason
1.	Getting Started	Definition of research question	Focuses efforts
		Possibly a priori constructs	Provides better grounding of construct measures
		Neither theory nor hypotheses	Retains theoretical flexibility
2.	Selecting Cases	Specified population	Constrains extraneous variation and sharpens external validity
		Theoretical, not random, sampling	Focuses efforts on theoretically useful cases—i.e., those that replicate or extend theory by filling conceptual categories
3.	Crafting Instruments and Protocols	Multiple data collection methods	Strengthens grounding of theory by triangulation of evidence
		Qualitative and quantitative data combined	Synergistic view of evidence
		Multiple investigators	Fosters divergent perspectives and strengthens grounding
4.	Entering the Field	Overlap data collection and analysis, including field notes	Speeds analyses and reveals helpful adjustments to data collection
		Flexible and opportunistic data collection methods	Allows investigators to take advantage of emergent themes and unique case features
5.	Analyzing Data	Within-case analysis	Gains familiarity with data and preliminary theory generation
		Cross-case pattern search using divergent techniques	Forces investigators to look beyond initial impressions and see evidence thru multiple lenses
6.	Shaping Hypotheses	Iterative tabulation of evidence for each construct	Sharpens construct definition, validity, and measurability
		Replication, not sampling, logic across cases	Confirms, extends, and sharpens theory
		Search evidence for "why" behind relationships	Builds internal validity
7.	Enfolding Literature	Comparison with conflicting literature	Builds internal validity, raises theoretical level, and sharpens construct definitions
		Comparison with similar literature	Sharpens generalizability, improves construct definition, and raises theoretical level
8.	Reaching Closure	Theoretical saturation when possible	Ends process when marginal improvement becomes small

Figure 23. Process of theory building by case-study, adapted from Eisenhardt (1989) and edited.

4.1. Eisenhardt's Step 1: Getting Started

The research process begins with a clearly defined research question, as emphasized in Eisenhardt's 8-step method (1989). This step sets the foundation for the entire study by focusing on a specific area of interest that is both relevant to the theoretical field and feasible for empirical research.

As described in Chapter 1 and 2, this thesis explores the regulatory framework Corporate Sustainability Reporting Directive, specifically ESRS E1, and the challenges faced by the logistics sector in reducing greenhouse gas emissions. The main research question, formulated to address this gap, is: **"How do logistics companies approach GHG-reporting under CSRD ESRS E1, and what factors influence their ability to align with the sustainability goals of CSRD?"**

As mentioned in Chapter 1, this overarching research question is supported by four sub-questions, each aimed at exploring different dimensions of the study:

- **Sub-Question 1:** What are the key objectives and implementation mechanisms of the CSRD, particularly ESRS E1, and how do they relate to the existing sustainability practices and challenges within the logistics sector?
- **Sub-Question 2:** What factors can signal potential gaps between GHG-reporting practices and CSRD ESRS E1 objectives in the logistics sector?
- **Sub-Question 3:** To what extent does the implementation of CSRD ESRS E1 within the logistics sector exhibit characteristics of decoupling (misalignment with CSRD objectives) and what forms does this decoupling take?
- **Sub-Question 4:** What key dilemmas do logistics companies encounter and how do these dilemmas influence their implementation of CSRD ESRS E1?

4.2. Eisenhardt's Step 2: Selecting Cases

This step corresponds to Step 2: Selecting Cases, as outlined in Eisenhardt's theory of case study research in Figure 23. The logistics sector is identified as the primary context for this study. Initially, the approach focuses on conducting in-depth case studies within two logistics companies, intending to interview personnel from various departments. However, after consulting with two field experts, each with over 25 years of experience, it became evident that this approach required reconsideration.

The experts highlight a critical limitation: employees within individual departments typically lack the "bird's-eye" view necessary to fully understand the broader implementation processes of CSRD ESRS E1. Given that the research seeks to identify overarching patterns and potential decoupling mechanisms, the methodology is adjusted accordingly. Based on the experts' advice, the focus shifts to interviewing individuals who possess a comprehensive understanding of the entire process—specifically, CSRD consultants and CSRD experts.

4.3. Eisenhardt's Step 3: Crafting Instruments and protocols

In this step, the focus shifts to developing the tools and protocols necessary for data collection and analysis method. This involves a multi-faceted approach, beginning with a thorough understanding of CSRD ESRS E1 through literature review, followed by contextual insights from sustainable logistics experts. Finally, the practical aspects of CSRD implementation will be explored through interviews with industry consultants and experts.

4.3.1. Research Question 1a: Understanding CSRD, ESRS E1, and Its Context Through Literature

The first phase of crafting tools and protocols involves a comprehensive review of both academic literature and industry-related documents to gain a thorough understanding of CSRD ESRS E1, its context, history, and the processes involved. This foundation ensures that the subsequent stages of data collection and analysis are grounded in a solid understanding of the regulatory framework and its intended objectives.

To thoroughly comprehend the complexities of CSRD ESRS E1 and its implications for the logistics sector, it is essential to begin with a comprehensive review of both academic literature and industry-related documents. This foundational step involves analyzing a wide array of sources, including peer-reviewed academic articles, industry reports, and key legislative documents like the CSRD and ESRS E1 guidelines.

Academic Literature: The academic literature provides a theoretical and conceptual framework for understanding the origins, objectives, and anticipated impacts of CSRD ESRS E1. By reviewing existing research on sustainability reporting, corporate governance, and environmental policies, a clearer picture emerges of the theoretical underpinnings that drive these regulations. This literature also offers insights into how similar policies have been implemented in other sectors, highlighting potential challenges and best practices.

Industry Reports and Articles: Industry reports and articles offer practical perspectives, providing current data on the logistics sector's readiness to implement CSRD ESRS E1. These sources often include case studies, expert analyses, and market trends, which help to contextualize the academic theories within real-world scenarios. Understanding the industry's standpoint is crucial for identifying potential areas of resistance or misalignment between policy goals and industry practices.

CSRD and ESRS E1 Legislative Documents: A detailed examination of the CSRD and ESRS E1 legislation documents is necessary to grasp the specific requirements and expectations set forth by these regulations. These documents outline the legal framework, reporting standards, and compliance measures that logistics companies must adhere to. Understanding these details is critical for assessing how well industry practices align with the regulatory objectives and for identifying any potential gaps or areas of decoupling.

This literature review serves as the groundwork for the research, providing the necessary context and background to explore the more intricate dynamics of policy implementation and the factors that influence the alignment—or misalignment—of GHG reporting practices within the logistics sector.

4.3.2. Research Question 1b: Existing Sustainability Practices and Challenges within the Logistics Sector

To accurately assess the implementation of CSRD ESRS E1 within the logistics sector, it is essential to first gain a deep understanding of the sustainable logistics context. This will be achieved through interviews with experts from AllChiefs – the consultancy company this thesis project is carried out with. These respondents will provide insights into the specific challenges, opportunities, and operational realities of sustainability within the logistics industry. This knowledge will inform the analysis of how CSRD implementation may be tailored to the logistics sector. Detailed information on the interviews will be discussed in Section 4.4.1.

4.3.3. Research Questions 2 & 3

Understanding the context of sustainable logistics and the practical aspects of CSRD ESRS E1 implementation is only the first step. To delve deeper into potential decoupling mechanisms and the human elements influencing these processes, the research must explore not only observable actions but also the tacit and latent knowledge held by stakeholders.

The study employs a layered approach, as visualized in the framework outlined in Section 3.3.1 (Figure 22). This begins with foundational interviews and observations to capture initial insights into the sector. More information about how the interviews are performed and structured will be discussed in Section 4.4.1. These methods help in exploring subjective experiences and behaviors, essential for understanding how GHG reporting aligns or misaligns with CSRD ESRS E1 objectives

Rationale for Using Generative-Session-Inspired Interviews

Decoupling mechanisms, especially in implementing CSRD ESRS E1 within the logistics sector, often stem from deeper, less explicit factors. Thus, a methodology that penetrates beyond surface observations is needed. The adapted Convivial Toolbox framework (Figure 24) outlines this layered approach, starting with interviews and observations to gain a surface-level understanding of stakeholder actions, thoughts, and practices.

To access deeper layers of human experience—understanding what people know, feel, and aspire to—generative techniques like storytelling and co-creation are invaluable. These techniques are traditionally used in product design but are adapted here to uncover the beliefs and values that drive stakeholder behavior, thereby offering insights into decoupling and misalignment with CSRD objectives. Due to time constraints with respondents, interviews inspired by generative sessions will be employed, with the interview script in Appendices I and II. As Bellenger et al. (2011) emphasize, interviews are crucial for exploring subjective experiences and capturing the broader context in which individuals operate.

Justification for Interviews

Interviews are particularly suited for this study due to their ability to generate detailed, rich data (Kvale, 2007), flexibility in exploring emerging themes (Brinkmann, 2013), and the contextual insights they provide, which are critical for deeper generative session-inspired analysis.

In conclusion, combining interviews with generative techniques ensures a comprehensive analysis of decoupling mechanisms and potential misalignments in GHG reporting practices within the logistics sector. This approach moves beyond surface-level observations to uncover underlying, often unspoken, factors that influence sustainability reporting.

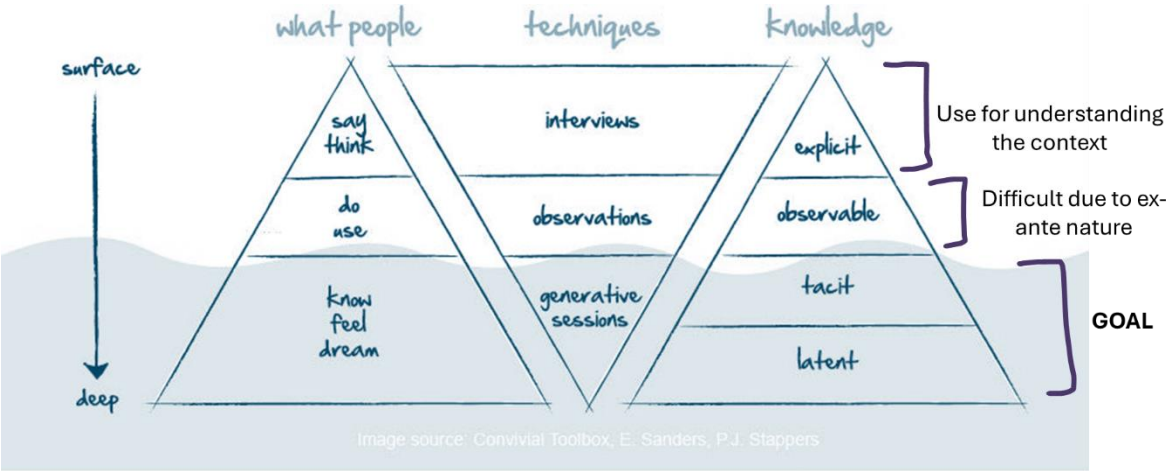


Figure 24. Adapted from Kriek (2019) and edited.

3.3.4. Research-Question 4: Dilemma's

To address the fourth sub-question—*What key dilemmas do logistics companies encounter, and how do these dilemmas influence their implementation of CSRD ESRS E1?*—a holistic analysis of the study's results is conducted, drawing upon both primary findings from interviews and secondary research on the sector's regulatory environment.

This process involves **several key steps:**

1. **Overall Synthesis of Results:** The data collected from interviews and case studies are synthesized to form an overarching narrative on the challenges faced by companies in the logistics sector. This included summarizing and combining insights from different participants and combining the legislation- and sector-specific information, to provide a comprehensive understanding of the dilemmas companies encounter when implementing CSRD.

2. **Contextualizing Findings:** The synthesized data is then placed within the broader context of sustainability and regulatory frameworks. By examining how the specific issues raised by interviewees aligned with the broader sustainability challenges discussed in literature and other sectors, the analysis can identify specific dilemmas. These dilemmas are analyzed to see how they reflect wider trends in regulatory compliance across industries.

3. **System Perspective:** A systems-thinking approach is then employed to understand how different dilemmas are interconnected. Instead of treating issues as isolated, this perspective allows the study to explore how internal corporate factors (e.g., operational

processes, resource constraints) interact with external pressures (e.g., regulatory requirements, market demands) to influence GHG-reporting and sustainability outcomes. By using this holistic approach, the study identifies critical leverage points for improving the alignment between policy objectives and practice.

This methodological approach provides a nuanced understanding of the complex and interrelated dilemmas logistics companies face, ranging from conflicting short-term versus long-term goals to balancing operational realities with stringent compliance requirements. This systems approach ensures that the results were not treated in isolation but considered as part of a larger regulatory and operational ecosystem.

4.4. Step 4: Entering the field

This section will discuss the interview process and protocols.

4.4.1. Qualitative Data Collection – Interviews

Having established the importance of using interviews inspired by generative sessions to uncover the deeper, often unarticulated factors that influence the implementation of CSRD ESRS E1 within the logistics sector, the next step involves outlining the specific protocols and methods used in these interviews. The following sections will detail the approach taken to design and conduct interviews with both sustainable logistics experts and CSRD consultants, ensuring that the data collected is comprehensive, contextually grounded, and capable of revealing the complex dynamics at play in policy implementation. It will also include the interview method used in order to scope down the research questions of the thesis.

4.4.1.a Data Collection Methods

Three rounds of interviews are conducted as part of this study:

1. **First Round - Open Interview**

The initial interviews are open-ended, aiming to understand the broader problem and its context from those deeply embedded in the field. The main question discussed is “what is happening in the logistics field, related to CSRD and GHG-reporting?”. This helps narrowing down the research scope and specify the research questions. The first round of interviews was performed at the early stages of the thesis project.

2. **Second Round - Semi-Structured Interview**

The second round involves semi-structured interviews of which the interview question design can be found in Appendix I. The interview question design focuses on understanding the organizational, stakeholder and contextual factors influencing GHG reporting (1), understanding key processes needed for GHG reporting (2), and understanding how the sustainable logistics field is shaped (3). This with the goal of understanding what could be potential factors leading to decoupling,

corresponding to sub-question 3: “What factors can signal potential gaps between GHG-reporting practices and CSRD ESRS E1 objectives in the logistics sector?”

The design includes a structured approach with flexibility to tailor questions based on participants’ expertise, ensuring a comprehensive exploration of topics such as internal company structure, stakeholder dynamics and resource dependency.

The goal of this interview round is to gain deeper insights into the field of sustainable logistics and understand how businesses operate are how they are structured. This phase helps identify key stakeholders and refine the questions for the subsequent interviews about CSRD implementation.

3. **Third Round – Semi-Structured Interview**

The final set of interviews targets CSRD experts and is semi-structured. The focus lies on understanding CSRD implementation, specifically regarding GHG emissions reporting (ESRS E1). This with the goal of answering sub-question 2: “To what extent does the implementation of CSRD ESRS E1 within the logistics sector exhibit characteristics of decoupling, and what forms does this decoupling take?”

The interviews are designed to explore the experience of the participants with the CSRD (see Appendix II). It focuses on their perspectives regarding the implementation challenges, departmental collaboration, organizational culture and the broader impact of CSRD on business. Each interview included an introduction and icebreaker, followed by questions addressing key topics such as regulatory compliance, GHG reporting, stakeholder involvement and the level of expertise within companies.

4.4.1.b Respondent Agreements:

During the interviews, no recordings are made. Instead, extensive field notes are throughout each conversation, including answers to the questions, personal experiences, quotes, striking emotions/expressions. Immediately following the interview’s, detailed transcriptions are produced manually to ensure accuracy and completeness. At the conclusion of each interview, respondents are asked whether any sensitive information had been disclosed. In cases where such information is identified, particularly the names of companies, these are fully anonymized, along with the names of the respondents, to protect confidentiality.

Regarding the validation of analyzed results, it was discussed with the respondents, and none expressed the need for the analyzed results to be sent to them for validation. However, they did express interest in receiving a copy of the completed thesis upon its finalization, driven by personal interest in the research findings. All interviews took place within the timeframe of 22nd of April 2024 until 14th of August 2024.

Detailed characteristics of participants in Rounds 1, 2 and 3, including job titles, years of experience, areas of expertise, duration, and location of interviews, can be found in Table 1.

Table 1. Respondent Table

Respondent Number	Job Title	Industry	Years of experience	Area of Expertise	Round of interview	Duration [min]	Place of meeting [Telephone Call/Online/Physical Meeting]	Gender [Male, Female, Undefined]
R1	Consultant Sustainable Logistics	Consultancy	3	GHG reporting, Sustainable Logistics, CSRD	Round 2 & 3	20, 25	Physical Meeting at the office of respondent	F
R2	Consultant Sustainable Logistics	Consultancy	1	GHG reporting, Sustainable Logistics, CSRD	Round 2 & 3	15, 20	Physical Meeting at the office of respondent	F
R3	Partner Sustainable Logistics	Consultancy	34	Energy (transition), Business consultancy, sustainable strategy and value creation, sustainable logistics	1 & 2	40, 20	Physical Meeting at the office of respondent	M
R4	Business Consulting & Transformation Consultant	Consultancy	2	Business processes, HR-systems & organizational structures	Round 2	60	Physical Meeting at the office of respondent	M
R5	UX/UI-Designer/Expert	Product Design	4	Product design methods, problem solving design	Methodology Interview	45, 30	Physical Meeting at the office of respondent	F

R6	Business Consulting & Transformation Consultant	Consultancy	3	Business processes, HR-systems & organizational structures	Round 2	45	Online Video Call	M
R7	Consultant Sustainable Logistics	Consultancy	3	GHG reporting, Sustainable Logistics, CSRD	Round 1 & 2	25, 30	Physical Meeting at the office of respondent	M
R8	Sustainability Consultant	Consultancy	2	CSRD	Round 3	35	Online Video Call	M
R9	Data Consultant	Consultancy	3	Data engineering, (GHG) reporting, CSRD	Round 2 & 3	25, 35	Physical Meeting at the office of respondent	M
R10	CSRD Project Manager	Retail	5	CSRD, sustainability implementation, CO2-footprints, GHG reporting	Round 3	35	Online Video Call	M
R11	Sustainability Expert & Management	Events	29	Sustainability, CSRD, ESG	Round 3	45	Telephone Call	M
R12	Sustainability Strategy & reporting consulting	Consultancy	8	Sustainability, CSRD, Strategy, Impact, Sustainable Business Models, Double Materiality	Round 3	45	Physical Meeting at the office of respondent	M
R13	Business Owner	Consultancy	28	CSRD, ESG, Sustainability, Leadership, Business Transformation, HR transformation	Round 3	30	Online Video Call	M
R14	Lecturer-Expert in Sustainable Business	Education	27	CSRD, Sustainable Businesses, Bio-based & circulair economy, ESG	Round 3	50	Online Video Call	M
R15	CSRD Expert	Business Innovation	1	Sustainable Business, CSRD, ESG	Round 3	25	Online Video Call	M
R16	Partner Sustainable Logistics	Consultancy	28	Strategy, Corporate Finance, Sustainable Logistics	Round 1 & 2	20, 20	Physical Meeting at the office of respondent	M

4.4.1.c Selection criteria, sampling method, sample size and demographics

Participants are selected using purposive sampling to ensure they possess relevant expertise and experience within the fields of sustainable logistics and/or CSRD implementation. The selection criteria are tailored to each round of interviews to ensure a comprehensive understanding of the research topic. A total of 16 participants are interviewed across the three rounds, with some individuals participating in multiple rounds. The participants are drawn from a variety of roles and backgrounds. Detailed characteristics of participants in Rounds 2 and 3, including job titles, years of experience, areas of expertise, duration, and location of interviews, can be found in Table 1.

Interview Round 1: The initial round focuses on individuals with extensive sector-specific knowledge, particularly those with over 25 years of experience in sustainable logistics. This includes respondents R3 and R16. Additionally, respondent R7 is included, despite having less than 25 years of experience, as a means of validating and adding an alternative perspective to the insights gathered from experienced professionals. It involves three respondents, primarily senior experts with over 25 years of experience in sustainable logistics, are selected for their bird's-eye view and tacit knowledge of the field.

Interview Round 2: This round targets experts with significant experience in sustainable logistics and business consulting, with an emphasis on those with knowledge in organizational structures, business processes, sustainability implementation and data engineering. The aim is to deepen the understanding of how these factors interact within the context of CSRD implementation. This round involves eight respondent, including specialists from AllChiefs with expertise in sustainable logistics, organizational structures, and business processes within companies. This group was selected for their in-depth experience and understanding of company operations in the sustainable logistics sector.

Respondents: R1, R2, R3, R4, R6, R7, R9, R16.

Interview Round 3: The final round of interviews specifically seeks individuals with expertise in sustainability reporting, regulatory compliance, and ESG (Environmental, Social, and Governance) practices, with a particular focus on their application within the CSRD framework. Here, CSRD expertise is a strict criterion. Most respondents are targeted via LinkedIn, since that is the most straightforward way at this point to contact professionals within the time limits of the thesis. Each respondent received an initial message, of which ten respondents replied, eight did not reply and six agreed to the interview. This round, ten respondents are interviewed, focusing on CSRD-specific professionals, including consultants, company owners, and CSRD leads within particular companies. These individuals are primarily contacted via LinkedIn, which was the most efficient method within the thesis timeline.

Respondents: R1, R2, R8, R9, R10, R11, R12, R13, R14, R15.

Additionally, after each interview, participants are asked to recommend other individuals who might provide valuable insights, employing a snowball sampling technique to identify further relevant respondents.

4.4.1.d Interview Scripts

The interviews from *Round 2* delve into the internal structures and operations of logistics companies, focusing on departmental roles, hierarchy, and collaboration, especially in relation to GHG reporting. They explore how different departments, such as operations and supply chain management, work together on sustainability initiatives, as well as the decision-making processes that shape these efforts. Additionally, the interviews address the role of external stakeholders, including regulatory bodies, customers, and NGOs, in influencing GHG reporting practices and how logistics companies manage the complex relationships and power dynamics involved in complying with regulations like CSRD ESRS E1. The discussions also cover challenges related to resource availability, stakeholder power, and interests, providing a comprehensive understanding of the factors shaping GHG reporting in the sector. The complete interview script and guide can be found in **Appendix I**.

The interviews from *Round 3* focused on gaining a deeper understanding of how companies are experiencing the implementation of the Corporate Sustainability Reporting Directive (CSRD), with specific attention to greenhouse gas (GHG) reporting under ESRS E1. Key questions explored the organizational structures responsible for CSRD, decision-making processes, and collaboration across departments. he stakeholder landscape was also examined, with insights into how different players, from decision-makers to regulatory bodies, influence CSRD compliance. The complete interview script and guide can be found in **Appendix II**.

4.5. Eisenhardt's Step 5: Analyzing Data

Due to the novelty of the CSRD regulations and the specific focus on the logistics sector, finding CSRD consultants with expertise specifically in logistics is challenging. The emerging nature of the policy, combined with the specific scope of this thesis, makes it difficult to locate professionals who can offer both depth and sector-specific insights. Therefore, a strategic decision is made to broaden the scope of the interviewees to include general CSRD experts (e.g. CSRD consultant, CSR(D) lecturer, CSRD-lead). As discussed in Section 4.4, these experts are carefully selected based on their experience with sustainability and GHG reporting, allowing for the extraction of relevant insights that could then be contextualized within the sustainable logistics sector.

This analysis approach, illustrated in the accompanying figure (Figure 25), ensures that while the interviews may draw from broader expertise, the analysis will carefully place these insights within the specific context of sustainable logistics, thereby identifying the types of (de)coupling that may occur.

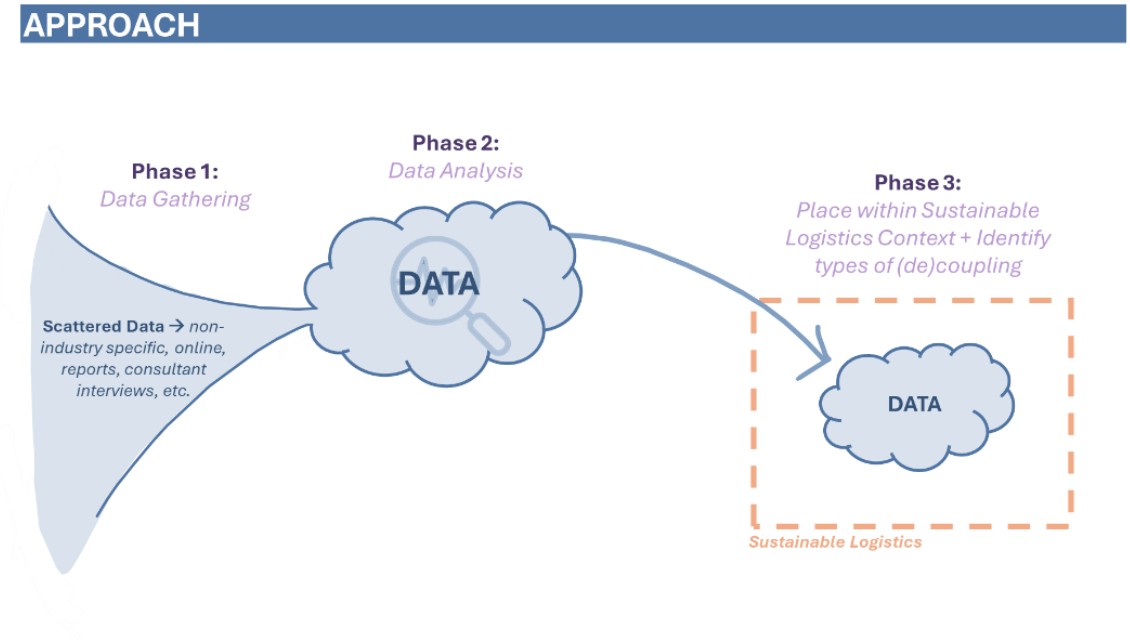


Figure 25. Analysis method Sub-Q 2 & 3.

As described in Figure 25, scattered data is gathered in Phase 1, whereafter data analysis is performed. Finally, the analyzed data will be placed in the Sustainable Logistics context in Phase 3 in order to answer the research question.

4.5.1. Data Analysis Approach - Interviews

The analysis of the interview data starts with a broad exploration to identify overarching themes and connections within the responses. This initial phase results in the identification of nineteen distinct themes, which are then used to code the interview transcripts. Each segment of the interviews is analyzed and assigned a corresponding code from this coding schema (see Table 2).

Following this coding process, the data was examined within each theme to identify overarching patterns and significant insights. Subsequently, cross-theme analysis was conducted to explore relationships and uncover any interesting patterns or insights that emerged across the different codes.

Table 2. Thematic codes for interview analysis with corresponding characteristics.

CODE	Characteristic	CODE	Characteristic
000	Context/Stakeholder field	**010**	Obstacles
001	Step 1 - start	**011**	Opportunities/Advise
002	Step 2 - DMA	**012**	(De-)coupling
003	Step 3 - Data	**013**	Window-Dressing
004	Step 4 - Strategy	**014**	Flag
005	Step 5 - Integration	**015**	Quotes
006	Step 6 - Reporting	**016**	Personal Opinion
007	Step 7 - Auditing	**017**	Research Lead
008	Step 8 - Monitoring	**018**	Lead
009	Step 9 - Evaluation		

Lastly, step 6, 7 and 8 of Eisenhardt's 8-step method will logically follow in the discussion (Chapter 6) and conclusion (Chapter 7).

CHAPTER 5 – CASE STUDY RESULTS & ANALYSIS

This section presents the findings related to how logistics companies navigate GHG-reporting under CSRD ESRS E1, focusing on the dynamics of coupling and decoupling. The analysis addresses the research questions, examining both the extent of decoupling, the factors that signal potential misalignments in GHG-reporting practices

***Section 5.1** begins with an overview of how the results should be interpreted, setting the foundation for the subsequent analysis. **Section 5.2** delves into the internal and external factors that contribute to loose coupling, while **Section 5.3** examines the internal and external factors that contribute to forms of decoupling. **Section 5.4** categorizes companies based on their varying responses to sustainability initiatives, emphasizing the diversity in approaches within the logistics sector. In **Section 5.5**, the overarching dilemmas faced by companies during CSRD implementation are discussed, highlighting key tensions that shape their decision-making. **Section 5.6** outlines key recommendations and opportunities for improving GHG-reporting under CSRD ESRS E1, and **Section 5.7** provides a summarized overview of the main findings. Quotes of respondents will be enclosed by citation marks and referred to with "respondent number" + ([Job Title], [Years of Experience]), e.g. "Quote" – R8 (Data Consultant, 2).*

5.1 Introduction to understanding the results

Corresponding to part of *sub-question 3: "...and what **forms** does this decoupling take?"*, found is that the results can be understood through the lens of the combination of two key theoretical frameworks. The first, described by Bromley and Powell (2012), focuses on the traditional concepts of coupling and decoupling, where policies and practices either align or diverge. The second framework, articulated by Karl Weick (1982), introduces the concepts of loose and tight coupling, which refer to the degrees of flexibility, interdependence, and coordination within organizational processes (Weick, 1982). When applied to the context of GHG-reporting under CSRD ESRS E1 in the logistics sector, these frameworks together illustrate a **broader continuum**. As illustrated in Figure 26, on one end of this spectrum lies loose coupling, characterized by flexibility, adaptability, and often symbolic compliance, where organizations appear to comply without fully integrating policies into practice. On the other end, tight coupling involves a higher degree of interdependence, rigidity, and coordination, where policies are thoroughly embedded into organizational operations.

Similarly, the concepts of decoupling and coupling further refine this understanding. Where loose and tight coupling can be considered dynamic, decoupling and coupling are static – these are specific situations or "moments in time" - as opposed to the loose-tight-coupling spectrum. Decoupling can occur when there is a disconnect between policy and practice, whether intentional or unintentional, leading to a superficial implementation of CSRD requirements. While on the other hand, coupling reflects the successful integration of policies and practices, resulting in higher accountability and alignment with CSRD and a company's sustainability goals.

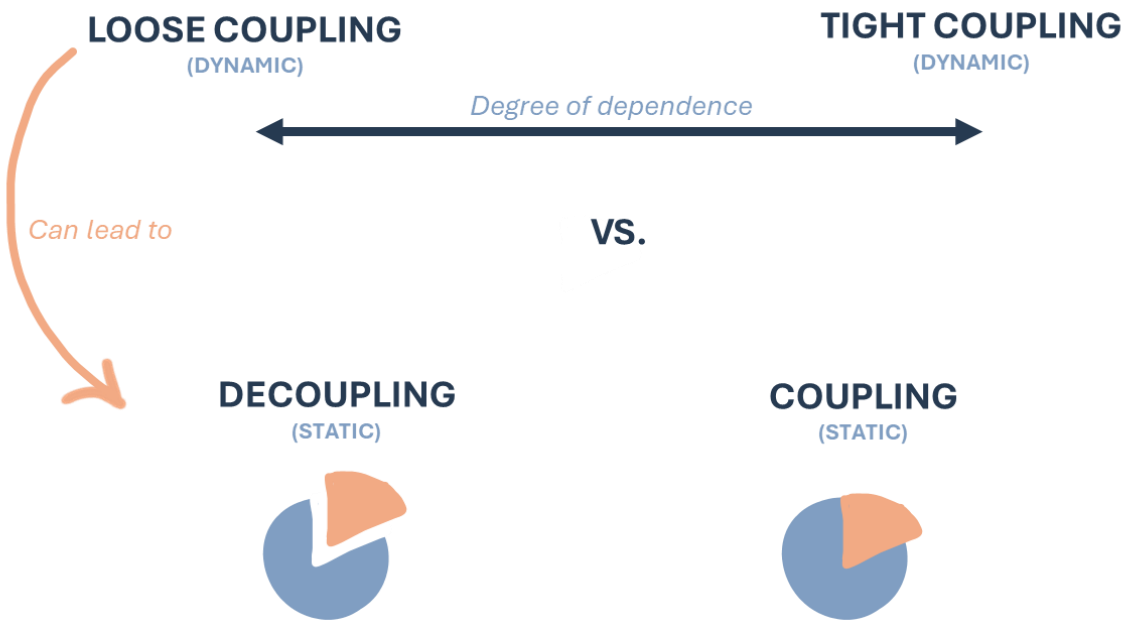


Figure 26. Spectrum of Loose and Tight Coupling, together with Decoupling and Coupling.

Then, when understanding these forms of (de)coupling, attention can be brought to the different scenarios in which these forms can exist. Where Bromley & Powell (2012) describe two main types of (de)coupling, policy-practice and means-end decoupling (Figure 6), it is found that (de)coupling can be found in other scenario's as well, reflecting a different result than previously thought. As described in Figure 27, three scenarios have been found:

1) **Loose coupling of CSRD compliance and the companies' internal operations**, where a company "checks the boxes" on CSRD compliance, without deeply integrating sustainability into its day-to-day operations.
2) **Decoupling of genuine implementation intentions and actual implementation,** where a company genuinely aspires to adapt the new CSRD policy, however there is a misalignment in how the policy is meant to be implemented and how it is actually implemented.
3) **Decoupling of sustainability policies and operational practices,** when a company adopt sustainability policies (stimulated by CSRD), however the set policy misaligns with operational practices. An example would be that companies formally commit to a certain GHG-reduction goal within their CSRD report but fail to translate this commitment into actionable and effective operational practices.

All three misalignments are caused by both internal and external constraints. It is important to note that both coupling/decoupling and loose/tight coupling can occur either intentionally or unintentionally. This duality adds another layer of complexity to understanding how logistics companies navigate GHG-reporting under CSRD ESRS E1. The findings of this study demonstrate that logistics companies experience a **range of outcomes along this spectrum**, depending on various internal and external factors. Therefore, in relation *to sub-question 2: "What factors can signal*

potential gaps between GHG-reporting practices and CSRD ESRS E1 objectives in the logistics sector?", the lens of institutional theory (internal & external factors) will be applied next to the coupling/decoupling and loose/tight coupling perspective. These factors will be discussed next, whereafter in-depth applications to the logistics sector will be made to illustrate the complexity.

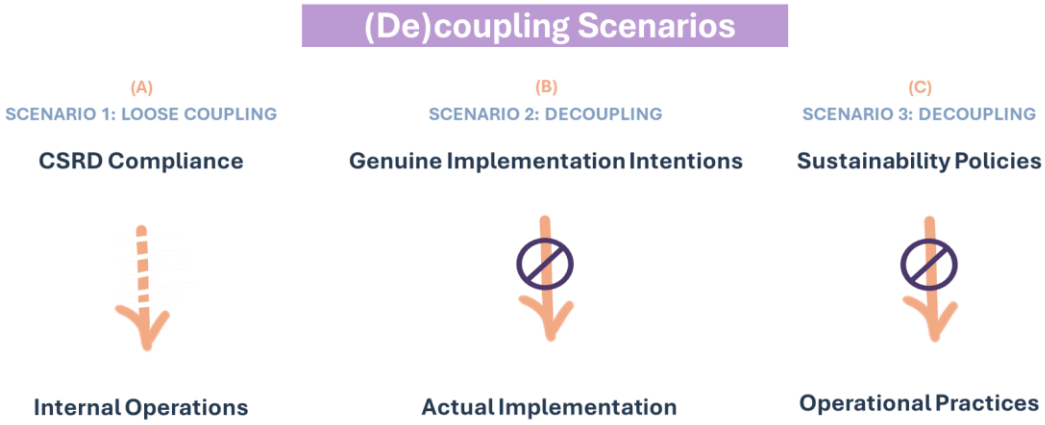


Figure 27. Forms of (De)Coupling

5.2 Loose Coupling: Internal and External factors

This section will discuss the internal and external factors contributing to loose coupling of CSRD compliance and internal operations *(Scenario 1 – Figure 27A)*.

5.2.1 Loose Coupling of Policy and practice

Loose coupling of policy and practice refers to a situation where companies comply with the formal requirements of the CSRD without making significant changes to their internal operations or genuinely embedding sustainability into their business practices. The company thus loosely couples their report to their practices. This selective approach, allows companies to meet the minimum compliance obligations without fully committing to the deeper integration of sustainability practices, resulting in superficial compliance. The interviews revealed a significant risk of superficial compliance among companies. As several interviewees pointed out, some organizations are often more concerned with fulfilling reporting obligations than making substantial operational changes. For instance, R13 remarked:

> "[CSRD] *In practice, it is primarily a reporting obligation, with little focus on questioning 'what do we actually think about this [sustainability and CSRD]?" – R13 (Business Owner, 28)*

This wait-and-see approach allows companies to avoid potential fines or penalties, while maintaining business as usual. While this form of compliance may fulfill regulatory demands, it does not necessarily result in substantial environmental or social impact. The decision to loosely couple

policy and practice is often intentional, reflecting a conscious choice by companies to focus on fulfilling external obligations while maintaining the status quo within their operations. This section will discuss factors contributing to loose coupling both from within the **company (Section 5.2.2)** and by **external factors (Section 5.2.3)**. The factors will be substantiated with (potential) scenarios inspired by the logistics sector case study.

5.2.2 Internal Factors playing a role within the company

FOCUS ON OBLIGATIONS | Within companies, a primary factor contributing to loose coupling is the strong focus on meeting the specific obligations outlined by the CSRD. Companies may prioritize the most visible or easily measurable aspects of compliance, such as producing required reports or meeting certain quantitative targets, while neglecting the broader and more complex aspects of sustainability integration. This focus on obligations can lead to a superficial compliance approach, where companies are more concerned with ticking the right boxes than with genuinely transforming their business practices to align with the spirit of the CSRD. Looking at ESRS E1 within the logistics sector specifically, companies may, for example, concentrate their efforts on collecting and reporting data that is straightforward to obtain, while more challenging tasks receive less attention.

A specific scenario would be company X will focus on the most immediate and straightforward obligations. While scope 1, 2 and 3 are mandatory, company X might want to put most effort into scope 1 and 2, neglecting scope 3 due to its difficulty.

Company X will extensively report on direct emissions from their own vehicle fleets (Scope 1) and energy consumption in warehouses (Scope 2). For example, a logistics company might invest in telematics systems to track fuel consumption and vehicle emissions accurately, ensuring they can report these figures precisely. However, this focus on easily measurable obligations can lead to a neglect of more challenging aspects, such as calculating and reporting indirect emissions from outsourced transportation services (Scope 3) or emissions from the production and disposal of logistics equipment. By concentrating on the obligations that are simpler to meet, companies might fulfill the basic requirements of ESRS E1 without fully addressing their broader environmental impact.

LACK OF GENUINE ENGAGEMENT | Another internal factor contributing to loose coupling is the lack of genuine engagement with the underlying goals of the CSRD. While companies may formally adopt sustainability policies and procedures, these often remain disconnected from core operations and strategic decision-making processes. This lack of engagement can stem from various sources, including but not limited to, a limited understanding of sustainability's strategic importance, insufficient resources to drive meaningful change, or organizational inertia that resists shifts in long-established practices. As a result, sustainability initiatives may be treated as secondary activities rather than integral components of the company's overall strategy. This disconnect allows companies to appear compliant while failing to integrate sustainability into the heart of their business operations.

For instance, a logistics company might implement a GHG reporting system simply to generate the necessary data for compliance, without integrating this data into their strategic decision-making processes. This could mean that while the company reports on emissions accurately, it does not use

this information to inform decisions on route optimization, fleet modernization, or supplier selection, which could lead to real reductions in GHG emissions. This lack of engagement often results in reports that meet regulatory standards but do not reflect a commitment to continuous improvement in sustainability practices.

5.2.3. External Factors Influencing Loose Coupling

UNCERTAINTY ABOUT ENFORCEMENT | Externally, one of the significant drivers of loose coupling is the uncertainty surrounding the enforcement of CSRD regulations. Companies may perceive the enforcement mechanisms as unclear or inconsistent, leading them to adopt a conservative approach to compliance. An interviewee portrayed this risk-averse attitude specifically by saying:

> *"These companies cannot handle this uncertainty. If they do too much, it will be a waste of time and resources." – R14 (Expert in Sustainable Business, 27)*

They discussed uncertainty about how strictly the CSRD will be enforced by the European Union and uncertainty about the potential consequences. This uncertainty about enforcement encourages companies to meet the bare minimum requirements, thereby avoiding potential penalties without making substantial changes to their operations. In the logistics sector, uncertainty about how strictly ESRS E1 requirements will be enforced can lead companies to focus primarily on direct emissions (Scope 1 and 2) rather than tackling the more complex and diffuse Scope 3 emissions, which involve emissions from the entire supply chain. For instance, a logistics company might ensure it has accurate data for its vehicle fleet's fuel consumption (Scope 1) while paying less attention to the emissions generated by subcontracted transport services (Scope 3). The perceived ambiguity in enforcement can encourage companies to meet the easily verifiable aspects of GHG reporting while neglecting the more challenging components that are equally critical for comprehensive sustainability

UNCERTAINTY ABOUT AUDITING | The uncertainty surrounding auditing standards plays a significant role in contributing to loose coupling within the CSRD reporting process. Companies often find themselves uncertain about the depth and rigor with which their sustainability reports will be audited, leading them to focus primarily on superficial compliance. This approach allows them to produce reports that meet the expected standards without necessarily reflecting genuine progress in sustainability. The lack of clear auditing guidelines results in companies allocating resources to areas they believe will be most scrutinized, while other, potentially more impactful areas of sustainability practice are underdeveloped or even ignored.

In the logistics sector, for example, companies might ensure that their internal operations are well-documented and reported, particularly focusing on the emissions data that is easiest to gather and verify. However, if it remains unclear how auditors will evaluate emissions associated with contracted delivery services, companies may allocate fewer resources to collecting this data, leading to a superficial approach to GHG reporting. Companies frequently express concerns about the scope and accuracy of these audits. As respondent R9 pointed out, common questions include:

> *"How thoroughly will it be audited? How accurate does it need to be? Will they really go into the details?" – R9 (Data Consultant, 3)*

Moreover, on one hand there is significant pressure from several stakeholders on companies to ensure the quality of their CSRD reporting, while on the other hand *"how"* the audit firms will examine this quality remains unclear. As one R13 highlighted, the question posed to audit firms was:

> *"What if we don't meet the standards? Will this have the same consequences as financial reporting, in terms of stock value and how investors and stakeholders view the company?" – (R13, Business Owner 28)*

The answer was a resounding yes, which caused considerable concern among companies. This indicates that companies are aware of the serious implications of inadequate CSRD reporting, comparable to financial reporting in terms of its impact on market perception and investor confidence.

However, this pressure is complicated by the fact that audit firms themselves are still figuring out the new requirements. As another respondent (R10) noted,

> *"It's [CSRD] never been tested before by XXX [their accountant], so they don't really know what standards to set either." – R10 (CSRD Project Manager, 5)*

This highlights a **critical gap in the current auditing landscape**: while companies are expected to meet high standards in their reporting, the auditing firms responsible for enforcing these standards are not yet fully equipped with clear guidelines or a consistent framework for evaluation. These uncertainties contribute to the **extent of loose coupling**: the lack of clarity, combined with the high stakes associated with CSRD reporting, may create an environment where companies are inclined to prioritize appearance over substance (window-dressing).

STAKEHOLDER AND SHAREHOLDER PRESSURE | The pressures exerted by stakeholders and shareholders are pivotal in driving loose coupling within companies' sustainability practices. Organizations often find themselves caught between **competing demands**: on one side, there is significant pressure from investors and shareholders to deliver short-term financial returns, while on the other, there is increasing pressure from regulators, customers, and civil society to enhance their sustainability practices. As discussed by respondent, this tension is further complicated by the broader political context, where movements advocating for less regulation and even climate skepticism have gained traction, influencing how companies approach their compliance with the CSRD. This political climate creates a spectrum of corporate responses to CSRD implementation. s R6, R11 and R12 mention; some companies, the frontrunners, actively embrace the directive, going beyond mere compliance to truly integrate sustainability into their business models. Others may do slightly more than the minimum required, while a third group focuses solely on meeting the basic compliance standards (see Figure 28).

Figure 28. Types of companies as a reaction on CSRD, as described by respondents R6, R11 and R12.

R11 adds a fourth group to the spectrum:

> *"Unfortunately, there is a growing segment of companies that actively resist the CSRD, lobbying against it and other sustainability regulations. This resistance is becoming increasingly prominent, particularly in sectors with strong ties to the fossil fuel industry, where lobbying efforts at climate summits often outweigh those advocating for sustainability" – R11 (Sustainability Expert, 29)*

In this environment, the emphasis on short-term financial performance can lead companies to prioritize immediate returns over long-term sustainability goals. Shareholders, driven by the desire for quick profits, exert significant pressure on companies to deliver financially, sometimes at the expense of deeper, structural changes needed for genuine sustainability. As one respondent (R11) noted,

> *"Money is key; shareholders exert enormous pressure." - R11 (Sustainability Expert, 29)*

This pressure often results in companies adopting a compliance-focused approach, where the goal is to satisfy external demands for sustainability reporting without making the substantial changes necessary for true environmental impact. Additionally, the growing demand from stakeholders for visible sustainability initiatives can lead to superficial compliance. R6 and R14 mention that companies might engage in sustainability efforts primarily to enhance their public image or to meet stakeholder expectations, rather than to drive substantive change. This often results in a situation where sustainability efforts are more about optics than actual impact (window-dressing), with companies concentrating on easily communicable metrics rather than on achieving real, long-term sustainability outcomes. R11 argues however, that this behavior may be more difficult due to new stricter guidelines for greenwashing from the EU Greenwashing Directive.

5.3 Decoupling: Internal and External Factors

As discussed, two forms of decoupling have been found; Decoupling of genuine implementation intentions and actual implementation (1) and decoupling of sustainability policies and operational practices (2). Both external and internal factors that influence this will be discussed in this section.

5.3.1 External Factors Contributing to Decoupling

COMPLEXITY AND SCOPE | The first factor contributing to decoupling is the inherent complexity and broad scope of the CSRD requirements. Companies often struggle with the practical application of the guidelines, finding that the tools and frameworks provided by policymakers are frequently misaligned with the realities of business operations. The overwhelming number of data points and the sheer volume of questions that must suddenly be reported on in a short period create a sense of chaos within organizations. When asked, *"What happens when companies become aware of the requirements of CSRD?"* interviewees consistently described the situation as **chaotic**. For instance, one respondent noted,

> *"At our client, it strongly shows that it is total chaos" - R1 (Consultant Sustainable Logistics, 3)*

while another stated,

> *"Then all hell breaks loose" – R13 (Business Owner, 28).*

Mainly, companies are overwhelmed by its contents, scope and complexity. Moreover, companies face significant challenges with the normative nature of the guidelines, which are often perceived as too prescriptive and not sufficiently tailored to the specific needs of different industries or business models. As one interviewee highlighted,

> *"What emerges is that companies have difficulty with the fact that the guidelines are often normative" – R12 (Sustainability Strategy & Reporting Consultant, 8)*

This prescriptive approach can lead companies to focus on adhering to the letter of the law rather than critically engaging with the sustainability goals behind the regulations. Additionally, a significant challenge in implementing CSRD arises from the disconnect between the language used by policymakers and that understood by business owners. As one respondent pointed out,

> *"The problem is that the tools created by policymakers don't work for businesses... the EFRAG needs to speak the language of the entrepreneur – R14 (Expert in Sustainable Business, 27)*

This gap in communication creates a barrier for companies, making it difficult for them to fully comprehend and engage with the CSRD requirements. The divergence in language and understanding often leads to confusion and misinterpretation, resulting in a more superficial approach to compliance. Without clear, business-friendly guidance, companies struggle not only to report accurately but also to grasp the full scope of what needs to be done, further contributing to the risk of decoupling between policy and practice.

The complexity of the CSRD is partly caused by its scope, which is far broader than what many companies are accustomed to. This combination of factors contributes to a situation where companies might comply with the regulations on the surface but fail to integrate the deeper, transformative practices that the CSRD aims to promote. The result is a higher likelihood of decoupling, where either compliance cannot be met, or formal compliance is achieved without substantive engagement or meaningful change within the organization.

RELIANCE ON OUTSOURCING | The overwhelming scope of CSRD requirements, coupled with limited resources, time and capabilities, often forces companies to rely on outsourcing to manage key aspects of compliance, such as data gathering, reporting, and policy implementation. While this approach helps companies meet CSRD requirements on paper, it frequently leads to a disconnect between adopted policies and their practical integration into daily operations. Additionally, this external dependency can lead to situations where companies lack clarity on how to conduct crucial processes, such as the Double Materiality Assessment (DMA), and why certain decisions were made, further contributing to the gap between policy and practice, as discussed by R10. This reliance on outsourcing often results in superficial compliance, where companies check the necessary boxes without internalizing the practices needed for genuine sustainability improvements – decoupling policy and practice.

5.3.2 Internal Factors Contributing to Decoupling

RESOURCE AND CAPABILITY | While the current phase of CSRD implementation primarily involves companies that are already accustomed to non-financial reporting and generally have the resources to manage these requirements, there is a growing concern within the industry about how future phases will impact small and medium-sized enterprises (SMEs). These businesses are expected to face significant challenges as the demands of CSRD become more pressing. The expectation within the industry is that SMEs, which often lack the financial resources and technical expertise necessary to execute complex sustainability initiatives, will find it increasingly difficult to comply with the demands of CSRD. As one respondent noted,

> *"Many companies lack the necessary knowledge or resources" – R12 (Sustainability Strategy & Reporting Consultant, 8).*

This reflects the anticipated struggles of SMEs in balancing these new requirements with their day-to-day operations.

However, it's important to note that resource and capability constraints are not solely an issue for SMEs. Larger companies, despite having more robust infrastructures, are also feeling the strain, especially when faced with ambitious targets or when they must outsource specialized tasks at high costs. As one respondent explained,

> *"Large companies have a task force or legal team—they have the means to figure it out" – R6, (Business Consulting & Transformation Consultant, 3)*

However, even these organizations can find themselves stretched thin, particularly when dealing with external service providers or meeting sustainability goals.

As CSRD implementation progresses, the expectation is that these challenges will become more pronounced across the board. The obstacles related to time, capacity, and resources are likely to intensify, not just for SMEs but also for larger companies. Additionally, the pressure to move beyond previous initiatives like People, Power, Profit; ESG; and SDGs, to meet the more stringent requirements of CSRD, is creating a significant burden.

"Companies have been dealing with this topic for years, but now they have to really take action, and that doesn't always go smoothly" (Partner Sustainable Logistics, 34)

This sentiment reflects a broader concern that, as the CSRD requirements become more rigorous, even well-resourced companies may struggle to meet the expectations placed upon them, especially when these expectations involve significant financial outlays or complex, specialized tasks that must be outsourced at high costs. The combination of these factors bright to light the growing concern within the industry that both SMEs and larger companies may find themselves increasingly challenged by the evolving demands of CSRD, leading to potential constraints in their ability to fully comply – decoupling policy and practice.

TRAINING AND AWARENESS GAPS | The rapid timeline and urgency of CSRD implementation have widened the gaps in training and awareness among employees. Companies often rush to adopt sustainability policies without providing adequate training, leaving staff unprepared to effectively implement the new requirements. This lack of preparedness creates a significant disconnect between policy and practice, as employees struggle to apply the policies consistently and effectively in their daily operations. Interviews highlighted that the speed at which these changes must be adopted only intensifies the problem, resulting in inconsistent or ineffective application of the new guidelines.

5.3.3 Combination: Internal and External Factors Contributing to Decoupling

Lastly, one topic clearly shows both internal and external factors contributing to decoupling, which is data.

DATA | Data gathering and management is a critical area where decoupling frequently occurs in the CSRD compliance process. Companies often struggle with the availability, integration, and standardization of data, which are essential for accurate and comprehensive reporting. Challenges such as poor data quality, fragmented data systems, and the complexity of calculating emissions—especially Scope 3 emissions—create significant obstacles. As one respondent noted,

"At many companies, the data management is really poor, and even where it is good, there are still questions about the quality of that data" – R6 (Business Consulting & Transformation Consultant, 3).

The results from this specific part of the ESRS E1 implementation can be divided into three parts: **(**5.3.3**.a)** Decoupling due to the GHG-Calculation Process, **(**5.3.3**.b)** Decoupling due Supply Chain Complexity and **(**5.3.3**.c)** Data Risks. An overview of data problems that may result in potential misalignments with the real world can be found in Figure 29.

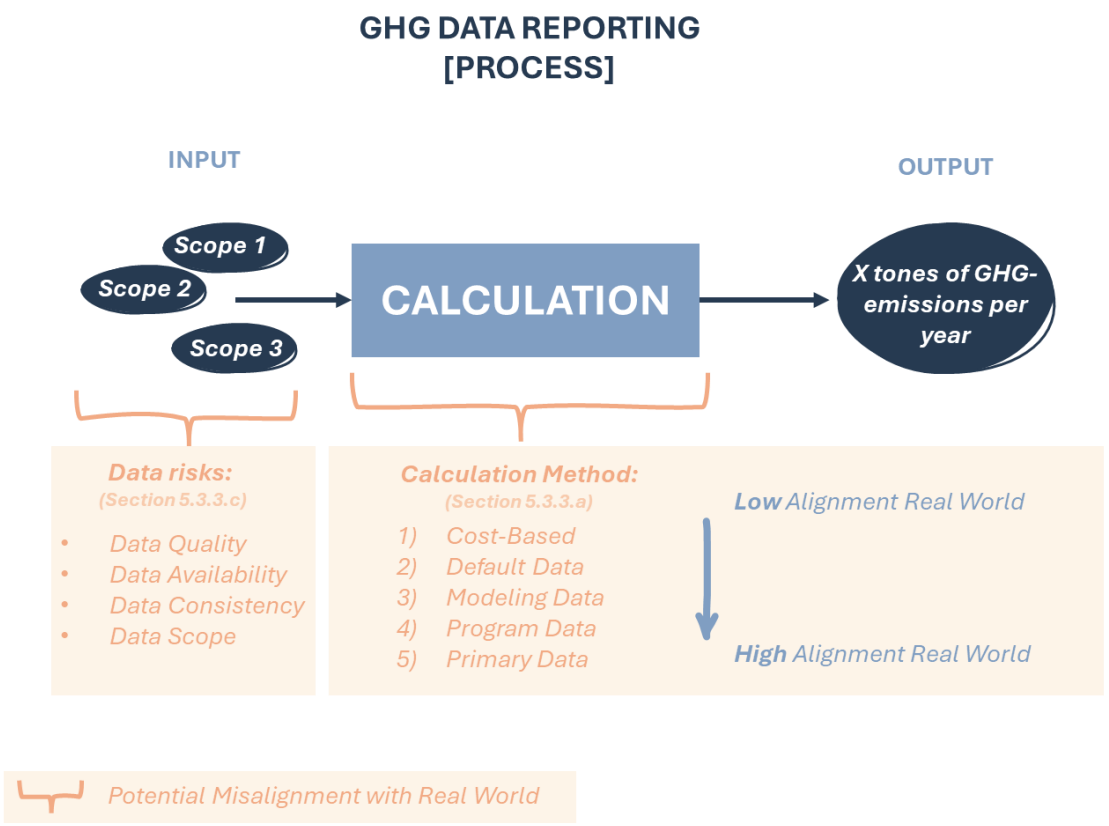


Figure 29. Overview of potential data problems.

5.3.3.a Decoupling due to the GHG-Calculation Process

The decoupling of data practices from CSRD requirements is significantly influenced by the challenges companies face in managing and integrating their data. As respondents highlighted, data quality is a recurring obstacle, pointing to the fundamental issue that many companies struggle with: the reliability and accuracy of the data they are required to report. This challenge is magnified in industries with complex value chains – such as the logistics sector- where the complexity makes it difficult to obtain comprehensive data. As another respondent pointed out,

> *"Port companies, for example, have very complex value chains, making it very difficult to report on and obtain all the necessary data" – R12 (Sustainability Strategy & Reporting Consultant, 8).*

Often, detailed levels of data are not (yet) available, forcing companies to use methods that contribute to the gap between data reported and the actual environmental impact. This was remarked by several respondents, such as by R10:

> *"Many companies still use the spend-based method, which is not necessarily the best approach," – R10 (CSRD Project Manager, 5).*

Also, the sheer effort required to obtain certain types of data may not always be justified by the value it provides. As one respondent observed:

"Sometimes you put so much effort into getting certain data, but it is not always worth it" – R2 (Sustainable Logistics Consultant, 1).

This reality underscores the practical difficulties companies face in managing the vast amount of data required by CSRD, leading to situations where they may prioritize easier-to-obtain data at the expense of more critical but harder-to-collect information. Lastly, the reluctance to share data openly due to concerns about transparency and potential liabilities, such as carbon taxes, further complicates data management. One respondent mentioned,

"Super transparency in data management is a big problem; people are afraid to share data, especially with the implications of carbon taxes" – R14 (Expert in Sustainable Business, 27)

This reluctance to share data transparently can lead to significant gaps in the information provided, making it difficult for companies to fully comply with CSRD reporting requirements.

5.3.3.b Data Decoupling due to Supply Chain Complexity

The issue of inconsistent and inadequate data is further compounded when companies rely on data from third parties, which is often of varying quality and reliability. This can lead to significant discrepancies in the reported data.

"You get different data from different companies, and the quality is still insufficient or difficult to access" – R10 (CSRD Project Manager, 5)

This fragmentation in data sources and the challenges in accessing reliable data make it difficult for companies to present an accurate picture of their environmental footprint. Additionally, measuring and reporting on data related to shared resources, such as electricity in shared buildings, presents further challenges.

"Measuring electricity usage, for example, when you're in a shared building is difficult, as it often goes through the entire building" – R10 (CSRD Project Manager, 5)

This makes it challenging to allocate emissions accurately to specific entities, contributing to potential errors in reporting. The complexity of gathering data across the supply chain, particularly for Scope 2 and 3 emissions, adds another layer of difficulty. An illustration of this, inspired by the conversations, can be found in Figure 30.

In Figure 30 it is portrayed that between the origin and the first hub, which is only a minor part of the entire supply chain, already many different activities can occur. Each activity might require a different type and a different source of data. This might in turn lead to differences in data quality and availability, leading to a difficulty in aligning the data when calculating a GHG-baseline. As one respondent highlighted:

"Obtaining data across the supply chain is the most challenging, especially for Scope 2 and 3 emissions" – R14 (Expert in Sustainable Business, 27).

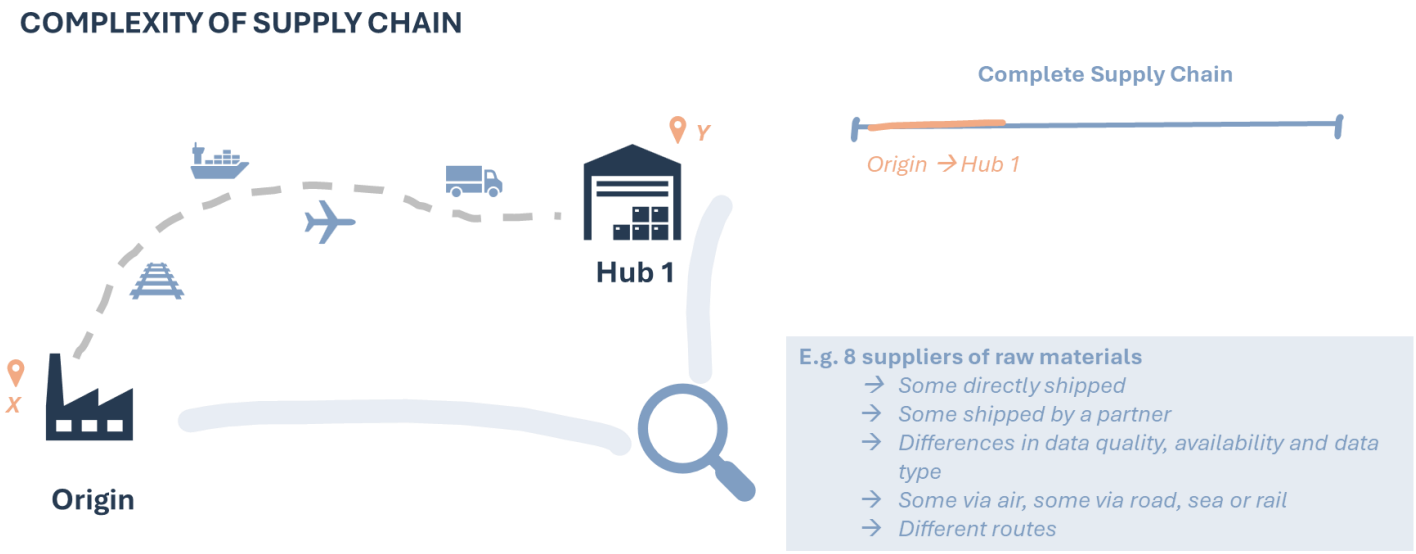


Figure 30. Illustration of the complexity of a supply chain.

This sentiment is echoed by others who describes the process as a

"search for data, which is nearly impossible!" – R13 (Business Owner, 28).

These challenges illustrate the significant hurdles companies face in aligning their data management practices with the stringent requirements of CSRD, leading to a situation where the data reported may meet compliance standards but does not accurately reflect the company's true environmental impact. For smaller players in the market, the challenges are even more pronounced. SMEs often lack the necessary knowledge, expertise, and data systems to effectively manage and report their environmental impact. As one respondent observed,

"Small players sometimes don't have the knowledge, or the people, or their data systems aren't aligned" – (R14, Expert in Sustainable Business, 27)

This lack of alignment and capability can result in significant gaps in the data, leading to a superficial compliance with CSRD requirements.

5.3.3.c Data Risks

Then, the pressure from larger companies in the supply chain can add to the complexity for SMEs. Larger companies, driven by customer demands or the need to manage their own CSRD compliance, may impose strict data reporting requirements on their smaller suppliers.

"There might be a demand from the supply chain, often from leading companies like [anonymized], due to pressure from customers or the risk of not wanting to take chances with their own reporting if a company isn't 'doing well'" – R14 (Expert in Sustainable Business, 27)

This can create additional burdens for SMEs, who may already be struggling to meet basic compliance requirements. The cumulative effect of these difficulties is that it can lead to inconsistencies and inaccuracies in the data reported, further contributing to the misalignment between CSRD and practical implementation. Companies may fulfill the reporting requirements but do so with data that is not fully reliable or reflective of their actual environmental impact. The time pressure also contributes to this issue, as companies rush to establish processes that can quickly produce the required data. As another respondent pointed out,

> *"In April, a footprint from last year is expected, which is way too soon. So now we're rushing to set up that process, and it needs to go faster!" – R10 (CSRD Project Manager, 5)*

5.4 Types of Companies in Response to Sustainability

Relating to *sub-question 3: "To **what extent** does the **implementation** of CSRD ESRS E1 within the logistics sector exhibit **characteristics of decoupling…**",* what is found (portrayed in Figure 31) and often discussed during the interviews is that based on the UN model for functional integration of sustainability and the Cambridge Business Transformation Framework, companies can be categorized into five distinct stages of sustainability maturity (Fuller, 2023; UN, n.d.):

1. **Crisis management:** a reactive approach is typical for companies at this stage. It is characterized by short-termism, minimizing legal liability and quick problem solving to sustain brand image (UN, n.d.)

2. **Compliance and Risk Management:** At this stage, companies focus primarily on meeting the minimum regulatory requirements and managing risks associated with non-compliance. This type of company often exhibits the highest levels of decoupling or loose coupling, where the implementation of sustainability practices is more symbolic than substantive. The focus is on ticking boxes to meet external demands rather than integrating sustainability into the core business strategy. In the context of CSRD, these companies may comply with reporting requirements but lack genuine engagement with the sustainability goals underlying the regulations.

3. **Resource Optimization:** Companies at this stage begin to see sustainability as an opportunity to optimize resources and reduce costs. While there may be some alignment between sustainability goals and business operations, the primary driver remains economic efficiency rather than a commitment to environmental or social goals.

4. **Market Differentiation:** Companies in this category use sustainability as a means to differentiate themselves in the market. They integrate sustainability into their brand identity and product offerings, often going beyond compliance to attract environmentally conscious consumers and investors. However, even at this stage, decoupling can occur if the focus on sustainability is more about external perception than internal practice.

5. **Purpose-Driven:** At the highest level of maturity, purpose-driven companies fully integrate sustainability into their strategic goals, policies, and operations. These companies view sustainability not just as a compliance issue or a market differentiator but as a core purpose that guides all aspects of their business. Decoupling is less likely at this stage, as there is a strong alignment between the company's sustainability commitments and its daily practices. However, even these companies are not entirely immune to challenges, especially when external pressures or internal resource constraints come into play.

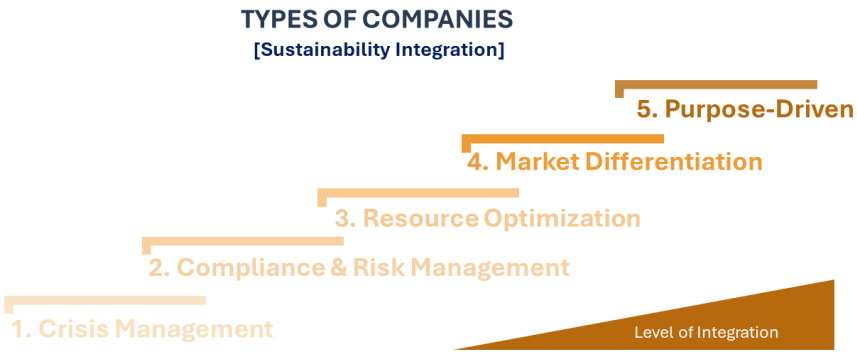


Figure 31. Types of companies in relation to sustainability integration. Inspired by the Cambridge sustainable business integration model and the UN model for sustainability integration (Fuller, 2023; UN, n.d.).

5.4.1 (De)Coupling Across Different Types of Companies

Even companies at more advanced stages of sustainability maturity may experience decoupling, particularly when external pressures conflict with internal priorities or when there is a lack of clear guidance on how to implement CSRD requirements effectively. For instance, companies striving for market differentiation might prioritize public image over substantive environmental impact, leading to a form of symbolic compliance where the outward appearance of sustainability does not fully match internal practices.

5.4.2 The Role of the Level Playing Field (LPF)

The concept of a "level playing field" is frequently mentioned in the interviews, referring to a scenario "in which everyone has the same chance of succeeding", as described by the Cambridge Dictionary. Respondents highlighted concerns that the level playing field is not equal, with some companies feeling disadvantaged by local political contexts or the varying stringency of regulations across regions.

R11 emphasized the global aspect, stating,

"There is no good level-playing field yet; in a utopian world all countries would work together, but at least there should be a level playing field in Europe" – R11 (Sustainability Expert & Management, 29)

– referring to knowledge-sharing and data-transparency. The role of local politics and strong lobbying efforts to soften regulations further complicates the landscape, as some companies leverage these factors to minimize their compliance burden.

A specific case was described by respondent *R10 (CSRD Project Manager, 5)*:

> *"Imagine a scenario involving two similar companies operating within the same industry. The first company is characterized by its focus on market differentiation, genuinely striving to become sustainable, while the second company falls into the compliance category, only meeting the bare minimum requirements. The first company invests significant resources and time into thoroughly integrating sustainability into its operations, aligning with the CSRD guidelines. However, this dedication means that it has fewer resources and less time to devote to other operational aspects of the business, potentially impacting its overall efficiency and competitiveness.*
>
> *In contrast, the second company takes a more superficial approach, investing the least amount of time and resources necessary to meet the CSRD requirements on paper. Despite this minimal effort, both companies technically comply with the new CSRD rules. However, because the first company has diverted so much of its attention and resources away from its core operations, it finds itself at a competitive disadvantage compared to the second company, which has continued business as usual."*

This scenario illustrates how the concept of a level playing field can become skewed. The first company, despite its genuine efforts to advance sustainability, is penalized in terms of competitiveness, while the second company, which only meets the bare minimum, may benefit from its more conservative approach. This imbalance highlights the challenges in achieving true equity in sustainability efforts across businesses.

5.5 Overarching Results: Key Dilemmas

In correspondence to *sub-question 4: "What **key dilemmas** do logistics companies encounter and how do these dilemmas influence their implementation of CSRD ESRS E1?",* the results reveal five overarching dilemmas faced by companies in the implementation of CSRD:

1. Compliance and Sustainability vs. Internal and External Pressures: Companies must navigate the challenge of complying with CSRD and integrating sustainability while balancing competing internal factors like operational demands and limited resources, alongside external pressures from investors and market expectations.

2. Cost-of-Compliance vs. Long-Term Strategic Gains: Organizations struggle to weigh the immediate costs of compliance against the potential long-term strategic benefits and competitive advantages.

3. Transparency vs. Competitive and Legal Risks: Transparency in sustainability reporting presents a risk to companies, as they must balance full disclosure with protecting their competitive and legal standing.

4. Internal Coordination vs. Departmental Silos: The need for cross-departmental collaboration often clashes with siloed structures, making cohesive compliance efforts more difficult.

5. Outsourcing vs. Internal Capability Building: Companies face a choice between outsourcing CSRD-related tasks for immediate results or investing in long-term internal capabilities to align with strategic goals.

5.6 Advice and opportunities

During the interviews it was asked whether the respondents saw any opportunities for improvement or if they had any advice. The full list can be found in Appendix III. The most suiting points, relating to the dilemmas in Section 5.5 will be discussed and divided into: advice for companies, policymakers and overarching advice.

5.6.1 Advice for companies:

Strategic Advantage Through Compliance | Successfully integrating CSRD requirements can position companies as sustainability leaders, providing a competitive edge. This alignment with sustainability not only ensures compliance but also attracts investors and customers who value responsible business practices.

> *"Companies that do this become future-proof and financially attractive in the near future. If they don't embrace sustainability, they risk falling behind, like in fossil fuels, steel, or even companies like Coca-Cola when quotas on water use, emissions, or oil barrels come into play." – R11 (Sustainability Expert, 29)*

Innovation and Efficiency Gains | CSRD compliance can drive innovation within companies. By reassessing and optimizing processes for efficiency, firms may uncover new ways to reduce emissions and costs:

> *"Currently, no one is really focusing on context-based strategies, though that should hopefully be the next step." – R12 (Sustainability Strategy & Reporting Consultant, 8).*

5.6.2 Advice for policymakers

Need for Clearer Guidelines | Respondents suggest that regulatory bodies like EFRAG should provide clearer and simpler guidelines to help companies understand and meet compliance requirements. This could reduce confusion and help companies allocate resources more effectively. Specific needs include clearer guidance on how to conduct Double Materiality Assessments and how audits should be performed

Leveraging Large Companies as Examples | Large companies can serve as examples and leaders in CSRD implementation, offering valuable insights and models for smaller firms. These larger entities can set standards and demonstrate the benefits of compliance:

"Best practices are needed to make the process simpler" -R10 (CSRD Project Manager, 5)

"[Companies want to know] This is what we expect from you" – R14 (Expert in Sustainable Business, 27).

Enhanced Regulatory Influence & Feedback Loop | An effective implementation of the CSRD has the potential to enhance regulatory influence by creating a feedback loop between businesses and policymakers. This back-and-forth dynamic allows for the refinement of regulatory frameworks based on industry feedback, fostering a more adaptive and supportive environment. As one respondent noted,

"It's a back-and-forth between stakeholders; different auditors say different things, and we're waiting to see what authorities will focus on. In France, for instance, there's already a penalty for non-compliance with CSRD—a fine on revenue" – R12 (Sustainable Strategy & Reporting Consultant, 8).

Another respondent emphasized the need for practical tools to aid compliance:

"We need hands-on tools! This could be done by trade associations that speak the language of both the government and businesses because, at the moment, there's a sort of language barrier. They can help members navigate CSRD" – R14 (Expert in Sustainable Business, 27).

This highlights the essential role of intermediaries, such as trade associations, in bridging the gap between regulatory expectations and corporate practices.

5.6.3 Overall Advice

Importance of Collaboration | Collaboration between companies, industry groups, and policymakers is vital for overcoming the challenges of CSRD compliance. By sharing best practices and developing industry standards, these stakeholders can facilitate smoother implementation and alleviate the burden on individual companies. One respondent highlighted the importance of a collective shift in mindset:

"There needs to be a tipping point for change. People in society need to start thinking differently—this is very idealistic, but hopefully, enough impulses will lead to a tipping point that drives change" - R12 (Sustainable Strategy & Reporting Consultant, 8).

The respondent suggested that employees could also play a role in driving progress by applying internal pressure. This need for collaboration was underscored by the call for a unified approach:

"We need to make a collective decision: what are the rules of the game?" R14 (Expert in Sustainable Business, 27)

Together, these insights emphasize the importance of collective action in shaping the future of sustainability reporting.

5.7 Overview Findings

The results of this study reveal a complex interplay between different forms of coupling and decoupling in the implementation of CSRD ESRS E1 within the logistics sector. Specifically, the findings highlight the presence of various types of decoupling, but most importantly, they also point to a nuanced spectrum that includes both coupling and decoupling dynamics, as well as loose and tight coupling. Below, the main points will be summarized (see Figure 32).

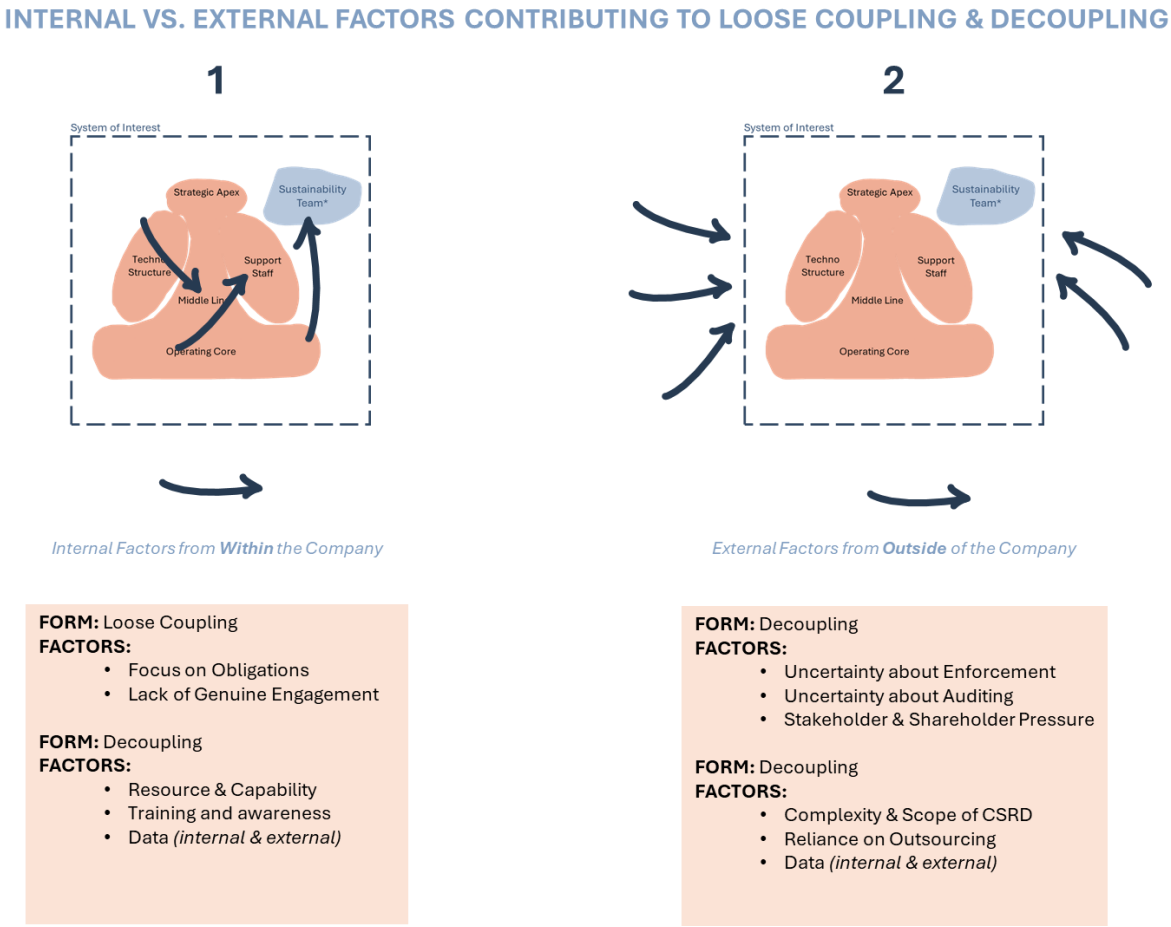


Figure 32. Overview of Factors contributing to (De)Coupling (External & Internal).

CHAPTER 6 – DISCUSSION

Chapter 6 is structured as follows: it starts with the results of the study, focusing on the different forms of decoupling observed in the CSRD ESRS E1 implementation within logistics companies and how it may lead to a broader form of means-end decoupling. Then, ***Section 6.1*** *reflects on the types of (de)coupling, using the criteria from Section 2.1.2. After that,* ***Section 6.2*** *places the findings in a broader systemic perspective.* ***Section 6.3*** *offers practical recommendations for improving the alignment between policy and practice.* ***Section 6.4*** *delves into additional insights and potential solutions for overcoming systemic issues. Finally,* ***Section 6.5*** *presents future research possibilities, particularly emphasizing the role of digitalization in enhancing GHG reporting.*

First of all, with the goal of aligning sub-questions 1, 2 and 3, results will first be critically examined using the criteria outlined in Section 4.1.3 (restated below), enabling to answer the overarching research question: **"How do logistics companies navigate GHG-reporting under CSRD ESRS E1, and what factors influence their ability to align with the sustainability goals of CSRD?"**

Criteria:

1) ***Consistency in GHG data reporting across all reporting entities.***
2) ***Reliable and accurate GHG data.***
3) ***Active stakeholder engagement and satisfaction with reporting practices.***
4) ***Effective integration of GHG reporting into broader ESG strategies.***

These criteria have been selected because any occurrence of decoupling within these areas could jeopardize the overarching objective of the CSRD: promoting transparency and accountability in corporate emission reduction, as illustrated in the objective tree in Figure 10. The analysis will be conducted first from a company perspective and then from a broader system perspective.

Following this, the discussion will reflect on the policy recommendations provided by respondents in Section 5.6 will be analyzed, whereafter an additional reflection is given. Finally, the limitations of this research will be addressed.

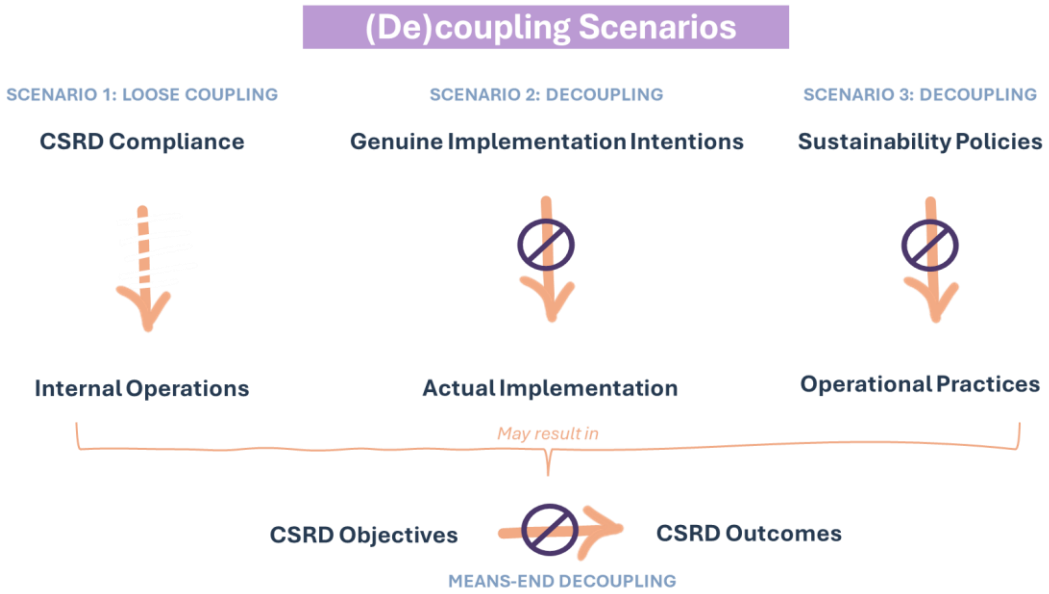


Figure 33. Types of (de)coupling found and what it may result in over time.

6.1 Reflection on Results Using Established Criteria:

First of all, it is important to clarify that the results highlight the potential for decoupling, rather than measuring its extent. A nuanced understanding of (de)coupling and loose coupling, as described in Figures 26 and 33, is essential to fully grasp the complexities at play.

6.1.1 Analysis from a Company Perspective

1) Consistency in GHG Data Reporting: The interview findings reveal considerable challenges in achieving consistent GHG data reporting across companies. Several factors contribute to this inconsistency, including unclear guidance from auditors and EFRAG, the diverse range of corporate responses, and uncertainties surrounding enforcement. Companies face variability in resources, training, and their reliance on outsourced services, further complicating how they approach GHG reporting. This has resulted in a broad spectrum of corporate practices, reflecting a significant chance to decoupling in the application of reporting standards.

2) Reliability and Accuracy of GHG Data: Data reliability and accuracy emerge as major concerns by the respondents. Companies struggle with, for example, poor data quality, data availability, fragmented data systems, and significant difficulties in calculating Scope 3 emissions, all of which undermine the credibility of their reports, as illustrated in Figure 29. This finding is supported by the research of Klaaßen & Stoll (2021), where a significant gap between reported and real emissions has been found. Additionally, the risk of data manipulation, as well as the use of inadequate methodologies such as the spend-based method, further complicates this challenge. This highlights a critical area where the decoupling between policy intentions and actual reporting practices is most pronounced.

3) Stakeholder Engagement and Satisfaction: The interview results highlight a central tension between the need for transparency in GHG reporting and the risks associated with it, particularly in terms of competitive positioning and legal exposure. This challenge is amplified in industries such as logistics, where revealing too much data can create vulnerabilities in a highly competitive market. Companies are not only concerned with external transparency but also face internal pressures from stakeholders, such as investors, employees, and business partners, each with differing expectations.

As discussed, a key issue is the **lack of a level playing field**. Some companies feel that early and transparent disclosure of GHG data could put them at a competitive disadvantage, especially if other companies are not held to the same standards or choose not to disclose as transparently. This creates an uneven competitive environment where firms feel punished for being more open, which in turn may discourage genuine engagement with the CSRD's transparency objectives.

Additionally, **the complexity of stakeholder relationships** plays a significant role in determining the extent of engagement. Companies must navigate between the expectations of various groups—investors seeking long-term sustainability, regulators demanding compliance, and consumers pushing for ethical practices. However, these stakeholders often have conflicting demands. Investors, for example, may pressure companies to prioritize short-term profitability over long-term sustainability integration, leading to decoupling between reporting practices and actual sustainable transformation efforts.

Moreover, there is a **mismatch in expectations** between different stakeholders. Investors and regulators may prioritize different types of data in GHG reports. While investors might focus on material risks related to climate change, regulators seek compliance with the broader goals of the CSRD. This misalignment further complicates stakeholder engagement, as companies struggle to satisfy all parties without compromising their strategic goals.

Finally, there is a **challenge of meaningful engagement**, where some companies are limited by their resources or strategic focus. Smaller companies or those with limited sustainability expertise may engage superficially, simply to meet compliance requirements, without deeply integrating sustainability practices. This can result in stakeholder dissatisfaction, as superficial engagement is often transparent and may be seen as a form of "greenwashing" or box-ticking, which undermines trust. However, due to the newly introduced EU Greenwashing Directive, the objective is to decrease the amount of invalid sustainability claims (Think Thank EU Parliament, 2024).

To address these concerns, **close collaboration between stakeholders** could play a pivotal role. Due to the tense level playing field, encouraging dialogues and creating platforms where companies, regulators, and other stakeholders can openly discuss expectations and challenges could help mitigate some of these tensions. Additionally, creating **sector-specific guidelines** might alleviate some concerns about the lack of a level playing field by ensuring that all companies are subject to the same transparency requirements.

4) Integration of GHG Reporting into ESG Strategies: The integration of GHG reporting into broader ESG strategies is crucial for moving beyond mere compliance with CSRD requirements to achieving genuine, long-term sustainability transformation (Brulhart et al., 2017; Camilleri, 2017; Yadav et al., 2017; Shabbir & Wisdom, 2020). However, the results indicate that many companies struggle with this integration, often due to a combination of resource constraints, competing business priorities, and varying levels of commitment to sustainability.

One of the main challenges is the **fragmented approach** many companies take towards ESG integration. In some cases, GHG reporting is treated as a separate exercise rather than being embedded within the company's overall strategic planning. This creates a risk of **superficial compliance**, where companies meet the minimum reporting requirements without fully incorporating the data into decision-making processes or long-term sustainability goals. This phenomenon is often linked to **loose coupling**, where companies formally adopt sustainability reporting practices but fail to align them with operational realities.

Another challenge relates to **internal coordination**. Effective integration requires collaboration across different departments—such as finance, operations, and sustainability teams—to ensure that GHG data is not only accurately reported but also used to drive strategic decision-making. However, **departmental silos** often hinder this process. In many companies, sustainability initiatives are isolated within specific departments, limiting their influence on overall corporate strategy.

Furthermore, **stakeholder pressure** plays a dual role in this context. On the one hand, some companies face intense pressure from investors and consumers to integrate sustainability into their business models. On the other hand, there are instances where short-term financial performance is prioritized over long-term sustainability goals, creating tension between GHG reporting and broader business objectives. This can lead to **means-end decoupling**, where companies achieve compliance but fail to use the reporting process as a tool for driving meaningful change.

Finally, the **lack of alignment between ESG strategies and business goals** is another critical issue. Some companies view CSRD compliance as an end in itself, rather than as a means to enhance their overall ESG performance. In such cases, GHG reporting is often disconnected from core business strategies, which undermines the potential for transformative change.

The results underscore the nuanced nature of decoupling within companies, where both loose coupling (superficial compliance), tighter forms of coupling (genuine intention for integration) and decoupling coexist. The study finds that decoupling often stems from the misalignment between CSRD policies and actual business practices, influenced by both internal and external factors. These dynamics are critical to understanding how companies navigate GHG reporting under CSRD ESRS E1.

6.2 Analysis from a System Perspective

This section will reflect on the systemic perspective of decoupling. First of all, contrary to popular belief, most companies are not deliberately engaging in superficial compliance, critiquing window-

dressing in the context of the CSRD. Rather, they face numerous internal and external factors that complicate genuine sustainability integration. The **central dilemma** lies in achieving the right balance in policy implementation. Companies must balance meeting regulatory requirements efficiently and sustainably while avoiding excessive compliance pressures that stifle creativity and adaptability. Overly rigid rules can restrict a company's ability to develop tailored sustainability strategies, while excessive flexibility may reduce the incentive to drive genuine decarbonization efforts, which many interviews emphasize. The ideal balance involves regulatory pressure that motivates action, coupled with the freedom for companies to align their strategies with their specific operational contexts (Gondo & Amis, 2013).

Taking on a broader system perspective, the challenges of decoupling within CSRD implementation extend beyond individual companies and involve a complex web of stakeholder interactions and systemic dynamics (Figure 16). The CSRD operates within an ecosystem that includes regulatory bodies such as EFRAG, policymakers, industry associations, investors, NGOs, and consumers, all exerting differing pressures on companies to comply with sustainability reporting requirements. Often, these pressures conflict, leading to superficial engagement, as companies attempt to satisfy multiple stakeholders with competing demands.

Policymaker Influence: Policymakers, while well-intentioned, often design regulatory frameworks with broad, idealistic goals that may not fully translate into the business environment. It is found that the gap between the language of policymakers and the operational needs of businesses creates a systemic issue. Without sufficient input from the business community, top-down regulations can lead to superficial compliance, as companies prioritize avoiding penalties over integrating sustainability at deeper organizational levels. Additionally, the complexity and rigidity of such regulations can stifle innovation, leaving companies with little room to tailor solutions that align with their specific operational contexts. As a result, businesses may focus on meeting minimum requirements rather than pursuing more meaningful, long-term sustainability initiatives that could drive real change.

Investor Pressure and Short-Termism: Investors frequently prioritize short-term financial returns, which can conflict with the long-term sustainability goals promoted by the CSRD. This creates significant pressure on companies to focus on immediate profitability rather than on the enduring benefits of integrating sustainability into their core strategies. It is found that a key contributor to this dynamic is the influence of large institutional investors, such as pension funds and banks, who are often major shareholders in corporations. These institutions tend to be risk-averse and prioritize stable, short-term financial outcomes, driven by the need to safeguard large-scale investments and manage the expectations of their own stakeholders. As a result, the pressure to deliver consistent financial performance often outweighs the push for long-term sustainability, reinforcing a pattern of decoupling. In this scenario, companies may comply with the formal requirements of the CSRD but fail to integrate its broader objectives into their long-term business strategies, adhering to the letter of the law while neglecting its transformative potential.

Auditors and the Uncertainty of Enforcement: Auditors play a pivotal role in ensuring that companies comply with CSRD requirements, yet the evolving and inconsistent nature of auditing standards contributes significantly to the uncertainty surrounding enforcement. Different auditing firms, especially in the early stages of CSRD implementation, may interpret guidelines in varying ways, leading to inconsistent feedback across industries and companies. This inconsistency creates confusion for businesses, which are unsure about how rigorously their reports will be scrutinized or what aspects of their GHG reporting will receive the most attention.

Moreover, the uncertainty is compounded by the **lack of clear enforcement mechanisms** from regulatory bodies, as the results in Chapter 5 show. Companies often hesitate to fully commit to deep integration of sustainability practices when the consequences of non-compliance are vague or evolving. Without a firm understanding of how enforcement will be carried out—whether through financial penalties, reputational damage, or other regulatory actions—many organizations adopt a conservative approach. This conservative approach often prioritizes surface-level compliance over more substantive, long-term sustainability efforts.

Additionally, the **changing landscape of auditing standards** creates an atmosphere of hesitation. As auditors themselves grapple with evolving best practices for verifying sustainability data—such as methods for calculating Scope 3 emissions or assessing the accuracy of GHG inventories—companies are reluctant to invest in deep integration without knowing what will ultimately be required of them. This uncertainty also raises the risk of **window-dressing** (Bromley & Powell, 2012), where companies present sustainability reports that technically comply with the rules but fail to reflect meaningful progress, relying on auditors' focus on form over substance.

As the CSRD framework matures, the relationship between companies and auditors will become increasingly important in determining whether businesses *move beyond superficial compliance*. Clearer, more consistent auditing standards, as well as stronger enforcement mechanisms, will be essential to reducing uncertainty and encouraging companies to align their reporting with genuine sustainability transformation.

NGO and Civil Society Pressure: Non-governmental organizations (NGOs) and civil society groups play a crucial role in pushing companies to go beyond mere compliance and take meaningful steps towards sustainability. These groups vary widely in focus and influence. Environmental NGOs, for instance, often advocate for more aggressive action on climate change, while labor rights organizations may focus on the social dimensions of sustainability, such as fair wages and working conditions. Consumer advocacy groups, on the other hand, press for transparency and ethical business practices. However, the pressure exerted by these diverse groups is often diluted by competing priorities from other stakeholders, such as investors seeking short-term returns and regulators enforcing compliance (Section 5.2.3 and 5.3.1). This creates a fragmented approach to CSRD implementation, where companies may feel compelled to prioritize compliance in ways that reduce operational disruption, rather than fully engaging with the broader, transformative goals of the CSRD. Each group's distinct focus and influence adds to the complexity, as companies struggle

to balance the demands of various stakeholders while managing their own internal resources and strategic goals.

The result of these competing pressures is a fragmented system where **decoupling of formal policies from actual practice** becomes nearly inevitable. Companies, caught between regulators seeking standardization, investors demanding short-term gains, auditors enforcing compliance, and NGOs advocating for genuine sustainability, often prioritize compliance over meaningful progress. This systemic decoupling not only undermines the effectiveness of the CSRD but also dilutes the broader impact of sustainability initiatives. Policies may be adopted for their symbolic value rather than their practical effects, creating a gap between the sustainability outcomes envisioned by policymakers and the reality on the ground.

To address the systemic causes of decoupling, it is essential for stakeholders across the system to align their objectives more closely and adopt a more collaborative approach. The results emphasize that policymakers must build flexibility into the regulatory framework, allowing for industry-specific adaptations. Investors need to balance short-term profitability with long-term sustainability, incentivizing genuine efforts. Auditors should establish consistent standards that reduce uncertainty, encouraging companies to invest more deeply in sustainability. NGOs and civil society can play a crucial role in ensuring accountability, holding companies to higher standards and pushing for transparency that reflects real progress.

This system view provides a more comprehensive understanding of the challenges and dynamics at play in the implementation of CSRD ESRS E1. By considering both the degree of integration (loose vs. tight coupling) and the alignment between policy and practice (decoupling vs. coupling), this study sheds light on the diverse ways in which logistics companies' approach GHG-reporting. It also highlights the factors that influence their ability to align with the sustainability goals set out by CSRD, ranging from resource constraints and data management challenges to external pressures and organizational culture.

6.3 Reflection on Policy Recommendations

In addition to identifying challenges, the interviews also revealed a range of practical advice and opportunities for improving CSRD implementation (Section 5.6). Respondents shared insights on how companies and policymakers can better navigate the complexities of sustainability reporting and compliance. Their recommendations, while diverse, consistently emphasized the importance of strategic alignment, innovation, clearer regulatory guidance, and collaboration among stakeholders. By reflecting on these insights, the proposed solutions can be explored on how they might address the decoupling and loose coupling challenges identified in earlier sections. In this context, the following advice provides actionable pathways for enhancing both the effectiveness of CSRD compliance and its integration into business strategies.

1. **Strategic Advantage Through Compliance**

- **Type of Coupling Addressed**: Tight Coupling
- **Explanation**: The suggestion that companies can achieve a competitive advantage by fully integrating CSRD requirements speaks to a desire for **tight coupling** between policy and practice. This implies that when companies align their internal strategies with regulatory frameworks, they reduce the risk of superficial compliance (means-end decoupling) and instead incorporate sustainability into the core of their business models. By becoming future-proof and demonstrating authentic sustainability practices, they not only comply but actively enhance their market position.

2. **Innovation and Efficiency Gains**

- **Type of Coupling Addressed**: Loose Coupling (positive)
- **Explanation**: This recommendation can be seen as encouraging **positive loose coupling**—where companies may initially struggle to fully integrate CSRD requirements but, through the process of compliance, discover new efficiencies and innovations. Rather than treating sustainability as a rigid checklist, this form of loose coupling allows companies to adapt and evolve their processes over time, making sustainability an engine for innovation rather than a burden.

3. **Need for Clearer Guidelines**

- **Type of Coupling Addressed**: Policy-Practice Decoupling
- **Explanation**: Respondents' calls for clearer guidelines reflect the **policy-practice decoupling** many companies experience. Confusion around how to apply concepts like Double Materiality Assessments or audits indicates that companies may be formally complying without truly understanding or aligning their practices with the CSRD's intent. Clearer guidelines would reduce the likelihood of policy-practice decoupling, as companies would have more precise tools and guidance for meaningful implementation.

4. **Leveraging Large Companies as Examples**

- **Type of Coupling Addressed**: Means-End Decoupling
- **Explanation**: By encouraging large companies to serve as role models, this advice aims to reduce **means-end decoupling** by showing smaller firms how compliance can lead to tangible benefits. When large companies demonstrate successful integration, it illustrates the potential for sustainability to serve as more than just a formal requirement, aligning the means (compliance) with the end goal (genuine sustainability).

5. **Enhanced Regulatory Influence & Feedback Loop**

- **Type of Coupling Addressed**: Policy-Practice Decoupling
- **Explanation**: The idea of a feedback loop between businesses and policymakers promotes tighter **policy-practice coupling**. By allowing companies to provide feedback and refine regulations in response to industry needs, the CSRD framework becomes more adaptable and responsive. This dynamic process reduces the risk of decoupling by ensuring that regulations are realistic and achievable for companies, fostering deeper integration over time.

6. Importance of Collaboration

- **Type of Coupling Addressed**: Loose Coupling and decoupling
- **Explanation**: The emphasis on collaboration between companies, industry groups, and policymakers can be seen as a way to reduce both **loose coupling** and **decoupling**. By working together and sharing best practices, stakeholders can bridge the gaps between policy and practice, aligning sustainability reporting with broader corporate strategies. This also encourages the alignment of sustainability goals across different sectors, reducing fragmentation and ensuring more coherent and consistent approaches to CSRD compliance.

Finally, a recommendation not discussed by the respondents, but standing out in the results, corresponds to the dilemma **of Transparency vs. Competitive and Legal Risks.**

One of the central dilemmas in the implementation of the CSRD is the tension between transparency in sustainability reporting and the potential competitive or legal risks that transparency may pose. The CSRD mandates rigorous reporting on greenhouse gas (GHG) emissions and other sustainability metrics, yet many companies fear that full disclosure could reveal sensitive information, such as operational inefficiencies or non-compliance with environmental standards. This could, in turn, compromise their competitive positioning or expose them to legal liabilities.

This dilemma closely mirrors challenges seen in other sectors, such as safety performance reporting. For example, in the safety sector, companies are often reluctant to disclose accident or near-miss data due to fears of punitive regulatory action or loss of competitive edge (Hallowell et al., 2024). A similar risk exists within CSRD reporting, where companies may manipulate data or withhold information to minimize reputational damage. This could lead to incomplete or inaccurate sustainability data, undermining the broader goals of the directive.

A potential solution, drawn from the safety sector, could involve creating "trusted communities" where companies can share sensitive sustainability data confidentially, without fear of penalties. This approach could foster more honest and transparent reporting, while mitigating the legal and competitive risks associated with full disclosure. However, just as seen in the safety sector, inconsistent measurement standards may still pose a challenge to ensuring the integrity of the data (Hallowell et al., 2024). If not addressed early on, these inconsistencies could lead to superficial compliance with CSRD, where the focus is on meeting reporting requirements rather than driving substantive sustainability changes.

6.4 Towards Deeper Integration: Addressing Systemic Challenges

In analyzing the implementation of the Corporate Sustainability Reporting Directive (CSRD), an extra, personal perspective is found. As illustrated in Figure 34, it is found that *loose coupling* —where companies recognize the directive's requirements but fail to fully integrate them into their operational processes —may lead to broader forms of decoupling, particularly in terms of policy-practice, which ultimately can cause means-end decoupling of CSRD and its intended purpose to reform business to become more sustainable. It can be interpreted as a timeline, starting with loose coupling, which over time, can result in means-end decoupling.

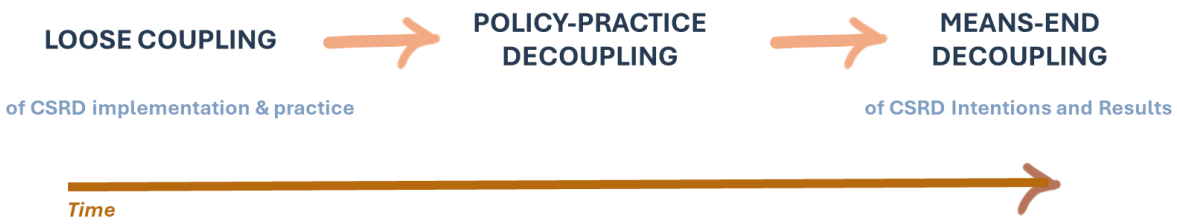


Figure 34. Loose coupling might lead to policy-practice decoupling, which in terms may lead to means-end decoupling.

6.4.1 Moving Beyond Superficial Compliance

To address systemic issues in CSRD implementation, companies, policymakers, and stakeholders must move beyond superficial compliance. Many businesses currently view compliance as a goal in itself, leading to a "tick-the-box" mentality where CSRD requirements are acknowledged but not fully integrated into core operations. This results in *loose coupling*, where the directives are followed in name but fail to drive real change.

Meaningful progress will require a cultural shift, where sustainability is seen not as a regulatory burden but as a strategic priority that can spur innovation and long-term growth. Policymakers, too, must foster an environment that encourages deeper integration of sustainability by offering incentives for genuine efforts and creating flexible guidelines that account for industry-specific challenges.

The root causes of decoupling in CSRD implementation go beyond individual companies, involving a web of interactions between regulators, investors, auditors, and NGOs. As discussed, a major factor in this decoupling is the misalignment of objectives among these stakeholders. Regulators focus on standardizing reporting, while investors often prioritize short-term profits, and auditors face inconsistent standards. This creates conflicting pressures, making it difficult for companies to fully align with CSRD's long-term sustainability goals.

6.4.2 Moving Beyond Finger-Pointing: A Collaborative Approach

What if, instead of pointing fingers, both governments and businesses recognized their shared responsibility in addressing climate change? The CSRD could be more than just a regulatory burden; it has the potential to be a powerful tool for collaboration between these key stakeholders. By viewing the CSRD as a framework that encourages innovation and proactive engagement, businesses can

take the lead in driving sustainability, while governments can provide the necessary support and incentives to make this transition feasible. This collaborative approach would shift the narrative from one of compliance and confrontation to one of partnership and progress.

To achieve that, a coordinated effort from all parties is needed. Policymakers could introduce greater flexibility into the regulatory framework, allowing for industry-specific adaptations. This would prevent the rigid, one-size-fits-all approach that can stifle innovation. Additionally, a recent study mentions "At the field level, research emphasizes that means-end decoupling is less likely when fields exert less compliance pressure on companies, as this gives companies leeway to implement CSR practices in a way that helps companies achieve the intended ends" (Athanasopoulo, 2024). Investors must also shift their focus from short-term gains to long-term sustainability, possibly through incentives for companies that show genuine environmental and social progress. Auditors, meanwhile, play a key role in ensuring compliance, and their work could be improved by clearer, more consistent standards, reducing uncertainty for companies. NGOs and civil society can further support this shift by holding companies accountable while promoting greater transparency in reporting practices.

6.4.3 Encouraging Dialogue and Collaboration

The key to overcoming decoupling lies in fostering greater dialogue and collaboration between all relevant stakeholders. By creating platforms for meaningful discussions among businesses, regulators, and civil society, a more nuanced and industry-sensitive approach to CSRD implementation can be developed. These forums would align expectations and reduce the risk of superficial compliance strategies.

In conclusion, while decoupling presents a challenge within the current CSRD framework, it is not an impossible one. Addressing the complexities of stakeholder dynamics and tackling the systemic causes of decoupling can transform the way businesses approach sustainability, utilizing CSRD as a means to an end, instead of an end itself. This transformation will enhance the CSRD's effectiveness, contributing to a more sustainable, transparent, and responsible corporate sector.

6.5 Discussion of Research Limitations

This section will discuss the research limitations from the methodology (Section 6.5.1) and for the study's conclusions (Section 6.5.2).

6.5.1 Limitations Related to Methodology

Single Perspective Focus: The study primarily focuses on **the business perspective**, particularly from those involved in logistics and CSRD implementation. This may limit the understanding of the broader societal, environmental, or regulatory impacts, as perspectives from other stakeholders such as policymakers, environmental NGOs, or community groups are not included. This narrow focus could result in a less holistic view of the challenges and opportunities related to CSRD implementation. If observations are only conducted within specific companies or contexts, they may not capture the full range of practices or challenges faced across the broader logistics sector.

Limited Generalizability: Case studies often focus on specific contexts or small samples, which may limit the ability to generalize findings to broader populations or other sectors beyond logistics (Flyvbjerg, 2006).

Subjectivity in Data Collection and Participant Bias:

- The reliance on interviews and qualitative data can introduce researcher bias, as the interpretation of participants' responses may be influenced by the researcher's perspectives or assumptions.
- The methodology may rely on participants' recollections of past events or experiences, which can be influenced by memory biases or selective recall, affecting the accuracy of the data.
- Interviewees may provide socially desirable responses or may withhold information, especially when discussing sensitive topics related to CSRD implementation and corporate practices.
- One limitation of the study is that the interviews were not recorded, which may have affected the accuracy and depth of the data collected. Although detailed notes were taken during and after the interviews, recording would have allowed for a more precise capture of the respondents' answers, potentially providing richer insights and minimizing the risk of information being overlooked or misinterpreted.

Time Constraints: The need to conduct interviews and analyze qualitative data within a limited timeframe may result in less thorough exploration of complex issues, potentially overlooking important nuances and missing out on additional respondents.

Access to Experts: Difficulty in accessing a sufficient number of CSRD-specific experts, particularly within the logistics sector, may limit the depth and broadness of insights gathered, leading to potential gaps in the analysis.

Complexity of Data Synthesis: Integrating insights from diverse sources (e.g., interviews, observations, industry reports) can be challenging, and there is a risk that important connections between different types of data may be missed or underexplored.

Evolving Regulatory Environment: A key limitation of this study is that the field of corporate sustainability reporting is rapidly evolving. For instance, during the course of this research, the European Commission introduced new guidelines to improve interoperability between European and global sustainability reporting standards. This highlights that the landscape is constantly changing, with new developments emerging every day as organizations and regulators work to clarify and refine the frameworks. As a result, the findings of this study may be influenced by the fact that the entire field is still in the process of being worked out and adapted in real-time (European Commission, 2024b). The ongoing development and updates to CSRD and ESRS standards may mean that the research is quickly outdated or fails to account for new requirements, limiting the relevance of the findings over time.

6.5.2 Limitations of Study Conclusions

Narrow Focus on Business Perspectives: As discussed, one major limitation of this study is that it exclusively captures the perspective of businesses within the logistics sector, without incorporating the views of other key stakeholders. Although businesses play a central role in the implementation of the CSRD, other stakeholders also hold significant influence over how sustainability reporting is shaped and executed. The absence of these perspectives limits the study's ability to fully understand the broader ecosystem of CSRD implementation and how interactions between various stakeholders may impact decoupling phenomena.

Limited Scope of Industry Representation and Lack of Logistics-Specific Data: While the study focuses on the logistics sector, the conclusions may not fully generalize to other industries that are subject to the CSRD. Different industries face unique challenges, stakeholder pressures, and operational realities when it comes to sustainability reporting. The logistics sector's heavy reliance on carbon-intensive practices, for example, creates specific dynamics that may not apply to sectors with different environmental footprints or operational structures. This could mean that the conclusions drawn from this sector-specific analysis may not fully represent the broader impacts of the CSRD across diverse industries.

Furthermore, a significant limitation is the absence of logistics-specific data related to the CSRD. Since the directive is still in its early stages and sector-specific guidance for logistics was not available within the scope of this thesis, the results were interpreted and contextualized within the sustainable logistics framework by the researcher. While this provided valuable insights, it also introduced the possibility of subjectivity in framing the results, and future studies with more detailed sector-specific guidelines could reveal different dynamics and challenges in the logistics industry's compliance with the CSRD.

Potential for Bias in Self-Reporting: Since the study relies on interviews with business representatives, there is a risk of bias in the self-reported data. Businesses may unintentionally present their sustainability efforts in a more favorable light, consciously or unconsciously underreporting challenges, or minimizing aspects of decoupling that may be critical to fully understanding the CSRD's impact. This can create a gap between the reported practices and the actual on-the-ground realities, potentially leading to an incomplete picture of how well CSRD objectives are being met.

Temporal Limitations of the Study: Given that the CSRD is still in its early phases of implementation, this study provides a snapshot of businesses' perspectives at a specific moment in time. However, the dynamics surrounding CSRD implementation may evolve as both companies and regulatory bodies gain more experience with the directive. As enforcement mechanisms are clarified, new reporting tools are developed, and companies build internal capacity, perspectives may shift, resulting in different levels of decoupling or alignment with sustainability objectives. Consequently, the study's conclusions should be viewed as context-dependent and subject to change over time.

Unexplored Regulatory and Enforcement Dynamics: Another limitation of this study lies in its limited exploration of how regulatory and enforcement bodies will evolve in response to business practices. While the study touches on the uncertainty businesses face regarding enforcement

mechanisms, it does not fully capture how regulators may adapt their strategies or how stricter enforcement may shift business practices in the future. As a result, the study's conclusions about the degree of decoupling may not fully account for future developments in regulatory oversight or the long-term impact of policy changes.

Lack of Quantitative Data: The study primarily relies on qualitative data from interviews, which provides rich, detailed insights into how businesses perceive and navigate the CSRD. However, the absence of quantitative data, due to the ex-ante nature, limits the study's ability to assess the scale or prevalence of decoupling across the broader industry.

6.6 Discussion of Research Strengths

In-depth Sector-Specific Focus| One of the key strengths of this thesis is its **in-depth sector-specific focus** on the logistics industry, which is vital for both global trade and sustainability. By focusing on this particular sector, the research captures the distinct challenges and opportunities that logistics companies face in implementing the Corporate Sustainability Reporting Directive. This focus ensures the relevance and applicability of the findings to the real-world context of sustainability in logistics.

Ex-Ante Policy Analysis and Proactive Approach| Furthermore, the **ex-ante policy analysis** employed in this study provides a forward-looking exploration of the potential impacts of the CSRD before its full implementation. This proactive approach emphasizes the importance of closely monitoring the implementation and iteration phases of the CSRD to ensure that its goals are met effectively. Staying engaged during these phases allows for early identification of misalignments, and addressing these proactively is crucial for aligning sustainability objectives with corporate actions, rather than waiting to react after the fact.

Systemic View of the Stakeholder Ecosystem| The **systemic approach** of this research adds another layer of strength. By avoiding the treatment of businesses or policies as isolated "black-boxes," the study offers a more comprehensive understanding of the complex ecosystem of stakeholders involved. This perspective reveals how corporate decisions and challenges are shaped by external pressures from regulators, investors, consumers, and NGOs, demonstrating how corporate challenges and decisions are influenced by a web of external pressures. This broader view helps explain why certain things happen and reveals the layered complexities businesses face. Understanding the system in this holistic way brings essential nuance to the analysis, ensuring a more realistic interpretation of why and how decoupling between policy and practice occurs.

Comprehensive Methodology| The **qualitative case-study methodology** utilized, supported by tools such as the Convivial Toolbox, offers a rich exploration of the CSRD's implementation within businesses. By combining stakeholder interviews with in-depth sector knowledge, the study effectively captures how policies are understood and operationalized within the logistics sector. This comprehensive methodology ensures a thorough examination of the alignment between corporate practices and sustainability objectives.

Focus on Decoupling Phenomena| In addition, this research contributes significantly to the academic discourse by focusing on the **phenomenon of (de)coupling**, particularly loose coupling and means-end decoupling in the context of CSRD implementation. This emphasis sheds light on the systemic challenges that prevent the directive from fully achieving its intended sustainability outcomes, providing valuable insight for future policy assessments.

Practical Recommendations| Lastly, the **practical recommendations** derived from this research enhance its relevance beyond academia. By offering actionable insights to policymakers, businesses, and stakeholders, the study provides a roadmap for improving the alignment between sustainability reporting practices and operational realities, fostering a more sustainable and transparent corporate environment.

CHAPTER 7 – CONCLUSION

*This chapter concludes this study by giving an overview of the work **(Section 7.1)** and by stating a final conclusion that answers the main research question **(Section 7.2)**. It then briefly discusses the scientific and practical contributions **(Section 7.3)**, whereafter it finishes the chapter with recommendations for further research.*

7.1 Overview of the Study

The overarching research question for this study was: **"How do logistics companies navigate GHG-reporting under CSRD ESRS E1, and what factors influence their ability to align with sustainability goals of CSRD?"** This question was addressed by breaking it down into four sub-questions, which explored the key objectives and implementation mechanisms of CSRD and ESRS E1, the existing sustainability practices and challenges within the logistics sector, the forms and extent of decoupling within CSRD implementation, the factors that signal potential misalignments between reporting practices and the CSRD's sustainability goals, and the key dilemmas.

Due to the novelty of the CSRD, particularly ESRS E1, and the fact that full implementation has not yet occurred, an ex-ante policy analysis was chosen to anticipate potential misalignments before the policy completes its cycle. This ex-ante approach proved useful in exploring how logistics companies are preparing for CSRD compliance and highlighted several emerging issues related to policy-practice decoupling.

One of the key methodologies applied was an 8-step theory building by a case study approach, following Eisenhardt (1989). Within the "Crafting Instruments and Protocols", inspiration was taken from the product design field (convivial toolbox) and combined with stakeholder analysis to get a grasp of what is happening within the field. The key element that contributed to this are the **qualitative expert interviews**. By gathering insights from logistics professionals who are already engaging with sustainability reporting frameworks and CSRD experts, the study could identify the real-world challenges and perceptions of upcoming CSRD requirements. Additionally, the ex-ante approach incorporated and added upon **theoretical models of decoupling and loose/tight coupling** (Bromley & Powell, 2012; Weick, 1990), which helped frame the potential gaps between policy adoption and practice. This methodology proved effective in anticipating issues like loose coupling and policy-practice decoupling, which may hinder full compliance in the logistics sector.

However, the study also highlighted the limitations of ex-ante methodologies, particularly the absence of sector-specific data for logistics under the CSRD. As the CSRD is still in its early stages, this research relied heavily on interpreting results within the broader context of sustainable logistics, leaving room for future empirical studies to validate the predictions made.

7.2 Conclusion of Main Research Question

Next, each sub-question will be discussed separately.

SUB-QUESTION 1: What are the key objectives and implementation mechanisms of the CSRD, particularly ESRS E1, and how do they relate to the existing sustainability practices and challenges within the logistics sector?

The first sub-question focused on identifying the core objectives and mechanisms within the Corporate Sustainability Reporting Directive (CSRD), particularly the Environmental Sustainability Reporting Standard (ESRS) E1, and assessing how these align with existing sustainability practices in the logistics sector.

The CSRD has several key objectives, primarily aimed at promoting transparency and accountability in corporate sustainability efforts. Through harmonized reporting standards, the directive seeks to ensure that companies across the European Union provide comparable and consistent data on their environmental, social, and governance (ESG) impacts. Another crucial objective is the integration of sustainability into business strategies, particularly with regard to greenhouse gas (GHG) reduction. The CSRD, particularly ESRS E1, requires companies to disclose not only their direct emissions (Scope 1) but also their indirect emissions through purchased energy (Scope 2) and their value chain (Scope 3). This is further reinforced by the emphasis on the "double materiality" approach, where companies must consider both the financial implications of sustainability risks and the broader environmental impact of their activities.

However, the logistics sector presents unique challenges when implementing the CSRD's objectives. While many logistics companies are actively pursuing emission reduction strategies, the sector exhibits a wide range of readiness levels. Some companies are already advanced in integrating sustainability into their operations, while others face significant obstacles, particularly around data collection and supply chain complexity. The requirement for Scope 3 reporting, which includes emissions from the entire supply chain, proves especially difficult in this sector due to the fragmented nature of logistics networks and the reliance on third-party providers.

Moreover, logistics companies face a dilemma in balancing short-term financial goals with long-term sustainability investments. Complying with the CSRD often involves high upfront costs, particularly for companies needing to overhaul their data collection systems and adopt new reporting mechanisms. Without clear short-term returns, justifying these investments can be difficult. Additionally, the sector operates within heavily regulated environments, adding another layer of complexity in adhering to both existing regulations and the new CSRD requirements.

In summary, while the CSRD's focus on GHG reporting under ESRS E1 aligns with the EU's broader climate goals, the logistics sector faces several challenges, particularly in managing supply chain complexities, ensuring accurate data collection, and balancing financial pressures with

sustainability commitments. This highlights a significant gap between the directive's ambitious objectives and the practical realities of implementation within the logistics industry.

SUB-QUESTION 2: What factors can signal potential gaps between GHG-reporting practices and CSRD ESRS E1 objectives in the logistics sector?

Several internal and external factors were identified as signals of potential misalignments between GHG-reporting practices and the objectives of the CSRD, as described in Figure 35 *(repetition from Figure 32 to enhance readability)*. These factors manifest in various forms of decoupling and loose coupling, which inhibit companies from fully aligning their internal operations with the CSRD's sustainability goals.

INTERNAL FACTORS primarily revolve around the company's structure, resource allocation, and strategic priorities. Loose coupling within organizations can be driven by a narrow focus on meeting reporting obligations without genuine engagement in sustainability. Many businesses prioritize easily reportable metrics over more comprehensive, long-term changes, leading to superficial compliance. Additionally, companies often face challenges related to **resource and capability constraints**, as well as **insufficient training and awareness** regarding the new reporting standards. This can result in data inaccuracies, especially concerning scope 3 emissions, which are difficult to track across supply chains.

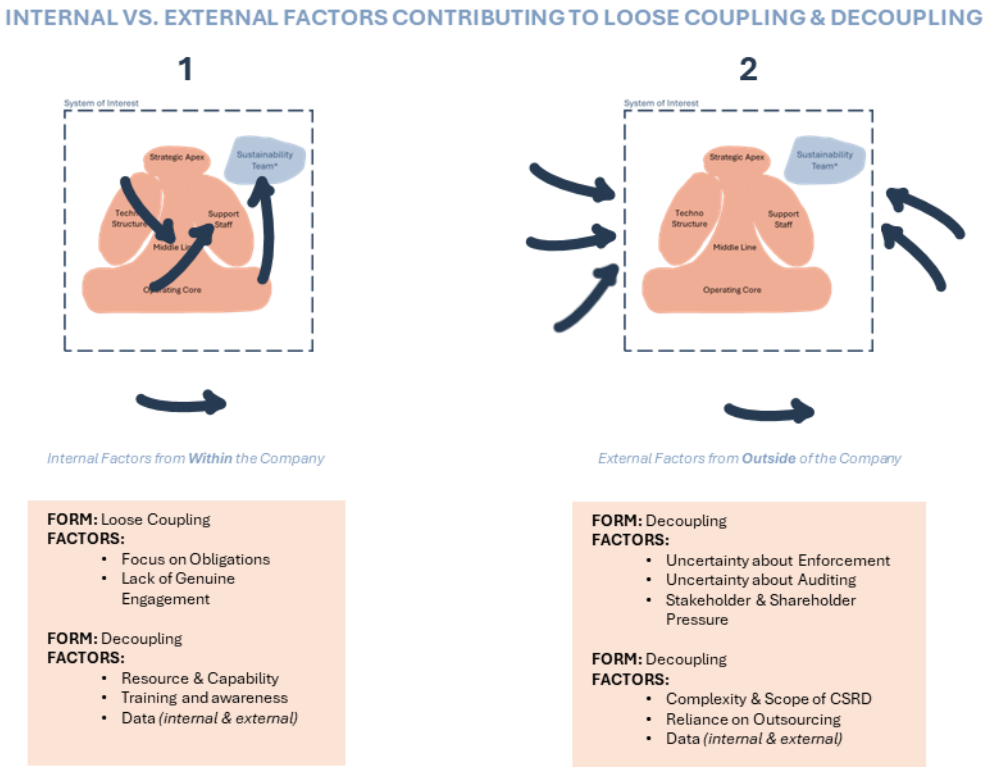


Figure 35. Overview of Internal and External Factors Influencing (De)Coupling (Repetition of Figure 32).

On the **EXTERNAL SIDE**, companies encounter decoupling pressures from **uncertainties in enforcement and auditing standards**, where vague guidelines on compliance allow businesses to fulfill minimal requirements rather than striving for deeper sustainability integration. Furthermore, **stakeholder and shareholder pressures** can cause businesses to balance short-term financial performance against long-term sustainability goals, often skewing efforts towards compliance with less ambitious targets. External factors also include the complexity of the CSRD framework itself and the reliance on outsourcing, where businesses outsource critical reporting tasks, further distancing operational reality from the policy's intent.

Together, these internal and external factors form key dilemmas for companies trying to implement CSRD ESRS E1, which may eventually lead to broader misalignments between policy intentions and real-world sustainability outcomes.

SUB-QUESTION 3: To what extent does the implementation of CSRD ESRS E1 within the logistics sector exhibit characteristics of decoupling (misalignment with CSRD objectives) and what forms does this decoupling take?

Several forms of (de)coupling were identified in this thesis, each representing different degrees of misalignment between the CSRD ESRS E1 objectives and company operations. The extent to which these forms of decoupling occur depends significantly on the type of company and its level of sustainability integration, as seen in Figure XXX. This figure depicts a spectrum ranging from companies that engage in minimal compliance and crisis management, to those that adopt sustainability as a core business driver, representing various types of integration from low (crisis management) to high (purpose-driven).

LOOSE COUPLING AND DECOUPLING SCENARIOS

- **Scenario 1 (Loose Coupling)** occurs when there is compliance with CSRD requirements, but this compliance is not deeply integrated into the company's operations. For instance, companies might complete GHG reporting to meet the directive but fail to align these practices with broader operational strategies for sustainability.
- **Scenario 2 (Decoupling of Intentions and Implementation)** represents companies that genuinely intend to implement CSRD standards, but struggle to do so effectively due to factors such as resource limitations or misinterpretations of the directive.
- **Scenario 3 (Decoupling of Sustainability Policies and Operational Practices)** describes companies that create sustainability policies under CSRD but do not fully implement these practices in their day-to-day operations. For example, a company might set ambitious GHG reduction goals, but fail to adopt necessary operational changes to meet them.

The degree to which these decoupling scenarios occur also depends on a company's type and position along the sustainability integration scale, as described in Figure 36.

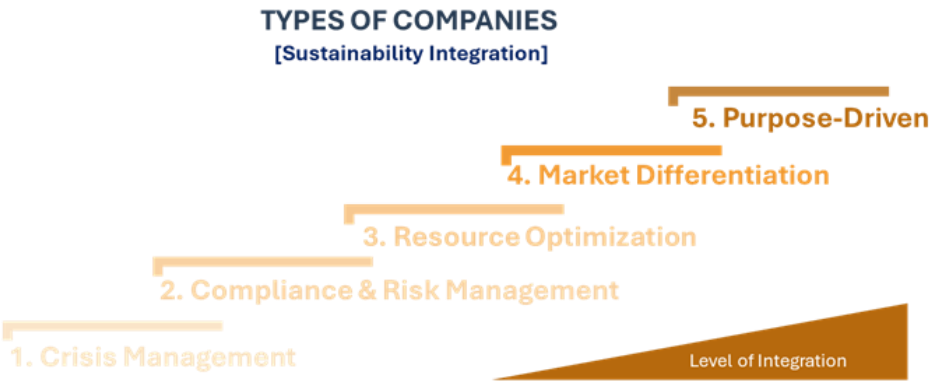


Figure 36. Repetition of Figure 31 to enhance readability.

For instance, companies focused on crisis management (Type 1) are more likely to experience significant decoupling, while purpose-driven organizations (Type 5) are better positioned to achieve meaningful policy alignment with CSRD objectives. Furthermore, the existence of a level playing field—ensuring that all companies face similar expectations and standards—plays a critical role in the potential for meaningful CSRD implementation across the logistics sector. Without such a framework, those at lower levels of sustainability integration may fall behind, exacerbating decoupling effects.

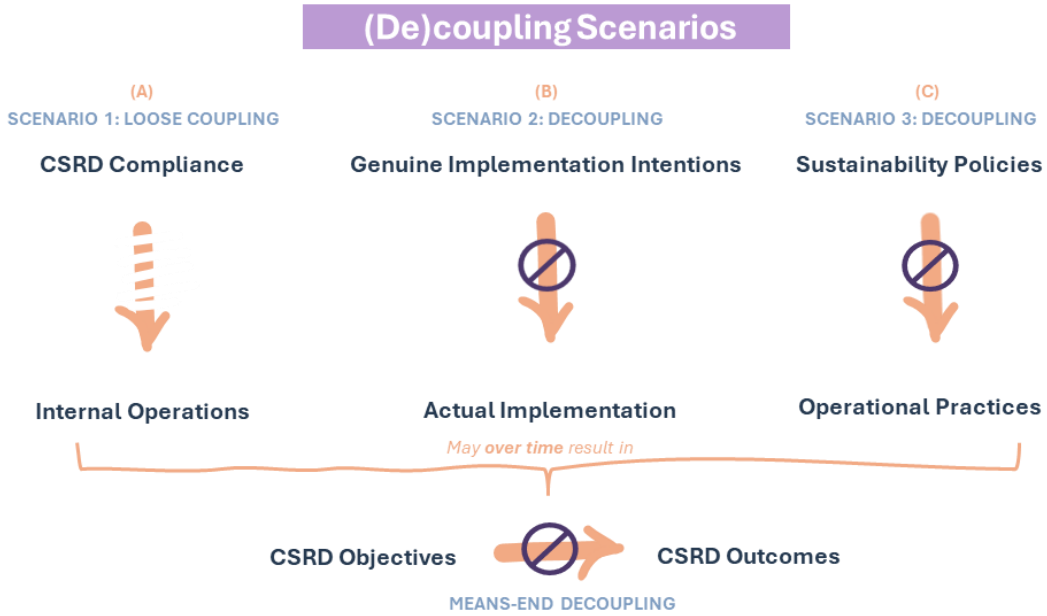


Figure 37. Overview of form of (De)coupling found in this thesis. Repetition of Figure 33 to enhance readability.

Over time, if these forms of decoupling persist, they may lead to **means-end decoupling**, where the objectives of the CSRD (i.e., promoting transparency, accountability, and GHG reduction) are not fully realized.

SUB-QUESTION 4: What **key dilemmas** do logistics companies encounter and how do these dilemmas influence their implementation of CSRD ESRS E1?

The results reveal that logistics companies face several key dilemmas in their efforts to implement CSRD ESRS E1. These dilemmas significantly shape how companies approach sustainability reporting and the broader integration of CSRD into their operations. The dilemmas identified are as follows:

1. **Compliance vs. Sustainability:** Companies often struggle to balance compliance with CSRD regulations and their broader sustainability goals. On one hand, complying with the directive's reporting requirements can be resource-intensive and time-consuming. On the other hand, focusing solely on compliance can lead to superficial sustainability efforts, where companies meet the minimum requirements without fully committing to long-term sustainability strategies. This dilemma highlights the challenge of ensuring that compliance does not detract from genuine environmental progress.

2. **Cost-of-Compliance vs. Long-Term Strategic Gains:** Many logistics companies find themselves weighing the immediate costs of complying with CSRD requirements against the potential long-term benefits. The short-term financial burden of implementing new reporting systems, gathering data, and meeting regulatory demands can be high, particularly for smaller companies. However, these costs must be balanced with the strategic advantages of sustainability, including future competitiveness, risk mitigation, and alignment with evolving market demands.

3. **Transparency vs. Competitive Risk:** While CSRD emphasizes transparency in sustainability reporting, companies must navigate the risk of revealing too much information that could be used by competitors or lead to negative stakeholder reactions. This dilemma requires companies to carefully balance the need for transparency with the protection of proprietary information and maintaining their competitive advantage.

4. **Internal Coordination vs. Departmental Silos:** The cross-departmental nature of CSRD reporting can create challenges within companies that operate in silos. For instance, aligning financial reporting with environmental impact assessments may require new levels of internal coordination between departments that have historically operated independently. This challenge often leads to inefficiencies and hinders the smooth integration of CSRD requirements into core operations.

5. **Outsourcing vs. Internal Capability Building:** Many logistics companies face the dilemma of deciding whether to outsource their sustainability reporting to external consultants or build

internal capabilities. Outsourcing can provide quick solutions but may limit the company's long-term ability to manage and integrate sustainability practices. Conversely, building internal expertise requires significant investment but can create more sustainable, long-term benefits.

In addition to the previously identified dilemmas, logistics companies face a **central challenge in balancing policy implementation.** Companies must efficiently meet regulatory requirements, such as those outlined in CSRD ESRS E1, while ensuring that compliance efforts remain sustainable and do e.g. not stifle innovation or compete with other regulatory requirements . Overly prescriptive rules can restrict a company's ability to develop tailored sustainability strategies that align with their unique operations. On the other hand, too much flexibility could diminish the incentive for companies to engage in genuine decarbonization efforts, as emphasized by several interviewees.

Striking the right balance between regulatory pressure and operational freedom is crucial. The optimal scenario involves regulations that encourage decisive action while allowing companies to integrate these directives into their specific business models, or to gradually change their business model to a more sustainable one. This balance prevents companies from simply meeting the minimum requirements and fosters a proactive approach toward long-term sustainability (Gondo & Amis, 2013).

From a systems perspective, the challenges of decoupling in CSRD implementation extend beyond the boundaries of individual organizations. The CSRD operates within a broader ecosystem that includes regulatory bodies like EFRAG, policymakers, industry associations, investors, NGOs, and consumers, all exerting various forms of pressure on businesses. These pressures, often conflicting, can lead companies to adopt superficial engagement with sustainability practices, driven by the need to satisfy multiple stakeholders. In many cases, companies may meet compliance standards but fail to integrate these practices into their core operations, highlighting systemic challenges within the sustainability landscape.

These dilemmas, from the internal struggle between innovation and compliance to the broader systemic dynamics involving multiple stakeholders, significantly influence how logistics companies navigate the complex path toward genuine CSRD implementation. The way these companies address these dilemmas will ultimately determine the effectiveness of sustainability efforts in the logistics sector.

In conclusion, the overall answer to: **"How do logistics companies navigate GHG-reporting under CSRD ESRS E1, and what factors influence their ability to align with sustainability goals of CSRD?"** is as follows. Logistics companies approach GHG-reporting under CSRD ESRS E1 by focusing on compliance, often through formal reporting of Scope 1, 2, and 3 emissions. However, their ability to fully align with the sustainability goals of the CSRD depends significantly on their **sustainability maturity** (Figure 36). Companies that are more mature in their sustainability efforts tend to integrate sustainability into their strategic operations, while those at lower levels of maturity often treat reporting as a compliance exercise rather than a driver for meaningful change. Additionally, **internal factors** such as resource capabilities, data collection complexity, and

external pressures, including regulatory uncertainty and competing stakeholder demands, influence the extent to which companies align their operations with CSRD's broader sustainability objectives. These challenges lead to **varying degrees of (de)coupling** between policy objectives and actual implementation.

7.3 Relevance: Scientific and Practical Contributions

Scientific Contribution: This research adds to the growing body of literature on GHG reporting, policy-practice decoupling, means-end decoupling, and the implementation of the CSRD, particularly within the logistics sector. The study underscores the limitations of the CSRD reporting framework, highlighting the inherent challenges in embedding regulatory requirements into real-world operational practices. Through its analysis of various decoupling forms—loose coupling, policy-practice decoupling, and means-end decoupling—the research provides a deeper, more nuanced understanding of the mechanisms that lead to misalignments between policy objectives and business practices. Furthermore, by emphasizing how these forms of decoupling can undermine the intended outcomes of the CSRD, this work expands the current discourse on decoupling, situating the logistics sector as a critical case study.

The **ex-ante methodology** developed for this research offers a novel and forward-looking approach to studying the CSRD before its full implementation. This approach could be applied to future studies in different sectors, enabling early detection of misalignments and adaptation needs before full policy roll-out. Moreover, the findings reinforce the need for sector-specific adaptations, demonstrating that industries like logistics, with their unique supply chain complexities and GHG challenges, require tailored regulatory frameworks to effectively meet CSRD objectives.

Practical Contribution: From a practical standpoint, the study provides insights that are directly applicable to both logistics companies, consultants, auditors and policymakers. Companies can use the findings to better understand the potential challenges they will face in CSRD compliance and to identify areas where they may need to invest in internal capabilities, such as data management and cross-departmental collaboration. Furthermore, the study underscores the importance of **stakeholder collaboration** and the development of clearer, more specific guidelines that can help reduce the ambiguity and variability in reporting practices.

For policymakers, the study offers actionable feedback on the gaps within the current CSRD framework. The research highlights the necessity of moving beyond a mere compliance-based model, suggesting that the CSRD's long-term effectiveness hinges on its ability to foster deeper integration of sustainability into core business strategies. This will require ongoing collaboration among regulators, businesses, auditors, and other stakeholders. Additionally, the findings emphasize the importance of maintaining a close focus on the iterative implementation and feedback phases of the CSRD to ensure that it achieves its ultimate goal of driving substantial decarbonization efforts. Proactively addressing these issues, rather than adopting a "wait-and-see" approach, will be critical for long-term success.

7.4. Further Research

This study opens several avenues for further research. Firstly, future studies should include the perspectives of other stakeholders—such as investors, policymakers, and NGOs—to gain a more comprehensive understanding of how these groups influence the success of the CSRD. Their involvement is crucial, especially considering the broader systemic dynamics that affect companies' ability to comply with sustainability regulations.

Secondly, as CSRD data becomes available in the coming years, empirical research will be needed to assess the actual performance of companies in GHG reporting under the directive. This research could investigate whether the early predictions of decoupling hold true, and whether companies can move from loose coupling toward deeper integration of sustainability practices.

Lastly, there is an opportunity to explore **sector-specific adaptations** of the CSRD. This thesis primarily focused on logistics, but other industries with different operational challenges and regulatory pressures may experience different forms of decoupling. Comparative studies across sectors could shed light on the most effective strategies for aligning policy with practice and achieving the CSRD's broader sustainability goals.

Potential research leads:

1. **Role of Digitalization in GHG Reporting**: Explore how emerging technologies, such as blockchain or AI, can improve the accuracy and efficiency of GHG data reporting under CSRD. This research could focus on how these technologies might reduce policy-practice decoupling by automating compliance and creating transparent, verifiable records.
2. **Comparative Sector Analysis**: Conduct a comparative study of CSRD implementation across different sectors (e.g., logistics vs. manufacturing vs. finance) to identify industry-specific challenges, opportunities, and decoupling mechanisms. This could help tailor future CSRD guidelines to better fit the unique needs of each sector.
3. **Impact of Stakeholder Collaboration on Compliance**: Investigate how collaborative frameworks between companies, policymakers, and NGOs (e.g., trusted communities) impact CSRD compliance and transparency. This research could evaluate how such partnerships foster deeper stakeholder engagement and reduce superficial compliance strategies.

Following these potential research avenues, the role of emerging technologies in digitalization *(point 1)* offers an exciting path for future exploration.

7.4.1. Future Research: Exploring the Role of Digitalization in Enhancing GHG Reporting under CSRD

The rapid evolution of digital technologies presents an unparalleled opportunity to improve the accuracy, efficiency, and transparency of Greenhouse Gas (GHG) reporting under frameworks like the Corporate Sustainability Reporting Directive (CSRD). With the findings highlighting the data challenges in GHG reporting—particularly within the logistics sector, but also applicable across many industries—future research could explore how emerging technologies, such as blockchain and artificial intelligence (AI), might mitigate these challenges. The primary focus would be on how

digitalization can address key issues of policy-practice decoupling by enhancing automation, verifiability, and transparency in GHG data management.

Research Objectives

The core objective of this research would be to investigate how digital technologies can streamline the process of GHG data collection, verification, and reporting, thus reducing misalignments between CSRD objectives and actual practices. Specifically, this study would:

- Assess the potential of blockchain technology to create immutable and verifiable GHG data records.
- Explore the role of AI in automating compliance processes and improving the accuracy of scope 1, 2, and 3 emissions reporting.
- Investigate how digital tools can reduce data errors and inconsistencies that contribute to policy-practice decoupling.

Context: Data Challenges in GHG Reporting

As discussed in the current study, one of the most significant hurdles in CSRD implementation—especially in logistics—is the complexity of collecting and processing accurate GHG data. Companies often struggle with fragmented and unreliable data sources, particularly in supply chain emissions (Scope 3). These challenges are not exclusive to logistics but are relevant across different sectors, making digitalization a universal solution for enhancing reporting integrity and efficiency.

Blockchain's Role in Transparency and Verifiability

Blockchain technology, by design, enables the creation of secure, transparent, and immutable records. Applied to GHG reporting, could ensure that emissions data—especially in complex supply chains—are accurate and fraud-proof? This would address the current issues of data manipulation or incomplete reporting that contribute to loose coupling.

AI and Automation: Enhancing Compliance Efficiency

AI offers significant potential in automating GHG reporting processes. With its ability to analyze large datasets, AI could streamline the identification and calculation of emissions sources across an organization's operations. This automation could address the current resource constraints faced by companies in complying with CSRD, as discussed in the findings. By reducing the manual burden of GHG reporting, AI could allow companies to focus more on the strategic integration of sustainability goals rather than just ticking regulatory boxes.

Future research could explore AI-powered tools that assist companies in automatically tracking emissions from various data points (e.g., fuel consumption, energy use) and generating compliant reports. This could particularly benefit smaller companies that lack the resources to hire specialized personnel for compliance.

REFERENCE LIST

A

Agostini, M., Costa, E., & Korca, B. (2022). Non-financial disclosure and corporate financial performance under directive 2014/95/EU: Evidence from Italian listed companies. *Accounting in Europe*, 19(1), 78-109.

AMCS. (2024). *Het CSRD Rapportagehandboek*. AMCS.

Amenta, E., & Ramsey, K. M. (2010). Institutional theory. *Handbook of politics: State and society in global perspective*, 15-39.

Athanasopoulou, A., Marti, E., Risi, D., & Schlindwein, E. (2024). How Companies Restrain Means–Ends Decoupling: A Comparative Case Study of CSR Implementation. *Journal of Management Studies*.

Aven, T. (2016). Risk assessment and risk management: Review of recent advances on their foundation. *European journal of operational research*, *253*(1), 1-13.

B

Bayer, S. (2004). Sterman, John. 2000. Business dynamics: Systems thinking and modeling for a complex world. *Interfaces*, *34*(4), 324-327.

Bebbington, J., & Unerman, J. (2018). Achieving the United Nations Sustainable Development Goals: an enabling role for accounting research. *Accounting, Auditing & Accountability Journal*, *31*(1), 2-24.

Bloch, P. H. (1995). Seeking the Ideal Form: Product Design and Consumer Response. *Journal of Marketing*, 59(3), 16-29.

Boardman, A. E., Greenberg, D. H., Vining, A. R., Weimer, D. L., & Analysis, C. B. (2018). Concepts and Practice.

Boiral, O. (2016). Accounting for the unaccountable: Biodiversity reporting and impression management. *Journal of business ethics*, *135*(4), 751-768.

Breijer, R., & Orij, R. P. (2022). The comparability of non-financial information: An exploration of the impact of the non-financial reporting directive (NFRD, 2014/95/EU). *Accounting in Europe*, *19*(2), 332-361.

Briem, C. R., & Wald, A. (2018). Implementing third-party assurance in integrated reporting: Companies' motivation and auditors' role. *Accounting, Auditing & Accountability Journal*, *31*(5), 1461-1485.

Brugha, R., & Varvasovszky, Z. (2000). Stakeholder analysis: a review. *Health policy and planning*, *15*(3), 239-246.

Brulhart, F., Gherra, S., & Quélin, B. (2017). Do Stakeholder Orientation and Environmental Proactivity Impact Firm Profitability?. *Journal of Business Ethics*, 1-22. https://doi.org/10.2139/ssrn.3078850.

Bullock, H. L., Lavis, J. N., Wilson, M. G., Mulvale, G., & Miatello, A. (2021). Understanding the implementation of evidence-informed policies and practices from a policy perspective: a critical interpretive synthesis. *Implementation Science*, *16*, 1-24.

C

Camilleri, M. (2017). Corporate sustainability and responsibility: creating value for business, society and the environment. *Asian Journal of Sustainability and Social Responsibility*, 2, 59 - 74. https://doi.org/10.1186/s41180-017-0016-5.

Charluet, C. (2024). *How to interpret ESRS E1: Climate change (updated Sep 2024)*. How to interpret ESRS E1: Climate change (Updated Sep 2024). https://www.coolset.com/academy/esrs-e1-requirements-climate-change

Charluet, C. (2024b, March). Prepare your accounting for sustainability reporting in 5 simple steps. https://www.coolset.com/academy/prepare-accounting-for-sustainability-reporting

Chen, H., Cohen, L., & Lou, D. (2016). Industry window dressing. *The Review of Financial Studies*, *29*(12), 3354-3393.

Colgan, A., Rochford, S., & Burke, K. (2016). Implementing public service reform: messages from the literature.

Conrad, M., & Holtbrügge, D. (2021). Antecedents of corporate misconduct: A linguistic content analysis of decoupling tendencies in sustainability reporting. *Business Ethics, the Environment & Responsibility*, *30*(4), 538-550.

Consensus. (2024, July 18). *How it works & consensus FAQ's - consensus: Ai search engine for research*. https://consensus.app/home/blog/welcome-to-consensus/#:~:text=Consensus%20is%20an%20academic%20search,level%20and%20paper%2Dlevel%20insights.

Crilly, D., Zollo, M., & Hansen, M. T. (2012). Faking it or muddling through? Understanding decoupling in response to stakeholder pressures. *Academy of Management Journal*, *55*(6), 1429-1448.

D

De Bakker, F. G., Matten, D., Spence, L. J., & Wickert, C. (2020). The elephant in the room: The nascent research agenda on corporations, social responsibility, and capitalism. *Business & Society*, *59*(7), 1295-1302.

Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California management review*, *54*(1), 64-87.

Delmas, M. A., & Toffel, M. W. (2008). Organizational responses to environmental demands: Opening the black box. *Strategic Management Journal*, 29(10), 1027-1055. https://doi.org/10.1002/smj.70

Doh, J. P., & Guay, T. R. (2006). Corporate social responsibility, public policy, and NGO activism in Europe and the United States: An institutional-stakeholder perspective. *Journal of Management studies*, *43*(1), 47-73.

E

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management science*, *60*(11), 2835-2857.

Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of management review*, *32*(4), 1246-1264.

EFRAG. (2022, November). *ESRS E1 climate change*. https://www.efrag.org/Assets/Download?assetUrl=/sites/webpublishing/SiteAssets/08+Draft+ESRS+E1+Climate+Change+November+2022.pdf

EFRAG. (2024, September 6). *Europe's voice in corporate reporting*. https://www.efrag.org/en

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of management review*, *14*(4), 532-550.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of management journal*, *50*(1), 25-32.

Environmental Protection Agency. (n.d.-a). *Scope 1 and Scope 2 Inventory Guidance*. EPA. https://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance#:~:text=Scope%201%20emissions%20are%20direct,boilers%2C%20furnaces%2C%20vehicles

Environmental Protection Agency. (n.d.-b). *Scope 3 Inventory Guidance*. EPA. https://www.epa.gov/climateleadership/scope-3-inventory-guidance

Ervin, D., Wu, J., Khanna, M., Jones, C., & Wirkkala, T. (2013). Motivations and barriers to corporate environmental management. *Business Strategy and the Environment*, *22*(6), 390-409.

ESGFLO. (2024). *ESG platform: ESG Solutions to ensure ESG compliance*. ESG Platform | ESG Solutions to Ensure ESG Compliance. https://www.esgflo.com/platform

Euronext Corporate Services. (2024). *Fit for CSRD*.

European Commission. (2024, May). *Attitudes of Europeans towards the environment*. Eurobarometer. https://europa.eu/eurobarometer/surveys/detail/3173

European Commission. (2024b, May 2). *Corporate Sustainability Reporting: Commission welcomes guidance on Interoperability of European and Global Sustainability Reporting Standards*. Finance. https://finance.ec.europa.eu/news/corporate-sustainability-reporting-commission-welcomes-guidance-interoperability-european-and-global-2024-05-02_en

European Commission. (2023, October 9). *Commission welcomes completion of key 'Fit for 55' legislation, putting EU on track to exceed 2030 targets*. European Commission. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_4754

European Commission. (2021). Corporate sustainability reporting directive: Proposal for a directive of the European Parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0189

European Commission. (n.d.). Corporate sustainability reporting. https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en

European Council. (n.d.). Fit for 55 - the EU's plan for a green transition - consilium. https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55/

Eurosif. (2020). *European SRI Study 2020*. European Sustainable Investment Forum. https://www.eurosif.org/european-sri-study-2020/

EY denkstatt. (2023, December 14). *European Sustainability Reporting Standards (ESRS) in a nutshell*. https://denkstatt.at/en/esrs-standards-explained/

F

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative inquiry*, *12*(2), 219-245.

Fuller, K. (2023, October 25). *Business transformation: Moving from why to how*. Cambridge Institute for Sustainability Leadership (CISL). https://www.cisl.cam.ac.uk/news/blog/business-transformation-moving-why-how

G

García-Sánchez, I. M., Hussain, N., Aibar-Guzmán, C., & Aibar-Guzmán, B. (2022). Assurance of corporate social responsibility reports: Does it reduce decoupling practices?. *Business Ethics, the Environment & Responsibility*, *31*(1), 118-138.

Geels, F. W. (2002). Technological transitions as evolutionary reconfiguration processes: A multi-level perspective and a case-study. *Research Policy, 31*(8-9), 1257-1274. https://doi.org/10.1016/S0048-7333(02)00062-8

Gond, J. P., O'Sullivan, N., Slager, R., Homanen, M., Viehs, M., & Mosony, S. (2018). How ESG engagement creates value for investors and companies.

Gondo, M. B., & Amis, J. M. (2013). Variations in practice adoption: The roles of conscious reflection and discourse. *Academy of management Review*, *38*(2), 229-247.

Green Finance Platform. (2021). *Non-financial reporting directive (NFRD) - directive 2014/95/EU and the proposal for a corporate sustainability reporting directive (Csrd)*. Non-Financial Reporting Directive (NFRD) - Directive 2014/95/EU and the proposal for a Corporate Sustainability Reporting Directive (CSRD) | Green Finance Platform. https://www.greenfinanceplatform.org/policies-and-regulations/non-financial-reporting-directive-nfrd-directive-201495eu-and-proposal#:~:text=The%20European%20Union%20(EU)%20Directive,of%20employees%2C%20respect%20for%20human

Gunarathne, N., & Lee, K. H. (2015). Environmental Management Accounting (EMA) for environmental management and organizational change: An eco-control approach. *Journal of Accounting & Organizational Change*, *11*(3), 362-383.

H

Hallowell, M.R., Oguz Erkal, E.D., Sherratt, F., Court, M., MacLean, B. & Davis, M. (2024, July). Safety performance measurement in environmental, social and governance frameworks. Professional Safety, 69(7), 24-32.

Henderson, J. V. (1995). Effects of air quality regulation.

Hill, M., & Hupe, P. (2002). *Implementing public policy: Governance in theory and in practice*. Sage.

Homburg, C., Schwemmle, M., & Kuehnl, C. (2015). New Product Design: Concept, Measurement, and Consequences. *Journal of Marketing*, 79(3), 41-56.

Hudson, B., Hunter, D., & Peckham, S. (2019). Policy failure and the policy-implementation gap: can policy support programs help?. *Policy design and practice*, *2*(1), 1-14.

I

Indiahono, D., Purwanto, E., & Pramusinto, A. (2018). Compliance and conflict of value in public policy implementation: Comparison between the new order and the reformation era. *Policy & Governance Review*, *2*(2), 99-114.

J

JARO Institut für Nachhaltigkeit und Digitalisierung e.V. (2024, June). *Sustainable procurement performance indicator (SPPI) scorecard*. https://www.jaro-institut.de/en

Jeffwitz, C., & Gregor, F. (2017). Comparing the implementation of the EU non-financial reporting directive. *Available at SSRN 3083368*.

Joel, M. (2016). *A culture of growth: The origins of the modern economy*. Princeton University Press.

Johansson, S. (2010). Implementing Evidence-Based Practices and Programmes in the Human Services: Lessons from Research in Public Administration: Implementering av evidensbaserad praktik inom vård och omsorg—lärdomar från förvaltningsforskningen. *European Journal of Social Work*, *13*(1), 109-125.

K

Klaaßen, L., & Stoll, C. (2021). Harmonizing corporate carbon footprints. *Nature communications*, *12*(1), 1-13.

Knill, C., & Liefferink, D. (2021). 2 The establishment of EU environmental policy. *Environmental Policy in the EU: Actors, Institutions and Processes*, 2.

Knill, C., & Tosun, J. (2008). Policy making.

Kolk, A., & Perego, P. (2014). Sustainable bonuses: Sign of corporate responsibility or window dressing?. *Journal of Business Ethics*, *119*, 1-15.

KPMG. (n.d.). *ESG Data & Technologie*. https://kpmg.com/nl/nl/home/topics/environmental-social-governance/esg-data-and-technology.html?cid=cpc%3Aggl%3Aesgdt%3Aadvas%3Ana%3Ana%3Aggl%3A2024-aug%3Anl%3Ana%3Ana&gad_source=1&gclid=CjwKCAjwxNW2BhAkEiwA24Cm9NnVBZdDDCWYSrpHhJGLqwRKYXSHuzuEKaUq1I-TBemDtFOG73EXkRoCp1kQAvD_BwE

Kriek, D. (2019, March 4). *Everything you need to know about context mapping in 1 paragraph*. Medium. https://dokriek.medium.com/everything-you-need-to-know-about-context-mapping-in-1-paragraph-8f6edb27e87

L

Liedtka, J. (2000). In Defense of Strategy as Design. *California Management Review*, 42(3), 8-30.

Luan, T. (2024). A Review of Corporate Social Responsibility Decoupling and Its Impact: Evidence from China. *Sustainability*, *16*(10), 4047.

Lynch, L. J., Coleman, A. R., & Cutro, C. (2016). The Volkswagen Emissions Scandal. *Emerald Insight*. https://www.emerald.com/insight/content/doi/10.1108/case.darden.2021.000009/full/html

M

Mintzberg, H. (1989). *Mintzberg on management: Inside our strange world of organizations*. Simon and Schuster.

Mugambwa, J., Nabeta, I.N., Ngoma, M., Rudaheranwa, N., Kaberuka, W., Munene, J.C. (2020). Policy Implementation: A Review of Selected Literature. In: Bianchi, C., Luna-Reyes, L.F., Rich, E. (eds) Enabling Collaborative Governance through Systems Modeling Methods. System Dynamics for Performance Management & Governance, vol 4. Springer, Cham. https://doi.org/10.1007/978-3-030-42970-6_5

Mosca, C., & Picciau, C. (2020). Making non-financial information count: accountability and materiality in sustainability reporting. *Finance Durable et Droit: Perspectives Comparées (Hugues Bouthinon-Dumas, Bénédicte François & Anne-Catherine Muller eds., 2020, Forthcoming), Bocconi Legal Studies Research Paper*, (3536460).

N

Onkila, T., Mäkelä, M., & Järvenpää, M. (2018). Employee sensemaking on the importance of sustainability reporting in sustainability identity change. *Sustainable Development*, *26*(3), 217-228.

O

Orton, J. D., & Weick, K. E. (1990). Loosely coupled systems: A reconceptualization. *Academy of management review*, *15*(2), 203-223.

P

Pankaj, P., Cummis, C., Brown, A., Rich, D., Draucker, L., & Lahd, H. (2011). *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*. Greenhouse Gas Protocol. https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

R

Ritchie, H. (2023). *Not the end of the world: How we've transformed the planet and how we can save it*. Swift Press.

Rodrigue, J. P. (2020). *The geography of transport systems*. Routledge.

Rüdiger Bachmann, Gabriel Ehrlich, Ying Fan, Dimitrije Ruzic, Benjamin Leard, Firms and Collective Reputation: a Study of the Volkswagen Emissions Scandal, *Journal of the European Economic Association*, Volume 21, Issue 2, April 2023, Pages 484–525, https://doi.org/10.1093/jeea/jvac046

S

Sanders, E. B.-N., & Stappers, P. J. (2012). *Convivial Toolbox: Generative Research for the Front End of Design*. BIS Publishers.

Schaltegger, S., & Burritt, R. (2018). Business cases and corporate engagement with sustainability: Differentiating ethical motivations. *Journal of business ethics*, *147*, 241-259.

Schröder, T. (2024, March 15). Greenwashing Shell verzakt van doortrapt en frustrerend naar ronduit gênant. Change Inc. https://www.change.inc/energie/shells-duurzaamheidstrategie-uitgepluisd-vooral-vaak-benoemen-dat-je-duurzaam-wil-zijn-40870

Shabbir, M., & Wisdom, O. (2020). The relationship between corporate social responsibility, environmental investments and financial performance: evidence from manufacturing companies. *Environmental Science and Pollution Research*, 27, 39946 - 39957. https://doi.org/10.1007/s11356-020-10217-0.

Silvestre, B. S., & Ţîrcă, D. M. (2019). Innovations for sustainable development: Moving toward a sustainable future. *Journal of cleaner production*, *208*, 325-332.

Stretton, C. (2024, January 5). *Corporate sustainability reporting directive (CSRD) explained*. Circularise. https://www.circularise.com/blogs/corporate-sustainability-reporting-directive-csrd-explained?utm_source=adwords&utm_medium=ppc&utm_campaign=&utm_content=%7Badgroup%7D&utm_term=csrd&hsa_acc=7238260635&hsa_cam=20933194238&hsa_grp=155478249097&hsa_ad=687349850120&hsa_src=g&hsa_tgt=kwd-296083142609&hsa_kw=csrd&hsa_mt=p&hsa_net=adwords&hsa_ver=3&gad_source=1&gclid=CjwKCAjwm_SzBhAsEiwAXE2Cv0kkECPbdo33nqtpy-N-lF93OEMT9r0V3ywRiRWCsF8RZU5crqBdBBoCsw4QAvD_BwE

T

Tamm, P., & Gurvitš-Suits, N. A. (2023). Development of Non-financial Reporting: The Case of Estonian Listed Companies. *European Integration Studies*, (17), 199-209.

Talpur, S., Nadeem, M. and Roberts, H. (2023), "Corporate social responsibility decoupling: a systematic literature review and future research agenda", *Journal of Applied Accounting Research*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JAAR-08-2022-0223

Thayaraj, M. S., & Karunarathne, W. V. A. D. (2021). The impact of sustainability reporting on firms' financial performance. *Journal of Business and Technology*, *5*(2), 51.

Think Thank EU Parliament. (2024, March). *"green claims" directive: Protecting consumers from greenwashing: Think tank: European parliament*. Think Tank | European Parliament. https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2023)753958

Tosun, J., & Leininger, J. (2017). Governing the interlinkages between the sustainable development goals: Approaches to attain policy integration. *Global challenges*, *1*(9), 1700036.

U

United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. https://sustainabledevelopment.un.org/post2015/transformingourworld

UN. (n.d.). *Roadmap for integrated sustainability: UN global compact*. Roadmap for Integrated Sustainability | UN Global Compact. https://unglobalcompact.org/take-action/leadership/integrate-sustainability/roadmap

V

Van der Heijden, K. (2005). *Scenarios: the art of strategic conversation*. John Wiley & Sons.

Voss, W. G. (2019). The European Union's 2014 Non-Financial Reporting Directive: Mandatory Ex Post Disclosure-But Does It Need Improvement?. *Chapter*, *14*, 359-381.

W

Walter, J.M. (2023). Introduction to Environmental Regulation. In: Brinkmann, R. (eds) The Palgrave Handbook of Global Sustainability. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-01949-4_117

Weaver, R. K. (2009). *Target compliance: The final frontier of policy implementation*. Governance Studies at Brookings.

Weick, K. E. (1982). Administering education in loosely coupled schools. *The Phi Delta Kappan*, *63*(10), 673-676.

WHO. (2023, October 12). *Climate change*. World Health Organization. https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health#:~:text=Research%20shows%20that%203.6%20billion,diarrhoea%20and%20heat%20stress%20alone.

Wijen, F. (2014). Means versus ends in opaque institutional fields: Trading off compliance and achievement in sustainability standard adoption. *Academy of Management Review*, *39*(3), 302-323.

World Bank. (2020). *Transport decarbonization: Turning the tide on carbon emissions*. World Bank Group. https://www.worldbank.org/en/news/feature/2020/12/15/transport-decarbonization-how-do-we-make-the-economics-work

Wyver, N., Whittome, P., & Salter, N. (2024). *CSRD SOS: An urgent call to action from CSOs and practitioners*. SB+CO.

Y

Yadav, P., Han, S., & Kim, H. (2017). Sustaining Competitive Advantage Through Corporate Environmental Performance. *Business Strategy and The Environment*, 26, 345-357. https://doi.org/10.1002/BSE.1921.

Yang, Z., Nguyen, T. T. H., Nguyen, H. N., Nguyen, T. T. N., & Cao, T. T. (2020). Greenwashing behaviours: Causes, taxonomy and consequences based on a systematic literature review. *Journal of business economics and management*, *21*(5), 1486-1507.

APPENDICES

Appendix I: Interview guide & questions for contextual understanding of system

Interview question design for Interview Rounds 1 and 2, beforehand it is decided what questions are going to be asked, depending on the expertise, experience and knowledge-question. The framing of the question also depends on the interviewee.

Interview Guide: actions to take

1. ***Introduction:***
    1. *Briefly introduce the purpose of the interview and the research context.*
    2. *Assure confidentiality.*
    3. Ice-breaker/short conversation before diving into the questions
2. ***Main Questions:***
    1. *Follow the questions below. Beforehand I will try to pick the questions I feel that fit the person's expertise best.*
    2. *Allow for open-ended responses to gain deeper insights.*
3. ***Additional Questions:***
    1. *Use follow-up questions to clarify or expand on important points.*
    2. *Encourage examples and specific instances to illustrate key points.*
4. ***Conclusion:***
    1. *Summarize key points discussed during the interview.*
    2. *Ask if the interviewee has any additional comments or insights.*
    3. *Ask whether they know someone I should definitely speak to.*
    4. *Ask if any information shared should be anonymized.*
    5. *Thank the interviewee for their time and contributions.*

OPTIONAL QUESTIONS

Internal Structure of the Company

Departments and Roles

1. Can you describe the key departments within a typical [logistics] company?

2. What are the primary responsibilities of each department?
3. How are these departments typically structured? Are there any sub-departments or specialized units?
4. What roles do senior management and middle management play within the company?
5. Can you explain the reporting lines and hierarchy within the company? Who reports to whom?
6. How do departments like Operations, Supply Chain Management, Human Resources, and IT interact with each other?

Connectivity and Collaboration

7. How do different departments collaborate on GHG reporting and sustainability initiatives?
8. Are there any cross-functional teams or committees that work on ESG policies and GHG reporting?
9. How is information typically shared across departments?

Hierarchy and Decision-Making

10. Can you describe the decision-making process within the company? Who are the key decision-makers?
11. How does the hierarchy influence the implementation of sustainability initiatives [and GHG reporting practices]?
12. Are there any informal networks or influencers within the company that play a significant role in decision-making?

Stakeholder Field

External Stakeholders

13. What external stakeholders are most critical to your company's operations?
14. How do you/does the company interact with regulatory bodies and policymakers?
15. Can you describe your/the company's relationships with suppliers and logistics partners?
16. What role do customers play in influencing [your] GHG reporting and sustainability practices?
17. How do industry associations and professional bodies impact your company's operations?

Institutional Interactions

18. What regulatory requirements do you need to comply with regarding GHG reporting and ESG policies?
19. Can you describe any challenges you face in meeting these regulatory requirements?
20. Are there any more compliance related institutions, laws etc.?
21. How do you engage with environmental NGOs and advocacy groups?

Partnerships and Collaborations

21. Do you have any partnerships with other companies or institutions to enhance your sustainability efforts?
22. How do these partnerships contribute to your GHG reporting practices?

23. What roles do consultants and external advisors play in shaping your sustainability strategies?

Organizational Culture and Strategy

24. How would you describe the organizational culture regarding sustainability and ESG compliance?
25. What strategies does the company employ to integrate sustainability into its core operations?
26. How do you measure and report on your progress towards sustainability goals?

Future Outlook

27. What changes do you anticipate in your internal structure or stakeholder relationships due to evolving ESG policies?
28. How do you plan to address any potential challenges in adapting to new regulations and stakeholder expectations?
29. What are the long-term goals for your company's sustainability and GHG reporting practices?

Institutional Context

Questions:

- How do you see the current regulatory environment impacting GHG reporting practices in the logistics sector?
- What specific regulations or policies have had the most significant impact on your clients' GHG reporting practices?
- Can you discuss any challenges logistics companies face when trying to comply with the CSRD ESRS E1 policy?
- How do you think the institutional environment will evolve in the next five years regarding GHG reporting?
- What roles do industry standards and certifications play in shaping GHG reporting practices?
- How do international regulations and agreements influence local GHG reporting practices in the logistics sector?

Resource Dependency

Questions:

- What types of resources (financial, technological, human) are essential for effective GHG reporting in the logistics sector?
- How do logistics companies typically secure these resources?
- What are the most common barriers logistics companies face concerning resource availability for GHG reporting?
- How do you see resource limitations affecting the accuracy and comprehensiveness of GHG reports?
- In what ways can logistics companies improve their resource management to enhance GHG reporting?

- What innovative solutions have you seen companies adopt to overcome resource constraints in GHG reporting?

Power

Questions:

- Who are the most influential stakeholders in the logistics sector when it comes to GHG reporting?
- How do these powerful stakeholders shape GHG reporting practices and policies?
- Can you provide examples of how stakeholder power dynamics have influenced GHG reporting outcomes?
- How do logistics companies navigate power imbalances among stakeholders in the context of GHG reporting?
- What strategies can logistics companies use to engage powerful stakeholders more effectively?
- How do you think the power dynamics will shift as new regulations like the CSRD ESRS E1 are implemented?

Interest

Questions:

- What are the primary interests of various stakeholders (investors, regulators, customers) regarding GHG reporting in the logistics sector?
- How do these interests align or conflict with the goals of logistics companies?
- What are the potential consequences of misaligned interests among stakeholders on GHG reporting practices?
- How do logistics companies balance the differing interests of their stakeholders in their GHG reporting practices?
- Can you discuss any examples where stakeholder interests significantly influenced GHG reporting practices?
- What roles do public and consumer interests play in shaping GHG reporting practices in the logistics sector?

Additional Context-Specific Questions

General Trends and Responses

- How have logistics companies typically responded to new ESG regulations and policies?
- What trends do you see emerging in GHG reporting practices that could impact the logistics sector in the near future?
- How do you see the role of technology evolving in the context of GHG reporting?

Strategies and Challenges

- What are some of the most effective strategies you've seen companies adopt to improve their GHG reporting?
- What are the main challenges logistics companies face when trying to align their GHG reporting with ESG policy goals?
- How do logistics companies balance the cost of compliance with the benefits of improved GHG reporting?

Best Practices and Case Studies

- Can you share any best practices or case studies that illustrate successful GHG reporting alignment with ESG policies?
- What lessons can other logistics companies learn from these examples?

Future Outlook

- What do you believe are the most significant opportunities for improving GHG reporting in the logistics sector?
- How do you anticipate the role of ESG policies evolving in the logistics sector over the next decade?
- What advice would you give to logistics companies looking to enhance their GHG reporting practices in line with the CSRD ESRS E1 policy?

Appendix II. Interview Guide for Interview Round 3

This appendix displays the interview design for interview round 3: CSRD implementation cycle. The interviews are semi-structured.

Interview Guide: actions to take

1. ***Introduction:***
    1. *Briefly introduce the purpose of the interview and the research context.*
    2. *Assure confidentiality.*
    3. Ice-breaker/short conversation before diving into the questions
2. ***Main Questions:***
    1. *Follow the questions below.*
    2. *Allow for open-ended responses to gain deeper insights.*
    3. *Ask follow-up questions related to their answer, to get to the deeper layer (tacit and latent knowledge). Make them feel comfortable and supported.*
3. ***Additional Questions:***
    1. *Use follow-up questions to clarify or expand on important points.*
    2. *Encourage examples and specific instances to illustrate key points.*
4. ***Conclusion:***
    1. *Summarize key points discussed during the interview.*
    2. *Ask if the interviewee has any additional comments or insights.*
    3. *Ask whether they know someone I should definitely speak to.*
    4. *Ask if any information shared should be anonymized.*
    5. *Thank the interviewee for their time and contributions.*

QUESTIONS:

What is your experience with CSRD so far? How did you end up in this business?

Can you tell me more about what is happening, regarding CSRD, in the field?

Who is usually responsible for CSRD within a company? How do different departments collaborate on it? Who are the key-decision makers?

Can you describe any challenges or obstacles companies face in meeting the new regulatory requirements?

How would you describe organization's culture/view regarding sustainability and ESG compliance?

How could companies address these types of problems? What is needed?

Do you expect CSRD to fulfill its broader purpose? [explain broader purpose if they do not specify]

What are the biggest obstacles of ESRS E1; GHG-reporting?

What does the playing field/stakeholder field look like?

Do companies have the right knowledge and expertise?

Appendix III – Opportunities & advice discussed in interviews

Key Points and Examples:

- **Strategic Advantage Through Compliance:** Companies that successfully integrate CSRD requirements can position themselves as leaders in sustainability, which can lead to competitive advantages. This strategic alignment with sustainability goals not only helps in compliance but also attracts investors and customers who value responsible business practices
- **Innovation and Efficiency Gains:** The push for CSRD compliance can drive innovation within companies. For instance, by reevaluating and optimizing processes for greater efficiency, companies may discover new ways to reduce emissions and costs, as evidenced by firms enhancing subprocesses that had remained unchanged for years
- **Improved Stakeholder Relations:** CSRD compliance can enhance transparency and accountability, leading to improved relationships with stakeholders, including investors, customers, and employees. This transparency can help build trust and reinforce the company's reputation as a sustainable leader
- **Need for Clearer Guidelines:** Interviewees suggest that clearer and simpler guidelines from regulatory bodies like EFRAG would aid companies in understanding and meeting compliance requirements. Providing straightforward expectations could reduce confusion and help companies allocate resources more effectively
- **Importance of Collaboration:** Collaboration among companies, industry groups, and policymakers is crucial for overcoming compliance challenges. Sharing best practices and developing industry standards can facilitate smoother implementation and reduce the burden on individual companies
- **Encouragement of Proactive Approaches:** Companies are advised to adopt proactive approaches rather than waiting for regulatory enforcement. This involves anticipating future requirements and integrating sustainability into strategic planning to stay ahead of compliance demands
- **Leveraging Large Companies as Examples:** Utilizing large companies as examples and leaders in CSRD implementation can provide valuable insights and models for smaller firms. These larger entities can act as trailblazers, setting standards and demonstrating the benefits of compliance.
- **Role of Technology and Tools:** Investing in technology and tools that streamline data collection and reporting can ease the burden of compliance. Companies are encouraged to adopt digital solutions that enhance accuracy and efficiency in managing sustainability data

- **Enhanced Regulatory Influence & Feedback Loop:** Effective CSRD implementation allows policymakers to refine and enhance regulatory frameworks based on industry feedback, creating a more adaptive and supportive regulatory environment that facilitates compliance
- **Training and Capacity Building:** Emphasizing training and development can help bridge skill gaps and equip employees with the knowledge needed to manage sustainability initiatives effectively. Companies are encouraged to invest in capacity-building initiatives that empower their workforce
- **Long-Term Value Creation:** Embracing CSRD as part of a broader sustainability strategy can drive long-term value creation by aligning business objectives with global sustainability trends, ultimately leading to resilient business models that can withstand environmental and regulatory changes