



ENHANCING CORPORATE SUSTAINABILITY REPORTING PRACTICES UNDER THE CSRD FRAMEWORK

An IT industry case study

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ABSTRACT

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An IT industry case study

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This thesis investigates the enhancement of Corporate Sustainability Reporting Directive (CSRD) practices within the IT industry to achieve more accurate, efficient, and impactful sustainability reporting. It begins by analyzing the current state of CSRD practices, identifying key challenges such as data collection complexity and resource limitations. Through a comprehensive literature review and industry insights, the study proposes a detailed framework to improve sustainability reporting practices. By implementing this framework, organizations can achieve more efficient reporting practices, enhance decision-making, and build stakeholder trust. The research concludes that addressing both technical and organizational challenges is essential for effective CSRD practices, contributing to global sustainability objectives. Future research should focus on long-term impacts and broader applications of these practices.

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DECLARATION OF AI USAGE

Ilmoitus tekoälyn käytöstä

I, Korawit Rupanya, declare that I have used AI tools, specifically ChatGPT by OpenAI, during the preparation of this thesis titled “ENHANCING CORPORATE SUSTAINABILITY REPORTING PRACTICES UNDER THE CSRD FRAMEWORK: An IT industry case study”. The AI tools were employed in the following ways:

- **Structuring Content:** ChatGPT was utilized to assist in restructuring content, including converting bullet points into coherent, flowy passages suitable for academic writing and vice versa. This helped ensure that the information was presented in a clear and organized manner.
- **Tone Adjustment:** I used ChatGPT to refine the tone of my writing. This included transforming informal language into a more formal academic style, ensuring consistency and professionalism throughout the document.
- **Language Enhancement:** ChatGPT aided in improving sentence structure, grammar, and overall readability, ensuring that the thesis adhered to high standards of academic writing.

No AI tools were used for the generation of original research content, data analysis, or any other critical aspects of the research process. The AI-assisted modifications were carefully reviewed and edited by me to ensure accuracy and alignment with the research objectives.

I declare that all AI tools used in the development of this thesis are in line with the university’s standards and guidelines (*AI-based tools policies | eLUT 2024 and Generative AI, Copilot and ChatGPT 2024*). The information provided above accurately reflects the extent and nature of AI usage in this work.

This declaration is made in full transparency to acknowledge the use of AI tools in the preparation of this thesis.

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1 INTRODUCTION

The Corporate Sustainability Reporting Directive (CSRD) serves a fundamental purpose as it aims to ensure the transparency and accountability of companies with respect to their environmental and social effects, hence becoming the tool that will create a shift in the perception of integrating sustainable aspects into the core strategies and operations of organizations (European Commission, 2020a.). Members of the global community are facing growing environmental and socio-economic challenges (United Nations, 2015.). From the preceding discussion, the position of the IT industry also becomes very interesting. The rate of technology increase, added to the intangibility of IT products and services, creates both opportunities and challenges for compliance in many ways with CSRD (Melville, 2010.). On one side, the industry can become a major force in the development of sustainable development and has the potential to manage reinforcing action issues. On the other side, current CSRD activities often lack the full impact of environmental and social issues caused by the development or use of IT.

Current CSRD practices in the IT industry face significant insufficiencies, including challenges in understanding and complying with new regulations, burdensome data collection processes, and limited actionable insights, which collectively hinder the effectiveness of sustainability reporting. A very dynamic IT industry with rapid innovation, at times, outpaces regulatory frameworks and adds to the challenge. The technological problem is not the only issue; otherwise, it takes a lot to run smooth, well-defined processes and roadmaps that an organization must follow to enhance its sustainability reporting practices. The current thesis, therefore, tries to explore and propose solutions that would enhance CSRD practices beyond mere compliance to unlock meaningful sustainability advancements in the IT industry.

The primary objective of this thesis is to study how CSRD practices within IT industry organizations can be enhanced to provide more accurate, efficient, and effective sustainability reporting. Based on this general objective, the specific research question to which the study was aligned is: “How can organizations in the IT industry effectively enhance their CSRD practices to provide more accurate, efficient, and impactful sustainability reporting?” To answer this research question, we carried out a study that included qualitative interviews with IT companies, complemented by artifacts from the existing literature.

The following sub-research questions further elaborate on this question. The first sub-research question is to conduct an extensive literature review and review of industry insights with the purpose of mapping the current status of CSRD. The intent is to outline the regulatory frameworks, reporting formats, and compliance among companies in the IT industry based on how companies collect and utilize data in reporting on matters of sustainability.

Sub-research question 2: Identification and analysis of important problems and challenges that companies in the IT industry face in complying with CSRD. The latter varies from technical barriers like complexity in data collection, organizational barriers such as lack of resources and lack of expertise to strategic barriers like misalignment between sustainability goals and business objectives.

Sub-research question 3 is taking an in-depth look at practical solutions and roadmaps to reduce the level of reporting friction, increase data accuracy, and provide more actionable insights. This tries to propose concrete solutions like a roadmap or framework that can be followed to improve CSRD practices in the IT industry. Such practical solutions are based on research outputs, including interviews carried out with industry experts and a great overview of the available literature in a manner that brings the best way possible in addressing current issues over CSRD reporting. The study would thus seek to synthesize such insights and give practical and actionable recommendations.

The fourth sub-research question is to identify the benefits that such organizations can expect from the implementation of recommended solutions to improve their Corporate Sustainability Reporting practices and, therefore, the improvement in organizational transparency, stakeholder engagement, and sustainability strategy efficiency. The findings will be based on empirical data from the other sub-research questions, supplemented by qualitative insights from industry stakeholders and case studies. The research is premised on changing the way sustainability is reported within the IT industry. By identifying present limitations in the current Corporate Sustainability Reporting Directive (CSRD) specific to this sector, the research aims to provide process-based practical solutions. Such findings and their recommendations can significantly influence both policy and practice, thereby advancing corporate sustainability reporting. This becomes increasingly imperative as the IT industry continues to evolve with different dynamics.

The answers to the sub-research questions contribute to an overall understanding of how effective changes in CSRD practices can be induced in organizations within the IT industry to achieve substantial progress in sustainability reporting. Consequently, the thesis aims to provide a way forward for more effective and meaningful CSRD practices, based on tangible examples and comprehensive solutions for future advancements in corporate sustainability. By offering these insights, the research not only addresses current challenges but also paves the way for enhanced and impactful sustainability reporting

This thesis is structured into six chapters, each addressing specific aspects of the research objectives. The first chapter, the introduction, outlines the context, motivation, and objectives of the research, providing a comprehensive overview of the thesis structure and setting

the stage for the study on Corporate Sustainability Reporting Directive (CSRD) practices within the IT industry. The second chapter, the literature review, delves into current research and publications related to CSRD, identifying significant past contributions and highlighting areas where further research is needed, thereby evaluating the foundation upon which this study is built.

Chapter three focuses on the methodology employed in the study, providing a detailed explanation of the research design, data collection methods, and analytical techniques. This chapter ensures that readers have a clear understanding of how the research was conducted and why specific methods were chosen, while also addressing the rigor and validity of the research process. In chapter four, the thesis presents the results of the study, beginning with an analysis of the current state of CSRD in the IT industry. This section combines insights from the literature review and interviews to provide a comprehensive view of the situation. The chapter then evaluates the key issues in CSRD reporting, identifying and analyzing the challenges faced by organizations in the IT industry. Finally, it proposes practical solutions for improving CSRD practices, offering a discussion of several potential enhancements derived from both the interviews and the literature review.

Chapter five is dedicated to the discussion of the key findings, interpreting their significance in relation to the research objectives and existing literature. This chapter explores the implications of the results and provides a detailed analysis of a promising solution or development in the IT industry that could enhance CSRD practices. Additionally, it addresses the limitations of the study by acknowledging the constraints encountered during the research process and their potential impact on the findings. The final chapter, chapter six, concludes the thesis by summarizing the key findings, outlining the contributions of the research, and proposing directions for future work. It highlights areas where further investigation is necessary to build on the findings of this study and advance the field of corporate sustainability reporting. This chapter ensures that the research is positioned within a broader context and offers a forward-looking perspective on the ongoing development of CSRD practices in the IT industry.

2 LITERATURE REVIEW

What used to be a voluntary exercise for the incorporation of sustainability into corporate strategies is now a mandated activity under many such frameworks, with the latest being the Corporate Sustainability Reporting Directive (CSRD). As businesses in the IT industry deal with this very paradigm shift, it becomes extremely important to try and understand where things stand today in Corporate Sustainability Reporting, what challenges are there in the way, and how these could be overcome effectively. This literature review session establishes the foundational context necessary for understanding the complexities of Corporate Sustainability Reporting under the CSRD. By systematically analyzing existing research this review identifies current practices, highlights prevailing challenges, and uncovers gaps in knowledge and practice. This comprehensive synthesis not only validates the relevance and urgency of the research questions but also informs the development of robust, evidence-based solutions. Furthermore, it situates the study within the broader academic and industry discourse, ensuring that the proposed enhancements to Sustainability Reporting practices are grounded in established theory and empirical evidence, thereby increasing the credibility and impact of this thesis.

This chapter provides a comprehensive review of the existing literature on Corporate Sustainability Reporting practices. The study encompasses white literature, grey literature, and peer-reviewed literature, suggesting a thorough examination of various sources. To compile an initial collection of possibly pertinent studies, a meticulous search was conducted utilizing literature databases, including IEEE(*IEEE Xplore* 2024.), Web of Science(*Document Search - Web of Science Core Collection* 2024.), Google Scholar(*Google Scholar* 2024.), Elsevier(*ScienceDirect.com | Science, health and medical journals, full text articles and books.* 2024.), and others.

The scientific papers and articles reviewed were selected based on their compliance with the defined inclusion and exclusion criteria, ensuring relevance and quality in the selection process. Inclusion criteria for this thesis comprise studies that engage in qualitative research methodologies contextual insights into the under investigation. Additionally, studies that incorporate artifacts related to the Corporate Sustainability Reporting Directive (CSRD) and/or the European Sustainability Reporting Standards (ESRS) are considered, ensuring a focus on practical applications and real-world examples. The scope is further narrowed to studies specifically centered on CSRD and/or ESRS, ensuring relevance and depth in addressing the core research questions. Finally, the inclusion criteria mandate that studies must report findings pertinent to CSRD and/or ESRS, guaranteeing that the research contributes substantive evidence and outcomes to the discourse on corporate sustainability reporting practices.

The following search strings were utilized to locate the articles and papers:

(“CSRD” OR “Corporate Sustainability Reporting Directive”)
 AND (“ESRS” OR “European Sustainability Reporting Standards”)
 AND (“Sustainability Reporting”)
 AND (“Double materiality” OR “Material impacts”)

(1)

In this literature review chapter, the Background section provides a comprehensive understanding of the historical evolution, fundamental concepts, and critical frameworks underpinning sustainability reporting, including the Global Reporting Initiative (GRI), the Non-Financial Reporting Directive (NFRD), the Corporate Sustainability Reporting Directive (CSRD), European Sustainability Reporting Standards (ESRS), and Double Materiality. This foundational knowledge sets the stage for the subsequent sections by contextualizing the importance and relevance of sustainability reporting. Following the background, the Related Work section addresses the current state of corporate sustainability reporting, key issues and challenges, solutions and roadmaps, and benefits from the implementation. Each sub-section within Related Work is aligned with specific research questions, providing an in-depth exploration of empirical studies, regulatory complexities, technological advancements, and practical implementations relevant to enhancing CSRD practices. This structured approach ensures that the literature review not only highlights significant contributions from previous studies but also identifies gaps and insufficiencies, thereby informing the development of evidence-based solutions for the research questions presented in this thesis. In conclusion, a Research Gap section elucidates the existing gaps in the literature, highlighting areas where further research is needed to advance the field of corporate sustainability reporting and provide a basis for future investigations.

2.1 Background

Sustainability reporting has increasingly become an integral part of corporate governance and accountability, as there is also a raised awareness that business operations are inseparably linked to environmental, social, and governance (ESG) concerns. The frameworks supporting sustainability reporting have matured to meet extensive regulatory pressure and stakeholder requirements for transparency, leading companies through a growing landscape of standards aimed at improving the robustness and comparability in corporate disclosures. The following section explores the fundamentals of sustainability reporting, starting with what it entails and why it is important, followed by an in-depth look at its core components. This includes key frameworks such as the Global Reporting Initiative (GRI), Non-Financial

Reporting Directive (NFRD), Corporate Sustainability Reporting Directive (CSRD), European Sustainability Report Standards (ESRS), and the concept of Double materiality.

2.1.1 What is sustainability reporting?

Sustainability reporting, a type of non-financial reporting, allows companies to communicate their progress towards various sustainability goals, encompassing environmental, social, and governance metrics, along with current or future risks and impacts. This reporting process aims to provide transparency and accountability to stakeholders, including investors, customers, employees, and the wider community, concerning a company's contributions to sustainable development. It enables companies to convey the positive and negative effects of their activities on the environment, society, and the economy. Conversely, Corporate Social Responsibility (CSR) can be perceived as a marketing strategy or a method for managing stakeholder relationships (Visser & Tolhurst, 2010.).

According to S. Gokten, Ozerhan & P. Gokten, 2020, Historically, sustainability reporting evolved through three main periods: the pre-standardization period (1962-1998), the standardization period (1999-2016), and the post-standardization period (post-2016). Initially, the focus was on environmental awareness and theoretical development, which later transitioned to formalized frameworks and guidelines. The establishment of the Global Reporting Initiative (GRI) in the late 1990s marked a significant step towards creating standardized reporting practices. The GRI's guidelines and subsequent standards have played a crucial role in institutionalizing sustainability reporting, providing a common language for organizations to communicate their sustainability impacts, thereby enhancing global comparability and stakeholder trust.

2.1.2 Why sustainability reporting?

Organizations are increasingly evaluated based on their actions and strategies to address sustainability issues. Decision-makers must understand the measures necessary to enhance organizational performance. Managers require information on all direct and indirect impacts caused by organizational operations (Epstein & Buhovac, 2014.). According to the Official Journal of the European Union (2022) (European Commission, 2022b.), sustainability reporting provides businesses with information that aids in future decision-making and identifying potential risks and benefits. Integrating sustainability reporting into business decisions can improve investment and operational results. Moreover, well-implemented sustainability strategies provide a competitive advantage, leading to increased revenues, reduced operational costs, customer satisfaction, and new market opportunities (Epstein & Buhovac, 2014.). Sustainability reporting is essential for providing transparency, enhancing stakeholder relationships, and optimizing organizational performance. By integrating sustainabil-

ity reporting into business decisions, organizations can improve investment and operational outcomes, gain a competitive advantage, and foster employee commitment.

Sustainability reporting is a vital communication tool for organizations to demonstrate their commitment to corporate social responsibility (CSR) and sustainability. It involves disclosing information on a company's economic, environmental, and social performance to stakeholders, ensuring transparency, and fostering trust. Effective sustainability reporting helps organizations manage their impacts, improve operational efficiency, and enhance their reputation (Gutterman, 2020.).

2.1.3 Global Reporting Initiative (GRI)

According to S. Gokten, Ozerhan & P. Gokten, 2020, that the guidelines and subsequent standards established by the Global Reporting Initiative (GRI) have been very important in formalizing sustainability reporting practices. Understanding the GRI is therefore essential for comprehending other reporting frameworks, as GRI is often regarded as the foundation of other sustainability standards. GRI mission statement is "GRI envisions a sustainable future enabled by transparency and open dialogue about impacts. This is a future in which reporting on impacts is common practice by all organizations around the world. As provider of world's most widely used sustainability disclosure standards, we are a catalyst for that change."(*GRI - Mission & history* 2024.).

The Global Reporting Initiative (GRI) was founded in Boston in 1997 in response to the Exxon Valdez oil spill(*Exxon Valdez oil spill* 2024.), by CERES(CERES, 2024.) and the Tellus Institute(*Tellus Institute - For a Great Transition* 2023.), with UNEP's(UNEP, 2024.) involvement. Initially focused on environmental accountability, GRI expanded to include social, economic, and governance issues. It launched the first sustainability reporting guidelines in 2000, becoming an independent non-profit in 2001. The Secretariat moved to Amsterdam in 2002, with subsequent guideline updates. GRI transitioned to global sustainability standards in 2016, continuously updating and expanding its standards.

Developed by the Global Sustainability Standards Board, these standards aim to create a reporting framework that transparently presents the positive or negative impacts of organizations on sustainable development targets to stakeholders. This allows organizations to communicate their significant economic, environmental, and social impacts based on widely accepted global standards. The GRI Standards have established a universal language for sustainability reporting for both organizations and stakeholders. By adhering to these standards, organizations can effectively report the economic, environmental, and social consequences of their actions to their stakeholders. Consequently, the GRI standards offer a sustainability

reporting framework that ensures global comparability, enhances the quality of information regarding the reported impacts, and helps organizations fulfill their transparency and accountability commitments.

Organizations can utilize the GRI Standards to create a comprehensive sustainability report aligned with the Standards or selectively apply certain Standards (or their components) to disclose specific information for targeted audiences or purposes, such as the impact of climate change for investors and consumers. (*GRI - How to use the GRI Standards 2024.*)

2.1.4 Non-Financial Reporting Directive (NFRD)

Companies' actions significantly impact life in the EU and globally through their products and services, job creation, working conditions, human rights practices, health impacts, environmental effects, innovation, and educational and training opportunities. EU citizens expect companies to recognize both the positive and negative impacts they have on society and the environment and to proactively prevent, manage, and mitigate any negative consequences, including those in their global supply chains. This responsibility is known as corporate social responsibility (CSR) or responsible business conduct (RBC). (Nora Hahnkamper Vandembulcke, 2021.)

The European Green Deal emphasizes the importance of funding economic activities that support environmental, social, and governance-related objectives to foster sustainable growth, finance the green transition, and attract the necessary investments to achieve the EU's 2050 climate neutrality goal. Enhancing data availability and the disclosure of non-financial information by companies and financial institutions—covering environmental, social, employee-related matters, respect for human rights, and anti-corruption measures—is crucial for directing financial flows towards sustainable investments. This transparency helps in measuring, monitoring, and managing companies' societal impacts. (*The European Green Deal 2024.*)

Public policies must adapt to a global economy increasingly affected by natural resource depletion and climate change. A sustainable transformation of the financial system is crucial for achieving a green economy that supports future generations. According to the European Commission, 2018, new adaptations to the financial system are needed for a more transparent and stable economy. Directive 2003/51/EC was one of the first regulations to mention the reporting of businesses' environmental and social information, requiring additional information in annual reports. This directive is seen as a precursor to the Non-Financial Reporting Directive (NFRD).

The Non-Financial Reporting Directive (NFRD) was established to enhance the credibility of companies' sustainability actions and support the EU's sustainable economic transition.

Adopted in 2014 (Raith, 2022.), the NFRD requires public interest entities with over 500 employees to disclose information on sustainability risk management and relevant governance, social, and environmental aspects. These organizations have been reporting under NFRD requirements since 2018, including information on their business model, risk management plans, and material policies (European Commission, 2020b.).

The European Commission emphasized the private sector's role in the green transition, stating that sustainability goals should be integrated into organizational governance and that environmental data should be accessible to investors. The NFRD aims to address the lack of comparability, reliability, and relevance in non-financial information disclosure, as highlighted in a (European Commission, 2020b.), public consultation. The directive allows flexibility in reporting, which requires balancing standardization for sufficient and transparent disclosure (European Commission, 2018.).

The concept of double materiality under the NFRD requires organizations to disclose both the positive and negative impacts they have on their operating environment and the effects of sustainability issues on the organization. However, the lack of standardized reporting frameworks and mandatory guidelines has affected the quality and comparability of sustainability reports. The European Commission, 2020b acknowledged the need for standardized sustainability reporting to address these issues.

The review of the NFRD revealed a need for less complex reporting directives for small and medium-sized enterprises and stressed the importance of mandatory reporting standards to ensure the disclosure of trustworthy material information. The Corporate Sustainability Reporting Directive (CSRD) was developed to create a uniform sustainability framework for all undertakings, building on previous guidelines from the European Green Deal (European Parliament and of the Council, 2022.).

2.1.5 Corporate Sustainability Reporting Directive (CSRD)

The Corporate Sustainability Reporting Directive (CSRD) is a big milestone on the path of changing sustainability reporting in Europe. To address the shortcomings and inconsistencies of past voluntary reporting standards, it was legislated that the CSRD will create a standardized system in which corporations report their sustainability performance across all over Europe.

To specifically address the absence of a universally applied sustainability reporting requirement among all corporations, the CSRD was launched. The CSRD is intended to fill a gap in reporting requirements by bringing related sustainability and corporate governance information to bear that complements the existing legal landscape, such as Directive 2013/34/EU

(European Parliament, 2022.). This directive aims to avoid greenwashing and ensure that sustainability assertions come with reliable evidence supporting them, in turn building confidence among stakeholders.

The CSRD came into force in July 2024, with the first reports adhering to this directive due in early 2025 (European Parliament and of the Council, 2022.). The directive mandates that all large undertakings—defined as entities with more than 250 employees, a turnover exceeding 40 million euros, or total assets over 20 million euros—must comply with the new reporting standards. Small and medium-sized enterprises (SMEs) operating within the EU’s regulated markets are required to start their sustainability reporting from January 2026 (European Commission, 2022a.).

The CSRD requires organisations to measure and disclose their social and environmental impact in a standardised way that is consistent with wider EU environmental aims, such as those set out in European Commission, 2022b. Stakeholders including investors must be able to assess, and compare in a reliable way the sustainability efforts of companies—the directive therefore calls for transparency and comparability. Processes for conducting due diligence under the CSRD should be more granular, with organizations needing to identify and address adverse impacts throughout their entire value chain. It is to include a wide range of disclosures regarding human rights, environmental dimensions and governance aspects which would make organizations liable for all immediate as well as involved leads (Schilling-Vacaflor & Gustafsson, 2024.).

The CSRD represents a significant step towards standardized, transparent, and accountable sustainability reporting within the EU. By mandating comprehensive disclosures and integrating with existing frameworks, the CSRD aims to set a global precedent in corporate sustainability reporting. The directive not only enhances the reliability and comparability of sustainability data but also ensures that organizations are held accountable for their environmental and social impacts, thus contributing to a more sustainable global economy. In conclusion, Figure 1 illustrates the evolution of the CSRD, which originates from the NFRD and is guided by the principles of the GRI. At its core, the ESRS is featured, emphasizing the concept of double materiality.

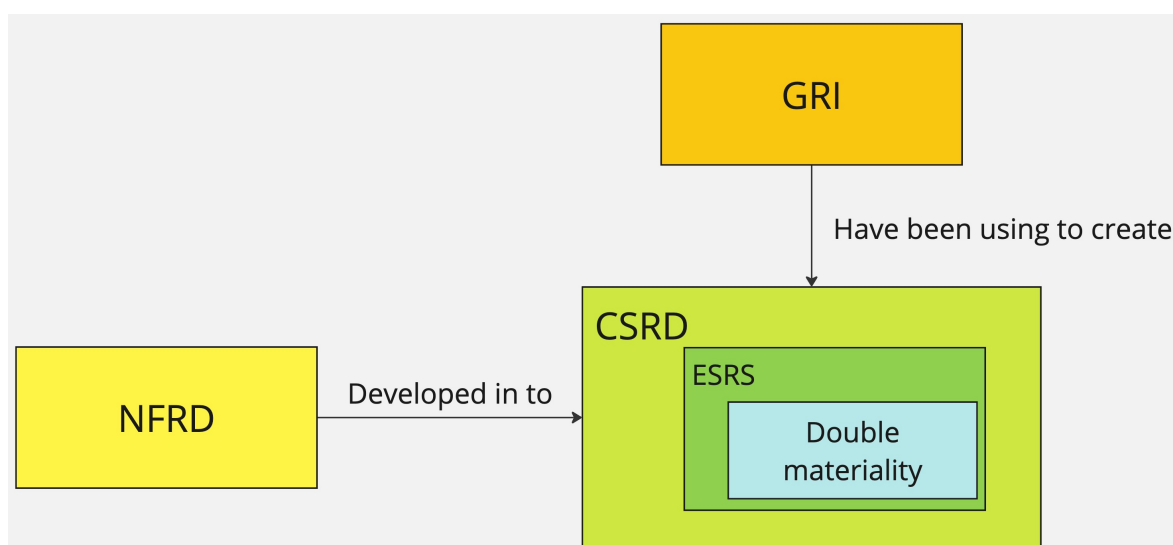


Figure 1: Evolution of CSRD

2.1.6 European Sustainability Reporting Standards (ESRS)

The European Sustainability Reporting Standards (ESRS), introduced by the European Commission in 2023, are formulated under Directive 2013/34/EU (European Commission, 2013.) and Directive (EU) 2022/2464 (European Commission, 2022a.). These directives mandate the disclosure of sustainability information by organizations. The path to developing these standardized guidelines for non-financial information disclosure has been long and continuous. The Corporate Sustainability Reporting Directive (CSRD) emerged from these efforts, aiming to establish uniform reporting standards throughout Europe (European Parliament and of the Council, 2022.). The ESRS outlines specific reporting requirements, data points, and measurement metrics for companies.

According to EFRAG (European Commission, 2022b.), organizations are required to disclose all significant opportunities, impacts, and risks associated with governance, social, and environmental sustainability. EFRAG (European Commission, 2022a.) clarifies that an organization's impact encompasses all positive and negative effects of its operations, assessed through impact materiality, which also considers potential future impacts (EFRAG, (European Commission, 2022a.)). Financial materiality assessments identify sustainability-related opportunities and risks, including those arising from the use of social, natural, and human resources. The corporate sustainability reporting standards mandate that organizations report on material sustainability issues, offering guidance on relevant disclosures. ESRS encompasses both mandatory and voluntary disclosures. While it provides recommended reporting methods and considerations for specific issues, organizations have the discretion to determine the applicability of voluntary statements in their reporting (European Commission, 2022b.).

Regulation (EU) 2020/852 (European Commission, 2022a.), which pertains to the environmental goals of the EU Taxonomy, is incorporated into the ESRS framework, ensuring these objectives are reflected in the environmental segment of sustainability reports. The ESRS and CSRD are designed to work in tandem, establishing due diligence requirements and providing guidance for double materiality assessment. Essentially, the ESRS serves as a comprehensive guide for organizations to evaluate their sustainability impacts and risks, assisting them in fulfilling CSRD requirements (European Commission, 2022b.).

2.1.7 Double materiality

The concept of materiality revolves around identifying which corporate events and issues are significant enough to be included in reports, and which are not. By filtering out less important information, materiality helps to improve the clarity, understandability, and integrity of reporting (Mio, Agostini & Scarpa, 2024.).

Impact materiality, also known as social and environmental materiality, follows an inside-out approach. Topics are considered material if they reflect significant impacts, or externalities, that the reporting organization has on the economy, environment, and society. This concept assumes that sustainability reporting serves an accountability role, with all stakeholders viewed as the primary audience and users of such reports (Cooper & Michelon, 2021.).

Financial materiality refers to the selection of information based on economic value creation for the reporting entity's capital providers (Abhayawansa, 2022.). It follows an outside-in approach, where sustainability topics are deemed material if they can impact the organization. Financial materiality assumes that sustainability reporting serves a valuation or stewardship role (Cooper & Michelon, 2021.), with financial stakeholders such as shareholders, potential investors, and creditors as the primary users of these reports.

Double materiality refers to the integration of impact and financial materiality. This approach considers material sustainability information as any information significant from either an impact or financial perspective. It posits that sustainability issues and information should be evaluated from both an "outside-in" perspective, focusing on their effects on companies' financial performance, and an "inside-out" perspective, regarding their impacts on the environment and society. This definition offers a comprehensive view of materiality that aligns with the interests of both general stakeholders and shareholders or investors. Consequently, double materiality embodies an ideological conflict between investors' financial interests and the needs of other stakeholders (Mio, Agostini & Scarpa, 2024.).

Double materiality is central to reporting according to ESRS. Both the NFRD (European Commission, 2022a.) and CSRD acknowledge the importance of double materiality. This

concept requires organizations to report not only the impacts of their actions on the environment and people but also how sustainability issues affect the organization. The CSRD stresses the importance of incorporating both perspectives into the reporting process as material to the disclosure (European Commission, 2022b.). Double materiality is the approach adopted by the European Commission in the regulation of mandatory sustainability reporting, first in the Non-Financial Reporting Directive (NFRD) Directive (EU) 2014 / 94 (European Commission, 2014.) and, more explicitly, in the Corporate Sustainability Reporting Directive Directive (EU) 2022/2464 (European Commission, 2022a.) (Baumüller & Sopp, 2021, La Torre et al., 2020).

2.2 Related Work

The related work section is structured to systematically address the main research question through four sub-research questions, each exploring distinct aspects of Corporate Sustainability Reporting (CSR). Sub-RQ1 examines the current state of CSR, focusing on the scope and quality of reporting and the methods of data collection and utilization. Sub-RQ2 delves into the key challenges faced by organizations, including maintaining data quality and consistency, and navigating regulatory complexities and costs. Sub-RQ3 proposes tangible solutions, such as leveraging AI and blockchain technologies, and aligning with European Sustainability Reporting Standards (ESRS). Finally, Sub-RQ4 explores the benefits of implementing these solutions, highlighting improvements in social and environmental performance, enhanced decision-making and reporting quality, and increased stakeholder trust. This structured approach ensures a comprehensive and detailed exploration of how organizations can enhance their CSR practices effectively. An overview of Related Work section is illustrated by the Figure 2.

Categorizing each sub-research question (sub-RQ) into specific themes allows for a thorough and organized exploration of the complex topic of Corporate Sustainability Reporting (CSR). This structured approach ensures that each critical aspect of the main research question is addressed comprehensively. For Sub-RQ1, focusing on the current state of CSR with themes like the scope and quality of reporting and data collection and utilization helps establish a baseline understanding of existing practices and methodologies. Sub-RQ2, which examines key challenges, benefits from themes such as data quality and consistency and regulatory complexities and costs, to identify and elaborate on the main obstacles organizations face in implementing effective CSR. Sub-RQ3's focus on tangible solutions is enriched by categorizing it into themes like AI and machine learning, blockchain technology, and regulatory compliance and ESRS alignment, providing clear and actionable pathways for improvement. Finally, Sub-RQ4, which explores the benefits, uses themes like improved social and environmental performance, enhanced decision-making and reporting quality, and

increased stakeholder trust to illustrate the positive outcomes and justify the solutions. This categorization ensures a detailed, systematic, and logical exploration of each aspect, making the research more coherent.

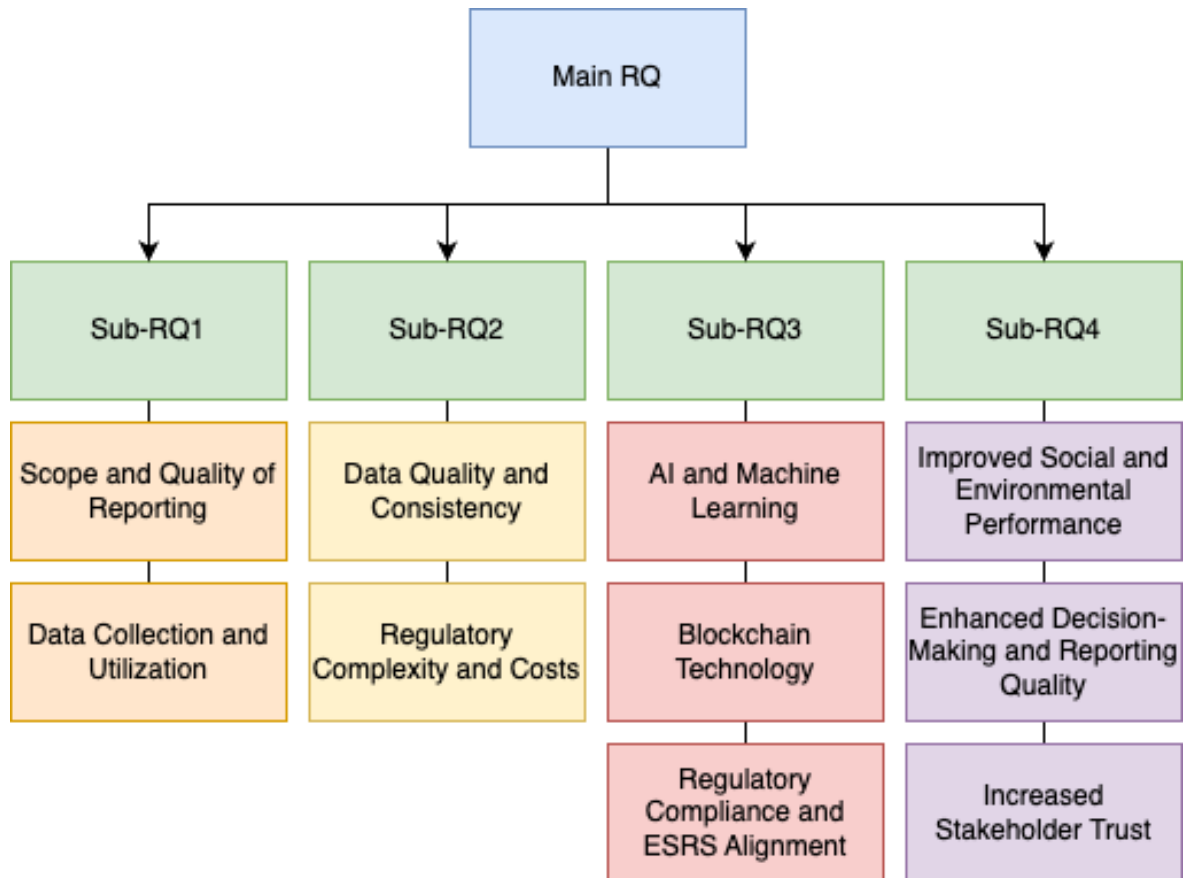


Figure 2: Related Work Overview

2.2.1 Current State of Corporate Sustainability Reporting(Sub-RQ1)

This section explores the current state of Corporate Sustainability Reporting (CSR) practices among organizations, focusing on two primary themes: the scope and quality of reporting, and data collection and utilization. By examining the scope and quality of reporting, this section aims to understand the comprehensiveness and reliability of sustainability reports, emphasizing the importance of standardized methodologies and the role of digital tools in enhancing reporting practices. The theme of data collection and utilization delves into the methods and technologies organizations use to gather and manage sustainability data, highlighting the challenges and opportunities in ensuring accurate, efficient, and actionable reporting. Together, these themes provide a comprehensive overview of how organizations currently approach CSR, setting the foundation for identifying best practices and areas for improvement.

Scope and Quality of Reporting

The current landscape of Corporate Sustainability Reporting (CSR) emphasizes the importance of standardized data collection processes and the adoption of digital tools to enhance the accuracy and efficiency of reporting. A. M. Nilsson & K. Nilsson, 2023 underscores the critical need for standardized methods in data collection, particularly for Scope 3 emissions, which involve indirect emissions throughout the value chain. The paper highlights the complexity of capturing comprehensive and reliable data from various stakeholders, suggesting that advanced digital tools can streamline data aggregation and improve the accuracy of reporting. By implementing standardized processes and leveraging technology, organizations can ensure more consistent and reliable sustainability reports.

In addition to the technical aspects of data collection, the quality of sustainability reports plays a significant role in influencing market perception and investor behavior. Río, Ferrer & López-Arceiz, 2024 reveals a positive correlation between high-quality sustainability reports and market optimism. The study shows that detailed and transparent reporting can enhance investor confidence and positively impact market sentiment. This finding highlights the strategic importance of investing in high-quality reporting practices, as they not only fulfill regulatory requirements but also contribute to building trust with investors and other stakeholders.

Furthermore, assessing the quality of sustainability reports requires a robust methodological framework. Daub, 2007 introduces a comprehensive framework that evaluates both quantitative and qualitative aspects of sustainability reports. This approach goes beyond traditional metrics to include the narrative quality and contextual relevance of the reported information. By adopting such a methodological framework, organizations can benchmark their reporting practices against best practices and identify areas for improvement. This holistic assessment ensures that sustainability reports are not only data-driven but also provide a coherent and meaningful narrative that reflects the organization's sustainability efforts and achievements.

Collectively, these studies emphasize that enhancing the scope and quality of CSR involves a multifaceted approach: standardizing data collection processes, utilizing digital tools for data management, and adopting comprehensive assessment frameworks to ensure that sustainability reports are both accurate and impactful. This integrated approach helps organizations meet regulatory demands, improve market perception, and effectively communicate their sustainability performance to stakeholders.

Data Collection and Utilization

The application of advanced technologies, such as Automated Text Analysis (ATA), can significantly enhance the quality of sustainability reporting. Velte, 2023 identifies how ATA techniques can be employed to improve the readability, consistency, and accuracy of sustainability reports. ATA can streamline the process of analyzing large volumes of text, ensuring that reports are clear and consistent in their messaging. This technological approach not only saves time and resources but also helps in maintaining a high standard of reporting by minimizing human error and bias.

Furthermore, B. Fleacă, E. Fleacă & Corocăescu, 2023 discusses the current trends in sustainability monitoring and reporting. It highlights the increasing demand for high-quality sustainability information driven by government legislation, investor and stakeholder expectations, and international initiatives. The report reviews the existing literature on sustainability reporting and emphasizes well-known instruments such as the SDGs index and the International Spillover index used to monitor nations' progress towards sustainable development goals (SDGs).

However, the process of data collection itself presents significant challenges, especially in capturing accurate data across extensive supply chains. Deng, Ji & Wang, 2017 highlights the difficulties organizations face in maintaining data consistency and accuracy throughout their supply chains. The complexity of supply chains, coupled with the varying levels of data availability and reliability, makes it difficult to ensure that all relevant sustainability information is accurately captured and reported. This issue is exacerbated in the IT sector, where rapid technological changes and diverse sourcing practices add layers of complexity to data management.

Additionally, Bovea et al., 2021 explores the impact of graphical representation of sustainability data on stakeholder engagement. Effective visual communication of data is crucial for enhancing the accessibility and comprehensibility of sustainability reports. Well-designed graphics and visualizations can help stakeholders quickly grasp complex information and draw meaningful conclusions about an organization's sustainability performance. This aspect of reporting is essential for engaging a broad audience, including investors, customers, and regulators, who may not have the time or expertise to delve into detailed textual reports.

In summary, the effective collection and utilization of sustainability data involve navigating the complexities of various reporting tools, leveraging advanced technologies like ATA and AI for data processing, addressing the challenges of accurate data capture across supply chains, and employing effective visual communication strategies. These integrated efforts

are essential for producing high-quality sustainability reports that not only comply with regulatory standards but also provide valuable insights and foster stakeholder engagement.

2.2.2 Key Issues and Challenges(Sub-RQ2)

This section addresses the key issues and challenges organizations face in implementing and maintaining effective Corporate Sustainability Reporting (CSR) under the CSRD framework, categorized into themes of data quality and consistency, and regulatory complexity and costs. The data quality and consistency theme examines the difficulties in ensuring accurate and reliable data throughout the reporting process, especially in complex supply chains. It also looks at technological solutions like Automated Text Analysis (ATA) to enhance report quality. The regulatory complexity and costs theme explores the challenges related to navigating evolving regulatory requirements and the financial burdens associated with comprehensive reporting. By categorizing these challenges, this section provides a detailed understanding of the obstacles organizations must overcome to achieve effective CSR.

Data Quality and Consistency

Maintaining high data quality and consistency in Corporate Sustainability Reporting (CSR) is a significant challenge that organizations face, particularly as they transition from non-financial to comprehensive sustainability reporting. Velte, 2023 highlights the difficulties in ensuring that sustainability reports are both readable and consistent. Reports often involve large volumes of complex data, which can be prone to inconsistencies and inaccuracies. Automated Text Analysis (ATA) techniques are proposed as a solution to enhance the quality of these reports. ATA can systematically analyze text for readability and coherence, ensuring that reports maintain a high standard across different sections and iterations. This technology not only improves the clarity of the information presented but also helps in identifying and correcting inconsistencies, thereby enhancing the overall reliability of the reports.

Furthermore, R o, Ferrer & L pez-Arceiz, 2024 underscores the specific challenges in capturing accurate data across extensive and complex supply chains. In the IT sector, where supply chains can span multiple countries and involve numerous suppliers, obtaining consistent and accurate data is particularly challenging. Variations in data collection standards and practices among suppliers can lead to significant discrepancies in the reported data. This inconsistency undermines the reliability of the overall sustainability report. The paper suggests that standardized data collection protocols and closer collaboration with suppliers are necessary to overcome these challenges and ensure more accurate reporting.

The importance of robust data management systems is further elaborated in Kassem & Trenz, 2020. This study reviews the necessity of implementing comprehensive data management

systems that can handle the vast amounts of data involved in sustainability reporting. Such systems are essential for ensuring data quality and reliability. They facilitate the systematic collection, storage, and analysis of data, making it easier to maintain consistency and accuracy over time. Effective data management systems also support the integration of various data sources, providing a more holistic view of an organization's sustainability performance.

In addition to these technological and procedural solutions, the transition from non-financial to comprehensive sustainability reporting presents its own set of challenges, as discussed in Baumüller & Sopp, 2021. This transition involves broadening the scope of reporting to include a wider range of environmental, social, and governance (ESG) metrics. Organizations must adapt their existing reporting frameworks to accommodate these new requirements, which often involves significant changes in data collection and reporting processes. The transition can be resource intensive and requires a cultural shift within the organization to prioritize sustainability alongside financial performance. It also necessitates the development of new skills and capabilities to manage and report on a broader set of metrics.

Overall, ensuring data quality and consistency in CSR requires a multifaceted approach. Organizations need to adopt advanced technologies like ATA to improve report readability and coherence, establish robust data management systems to ensure data integrity, and develop standardized data collection protocols to address inconsistencies in supply chain reporting. Additionally, the transition to comprehensive sustainability reporting must be managed carefully to integrate new ESG metrics effectively. By addressing these challenges, organizations can produce more accurate and reliable sustainability reports that provide valuable insights and build stakeholder trust.

Regulatory Complexity and Costs

Navigating the regulatory complexity and managing the associated costs are major hurdles for organizations aiming to enhance their Corporate Sustainability Reporting (CSR) practices. Siew, 2015 outlines the multifaceted challenges involved in selecting and implementing sustainability reporting tools. These tools, such as the Global Reporting Initiative (GRI) and the Carbon Disclosure Project (CDP), offer structured frameworks for reporting, but their complexity can be overwhelming. Organizations must carefully evaluate their specific needs and capabilities to choose the right tools, a process that is both time-consuming and resource-intensive. The high costs associated with these tools, including licensing fees, implementation costs, and ongoing maintenance, further add to the burden, making it challenging for especially smaller organizations to adopt them.

Farkas & Matolay, 2024 delves deeper into the regulatory and operational challenges that or-

organizations face. As sustainability reporting standards evolve, companies must continuously align their internal processes with these new requirements. This alignment is not straightforward; it often involves significant modifications to existing business operations to ensure compliance. Integrating sustainability reporting into everyday business processes requires robust internal systems that can handle the complexity of data collection, analysis, and reporting. Additionally, the regulatory landscape is dynamic, with standards and guidelines frequently updated to reflect new environmental, social, and governance (ESG) priorities. Organizations must stay abreast of these changes and adapt their reporting practices accordingly, which can be a daunting task given the pace of regulatory developments.

Eklund & Vaaler, 2023 highlights the implications of this evolving regulatory landscape for corporate reporting. The Corporate Sustainability Reporting Directive (CSRD) and European Sustainability Reporting Standards (ESRS) represent significant shifts in how organizations must approach sustainability reporting. These frameworks demand greater transparency and more detailed disclosures, covering a wide range of ESG metrics. Transitioning to these new standards requires comprehensive changes to reporting systems and practices. Organizations need to develop new capabilities and expertise to meet these enhanced reporting requirements. This transition phase is often marked by uncertainty and trial-and-error as companies adjust to the new standards and figure out the most efficient ways to comply.

B. Fleacă, E. Fleacă & Corocăescu, 2023 reviews the high resource requirements and extensive training needed to effectively use sustainability reporting tools. The adoption of advanced tools and technologies for sustainability reporting necessitates significant investment in both human and financial resources. Employees must be trained to use new software and systems, understand the regulatory requirements, and accurately collect and report data. This training is not a one-time event but an ongoing process to keep up with continuous updates and changes in reporting tools and standards. The need for skilled personnel and specialized training programs adds another layer of cost and complexity to the sustainability reporting process.

Overall, the regulatory complexity and costs associated with CSR are substantial. Organizations must navigate a landscape of evolving standards, select and implement the right tools amidst a plethora of options, and invest in training and resources to build the necessary capabilities. The high costs of compliance, coupled with the operational challenges of integrating sustainability reporting into business processes, can be a significant barrier, particularly for smaller companies. However, by strategically investing in the right tools and training, and staying agile in response to regulatory changes, organizations can enhance their sustainability reporting practices and achieve compliance more effectively. This comprehensive approach not only meets regulatory demands but also strengthens the organization's

commitment to sustainability, thereby enhancing its reputation and stakeholder trust.

2.2.3 Tangible Solutions and Roadmaps(Sub-RQ3)

This section proposes tangible solutions and strategic roadmaps to enhance Corporate Sustainability Reporting (CSR) practices in the IT industry, focusing on themes such as AI and machine learning, blockchain technology, and regulatory compliance and ESRS alignment. The AI and machine learning theme explores how these technologies can automate data collection, improve data analysis, and ensure more reliable and efficient reporting. The blockchain technology theme highlights the potential for ensuring data integrity, transparency, and traceability in sustainability reporting. The regulatory compliance and ESRS alignment theme discusses practical steps for aligning with European Sustainability Reporting Standards (ESRS) and ensuring comprehensive regulatory compliance. These themes collectively provide insights and innovative solutions to enhance CSR practices effectively.

AI and Machine Learning

The integration of AI and machine learning into Corporate Sustainability Reporting (CSR) practices has the potential to revolutionize how organizations collect, process, and evaluate sustainability data. Shahi, Issac & Modapothala, 2012 proposes the use of machine learning algorithms to automate the evaluation of sustainability reports. This approach enhances both the efficiency and reliability of the reporting process. Machine learning models can be trained to assess various aspects of sustainability reports, such as completeness, accuracy, and compliance with reporting standards. By automating these evaluations, organizations can significantly reduce the time and resources required for manual assessments, while also minimizing human error and bias. This automation leads to more consistent and objective evaluations, ensuring higher-quality sustainability reports.

Moreover, the potential for AI to transform data collection and analysis in sustainability reporting is vast. Villiers, Dimes & Molinari, 2024 explores how AI can be utilized to automate the collection and analysis of large volumes of data. AI-driven text generation and natural language processing (NLP) technologies can parse through extensive datasets to extract relevant information, generate reports, and provide insights. This automation streamlines the data collection process, making it more efficient and scalable. It also allows organizations to handle larger datasets than would be feasible with manual methods, enabling more comprehensive and detailed sustainability reports.

Additionally, Lauzzana, 2023 discusses how AI and other technologies play a crucial role in ensuring compliance with sustainability reporting standards. AI can be used to monitor and enforce compliance by continuously analyzing data against regulatory requirements

and internal standards. For instance, AI systems can automatically flag discrepancies or non-compliance issues in real-time, allowing organizations to address them promptly. This proactive approach not only ensures ongoing compliance but also helps organizations stay ahead of regulatory changes by quickly adapting to new requirements.

Incorporating AI and machine learning into sustainability reporting processes offers numerous benefits. It enhances the accuracy and reliability of data, reduces the burden of manual data collection and analysis, and provides deep insights that can drive strategic improvements. However, successful implementation requires careful planning and investment in the right technologies and expertise. Organizations must ensure that their AI systems are well-designed, trained on high-quality data, and aligned with their specific reporting needs. Moreover, the ethical implications of AI use, such as data privacy and transparency, must be carefully managed to maintain stakeholder trust.

Overall, the adoption of AI and machine learning in CSR can lead to more efficient, accurate, and insightful sustainability reporting. These technologies enable organizations to meet regulatory requirements more effectively, enhance their sustainability performance, and make informed decisions that support long-term sustainability goals. By harnessing the power of AI, companies can transform their sustainability reporting practices and drive meaningful progress in their sustainability initiatives.

Blockchain Technology

Blockchain technology offers transformative potential for enhancing Corporate Sustainability Reporting (CSR) by ensuring data integrity, transparency, and traceability. Seretakis & Mezzanotte, 2023 delves into how blockchain can revolutionize sustainability disclosures. Blockchain's decentralized and immutable nature makes it an ideal tool for verifying and recording sustainability data. Each transaction or data entry is recorded in a block and linked to the previous block, creating a chain that cannot be altered retroactively without changing all subsequent blocks. This characteristic ensures that the data remains tamper-proof and accurate, providing a high level of integrity that is crucial for trustworthy sustainability reporting.

In addition to securing data integrity, blockchain technology significantly enhances transparency in sustainability disclosures. Seretakis & Mezzanotte, 2023 discusses how blockchain can act as a secure and immutable ledger for sustainability data. By utilizing blockchain, organizations can provide stakeholders with real-time access to sustainability data, fostering greater transparency. This real-time visibility allows stakeholders to verify the data independently, ensuring that the information presented in sustainability reports is accurate and

reliable. The transparency afforded by blockchain technology builds trust among stakeholders, as they can be confident that the data has not been manipulated or altered. This increased trust is particularly important in the context of CSR, where stakeholder confidence in the accuracy and honesty of reported information is paramount.

Regulatory Compliance and ESRS Alignment

Aligning with the European Sustainability Reporting Standards (ESRS) and ensuring regulatory compliance are critical components of effective Corporate Sustainability Reporting (CSR). These standards and regulations require organizations to adopt comprehensive data management processes and integrate new reporting requirements into their existing workflows. Bajica & Pavlović, 2024 provides detailed guidelines for aligning corporate reporting practices with ESRS. This paper emphasizes the importance of robust data management systems that can handle the extensive data required for ESRS compliance. Comprehensive data management involves systematically collecting, storing, and analyzing sustainability data to ensure accuracy, consistency, and reliability. By implementing these processes, organizations can meet the stringent data quality and disclosure requirements set by ESRS.

Eklund & Vaaler, 2023 outlines practical steps for integrating ESRS requirements into existing sustainability reporting workflows. Transitioning to the CSRD and ESRS involves significant changes in how organizations collect, manage, and report sustainability data. The paper suggests starting with a thorough assessment of current reporting practices to identify gaps and areas that need improvement. Organizations should then develop a clear plan for implementing the necessary changes, which includes updating data collection methods, enhancing data management systems, and training staff on new reporting standards. This transition plan should be flexible enough to accommodate ongoing updates to ESRS requirements, ensuring that the organization remains compliant as standards evolve.

Hummel & Jobst, 2024 reviews the broader alignment of corporate reporting practices with EU regulations and standards. This paper highlights the interconnectedness of various EU sustainability regulations, including the CSRD and the EU Taxonomy Regulation, which classify economic activities based on their sustainability impact. Aligning with these regulations requires organizations to take a holistic approach to sustainability reporting, integrating environmental, social, and governance (ESG) metrics into their overall reporting framework. This alignment ensures that all aspects of an organization's sustainability performance are accurately captured and reported, meeting the expectations of regulators, investors, and other stakeholders.

The concept of double materiality is a key element of ESRS, as discussed in De Cristofaro

& Gulluscio, 2023). Double materiality recognizes that sustainability issues can have both financial and non-financial impacts on an organization. This concept requires organizations to consider not only how sustainability issues affect their financial performance but also how their activities impact society and the environment. Implementing double materiality in sustainability reporting involves identifying and disclosing information that is material from both a financial and a societal perspective. This dual focus ensures that sustainability reports provide a comprehensive view of an organization's performance and its broader impact, enhancing transparency and accountability.

To achieve regulatory compliance and align with ESRS, organizations must invest in developing and maintaining robust data management systems. These systems should be capable of handling large volumes of data from diverse sources, ensuring that all relevant information is accurately captured and reported. Additionally, organizations need to stay abreast of ongoing regulatory changes and be prepared to adapt their reporting practices accordingly. This proactive approach helps organizations avoid compliance issues and demonstrates their commitment to sustainability.

Moreover, aligning with ESRS and other EU regulations requires effective communication and collaboration across different departments within an organization. Sustainability reporting is not solely the responsibility of the sustainability team; it involves contributions from finance, operations, human resources, and other key areas. Establishing clear lines of communication and fostering a collaborative culture are essential for successfully integrating ESRS requirements into the organization's overall reporting framework.

In conclusion, achieving regulatory compliance and aligning with ESRS involves a multifaceted approach that includes comprehensive data management, ongoing staff training, and effective collaboration across the organization. By following the guidelines provided in these key papers, organizations can ensure that their sustainability reporting practices meet regulatory standards and provide a transparent and accurate account of their sustainability performance. This alignment not only fulfills regulatory obligations but also enhances the organization's credibility and trust with stakeholders, supporting its long-term sustainability goals.

2.2.4 Benefits(Sub-RQ4)

This section examines the benefits that organizations can expect from implementing the solutions and roadmaps for improving their Corporate Sustainability Reporting (CSR) practices, organized into themes of improved social and environmental performance, enhanced decision-making and reporting quality, and increased stakeholder trust. The improved social

and environmental performance theme discusses how enhanced transparency and accountability drive better sustainability outcomes. The enhanced decision-making and reporting quality theme explores how comprehensive and accurate reporting facilitates better strategic decisions by integrating financial and non-financial impacts. The increased stakeholder trust theme highlights the role of high-quality sustainability reporting in building confidence among investors and other stakeholders. By exploring these themes, this section demonstrates the tangible and strategic advantages of adopting improved CSR practices.

Improved Social and Environmental Performance

The mandate for corporate social and environmental disclosure has been empirically shown to improve social and environmental performance significantly. Villiers, Dumay, et al., 2024 provides robust empirical evidence demonstrating that when organizations are required to disclose their social and environmental impacts, they tend to perform better in these areas. This improvement is primarily driven by enhanced transparency and accountability. When companies publicly disclose their sustainability efforts, they are more likely to be held accountable by stakeholders, including investors, customers, and regulators. This external pressure incentivizes companies to adopt more robust sustainability practices, leading to tangible improvements in their social and environmental performance.

The long-term benefits of transparency in sustainability reporting are further emphasized in Wassénus, Crona & Quahe, 2024. This paper highlights how transparent reporting not only fulfills regulatory requirements but also aligns corporate activities with planetary boundaries—environmental limits within which humanity can safely operate. By transparently reporting essential environmental impact variables, companies can better understand and manage their contributions to global sustainability challenges such as climate change, biodiversity loss, and resource depletion. This alignment encourages companies to adopt sustainable practices that minimize their environmental footprint and contribute to the long-term health of the planet. The transparency afforded by comprehensive sustainability reporting also fosters greater trust among stakeholders, as they can see the company's genuine commitment to sustainability goals.

Mezzanotte, 2023 reviews the broader positive impacts of sustainability reporting on corporate performance and stakeholder relations. Sustainability reporting, when done effectively, can enhance a company's reputation and strengthen its relationships with stakeholders. Detailed and accurate sustainability reports provide valuable insights into a company's operations, highlighting both achievements and areas for improvement. This openness can enhance stakeholder engagement by demonstrating the company's commitment to continuous improvement and responsible business practices. Investors, in particular, are increasingly

looking for companies with strong sustainability credentials, as these are often seen as indicators of long-term viability and risk management. By providing clear and transparent sustainability reports, companies can attract and retain investors who prioritize environmental, social, and governance (ESG) factors.

Moreover, sustainability reporting can drive internal improvements within organizations. The process of collecting, analyzing, and disclosing sustainability data encourages companies to reflect on their practices and identify opportunities for enhancement. For instance, regular reporting on energy use, waste generation, and water consumption can highlight inefficiencies and prompt the implementation of more sustainable practices. These internal improvements not only enhance environmental performance but can also lead to cost savings and operational efficiencies (Mezzanotte, 2023.). Additionally, by setting and disclosing sustainability targets, companies create a framework for tracking progress and holding themselves accountable, fostering a culture of continuous improvement (B. Fleacă, E. Fleacă & Corocăescu, 2023.).

The positive impacts of sustainability reporting extend beyond environmental performance to social aspects as well. Transparency in reporting on issues such as labor practices, community engagement, and diversity and inclusion initiatives can enhance a company's social license to operate. Stakeholders, including employees, customers, and communities, are increasingly concerned about the social impacts of corporate activities. By transparently reporting on these areas, companies can build stronger relationships with these stakeholders, enhancing their reputation and potentially leading to increased loyalty and support (Villiers, Dumay, et al., 2024, Wassénus, Crona & Quahe, 2024).

In summary, the mandate for corporate social and environmental disclosure drives significant improvements in social and environmental performance by enhancing transparency and accountability. Transparent reporting aligns corporate activities with planetary boundaries and fosters greater trust among stakeholders. The process of sustainability reporting also drives internal improvements, enhancing both environmental and social performance. By adopting comprehensive and transparent reporting practices, companies can not only comply with regulatory requirements but also build stronger relationships with stakeholders, enhance their reputation, and contribute to long-term sustainability goals (B. Fleacă, E. Fleacă & Corocăescu, 2023, Villiers, Dumay, et al., 2024, Wassénus, Crona & Quahe, 2024).

Enhanced Decision-Making and Reporting Quality

The adoption of enhanced decision-making frameworks and improved reporting quality in Corporate Sustainability Reporting (CSR) is crucial for providing comprehensive insights

into both financial and non-financial impacts of corporate activities (De Cristofaro & Gulluscio, 2023.). Double materiality requires organizations to consider not only how sustainability issues affect their financial performance but also how their operations impact society and the environment. This approach ensures that reports reflect a holistic view of the organization's sustainability performance, integrating environmental, social, and governance (ESG) factors with traditional financial metrics. By addressing double materiality, companies can provide more comprehensive and relevant disclosures that meet the needs of a broader range of stakeholders, including investors, regulators, customers, and communities (De Cristofaro & Gulluscio, 2023.).

Nielsen, 2023 discusses the advantages of adopting Key Performance Indicators (KPIs) based on the principle of double materiality. KPIs derived from double materiality provide quantifiable measures that can track the performance of sustainability initiatives over time. These indicators help organizations set clear sustainability goals, monitor progress, and make data-driven decisions. For instance, KPIs might include metrics such as carbon emissions reduction, energy efficiency improvements, water usage, and social impact indicators like employee diversity and community engagement. By adopting such KPIs, companies can enhance the precision and relevance of their sustainability reporting, enabling stakeholders to better assess the organization's performance and commitment to sustainability. Furthermore, KPIs based on double materiality ensure that the reported data is aligned with both the organization's strategic objectives and societal expectations, fostering greater accountability and transparency (Nielsen, 2023.).

The role of sustainability risk assessment in enhancing decision-making is highlighted by Schneider et al., 2024 . This paper underscores the necessity of identifying and managing sustainability risks to make informed strategic decisions. In the manufacturing sector, for example, sustainability risks can include supply chain disruptions, resource scarcity, regulatory changes, and environmental impacts such as pollution and waste. By conducting thorough sustainability risk assessments, companies can anticipate potential challenges and develop strategies to mitigate these risks. This proactive approach not only protects the organization from potential setbacks but also enhances its resilience and ability to adapt to changing conditions. Effective risk assessment also supports better resource allocation, ensuring that investments in sustainability initiatives are targeted towards areas with the highest impact and return on investment (Schneider et al., 2024.).

Moreover, integrating sustainability risk assessment with decision-making processes helps organizations prioritize their sustainability efforts based on the severity and likelihood of risks (Schneider et al., 2024.). This integration ensures that sustainability considerations are embedded into the core strategic planning and operational processes of the organiza-

tion. For example, a company might use risk assessment outcomes to prioritize investments in renewable energy projects, enhance supply chain resilience, or implement more rigorous environmental management systems. These actions not only improve sustainability performance but also contribute to long-term business success by reducing operational risks and enhancing the company's reputation (Schneider et al., 2024.).

In summary, addressing double materiality in sustainability reporting provides a comprehensive view of an organization's impacts, integrating both financial and non-financial aspects (De Cristofaro & Gulluscio, 2023, Nielsen, 2023). Adopting KPIs based on double materiality enhances the relevance and precision of sustainability reports, enabling better tracking of performance and progress (Nielsen, 2023.). Sustainability risk assessments play a crucial role in informed decision-making, helping organizations anticipate and mitigate potential risks (Schneider et al., 2024.). Together, these practices enhance the quality of sustainability reporting and support strategic decision-making, leading to improved sustainability outcomes and stronger stakeholder trust. By implementing these approaches, companies can ensure that their sustainability efforts are both impactful and aligned with broader societal goals (De Cristofaro & Gulluscio, 2023, Nielsen, 2023, Schneider et al., 2024).

Increased Stakeholder Trust

Increased stakeholder trust is a crucial outcome of high-quality sustainability reporting. Comprehensive and transparent sustainability reports help build confidence among investors and other stakeholders by demonstrating a company's commitment to responsible business practices. Oliveros Fontaine, Campo & Urquía-Grande, 2024 reviews how detailed and high-quality sustainability reports can significantly enhance investor confidence. Investors are increasingly looking for companies that can provide reliable data on their environmental, social, and governance (ESG) performance. High-quality reports that clearly articulate a company's sustainability initiatives and outcomes make it easier for investors to assess the company's long-term viability and risk management capabilities. This transparency reassures investors that the company is managing its ESG risks effectively, which can lead to increased investment and lower cost of capital.

The importance of materiality assessments in building stakeholder trust is emphasized in Mio, Agostini & Scarpa, 2024. Materiality assessments help companies identify and report on the most significant ESG issues that could impact their business and stakeholders. By focusing on material issues, companies ensure that their sustainability reports are relevant and useful to stakeholders. This focus on materiality helps build trust as stakeholders can see that the company is addressing the issues that matter most to them. Moreover, materiality assessments enhance the credibility of the reports, as they demonstrate that the company has

a systematic approach to identifying and managing key sustainability risks and opportunities.

De Cristofaro & Gulluscio, 2023 highlights the benefits of comprehensive reporting in meeting stakeholder expectations. The concept of double materiality requires companies to consider both financial and non-financial impacts of their activities. By adopting a double materiality approach, companies provide a more complete picture of their sustainability performance, covering both how sustainability issues affect the company and how the company's activities impact society and the environment. This comprehensive reporting approach aligns with stakeholder expectations for greater transparency and accountability, thereby building trust. Stakeholders, including investors, customers, employees, and communities, can be assured that the company is not only managing its financial performance but also contributing positively to broader societal goals.

Rodrigues, Ferreira & Cunha, 2023 provides a practical case study on how sustainability initiatives can improve stakeholder relations. This proposal outlines how a small and medium-sized enterprise (SME) in the textile industry implemented sustainability initiatives that improved its relationships with stakeholders. By engaging with stakeholders and transparently reporting on their sustainability efforts, the company was able to build stronger relationships with suppliers, customers, and the local community. The case study demonstrates that even smaller companies can benefit from enhanced stakeholder trust through effective sustainability reporting and engagement.

Bauer & Greiling, 2024 discusses the role of sustainability reporting in enhancing the reputation and credibility of non-profit organizations. Non-profits, like for-profit companies, need to demonstrate their commitment to sustainability to gain the trust and support of donors, beneficiaries, and the public. High-quality sustainability reports that provide clear and transparent information about the organization's environmental and social impacts can enhance its reputation and credibility. This enhanced reputation can lead to increased support from donors and other stakeholders, as they are more likely to trust and invest in organizations that are transparent about their sustainability performance.

In conclusion, high-quality sustainability reporting plays a vital role in building stakeholder trust. Detailed and transparent reports enhance investor confidence by providing reliable data on ESG performance. Materiality assessments ensure that reports focus on the most significant issues, increasing their relevance and credibility. Comprehensive reporting, including double materiality, meets stakeholder expectations for transparency and accountability. Case studies, such as those from the SME textile sector (Rodrigues, Ferreira & Cunha, 2023.) and non-profits (Bauer & Greiling, 2024.), illustrate the practical benefits of improved stakeholder relations and enhanced reputation through effective sustainability reporting. By

adopting these practices, companies can build stronger relationships with stakeholders, enhance their reputation, and support long-term sustainability goals.

2.3 Research Gap

Despite the significant advancements in the Corporate Sustainability Reporting Directive (CSRD) framework, several critical gaps persist in the current literature and practices that this thesis aims to address.

The concept of double materiality, which is central to the CSRD, requires organizations to consider both financial and non-financial impacts. However, the practical implementation of double materiality remains underexplored. This thesis will provide actionable insights and practical way of doing double materiality. By doing so, it aims to bridge the gap between theoretical understanding and practical application, offering a roadmap for effective implementation.

Much of the current research on CSR and CSRD practices focuses on large corporations, with limited attention given to the unique challenges faced by small and medium-sized enterprises (SMEs). SMEs often lack the resources and expertise to implement comprehensive CSR practices, leading to their exclusion from broader sustainability initiatives. This thesis will address the specific barriers that SMEs encounter in adopting CSRD practices and propose tailored solutions to support their inclusion and compliance. By focusing on SMEs, this research aims to make CSR practices more accessible and manageable for these organizations, thereby promoting broader participation in sustainability efforts.

Although various studies propose theoretical frameworks and best practices for CSR, there is a notable lack of detailed roadmaps and practical solutions. Organizations require clear, actionable roadmaps that outline specific steps and strategies for enhancing their CSR practices in line with the CSRD framework. This thesis will develop a practical solutions that can be readily implemented by organizations to achieve more accurate, efficient, and impactful sustainability reporting. By providing these detailed guidelines, the research aims to facilitate the adoption of improved CSR practices across the IT industry.

By addressing these gaps, this thesis aims to enhance the accuracy, efficiency, and impact of CSR practices in the IT industry, supporting global sustainability objectives and contributing significantly to the academic discourse on sustainability reporting.

3 METHODOLOGY

This chapter details the methodology employed in the study. It begins with a discussion on the research design, which follows the principles of Design Science Research (DSR). Subsequently, it outlines the study's objective, and research questions. The chapter also describes the data collection methods, which include semi-structured interviews and archival data retrieval. The decision to conduct semi-structured interviews was made to align with the qualitative nature of the research. Semi-structured interviews surpass other interview types in qualitative research by enabling researchers to gather comprehensive information and evidence from participants while maintaining the study's focus. Additionally, they offer flexibility and adaptability, allowing researchers to stay on track, unlike unstructured interviews, which can lack clear direction (Mashuri et al., 2022.). This is followed by a detailed data analysis section, which provides a thorough examination of the collected data. Finally, the chapter addresses considerations related to research ethics, ensuring that the study adheres to ethical standards throughout its execution.

Figure 3 represents the study design outline for the thesis on enhancing Corporate Sustainability Reporting Directive (CSRD) practices which involves a multi-phase approach addressing four key research questions (RQs). Phase 1, corresponding to RQ1, encompasses a comprehensive literature study utilizing white, gray, and peer-reviewed sources to understand the current state of CSRD. This phase includes gathering data from company interviews to inform the creation of a CSRD framework. Phase 2 (RQ2) focuses on developing and polishing this framework, transforming knowledge from the literature and interviews into a structured format, and validating it through further verification. In Phase 3 (RQ3), the refined framework is analyzed and reflected upon, leading to an impact analysis. The final phase, Phase 4, is dedicated to compiling the insights and findings into a report, culminating in a comprehensive document that addresses the research questions and provides practical solutions for improving CSRD in the IT industry. The study spans from February to July, ensuring thorough research, analysis, and reporting.

3.1 Research Design

Design Science Research (DSR) is a problem-solving paradigm focused on advancing human knowledge by creating innovative artifacts. Essentially, DSR aims to expand the knowledge bases of technology and science through the development of new artifacts that address problems and improve the environments in which they are implemented. The outcomes of DSR include both the newly designed artifacts and the design knowledge (DK), which offers a deeper understanding through design theories of how and why these artifacts enhance (or disrupt) their relevant application contexts (J. v. Brocke, Hevner & Maedche, 2020.).

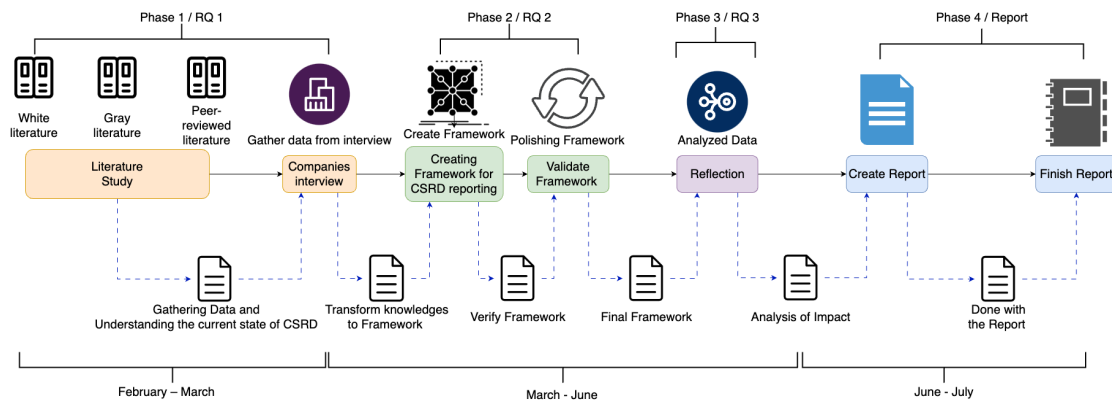


Figure 3: Study Design outline with Timeline of this Study

Design Science Research (DSR) projects have been structured around various process models, such as those by Nunamaker Jr., Chen & Purdin, 1990, Walls et al., 1992, Hevner, 2007, and Kuechler & Vaishnavi, 2008. The most widely referenced model is the one proposed by Peffers et al., 2007. In this paper, we utilize the process model introduced by Brocke et al. (2020), as depicted in Figure 4. This model encompasses six steps: identifying and motivating the problem, defining objectives for a solution, designing and developing the solution, demonstrating its effectiveness, evaluating the results, and communicating the findings. The model also offers four potential entry points: initiating from a problem-centered perspective, focusing on objectives for the solution, starting with design and development, and beginning from the client or contextual perspective.

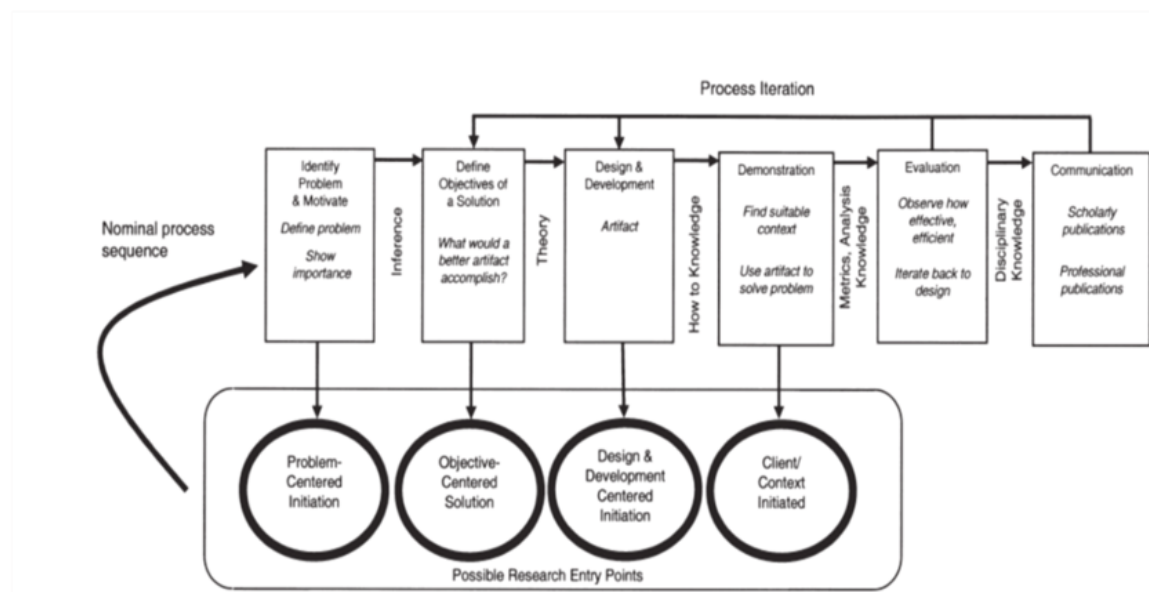


Figure 4: DSR Methodology Process Model (Adapted from Peffers et al. (2008))

The following process has been executed according to the Design Science Research (DSR) methodology for this research.

3.1.1 Activity 1: Problem Identification and Motivation

In this activity, the specific research problem is identified as the insufficiency of current CSRD practices in the IT industry, characterized by challenges in understanding and complying with new regulations, burdensome data collection processes, and limited actionable insights. This problem is exacerbated by the rapid pace of technological advancement and the evolving regulatory landscape.

To gain a comprehensive understanding of the current situation and challenges in CSRD practices, several interviews were conducted with key stakeholders within the industry. These interviews included sustainability managers, compliance officers, and other relevant personnel from various IT companies. The insights gathered from these interviews provided a detailed view of the practical difficulties faced by these organizations, thereby informing the relevance cycle of this research.

The motivation for this research stems from the need to enhance the accuracy, efficiency, and impact of sustainability reporting in the IT industry, thereby improving compliance, providing actionable insights, and promoting sustainable business operations. The resources required include a comprehensive review of existing CSRD practices, data on the current challenges and gaps, and an understanding of the regulatory framework. By integrating insights from these industry interviews, the research aims to address the identified problems more effectively, ensuring that the solutions are grounded in the real-world experiences and needs of IT companies.

3.1.2 Activity 2: Define the Objectives for a Solution

In this activity, the objectives for the solution are defined based on the identified problem and what is feasible within the current technological and regulatory constraints. Qualitative objectives involve developing a framework that simplifies compliance processes, integrates sustainability into core business strategies, and enhances stakeholder engagement.

These objectives are derived from a thorough analysis of the current state of CSRD in the IT industry, which includes simplifying compliance processes, creating a user-friendly, standardized approach to meeting CSRD requirements that reduces the complexity and time burden on IT companies. Another key objective is integrating sustainability into core business strategies, ensuring that sustainability goals are not peripheral but are embedded into the strategic planning and operational processes of the organization. Additionally, enhancing stakeholder engagement is crucial, developing methods and tools to better communicate sustainability efforts and achievements to stakeholders, thereby building trust and transparency.

The detailed analysis included interviews with industry stakeholders, gathering insights from sustainability managers, compliance officers, and other key personnel from various IT companies to provide real-world perspectives on the challenges and needs. A comprehensive literature review was also conducted, examining academic and industry publications to understand best practices, regulatory requirements, and technological solutions available. Furthermore, an in-depth analysis of the CSRD and other relevant regulations was performed to ensure that the solutions are compliant and forward-looking.

These objectives aim to achieve significant improvements in reporting practices, such as better alignment with regulatory requirements, enhanced data accuracy, and more effective communication of sustainability initiatives. By addressing these specific areas, the research seeks to make CSRD practices more efficient, accurate, and impactful within the IT industry.

3.1.3 Activity 3: Design and Development

This activity involves the creation of an artifact, which could be a framework, roadmap, or set of tools designed to enhance CSRD practices in the IT industry. The design of the artifact includes best practices for data collection, compliance processes, and stakeholder engagement. The development phase involves creating the actual artifact, which may include software tools, guidelines, and templates that organizations can use to improve their CSRD practices.

The desired functionality of the artifact is to streamline data collection processes, ensure compliance with regulatory requirements, and provide actionable insights for sustainability strategies. Throughout this design and development process, a rigor cycle is employed to ensure that the artifact is robust, scientifically sound, and applicable in real-world settings. This rigor cycle includes validation, and refinement based on feedback and empirical evidence.

The stakeholders involved in this activity are primarily academic supervisors. These supervisors provide critical oversight, ensuring the artifact's alignment with theoretical frameworks and academic standards. Their guidance ensures that the solutions are well-founded academically and can be effectively implemented in practice despite the time constraints that preclude the involvement of industry experts.

3.1.4 Activity 4: Demonstration

In this activity, the use of the artifact is critically analyzed to solve specific instances of the identified problem. The critical analysis involves evaluating how well the artifact addresses challenges such as the complexity of data collection and the integration of sustainability into business strategies. This analysis includes assessing the artifact's theoretical foundation,

practical applicability, and alignment with industry standards and regulatory requirements. By conducting a detailed critique of the artifact, its strengths and weaknesses are identified, providing insights into its effectiveness and areas for further improvement.

3.1.5 Activity 5: Evaluation

This activity measures the effectiveness of the artifact in supporting a solution to the identified problem. Evaluation involves comparing the objectives of the solution with the observed results from using the artifact. This could include case studies and analysis of the artifact's performance in hypothetical or simulated scenarios within IT industry organizations. The evaluation focuses on the artifact's ability to enhance data accuracy, streamline compliance processes, and improve sustainability reporting.

Due to time constraints, the evaluation could not be conducted by actual companies. Instead, supervisors evaluated and validated the framework and guidelines. This validation process, conducted by academic supervisors, ensures that the artifact meets the desired academic and practical standards. Their feedback is important in assessing whether the artifact effectively addresses the challenges identified in CSRD practices and provides actionable insights for further refinement.

3.1.6 Activity 6: Communication

In this final activity, the problem and the designed artifact are communicated to relevant stakeholders, including the academic community, industry professionals, regulatory bodies, and IT industry stakeholders. Communication forms include publishing research findings in academic journals, presenting at conferences, and developing white papers or industry reports. Practical guidelines and templates are provided to facilitate the adoption of improved CSRD practices. The goal is to ensure that the research findings and solutions are accessible and actionable for practitioners, advocating for the adoption of enhanced CSRD practices to drive meaningful sustainability advancements in the IT industry or any relevant field.

3.1.7 The Design Science Research Grid

The DSR Grid, as conceptualized by J. v. Brocke & Maedche, 2019, serves as a valuable tool for researchers in the planning, coordination, and communication of Design Science Research (DSR) projects. This framework is designed to encapsulate the entirety of a DSR project on a single page, highlighting its critical components to reflect and convey its scope succinctly. By providing a clear and comprehensive representation of a DSR project, the DSR Grid facilitates improved planning and communication. As shown in Figure 5, the DSR Grid was utilized to elaborate on the six most crucial dimensions of this thesis.



Figure 5: Design Science Research Grid of this Study

3.2 Objective

The main goal of this thesis is to explore ways to improve CSRD practices within organizations in the IT industry to achieve more precise, efficient, and impactful sustainability reporting.

3.3 Research Questions

In Table 1, we articulate our research goal following the format outlined by Wohlin et al., 2012.

Analyse	Current CSRD practices in the IT industry
For the purpose of	Identifying and addressing insufficiencies and challenges
With respect to	Compliance, data collection processes, and actionable insights
From the point of view of	IT industry organizations and stakeholders
In the context of	Rapid technological advancements and evolving regulatory requirements

Table 1: Study Goal

This thesis aims to investigate and suggest solutions that would elevate CSRD practices within the IT industry beyond the basic requirements of compliance. The focus is on uncovering strategies that not only meet regulatory standards but also drive substantial sustainability advancements. By doing so, the thesis seeks to contribute to a deeper understanding of how enhanced CSRD practices can facilitate significant and impactful progress in sustainability efforts within the IT sector.

Consequently, the research questions are defined as follows:

“How can organizations in the IT industry effectively enhance their Corporate Sustainability Reporting Directive (CSRD) practices to provide more accurate, efficient, and impactful sustainability reporting?”

To address this research question, we conducted a study that involved qualitative interviews with IT companies, supplemented by artifacts from the literature. The analysis was then broken down into the following three sub-questions:

“What is the current state of Corporate Sustainability Reporting among organizations, and how do they gather and utilize data to drive informed sustainability strategies and initiatives?”

Understanding the current state of Corporate Sustainability Reporting (CSR) among organizations is essential for establishing a baseline from which improvements can be measured. This question helps to identify existing practices, methodologies, and tools used in CSR. To achieve this, a combination of interviews and literature review was employed. Conducted semi-structured interviews with sustainability managers and compliance officers from various IT companies provided in-depth insights into the challenges, practices, and tools currently used in CSR. The literature review involved a comprehensive examination of academic and industry publications related to CSR and the Corporate Sustainability Reporting Directive (CSRD), helping to understand the theoretical frameworks, best practices, and technological advancements relevant to sustainability reporting. By examining how organizations gather and utilize data, we can uncover the effectiveness of current strategies in driving informed sustainability initiatives. This insight is crucial for identifying gaps and areas for enhancement, ultimately leading to more robust and accurate sustainability reporting practices.

“What are the key issues and challenges faced by organizations in implementing and maintaining effective Corporate Sustainability Reporting under the CSRD framework?”

Identifying the key issues and challenges faced by organizations in implementing and maintaining effective CSR under the CSRD framework is vital for understanding the obstacles that hinder optimal reporting. To achieve this, a combination of interviews and literature review was employed as the research methods. Conducted semi-structured interviews with sustainability managers, compliance officers, and other relevant personnel from various IT companies provided first-hand insights into the specific challenges organizations face in implementing and maintaining effective CSR practices under the CSRD framework. The interview questions focused on areas such as data accuracy, resource allocation, regulatory compliance, and the integration of sustainability into business processes. Additionally, an

extensive literature review of existing academic and industry publications related to CSR and the CSRD framework was performed. This review included peer-reviewed journal articles, industry reports, regulatory documents, and case studies. By understanding these challenges, the research can propose targeted solutions that address specific pain points, thereby facilitating smoother and more effective implementation of CSR practices.

“What tangible solutions or roadmaps can be proposed to enhance Corporate Sustainability Reporting in the IT industry, and how can these solutions be practically implemented?” Proposing tangible solutions or roadmaps is important for providing actionable guidance to organizations seeking to improve their CSR practices. This question focuses on developing practical strategies that can be implemented within the IT industry to enhance sustainability reporting. To achieve this, a combination of interviews, literature review, and expert consultations was employed as the research methods. Conducted semi-structured interviews with sustainability managers and compliance officers from various IT companies provided insights into existing practices and the potential for implementing new strategies. The interview questions focused on identifying gaps in current practices and exploring innovative approaches that could be adopted.

A comprehensive literature review of academic and industry publications related to CSR, sustainability reporting, and technological advancements was performed. This review helped in identifying best practices, innovative approaches, and existing frameworks that could be adapted for the IT industry. Additionally, expert consultations with academic supervisors were engaged to validate the solutions and roadmaps. Their feedback was instrumental in ensuring that the proposed strategies are grounded in both theoretical and practical considerations. By exploring innovative approaches, best practices, and leveraging technological advancements, the research aims to offer clear and feasible steps that organizations can follow. This ensures that the solutions are not only theoretical but also practical and applicable in real-world scenarios.

“What benefits can organizations expect from implementing the solutions or roadmaps for improving their Corporate Sustainability Reporting practices?”

Understanding the benefits that organizations can expect from implementing the solutions are essential for justifying the investment in enhanced CSR practices. This question seeks to quantify the positive outcomes, such as improved data accuracy, increased regulatory compliance, enhanced stakeholder trust, and overall better sustainability performance. By demonstrating the advantages, the research can build a compelling case for organizations to adopt the proposed improvements, highlighting the return on investment and long-term value of effective CSR practices.

Since time constraints limited the direct evaluation of benefits, the analysis involved a critical examination and mapping of the challenges identified from the research with the solutions. This approach served as a way to find out the benefits by aligning specific challenges with targeted improvements. By doing so, the research provides a clear understanding of how the solutions can effectively address these issues, thereby outlining the expected benefits and justifying the investment in enhanced CSR practices. This method ensures that the potential advantages are grounded in the real-world context of the identified challenges, making the case for the solutions more robust and compelling.

These insights can be leveraged to refine reporting practices, ensure the precision and thoroughness of reports, and ultimately elevate the companies CSR practise. The detail procedure to address each research question is illustrated in the figure 6.

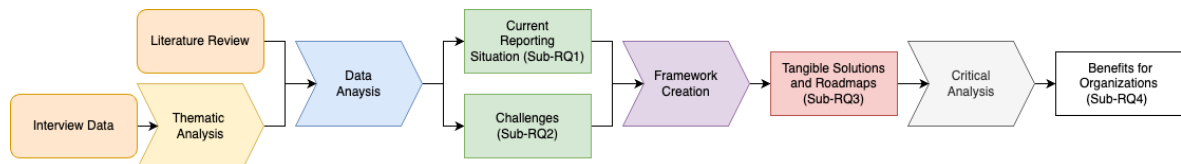


Figure 6: Addressing Research Questions

3.4 Data Collection

Data collection utilizes a mixed-method approach, drawing from diverse data sources to analyze the current state of the Corporate Sustainability Reporting (CSR) process, identify challenges, and propose potential solutions to address these issues. Initially, the research began with a comprehensive literature review to establish the relevant domain and define the framework for sustainability reporting.

Following this, qualitative research was conducted. Given that the focus of this study is rooted in the IT industry, the research did not restrict or limit the types of organizations, business models, or geographical locations examined, as long as they pertain to IT industries. This inclusive approach ensures a comprehensive understanding of Corporate Sustainability Reporting (CSR) practices across diverse contexts within the IT sector, allowing for the identification of broad trends, unique challenges, and innovative solutions relevant to various subfields and regions within the industry.

During the interviews, participants were inquired about their perceptions and experiences concerning Corporate Sustainability Reporting (CSR), with a specific emphasis on the Corporate Sustainability Reporting Directive (CSRD). Each interview lasted approximately one hour, providing ample time for in-depth discussions. The participants, who were professionals from various segments of the IT industry, were asked a series of interview questions,

detailed in Appendix 1. These questions were designed to gain a nuanced understanding of their practices and viewpoints related to Corporate Sustainability Reporting (CSR) under the Corporate Sustainability Reporting Directive (CSRD) framework.

All interviews were conducted via online meetings, recorded, and transcribed. The transcriptions were used for data analysis. The execution process of the interviews can be summarized as in Figure 7.

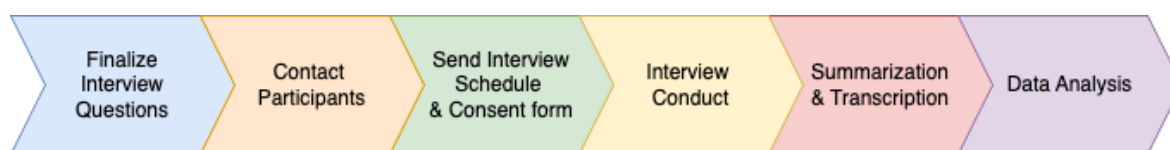


Figure 7: Interview Execution Summary

3.5 Data Analysis

The initial phase of the data analysis involved examining the current literature to pinpoint gaps and challenges related to complying with the CSRD. Subsequently, a focused analysis of qualitative data from interviews was conducted using **thematic analysis**. This approach involved systematically reviewing and categorizing transcribed interview data to identify patterns and themes. Thematic Analysis (TA) is a method used to systematically identify, organize, and provide insights into patterns of meaning (themes) across a dataset. By concentrating on meaning throughout the dataset, TA enables researchers to understand collective or shared meanings and experiences. It does not aim to uncover unique or individual meanings within a single data item. Instead, this method seeks to identify commonalities in how a topic is discussed or written about (Braun & Clarke, 2006.). Braun & Clarke, 2006 six-phase analysis method was employed in this research to achieve these objectives.

As from figure 8, The process starts with familiarization, where analysts deeply engage with the data by repeatedly reading transcripts and making initial notes to capture early insights. The next step is generating initial codes, systematically identifying and coding meaningful data segments without using pre-set labels, allowing flexibility and adjustment as the analysis evolves. Analysts then search for themes by reviewing and clustering similar codes into broader, significant patterns. These preliminary themes are reviewed in the fourth step to ensure they are coherent and distinct, confirming that they are logical and well-supported by the data. The fifth step involves defining and naming themes, pinpointing the essence of each theme, and clarifying any sub-themes and their relationships. Finally, the process concludes with writing up the analysis, where analysts compile their findings into a comprehensive narrative that discusses the identified themes and their interconnections. This thorough and

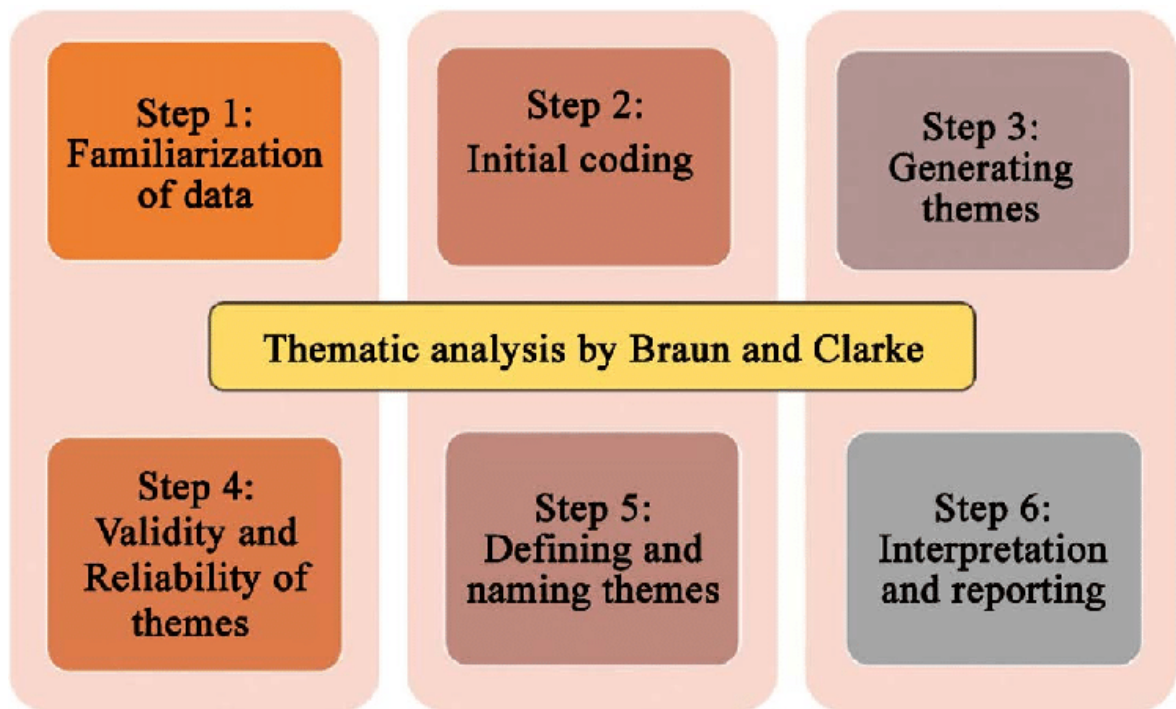


Figure 8: Thematic Analysis by Braun & Clarke, 2006

systematic approach enables analysts to produce credible and nuanced interpretations, providing valuable insights into complex qualitative phenomena.

3.6 Research Ethics

Research ethics is a cornerstone of any academic endeavor, especially when qualitative data is collected through interviews. This thesis, which aims to enhance Corporate Sustainability Reporting Directive (CSRD) practices within the IT industry, maintains rigorous ethical standards to protect participant rights and ensure the integrity of the research process.

Before conducting each interview, participants receive a detailed informed consent form which shows in Appendix 2. This document outlines the nature of the research, its objectives, and the specific procedures involved. Participants are given the choice of an oral or written explanation of the project, ensuring they fully understand the study's scope and their role within it. Key elements of the consent process include voluntary participation, confidentiality, and anonymity. Participation in the research is entirely voluntary. Interviewees can withdraw at any point without any consequences, emphasizing the non-coercive nature of the study. All collected data is anonymized to protect the identity of participants. Personal contact details are stored separately from interview data and are inaccessible to unauthorized parties. Post-research, all contact information is permanently deleted.

The ethical considerations in this research extend beyond obtaining consent. They encom-

pass the respectful treatment of participants, maintaining their dignity and autonomy, and ensuring that the research benefits outweigh any potential risks. Specific ethical practices include the right to withdraw, data destruction, and non-identifiable reporting. Participants can withdraw from the study without any justification, and their data will be excluded from analysis and publications. Upon request, any data pertaining to a participant can be destroyed to uphold their privacy. Interview excerpts used in publications are carefully selected to maintain anonymity and prevent any context that could lead to the identification of individuals.

This research project complies with established ethical standards and guidelines, particularly those outlined by the GDPR and ethical guidelines specific to qualitative research. Ethical approval for this study was obtained from the relevant institutional review board, ensuring that all procedures conform to high ethical standards. By adhering to these ethical guidelines, the research ensures the integrity and reliability of its findings while respecting the rights and privacy of its participants. The informed consent process and stringent data protection measures provide a robust ethical framework, contributing to the credibility and ethical soundness of the research.

The principles of ethical research are widely supported in the literature. For instance, Wiles et al., 2008 highlight the importance of informed consent and the protection of participants' privacy in qualitative research. Similarly, Tracy, 2010 emphasizes the necessity of maintaining ethical rigor through practices such as voluntary participation and confidentiality in qualitative research.

By adhering to these ethical guidelines, the research ensures the integrity and reliability of its findings while respecting the rights and privacy of its participants. The informed consent process and stringent data protection measures provide a robust ethical framework, contributing to the credibility and ethical soundness of the research.

4 RESULTS

The following section presents the results of the study, beginning with a brief summary of the literature review to provide context for the subsequent interview findings. The literature review outcomes are used as a basis for the interviews, guiding the focus areas and helping to identify key themes. This integrated approach ensures that the findings from the primary research are grounded in existing knowledge and address relevant challenges and opportunities in CSR practices. The results are organized to first provide an overview of the literature review, followed by detailed thematic analysis of the interview data, leading to the identification of best practices.

4.1 Literature Review Summary

Before presenting the findings from the interviews, it is important to briefly summarize the outcomes of the literature review. The literature review provided a comprehensive overview of existing CSR practices, methodologies, and frameworks within the IT industry. This foundational knowledge was served as the foundation for understanding the context and identifying the key challenges that organizations face. The outcomes from the literature review served as a basis for formulating the interview questions and guided the focus areas for the subsequent analysis.

- **Data Collection Challenges:** The complexity and burden of data collection processes were consistently noted as significant barriers. Organizations struggle with gathering accurate and comprehensive data due to diverse data sources and lack of standardized methods.
- **Regulatory Compliance:** The evolving regulatory landscape, particularly with the introduction of the CSRD framework, has increased the compliance burden on IT companies. Many organizations find it challenging to keep up with the new requirements and integrate them into their existing reporting processes.
- **Integration of Sustainability into Business Processes:** The literature emphasized the need for sustainability to be embedded into core business strategies rather than treated as a peripheral activity. This integration is crucial for achieving long-term sustainability goals and enhancing overall business performance.
- **Stakeholder Engagement:** Effective communication of sustainability initiatives and outcomes to stakeholders was identified as a critical success factor. Enhanced stakeholder trust and engagement can lead to better support for sustainability efforts and improved organizational reputation.

These insights from the literature review informed the design of the interview questions and helped in identifying the specific areas to explore further through primary research.

4.2 Interview Results

The initial part of this chapter compiles the qualitative data gathered from interviews with sustainability expertise from each companies. These discussions aimed to understand the current landscape of Corporate Sustainability Reporting in the IT sector, as well as the challenges organizations are encountering.

4.2.1 Company Profiles and Participant

To provide context, this subsection offers a detailed breakdown of the companies and their respective interview participants. The companies ranged from small startups to large multinational corporations, representing a wide array of organizational sizes and structures. This diversity ensures a comprehensive understanding of CSRD practices across different types of organizations. The participants, who operated within these varied companies, held a spectrum of roles. Their experience levels varied, providing insights from both seasoned professionals and newer entrants to the field. This combination of diverse roles and experiences among participants enhances the depth of understanding regarding the implementation and challenges of CSRD practices.

Companies

No	Field	Company Size (Number of Employees)
1	Telecommunications and Digital services	5001-10000
2	Digital Transformation	1001-5000
3	Digitalisation	1001-5000
4	Digital product design & Development services	501-1000
5	Software as a service (SAAS)	less than 10
6	Digital Technology Agency	501-1000
7	Built environment services from planning to expert and digital services	1001-5000

Table 2: Companies Field and Size

The table 2 provides an overview of seven companies, each from a different field within the IT sector, along with their respective company sizes in terms of the number of employees.

The first company operates in the telecommunications and digital services sector and has between 5001 and 10000 employees. The second company is focused on digital transformation and employs between 1001 and 5000 people. Similarly, the third company works in the digitalisation field and also has between 1001 and 5000 employees. The fourth company provides digital product design and development services, with a workforce of between 501 and 1000 employees. The fifth company is in the Software as a Service (SAAS) sector and is significantly smaller, with less than 10 employees. The sixth company operates as a digital technology agency and has between 501 and 1000 employees. Finally, the seventh company provides built environment services, from planning to expert and digital services, and employs between 1001 and 5000 people.

For this research, the fifth company stands out as it operates uniquely compared to the others. It offers software as a service, specializing in climate training solutions, carbon calculation, and sustainability reporting. Due to its size, Company 5 will not be subject to the CSRD regulations set to take effect in 2026. However, the data provided by this company is highly valuable, given its expertise in delivering services that enhance clients' sustainability practices and business operations.

This table 2 highlights the range of company sizes and fields within the IT sector that are being considered in this thesis. By including companies from various fields and of different sizes, this research on Corporate Sustainability Reporting Directive (CSRD) practices can benefit from a broad perspective, encompassing diverse operational contexts and sustainability reporting challenges. This diversity is crucial for developing comprehensive and effective sustainability reporting strategies that can be adapted to different types of organizations within the IT industry.

Participant

No	Position	Sustainability Position / Task
1	ESG Manager	Promoting sustainability involves data management and advancing human rights initiatives.
2	Chief of Staff	Focused on safety and environmental responsibility.
3	Chief Sustainability Officer	Corporate sustainability reporting initiative
4	General Counsel	CSRD coordinator
5	Head of Impact	Software Sustainability Platform
6	Senior Service Designer, Sustainability Staff Expert, User Researcher (PhD)	Build a community for sustainability, leadership, strategy, and accessibility.
7	Chief Communications and Sustainability Officer	Sustainability director

Table 3: Participants' Job Positions and Sustainability Tasks within the Company

The table 3 illustrates the landscape of sustainability roles within seven companies. It lists the specific titles of roles and the primary sustainability-related responsibilities associated with each role.

The positions outlined in the table include roles such as ESG Manager, Chief of Staff, Chief Sustainability Officer, General Counsel, Head of Impact, Senior Service Designer (Sustainability Staff Expert, User Researcher), and Chief Communications and Sustainability Officer. Each role has distinct responsibilities, ranging from promoting sustainability through data management and human rights initiatives, focusing on safety and environmental responsibility, leading corporate sustainability reporting initiatives, coordinating CSRD compliance, managing software sustainability platforms, building communities for sustainability, leadership, strategy, and accessibility, to directing sustainability efforts.

A notable observation from the table is that two of the seven companies do not have a designated official position for sustainability. This could indicate a potential oversight in prioritizing sustainability within their organizational structure, despite their expressed concerns about sustainability. This insight can be seen as a reflection of budget constraints or an indication of the challenges in fully integrating sustainability practices across the organizations.

The diversity of roles highlighted in the table reflects different approaches to incorporating sustainability within corporate structures. These roles span various focus areas, including data management, safety, environmental responsibility, compliance, technical platforms, community building, and communication. This diversity indicates that sustainability is a multifaceted issue requiring a range of expertise and strategies to address effectively. The presence of high-level roles such as Chief Sustainability Officer and Chief Communications and Sustainability Officer suggests that some companies place significant emphasis on sustainability at the executive level, integrating it into their core leadership and strategic planning.

In conclusion, the table serves as a snapshot of how different companies integrate sustainability into their organizational structures. The absence of designated sustainability roles in some companies underscores potential budgetary or prioritization challenges. This analysis provides a foundation for discussing the current state of Corporate Sustainability Reporting (CSR) and the varying degrees of commitment and resource allocation towards sustainability in the IT industry. These insights align with the main research question on enhancing Corporate Sustainability Reporting Directive (CSRD) practices and can be further explored to address the sub-research questions regarding current practices, challenges, solutions, and measurable benefits in sustainability reporting.

4.2.2 Thematic Analysis Result

This analysis delves into the current landscape of Corporate Sustainability Reporting (CSR) within the IT sector, highlighting prominent themes, obstacles, and strategies derived from interviews with multiple IT firms. The gathered data sheds light on organizational structures, frameworks, data collection methods, stakeholder engagement, and prevalent challenges encountered by these companies, which are visually represented in Figure 9.

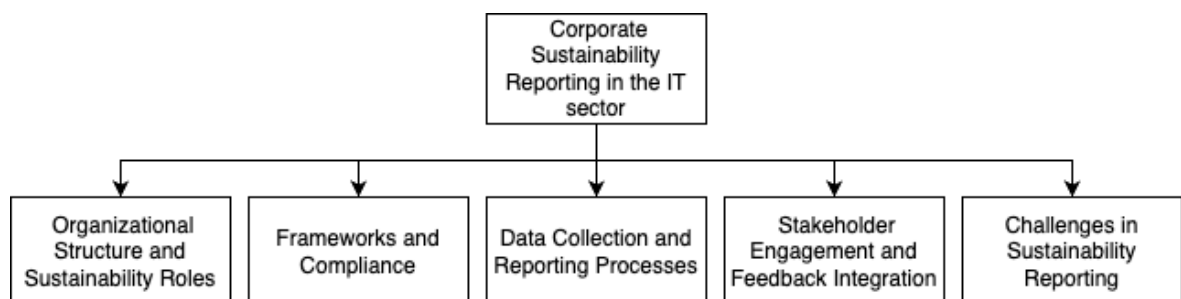


Figure 9: Thematic Analysis Map

Next, the details for each theme will be explained using Table 2 as a reference when referring to companies, and Table 3 as a reference when referring to interviewees.

Theme1: Organizational Structure and Sustainability Roles

This theme explores how companies organize their sustainability efforts, including the roles and responsibilities of various team members. It examines the presence of dedicated sustainability teams, task forces, and the involvement of leadership in driving sustainability initiatives. The roles within sustainability range from full-time dedicated positions to part-time responsibilities shared among team members.

Various organizations approach sustainability by integrating it across multiple departments rather than establishing dedicated sustainability teams. For instance, Company 4 operates without a designated sustainability team, instead relying on a collaborative approach where sustainability tasks are part of broader roles within finance, HR, and legal departments. This integration can enhance cross-functional collaboration but may dilute focus and accountability. As a representative from Company 4 stated, *“We don’t have a designated, sustainability team or no single person works solely in CSRD or sustainability matters.”*

Conversely, Company 6 employs a task force model with part-time involvement from employees, emphasizing sustainability as part of the leadership team’s responsibilities. While this approach fosters a top-down commitment, it risks overburdening employees who juggle multiple roles. As one employee from Company 6 explained, *“We don’t have a full-time sustainability team. We have, sort to say, a task force and interest group on sustainability, and also sustainability is part of the leadership team responsibilities. But we don’t have a dedicated organization or dedicated team for that. So it is more like persons in that team are doing it part-time, and most in the team are also doing client work, so customer projects. In that sense, we don’t have a full-time dedicated team for the matter.”* As also Company 2 follows a collaborative approach with defined roles within a multi-departmental team, indicating a well-integrated strategy. As described by a representative from Company 2, *“So well, there is a virtual team or we take care of those sustainability topics as a part of our job.”*

Company 3, on the other hand, employ a more structured approach. Company 3 has a Chief Sustainability Officer who coordinates efforts with stakeholders from various departments, ensuring a centralized focus on sustainability. This role not only encompasses internal sustainability reporting but also extends to client sustainability efforts. As the Chief Sustainability Officer of Company 3 stated, *“I’m the Chief Sustainability Officer. So my main role is I’m responsible for our own corporate responsibility work like reporting, of course, but also part of my work is developing our service for our customers while using digital tools to reach their own sustainability goals or build their own reporting mechanisms and things like that, collect their own data. So in that sense, I think I have perspectives for two different*

directions. This is something I do myself, this reporting stuff, but also trying to help our customers in a way.”

Company 1 has a dedicated corporate sustainability team with a clear division of responsibilities. The ESG manager drives the reporting process, while the vice president oversees the overall sustainability strategy. As an ESG manager from Company 1 described, *“As an ESG manager in our corporate sustainability team, we look at all sustainable-related matters, ranging from sustainable strategy to sustainable reporting, which includes climate, human rights, and more. These tasks and actions are extensive and require thorough implementation. Out of all these responsibilities, I am primarily responsible for driving our sustainable reporting process, including process development, data collection, analysis, reporting, and also driving the human rights work.”*

Company 7 has a dedicated group sustainability team, with the team leader balancing responsibilities between sustainability and brand communications. This strategic integration within the broader corporate communication framework ensures a cohesive approach to sustainability. As the team leader explained, *“The responsibility for the sustainability report, that part of the annual reporting, is on the group sustainability team. So, my team main responsible, but then I have in my team one person who is leading the reporting process and also the development of the reporting process. So, one person from the sustainability team is responsible and leading that process.”*

Company 5, a small startup, integrates sustainability roles within core functions. The head of impact leads initiatives, highlighting the focus on in-house development and the use of third-party resources for specific tasks. This model demonstrates flexibility and resourcefulness but may limit the scope and scale of sustainability efforts due to limited resources. Despite its small size, Company 5's unique position as a provider of climate training solutions, carbon calculation, and sustainability reporting services allows it to significantly influence its clients' sustainability practices and business operations. As the head of impact explained, *“Now these days you would have to pay a consultant, let's say 10, 20, 50 thousand, depending on your need and the size of your business to engage them in sustainability work, data collection, analysis, strategy, and so on and so forth. What we will do is that we will offer microservices when you have any particular issue that you identify on your platform and you can do like a micro purchase through our system to engage a consultant from our roster.”*

These varying organizational structures highlight the trade-offs between dedicated sustainability roles and integrated approaches. While dedicated teams ensure focused efforts, integrated models can embed sustainability deeper into organizational culture but may face challenges in accountability and resource allocation.

The table 4 provided illustrates the organizational structure concerning sustainability roles across seven different companies, specifically focusing on how they manage the preparation of their Sustainability Reports. This table is relevant for Theme 1, which deals with Organizational Structure and Sustainability Roles. It sheds light on whether companies have dedicated roles specifically for sustainability reporting or if they rely on integrated roles, such as task forces or part-time assignments.

Company No	dedicated sustainability roles for doing the Sustainability Report	integrated sustainability(Task force/ Part-time task) for doing the Sustainability Report
1	/	-
2	-	/
3	/	-
4	-	/
5	-	-
6	-	/
7	/	-

Table 4: Allocation of Responsibilities for Sustainability Reporting Among Companies(/ = Yes, - = No)

Firstly, the column for “Dedicated sustainability roles for doing the Sustainability Report” indicates that Companies 1, 3, and 7 have assigned specific roles or individuals responsible for sustainability reporting. This suggests a formalized approach to sustainability, likely indicating a higher level of commitment and resource allocation towards accurate and comprehensive sustainability reporting. These companies possibly recognize the strategic importance of sustainability and thus dedicate resources to ensure detailed and precise reporting.

In contrast, the column for “Integrated sustainability (Task force/Part-time task) for doing the Sustainability Report” shows that Companies 2, 4, and 6 manage their sustainability reporting through integrated roles. This means that the responsibility is shared among broader roles within the organization or managed by a task force on a part-time basis. This approach indicates a more integrated but potentially less specialized focus on sustainability, where the task of reporting is one of many responsibilities managed within broader organizational roles. Notably, Company 5 does not comply with CSR.

The table 4 underscores the diversity in organizational approaches to sustainability reporting, reflecting varying levels of prioritization and resource allocation. It prompts further investigation into the effectiveness of these different structures in producing accurate and comprehensive sustainability reports. Understanding these dynamics can help identify best practices and scalable solutions for organizations looking to enhance their sustainability re-

porting practices under the CSRD framework.

Theme 2: Frameworks and Compliance

This theme focuses on the frameworks and standards used for sustainability reporting. It highlights how companies align their reporting with internationally recognized standards such as GRI and CSRD to ensure compliance and comprehensiveness.

The table 5 provides a snapshot of the sustainability reporting practices among seven companies, focusing on their prior experience with sustainability reporting and the frameworks they have utilized. The data reflects a variety of practices and frameworks, with a noticeable preference for the Global Reporting Initiative (GRI).

Company No	Have done sustainability report for in own company before	Previous / Experienced Sustainability Reporting Framework
1	Yes	GRI, SASB, EU taxonomy regulation, TCFD
2	Yes	GRI
3	Yes but it was integrated within their annual financial reports	Stakeholder Capitalism Metrics
4	No	NFRD
5	No	-
6	Yes	GRI
7	Yes	GRI

Table 5: Overview of Sustainability Reporting Practices and Frameworks Among Selected Companies

One significant observation is the prevalence of the GRI framework. Companies 1, 2, 6, and 7 have all utilized the GRI framework, indicating a significant reliance on GRI, which has been established since 1997 (*GRI - Mission & history* 2024.). The GRI framework provides a robust and well-recognized foundation for sustainability reporting. Its comprehensive nature makes it a preferred starting point for many organizations.

Another noteworthy practice is the integration of sustainability reporting with financial reports. Company 3 has integrated its sustainability reporting within its annual financial reports using the Stakeholder Capitalism Metrics (*Measuring Stakeholder Capitalism* 2024.). This approach signifies a trend towards integrating financial and non-financial reporting, aligning with evolving regulatory requirements and stakeholder expectations.

The table 5 also shows the use of multiple frameworks by some companies. For instance, Company 1 employs a mix of frameworks, including GRI (*GRI - How to use the GRI Standards* 2024.), SASB(SASB 2024.), EU taxonomy regulation(*EU taxonomy for sustainable*

activities - European Commission 2024.), and TCFD(*Task Force on Climate-Related Financial Disclosures | TCFD*) 2024.). This comprehensive approach likely aims to meet diverse regulatory requirements and stakeholder needs, indicating a mature and sophisticated reporting strategy. However, there is a lack of previous reporting experience among some companies. Companies 4 and 5 have no prior experience with sustainability reporting, highlighting a potential area for development, especially with the increasing regulatory pressure to comply with frameworks like the CSRD.

The variety in frameworks used by different companies reflects the diversity in reporting standards and the need for companies to choose frameworks that best fit their specific contexts and stakeholder expectations. For example, Company 4 uses NFRD, and Company 3 uses Stakeholder Capitalism Metrics, demonstrating the tailored approach companies take in their sustainability reporting. The data underscores several important implications for enhancing Corporate Sustainability Reporting under the CSRD framework. Given the strong foundation provided by GRI, companies new to sustainability reporting can leverage GRI as a starting point. The established guidelines and extensive resources available can facilitate easier adoption and compliance with CSRD requirements.

The need for comprehensive frameworks is underscored by the practices of companies like Company 1, which illustrate the advantages of utilizing multiple frameworks to address diverse reporting requirements. By employing various frameworks, organizations can capture a wider array of sustainability metrics and provide a more holistic view of their environmental impact. This multifaceted approach can serve as a valuable model for other companies aiming to enhance the comprehensiveness and accuracy of their sustainability reporting.

Integrating sustainability reporting within annual financial reports, as practiced by Company 3, exemplifies the CSRD's emphasis on cohesive and holistic reporting. This integration not only streamlines the reporting process but also ensures that sustainability information is presented in a context that highlights its financial relevance. By embedding sustainability metrics within financial disclosures, companies can enhance transparency, facilitate stakeholder understanding, and underscore the strategic importance of sustainability initiatives.

For companies with no prior reporting experience, such as Companies 4 and 5, targeted support and resources are essential to meet CSRD standards effectively. These organizations will benefit from tailored training programs, detailed guidelines, and specialized tools designed to simplify the reporting process. Providing such resources can help these companies overcome initial hurdles, build robust reporting systems, and ensure compliance with CSRD requirements from the outset.

The varied use of frameworks underscores the importance of flexibility in CSRD implementation. Companies should have the latitude to select or combine frameworks that align with their specific operational contexts and sustainability goals. This flexibility not only accommodates the diverse nature of businesses but also promotes innovation in sustainability reporting practices. Ensuring that the CSRD framework allows for such adaptability will be crucial in fostering comprehensive and effective sustainability reporting across the IT industry.

The table 5 provides valuable insights into current practices and challenges in sustainability reporting. The predominance of the GRI framework highlights its foundational role, while the diversity in frameworks and integration approaches underscores the need for adaptable and supportive measures in enhancing CSRD compliance. These findings will be instrumental in shaping the recommendations and roadmaps proposed in the thesis for improving Corporate Sustainability Reporting in the IT industry.

Theme 3: Data Collection and Reporting Processes

In this theme, we will examine the data collection and reporting processes employed by various companies to comply with sustainability frameworks and regulations, such as the Corporate Sustainability Reporting Directive (CSRD). Each company has developed unique methodologies and systems to ensure accurate data collection, thorough verification, and comprehensive reporting. By analyzing the strategies and practices of these companies, we can identify common challenges and best practices in sustainability reporting. This section provides detailed insights into how companies collect, validate, and report their sustainability data, highlighting the collaborative efforts and tools used to achieve compliance and maintain transparency.

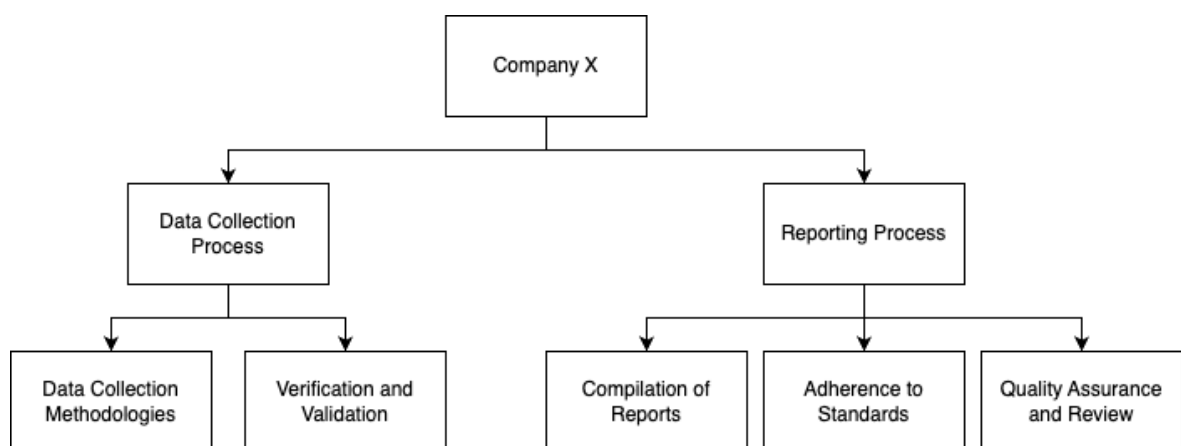


Figure 10: Overview structure of this section for each company(X = number of a company)

As illustrated in the figure 10, the processes can be broadly categorized into two main areas: the Data Collection Process and the Reporting Process. The Data Collection Process involves data collection methodologies and verification and validation steps to ensure accuracy. The Reporting Process includes the compilation of reports, adherence to standards, and quality assurance and review to ensure compliance and accuracy. By examining these structured approaches, we gain a comprehensive understanding of the effective practices in sustainability data management and reporting.

Company 1

Data Collection Process

- **Data Collection Methodologies:** The company has developed and utilized a sustainability database tool for data collection. This tool allows different departments to input data directly into a centralized system, ensuring consistency and ease of access. The tool features capabilities for data validation, error checking, and the calculation of key performance indicators (KPIs). Despite having a robust system, the organization aims to improve data collection frequency and ensure all employees, especially new ones, understand the importance and methodology of data collection.
- **Verification and Validation:** The collected data undergoes multiple levels of validation to ensure accuracy. This includes checks by the data provider, additional checks by the sustainability team, and final assurance by an external assurance company. The company employs a “six eyes” principle where the data is reviewed and validated by multiple parties to minimize errors. They also have mechanisms to request explanations from data providers if there are significant variances compared to previous periods.

Reporting Process

- **Compilation of Reports:** The sustainability team, led by the Vice President of Sustainability, is primarily responsible for creating the sustainability report. This includes gathering content, analyzing data, and drafting the report. The investor relationship team manages the publication process, determining the format and timing of the report to meet stakeholders' needs. They ensure that the report aligns with investors' expectations and regulatory standards.
- **Adherence to Standards:** Compliance with the CSRD is ensured by mapping current practices and policies against regulatory requirements, identifying gaps, and creating action plans to address these gaps. Regular communication and early engagement with key stakeholders facilitate timely collection of necessary data and inputs, ensuring a smooth reporting process.
- **Quality Assurance and Review:** The report undergoes several rounds of review by different stakeholders, including the sustainability team, department experts, a governance sustainability board, and top management, before being approved by the Board of Directors. This thorough review process ensures the accuracy and integrity of the report.

Company 2

Data Collection Process

- **Data Collection Methodologies:** Data collection is a collaborative effort across multiple departments. For example, environmental data is gathered from various offices regarding electricity and heating consumption, while HR data is collected for employee metrics such as diversity and sick leave. Much of the data collection is done manually using Excel files, including gathering data from acquired companies not yet integrated into the company's main ERP systems. The data is then consolidated and verified for accuracy.
- **Verification and Validation:** The data undergoes several levels of verification to ensure its accuracy. Initial checks are performed by the data providers, followed by reviews by the sustainability team. Significant data variances are flagged and investigated further. Currently, there is a reliance on the trustworthiness of the data providers. While this system works for now, future requirements may necessitate more formal audit trails and internal verification processes.

Reporting Process

- **Compilation of Reports:** The sustainability report is compiled through a team effort, with different departments responsible for various sections. The General Counsel oversees the overall process, while specific topics are handled by respective department heads. Data is compiled using Excel templates and Word documents, with each team updating their respective sections. The compiled report is then reviewed and visually designed for publication.
- **Adherence to Standards:** The report follows frameworks such as GRI as benchmarks, although not strictly adhering to them. The aim is to practice and implement the best reporting practices in preparation for CSRD compliance. With the upcoming CSRD requirements, the company is gearing up to ensure all metrics are auditable and compliant with the new standards, including conducting a double materiality analysis to identify relevant materials.
- **Quality Assurance and Review:** The report undergoes several rounds of review, including internal reviews by the sustainability governance board and external assurance by third parties, ensuring the accuracy and integrity of the report. Future reports will require more formal audit trails to comply with CSRD requirements, involving better documentation and verification of data sources and processes.

Company 3

Data Collection Process

- **Data Collection Methodologies:** Data collection involves multiple departments, including HR for employee data, environmental officers for energy use, and other relevant departments for specific sustainability metrics. Currently, data is collected manually using Excel sheets. This includes gathering data from different sources and consolidating it into a single document for analysis. However, the company is transitioning to a more automated system. They have acquired licenses for software that will be implemented to automate data collection, aiming to reduce the manual workload and improve accuracy.
- **Verification and Validation:** The data undergoes several levels of verification to ensure accuracy. Initial checks are performed by the data providers, followed by reviews by the sustainability team. Any significant variances are flagged and investigated. Currently, the system relies heavily on trust in the data providers. The informant acknowledged the need for more robust verification processes, especially when collecting data from subcontractors.

Reporting Process

- **Compilation of Reports:** The company integrates its sustainability report with its annual financial report, ensuring coherence between financial and sustainability data. The report is compiled through a collaborative effort, with different departments responsible for various sections. The informant coordinates the process, ensuring all necessary data is collected and accurately reported.
- **Adherence to Standards:** The company follows the World Economic Forum's stakeholder capitalism metrics as their primary framework, guiding their reporting practices and ensuring alignment with international standards. With upcoming CSRD requirements, the company is preparing to ensure all metrics are auditable and compliant, including conducting a double materiality assessment to identify relevant materials.
- **Quality Assurance and Review:** The report undergoes multiple rounds of review, including internal reviews by the sustainability governance board and external assurance by third parties, ensuring the accuracy and integrity of the report. Although there have been minor errors in past reports, such as untranslated text or incorrect pie charts, these issues are usually identified and corrected promptly.

Company 4

Data Collection Process

- **Data Collection Methodologies:** Data collection is a collaborative effort involving multiple departments. For instance, HR data is collected for employee metrics, while environmental officers gather data on energy use. Currently, much of the data collection is done manually using Excel sheets, consolidating data from various sources within the organization for analysis. The company uses multiple systems, including Cognos(*IBM Cognos Analytics 2024.*) and Power BI(*Power BI - Data Visualization | Microsoft Power Platform 2024.*), to pull data from various sources and compile it into a single report.
- **Verification and Validation:** Data undergoes several levels of verification to ensure accuracy. Initial checks are done by data providers, followed by reviews by the sustainability team. Any significant variances are flagged for further investigation. Clear guidelines and instructions are provided to ensure that data collected is consistent and meets the required standards, involving setting up guidelines for interpreting and using specific data points.

Reporting Process

- **Compilation of Reports:** The sustainability report is compiled by a team effort, with different departments responsible for various sections. The process is coordinated by the General Counsel, who ensures all necessary data is collected and accurately reported. Data is compiled using Excel templates and Word documents. Each department updates their respective sections, and the compiled report is then reviewed and designed for publication.
- **Adherence to Standards:** The company follows frameworks like GRI to guide their reporting practices, ensuring alignment with international standards. With upcoming CSRD requirements, the company is preparing to ensure all metrics are auditable and compliant, conducting double materiality assessments to identify relevant materials.
- **Quality Assurance and Review:** The report undergoes several rounds of review, including internal reviews by the sustainability governance board and external assurance by third parties, ensuring the accuracy and integrity of the report. Ensuring that data is accurate and free of errors is a priority, addressing any discrepancies and maintaining data quality.

Company 5

For this company, the described process will be the one followed for clients, as it does not comply with CSRD.

Data Collection Process

- **Data Collection Methodologies:** Data collection is a collaborative effort involving multiple departments within client organizations. For example, data on energy use, emissions, and other environmental metrics are collected from various sources within the client's organization. Initially, data is collected manually using spreadsheets, where clients input their consumption data (e.g., electricity usage) and specific details about where the consumption has taken place. This data is then uploaded into the company's system for further processing. The company has developed a platform that automates greenhouse gas emission calculations based on the input data. The platform uses databases of emission factors to calculate the emissions and provides options for users to create custom emission factors if needed.
- **Verification and Validation:** Data undergoes several levels of verification to ensure accuracy. Initial checks are performed by the data providers within client organizations, followed by reviews by the sustainability team at the company. Any significant variances are flagged and investigated. The platform incorporates automated checks to

validate the data. For instance, if the data input seems inconsistent with the expected values based on the client's size and industry, the system prompts the user to reconfirm the data.

Reporting Process

- **Compilation of Reports:** The sustainability report for clients is compiled through a collaborative effort, with different departments within client organizations responsible for various sections. The General Counsel within the client organization coordinates the process, ensuring all necessary data is collected and accurately reported. Data is compiled using the company's platform, which processes and aggregates the data from various sources within the client's organization.
- **Adherence to Standards:** Currently, the company's platform aligns with the Global Reporting Initiative (GRI) standards, which are considered more stable and easier for organizations to adopt initially. The focus on GRI ensures that the reports for clients adhere to well-established international standards and regulatory requirements. While the upcoming CSRD requirements are acknowledged, the company is preparing to incorporate these in the future. As part of this preparation, the company will conduct double materiality assessments service to identify relevant materials for future compliance.

The data collection and reporting processes for CSRD compliance managed by this company on behalf of its clients are comprehensive, involving multiple layers of verification and stakeholder engagement. By leveraging structured methodologies and using advanced systems, the company aims to enhance the accuracy, efficiency, and impact of the sustainability reports for its clients.

Company 6

Data Collection Process

- **Data Collection Methodologies:** Data collection at the company is a collaborative effort across multiple departments. For instance, data on energy use and other environmental metrics are gathered from various sources within the organization. The process initially involves manual data entry using spreadsheets, but the company also employs software tools like Carbon Fox (*Automated insights on your company's CO2 emissions 2024.*) for automating greenhouse gas emission calculations based on the collected data. These tools use databases of emission factors to compute emissions, allowing for the creation of custom emission factors if necessary. The company integrates multiple systems for data collection, such as financial software for invoicing and HR systems

for employee data.

- **Verification and Validation:** The data undergoes several levels of verification to ensure accuracy. Initial checks are performed by data providers, followed by reviews by the sustainability team. Significant variances are flagged for further investigation. Automated systems also validate the data.

Reporting Process

- **Compilation of Reports:** The sustainability report is compiled through a collaborative effort, with different departments responsible for various sections. The finance team coordinates the process, ensuring all necessary data is collected and accurately reported. Data is compiled using tools like Carbon Fox (*Automated insights on your company's CO2 emissions 2024.*) and other internal systems, which aggregate data from various sources within the organization to form a comprehensive report.
- **Adherence to Standards:** The company follows sustainability frameworks such as ESG for their reporting practices, ensuring alignment with international standards and regulatory requirements. With upcoming CSRD requirements, the company is preparing to ensure all metrics are auditable and compliant. This involves conducting double materiality assessments to identify relevant materials.
- **Quality Assurance and Review:** The report undergoes multiple rounds of review, including internal reviews by the sustainability governance board and external assurance by third parties. This process ensures the accuracy and integrity of the report. Common errors, such as incorrect unit selection and misreported data, are identified and corrected through the platform's automated checks and manual reviews.

Company 7

Data Collection Process

- **Data Collection Methodologies:** Data collection is a collaborative effort involving multiple departments, such as HR, finance, IT, and premises. For instance, environmental data, including energy use and carbon footprint, is gathered from various sources within the organization. Initially, data collection involves manual entry using Excel spreadsheets. The company also employs specific systems for data collection, although there is a strong emphasis on manual processes due to the detailed nature of the data required. External consultants are involved in ensuring the accuracy and compliance of the data collected. These partners provide assurance and audit services, highlighting areas for improvement and compliance.
- **Verification and Validation:** Data undergoes several levels of verification to ensure ac-

curacy. Initial checks are performed by data providers, followed by reviews by the sustainability team. Significant variances are flagged for further investigation. Automated systems and third-party consultants validate the data to ensure it meets the required standards and is free of errors.

Reporting Process

- **Compilation of Reports:** The sustainability report is created through a team effort, with each department handling specific sections. The finance team oversees the process, making sure all essential data is gathered and accurately presented. Both manual methods and specialized software tools are used to compile data from various sources within the organization, resulting in a thorough report.
- **Adherence to Standards:** The company follows sustainability frameworks such as GRI for their reporting practices, ensuring alignment with international standards and regulatory requirements. In preparation for the upcoming CSRD requirements, the company is working to ensure all metrics are both auditable and compliant. This effort includes performing double materiality assessments to pinpoint relevant materials.
- **Quality Assurance and Review:** The report goes through several review stages, including internal evaluations by the sustainability governance board and external validation by third-party auditors. This process ensures the report's accuracy and integrity. Common mistakes, such as selecting the wrong units or misreporting data, are detected and corrected through a combination of automated checks and manual reviews on the platform.

Summary of the Current Sustainability Reporting Creation Process

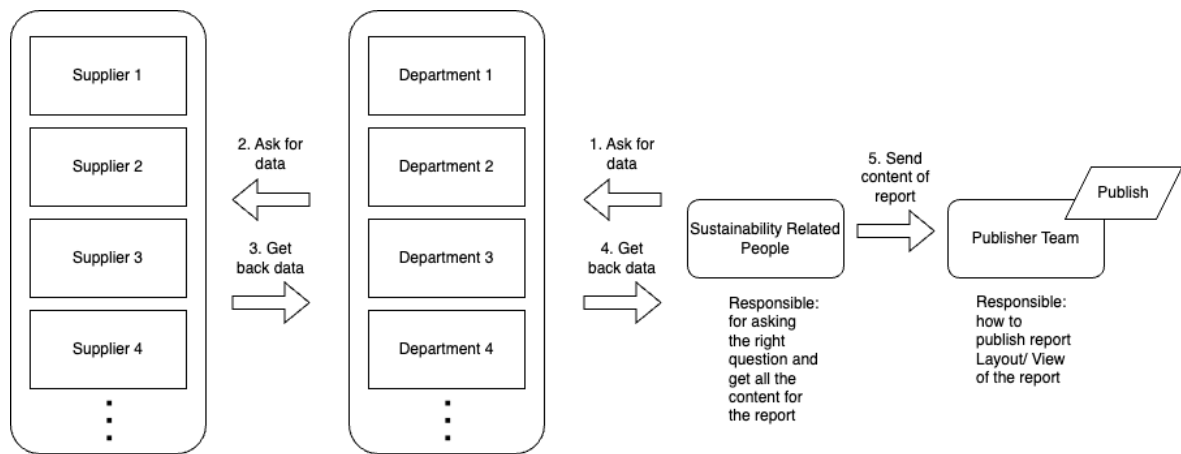


Figure 11: Current Sustainability Reporting Creation Process

The Figure 11 illustrates the process of data collection and report generation for Corporate Sustainability Reporting (CSR) within an organization. This flowchart is essential for understanding how sustainability-related data is gathered from various sources and compiled into a comprehensive report.

The process begins with various internal departments within the organization requesting relevant sustainability data from different suppliers. For example, Department 1, Department 2, Department 3, and Department 4 each have specific suppliers they interact with, such as Supplier 1, Supplier 2, Supplier 3, and Supplier 4. Each department is responsible for asking its respective suppliers for the necessary data. This data could include information on environmental impact, resource consumption, waste management practices, and other sustainability metrics. The suppliers then provide the requested information back to the respective departments.

Once the internal departments receive the data from the suppliers, they compile and prepare the data for further analysis. The collected data from both external suppliers and internal sources within each department is then passed on to the Sustainability Related People. This group is responsible for ensuring the accuracy and comprehensiveness of the data. They formulate the right questions to ask, gather all the necessary data, and ensure it is suitable for inclusion in the sustainability report. Once the data is compiled and analyzed, this team prepares the content for the sustainability report and sends it to the publisher team.

The publisher team is responsible for the final presentation and dissemination of the sustainability report. Their responsibilities include handling the layout, design, and overall visual presentation of the report, ensuring that it is professional and accessible. The finalized report is then published, making the sustainability data and analysis available to stakeholders,

including investors, regulators, and the public.

The current state of Corporate Sustainability Reporting is depicted as a structured and systematic approach to data collection and reporting. This method is crucial for achieving accurate and efficient sustainability reporting. The involvement of both external suppliers and internal departments ensures comprehensive data coverage.

However, several key issues and challenges are associated with this process. Integrating data from diverse sources can be challenging due to differences in data formats, units of measurement, and reporting standards. Ensuring the accuracy and reliability of the data received from various suppliers and departments is critical, requiring robust verification mechanisms. Moreover, effective communication and coordination between the sustainability team, suppliers, and internal departments are essential for timely and accurate data collection.

To address these challenges, implementing standardized data collection protocols is recommended. Standardized templates and protocols can streamline the data gathering process. Additionally, using software tools that can automate the integration and verification of data from multiple sources can enhance efficiency and accuracy. Providing training to suppliers and internal departments on the importance of accurate data reporting and the use of standardized templates is also beneficial.

Measurable benefits of these solutions include enhanced reporting accuracy, as improved data collection and integration processes lead to more accurate and reliable sustainability reports. Efficiency in reporting is also increased, as standardized and automated processes reduce the time and effort required for data collection and report preparation. Furthermore, high-quality sustainability reports can enhance trust among stakeholders, demonstrating the organization's commitment to transparency and sustainability.

In summary, this diagram serves as a useful tool for understanding the flow of sustainability data within an organization. By addressing the challenges and implementing the solutions, organizations can significantly enhance their Corporate Sustainability Reporting practices under the CSRD framework.

Theme 4: Stakeholder Engagement and Feedback Integration

In this theme, we explore how various companies engage with their stakeholders and integrate feedback into their sustainability reporting processes. Effective stakeholder engagement is important for the accurate and timely collection of sustainability data, while feedback integration helps to refine and improve reporting practices over time. We will examine the

approaches of different companies in these areas, highlighting both their communication strategies and the mechanisms they use to gather and incorporate feedback. This analysis provides insights into the best practices and challenges in stakeholder engagement and feedback integration within the context of sustainability reporting.

Stakeholder Engagement

In the companies that comply with the CSRD, effective stakeholder engagement starts with early communication to inform various departments and stakeholders about data requirements and deadlines. Companies 1, 2, 3, 4, 6, and 7 emphasize the importance of this initial communication to ensure that each department is aware of its responsibilities and the timelines for data submission. These companies maintain continuous interaction through regular follow-ups and reminders to ensure smooth and timely data collection. Company 5, which serves clients without directly complying with CSRD, focuses on training for sustainability development and integrates this training with the use of their software. This approach ensures that their clients' stakeholders are knowledgeable in both sustainability practices and the technical aspects of data collection and reporting, enhancing the overall effectiveness of data submission.

Feedback Integration

Regarding feedback integration, there are distinct differences among the companies. Company 1 has implemented a continuous feedback loop, conducting feedback sessions after each annual report to refine their data collection and reporting processes, ensuring efficiency and effectiveness in future reports. Companies 2, 3, 4, and 7 rely on informal feedback from ESG raters, investors, and other stakeholders to improve their reporting practices, although they lack formal feedback mechanisms. Company 2, for instance, plans to involve stakeholders more constructively in future reporting cycles through the double materiality analysis process. Conversely, Companies 5 and 6 have formal feedback collection methods, directly integrating feedback from users within client organizations into their report's development process. This continuous incorporation of feedback allows for consistent enhancements in the platform's functionality and user experience. Company 5, in particular, has established a robust process for collecting feedback from clients and potential clients, involving extensive discussions and surveys to gather comprehensive insights. This approach ensures that the platform remains responsive to user needs and expectations, fostering a continuous improvement cycle.

In summary, while all the companies analyzed emphasize early and continuous communication with stakeholders, the sophistication and formalization of feedback mechanisms differ.

Companies with formal feedback systems, such as Companies 5 and 6, offer a more structured approach to integrating stakeholder input, enhancing the usability and effectiveness of their reporting platforms. For Company 5, specifically, the focus on client training and feedback integration ensures that their clients can achieve high standards in sustainability reporting, even though the company itself does not comply with CSRD. This approach highlights the importance of adaptability and user-centered design in developing effective sustainability reporting tools.

Theme 5: Challenges in Sustainability Reporting(CSRD)

Corporate Sustainability Reporting (CSRD) is integral to modern business practices, particularly in the IT industry. However, organizations face a multitude of challenges in implementing and maintaining effective sustainability reporting under the CSRD framework. This section aggregates the key challenges identified through interviews with various companies, providing a comprehensive overview of the common obstacles and the strategies proposed to overcome them. The data presented here are derived from these interviews and have been synthesized into themes through thematic analysis.

1. Data Quality and Collection

- **Variability in Data:** Ensuring the accuracy and consistency of data collected from various departments is a significant challenge. Variations in data year over year require thorough explanations and justifications. The integration of data from different subsidiaries and acquired companies, which use varied systems, complicates data aggregation.
- **Manual Data Collection:** The reliance on manual data collection methods, such as using Excel, is a widespread issue. These processes are time-consuming and prone to human errors. The slow and often delayed submission of data from various departments and external sources exacerbates this problem.
- **System Capabilities:** Existing data collection systems and tools often lack the capabilities to handle the evolving requirements, necessitating continuous improvements and the eventual transition to automated systems.

2. Understanding and Implementing Regulations

- **Regulation Knowledge:** Keeping up with the specific and evolving requirements of CSRD, including new regulatory frameworks like the European Sustainability Reporting Standards (ESRS), is a significant challenge. This requires constant updating and learning about new regulatory demands.

- **Double Materiality Assessment:** Conducting double materiality assessments is complex and resource-intensive. It involves extensive data gathering and ensuring all relevant sustainability topics are covered, which requires substantial collaboration across different departments.
- **Interpretation of Standards:** Ensuring accurate interpretation of regulatory requirements and translating them into actionable data points within the organization is critical yet challenging.

3. Communication and Stakeholder Engagement

- **Internal Communication:** Effectively communicating the importance and requirements of CSRD to all departments and ensuring their cooperation is essential. This includes frequent and clear communication about deadlines, data requirements, and regulatory updates.
- **Feedback Integration:** Collecting and integrating feedback from various stakeholders to improve the sustainability reporting process is ongoing and requires systematic approaches.
- **Stakeholder Awareness:** Many stakeholders, both internal and external, do not prioritize sustainability reporting, seeing it as less critical than financial reporting. Continuous education and engagement efforts are needed to address this issue.

4. Resource Allocation and Scheduling

- **Tight Schedules:** The new CSRD reporting timelines are more stringent, requiring earlier data collection and reporting. This condensed timeline poses challenges in ensuring thorough data verification and report preparation.
- **Resource Intensiveness:** The entire process is resource-intensive, requiring significant time and personnel to gather, verify, and report data accurately. Limited internal resources and heavy reliance on external consultants further complicate the management of these tasks.
- **Part-time Responsibility:** In many organizations, no single person or dedicated team focuses solely on CSRD or sustainability matters. These tasks are divided among existing team members who manage these responsibilities alongside their other roles.

5. Assurance and Verification

- **Multi-layered Verification:** Data and reports go through multiple layers of verification, including internal checks, external assurance, and board reviews. This

thorough process, while essential for accuracy, adds to the complexity and time requirements.

- **Ensuring Accuracy:** Given the multiple verification stages, maintaining the accuracy of the data throughout the process is critical.
- **Audit Trail:** Creating and maintaining a reliable audit trail for all reported data is crucial for compliance but challenging, especially with manual processes.

6. Cost Implications

- **Increased Costs:** Adapting to CSRD requirements involves higher costs, including investments in better data collection tools, additional manpower, and possibly external consultancy for compliance and assurance.

7. Handling Sensitive Data

- **Data Sensitivity:** Ensuring that sensitive or confidential data is correctly handled and reported while complying with regulatory requirements without compromising confidentiality. This includes handling HR data, such as information on disabled employees or gender distribution, in compliance with GDPR and local laws.

8. Maintaining Relevance

- **Adapting Reports:** Ensuring that the sustainability reports remain relevant and responsive to stakeholders' evolving expectations while adhering strictly to the regulatory requirements. Regularly reviewing and updating the double materiality assessment is essential to maintain relevance.

4.3 Best Practise for doing CSR under CSRD

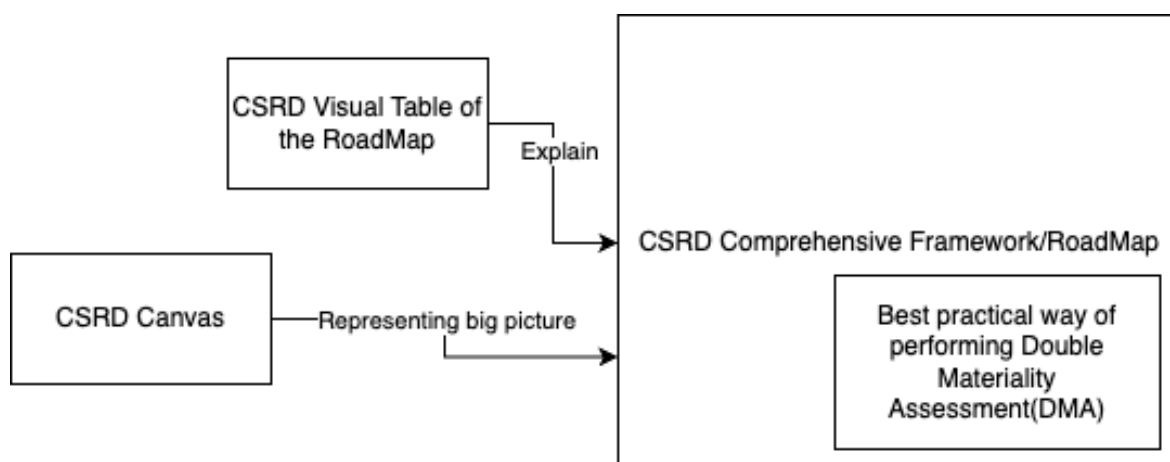


Figure 12: Best Practise for doing CSR under CSRD

The figure 12 provides a structured overview of the key components and results involved in implementing the CSRD (Corporate Sustainability Reporting Directive) reporting. It visually represents how different elements interconnect to form a comprehensive roadmap for effective sustainability reporting.

The first component, the **CSR Canvas**, serves as the broad overview or blueprint of the entire CSRD implementation process. It encompasses the major areas and key elements that need to be addressed for comprehensive sustainability reporting. The canvas ensures that all critical aspects are considered and integrated into the sustainability strategy, representing the big picture of the CSRD framework.

Next, the **CSR Visual Table of the RoadMap** offers a detailed, visual representation of the roadmap. This table breaks down the CSRD roadmap into specific steps and stages, providing a clear guide to the implementation process. It helps explain the sequential actions and milestones that organizations need to follow to comply with CSRD requirements. This visual tool aids in understanding and effectively communicating the process within the organization.

The **CSR Comprehensive Framework/RoadMap** acts as the main structure for CSRD implementation. This comprehensive framework includes all the detailed guidelines, best practices, and regulatory requirements necessary for effective sustainability reporting. It serves as the backbone of the CSRD implementation process, ensuring that all aspects of the directive are covered and adhered to, providing the necessary structure for organizations to align their reporting practices with CSRD standards.

The Best Practical Way of Performing Double Materiality Assessment (DMA) which is part of the Framework offers practical guidance for conducting Double Materiality Assessments. This component provides detailed procedures, tools, and examples of how to effectively conduct DMA, which is important for identifying and prioritizing the most significant sustainability issues. It ensures that organizations can accurately assess and report on both financial and non-financial impacts of their operations.

By integrating these components, the diagram illustrates how a comprehensive and structured approach to CSRD implementation can be achieved, ensuring thorough and effective sustainability reporting. The visual representation aids in understanding the relationships between the different elements and how they collectively contribute to the overall goal of CSRD compliance.

4.3.1 CSRD Comprehensive Framework/RoadMap

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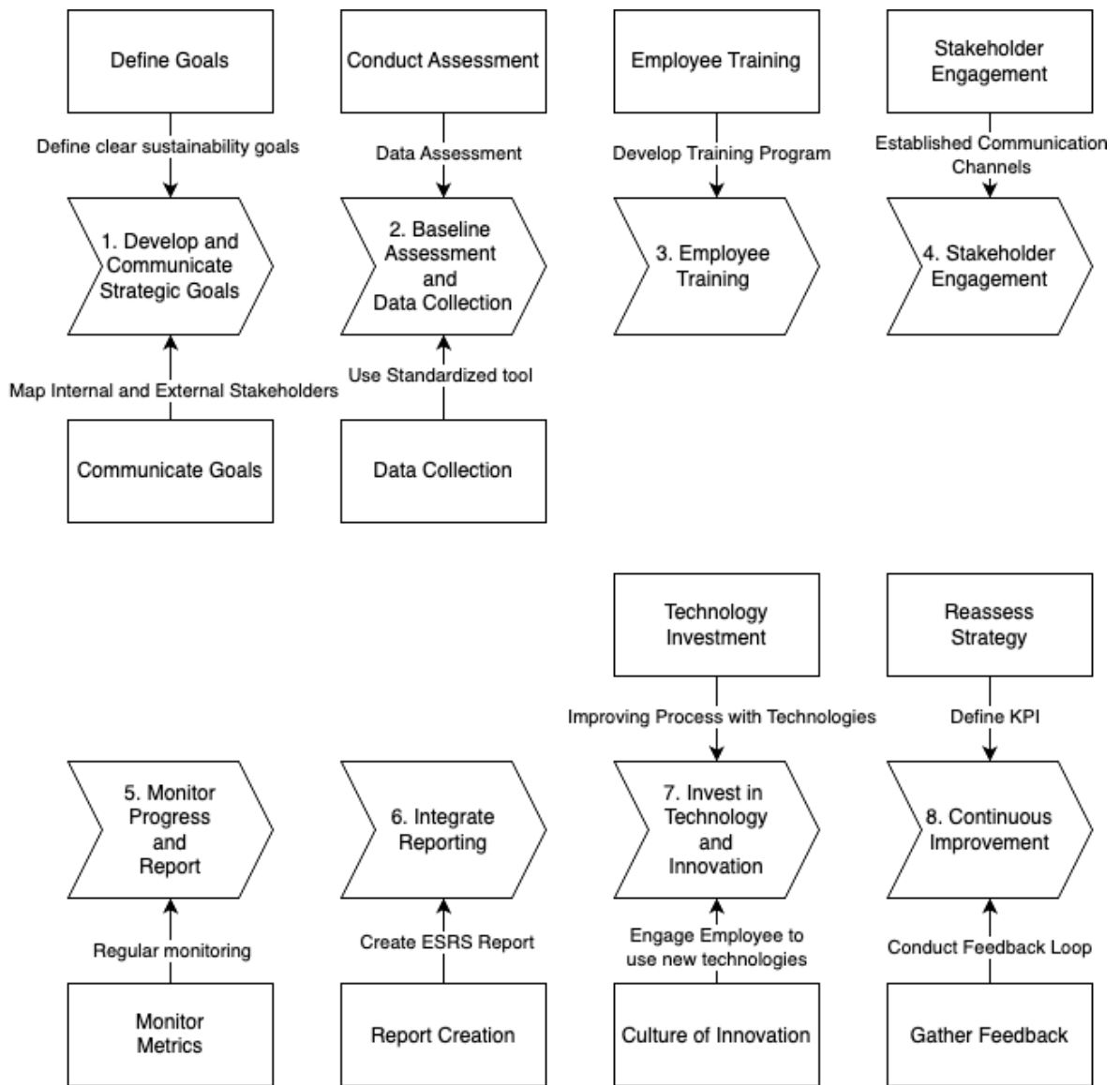


Figure 13: CSRD Comprehensive Framework/RoadMap

The CSRD Comprehensive Framework/Road Map provides a detailed guide for organizations to enhance their Corporate Sustainability Reporting (CSR) practices. This structured approach ensures that all necessary steps are taken to comply with CSRD requirements and achieve effective and impactful sustainability reporting. Figure 13 offers an overview of the framework as a roadmap to improve the sustainability reporting process.

This roadmap has been developed based on findings from interviews and research literature, aiming to overcome the challenges associated with CSR. It is designed to be sequential, where each step builds upon the previous ones, ensuring a comprehensive and integrated approach to sustainability reporting. The framework is divided into several key phases, each addressing critical aspects of CSR practices.

The first phase, Develop and Communicate Strategic Goals, involves defining clear sustainability goals through cross-functional engagement and effectively communicating these goals by mapping internal and external stakeholders. This phase sets the foundation for the entire sustainability reporting process. Elaborating on this, Company 4 notes, *“We don’t have a designated sustainability team. Instead, we rely on a collaborative approach where sustainability tasks are part of broader roles within finance, HR, and legal departments.”* This integrated approach ensures that sustainability considerations are embedded across various functions, promoting a more holistic and comprehensive strategy.

In the Baseline Assessment and Data Collection phase, organizations conduct thorough value chain assessments and gather sustainability data using standardized tools. This ensures comprehensive data coverage and accurate reporting. A significant challenge faced by organizations is the reliance on manual data collection methods, such as using Excel, which are time-consuming and prone to human errors. As highlighted in an interview with company 7, *“The reliance on manual data collection methods, such as using Excel, is a widespread issue. These processes are time-consuming and prone to human errors. The slow and often delayed submission of data from various departments and external sources exacerbates this problem”*. The assessment phase involves value chain assessment, defining materiality with the Define, Measure, and Assess (DMA) approach, and conducting severity assessments of impacts, risks, and opportunities (IRO). These actions form the foundation of the CSRD process, as noted in from the interview with company 7: *“The assessment phase involves value chain assessment, defining materiality with DMA, and severity assessment of impacts, risks, and opportunities (IRO). These actions form the foundation of the CSRD process”*

The next phase involves developing comprehensive training programs aimed at fostering a culture of sustainability within the organization. It is crucial to ensure that employees not only understand but also actively engage with the company’s sustainability goals. This step

addresses a common challenge highlighted by many sustainability leaders: the perception that sustainability is merely a secondary concern. As one of the participant expressed, *“So I think many people still think that this is like something nice to know and not so important as many other things. So maybe the biggest thing I am a little bit tired of is that contacting people all the time and like reminding them and things like that.”* This sentiment underscores the need for ongoing education and reinforcement to integrate sustainability into everyday business practices, making it a priority rather than an afterthought.

Stakeholder Engagement follows, where organizations establish effective communication channels and use stakeholder mapping to involve relevant parties. This phase ensures that the reporting process reflects the concerns and expectations of all stakeholders. As one participant noted, *“But then for the CSRD reporting, the strategy has our strategy has been to communicate early enough up already in we have been already engaging at least the key stakeholders.”* This proactive approach in stakeholder communication highlights the importance of early and continuous engagement to align sustainability reporting with stakeholder expectations effectively. And then, the Monitor Progress and Report phase involves regularly monitoring sustainability metrics and adjusting plans based on collected data to ensure continuous improvement.

Integrate Reporting is the subsequent phase, where organizations create the ESRS report by gathering and compiling data comprehensively. This phase integrates sustainability reporting into the overall organizational reporting framework. The next phase, Invest in Technology and Innovation, emphasizes exploring and implementing new technologies to enhance sustainability reporting processes and fostering a culture of innovation through training. As one participant explained, *“Our platform is geared towards helping companies to actually improve their sustainability performance and empower them with data. Reporting is the secondary objective of our platform. It is an objective that we can deliver on, but it’s a secondary objective and that’s also a kind of a very fundamental philosophical difference that our platform has compared to most of the competition.”* This approach underscores the importance of integrating sustainability into the core operations of an organization, beyond mere compliance reporting. Additionally, the participant emphasized the role of training and innovation, explaining how their platform includes educational tools and guidance, with plans to launch an AI bot to assist users in various aspects of the platform.

The Continuous Improvement phase focuses on defining Key Performance Indicators (KPIs) and adjusting strategies based on results to ensure ongoing relevance and effectiveness. Regular feedback from stakeholders is obtained to continuously improve sustainability reporting processes. One type of feedback that has been emphasized is the need for more communication. As one of the participant highlighted, *“we have been trying to do that like frequent and*

same communication could be but then frequent communication about the same topic and like letting them know what is a deadline and why we are doing it” This underscores the importance of maintaining consistent and transparent communication regarding deadlines and the rationale behind actions. Such communication not only fosters stakeholder engagement but also enhances the clarity and impact of sustainability reporting efforts.

4.3.2 CSRD Visual Table of the RoadMap

See next page

Table 6: CSRD Visual Table of the RoadMap

Phase	Steps	Action	Process	Stakeholders
Develop and Communicate Strategic Goals	Define Goals	Define clear sustainability goals	Cross-functional engagement	Internal Stakeholders
	Communicate Goals	Map internal and external stakeholders	Identify all relations of stakeholders	Investor, Environment, Partner, etc.
Baseline Assessment Data Collection	Conduct Assessment	Value Chain Assessment	Capture the whole value chain	Functional Head, External
		Define the definition of Materiality along with Double Materiality Assessment (DMA)	Record all definitions and processes	Leadership, Finance
		Severity Assessment of the Impacts, Risks, and Opportunities (IRO)	Potential financial implications	Finance, Functional Head, External, Leadership, etc.
	Data Collection	Gain Sustainability Topics Data	Use value chain mapping	Functional Head, External, Leadership, etc.
		Other Data	Get other relevant data from the sources	Academic, Consultants, Experts, Industry groups

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Phase	Steps	Action	Process	Stakeholders
Employee Training	Employee Training	Develop Training Programs	Drive organization ownership of Sustainability Reporting	Leaders, HR, IR
Stakeholder Engagement	Engaging Stakeholders	Establish communication channels	Use stakeholder mapping	All stakeholders
Monitor Progress Report	Monitor Metrics	Regular monitoring	Adjust plans based on data	Finance, Functional Head, External, Leadership, etc.
Integrate Reporting	Report Creation	Create ESRS report	Gather data and create report	Sustainability Team, IR
Invest in Technology Innovation	Improving the process with other technologies	Try finding other technologies	Implement new technologies	Functional Head, Leadership, etc.
	Culture of Innovation	Engage Employees to use new technology	Training sessions for the new technologies	Internal Stakeholders
Continuous Improvement	Reassess Strategy	Define KPIs	Readjust the Strategy based on the result	All Stakeholders
	Gather Feedback	Collect Stakeholder Feedback	Gather feedback regularly	All Stakeholders

The CSRD Visual Table of the Road Map, which shows in table 6, provides a structured and detailed guide for organizations to enhance their Corporate Sustainability Reporting (CSR) practices. It outlines the phases, steps, actions, processes, and stakeholders involved in the sustainability reporting process. This table is based on findings from interviews and research literature, and aims to address the challenges associated with CSR by providing a comprehensive framework for implementation. Below is an in-depth explanation of each phase and its corresponding components.

Phase 1: Develop and Communicate Strategic Goals

The first phase in enhancing Corporate Sustainability Reporting Directive (CSRD) practices is crucial, as it lays the foundation for the entire process. This phase involves defining the primary goals and initiating early communication, which are essential for achieving successful and impactful sustainability reporting.

Define Goals:

Setting clear, strategic goals at the outset is vital as it determines the direction and outcomes of the whole CSRD process. A well-defined goal aligns the organization's sustainability objectives with its overall mission, ensuring that all subsequent actions contribute towards these objectives in a cohesive manner. This clarity in purpose also facilitates better planning, resource allocation, and measurement of progress.

Communicate Goals:

Early communication is paramount in the initial phase of enhancing Corporate Sustainability Reporting Directive (CSRD) practices. Interview data highlights that initiating discussions early is the most critical step towards effective CSRD implementation. This process necessitates collaboration across all departments and levels within the organization, ensuring that every aspect, from top management to operational staff, is involved and committed to the sustainability goals. Early engagement fosters a culture of transparency and accountability, which is essential for the accurate and comprehensive reporting of sustainability practices. An integral part of this early communication process is the mapping of internal and external stakeholders. This involves identifying which departments are associated with which stakeholders, both within and outside the organization. By mapping stakeholders, organizations can ensure that all relevant parties are engaged and that their inputs are considered in the sustainability reporting process. This step helps in understanding the relationships and influences that different stakeholders have, which is crucial for comprehensive and accurate reporting.

By establishing a robust strategy and fostering early communication, this phase sets the stage for all subsequent steps in the CSRD process. It ensures that the organization is prepared to gather and utilize data effectively, address any challenges that arise, and implement tangible solutions to enhance sustainability reporting. This foundational phase is not just a preparatory step but a pivotal part of the overall strategy that influences the success of the entire CSRD initiative.

Phase 2: Baseline Assessment & Data Collection

After the goals are communicated in Phase 1, Phase 2 becomes pivotal as it encompasses the crucial processes of reporting. This phase can be divided into two sub-steps: Conducting Assessments and Data Collection.

Conduct Assessment:

The assessment phase involves three key actions: value chain assessment, defining materiality with DMA (Disclosure Management Approach), and severity assessment of impacts, risks, and opportunities (IRO). These actions form the foundation of the CSRD process.

The term “value chain,” as introduced by Porter, 2008, encompasses the various business activities and processes essential for producing a product or delivering a service. This chain spans multiple stages of a product’s or service’s lifecycle, from research and development to sales and other intermediate steps. Value chain analysis serves as a method for evaluating each activity within a company’s value chain to identify potential areas for improvement. This analysis is crucial for businesses to comprehend the sequence of activities necessary to deliver a product or service effectively.

After the value chain assessment, the double materiality assessment (DMA), which is the most important foundation of CSRD, is conducted. Adhering to the European Sustainability Reporting Standards (ESRS) is crucial for meeting the requirements of both the Corporate Sustainability Reporting Directive (CSRD) and the Integrated Reporting and Disclosure (IRO) framework. The ESRS provides comprehensive guidelines for sustainability reporting within the EU, ensuring transparency and consistency across organizations. The DMA necessitates that companies evaluate and disclose the environmental and social impacts of their activities, as well as assess financial risks and opportunities related to sustainability issues. This dual approach, which aligns with the CSRD’s double materiality principle, offers a holistic perspective on a company’s sustainability performance.

Furthermore, risk management is a fundamental element of the IRO framework, obligating

companies to identify, evaluate, and mitigate risks associated with their sustainability impacts. By integrating the ESRS guidelines and the risk management practices mandated by the IRO framework, organizations can enhance their sustainability reporting. This integrated approach not only ensures compliance but also encourages the adoption of more sustainable business practices, fostering a culture of proactive environmental stewardship and social responsibility. Through this alignment, companies can provide more accurate, efficient, and impactful insights into their environmental, social, and financial performance.

Data Collection:

Once the assessments are completed, the next step is data collection. Knowing the topics and data points needed for the report, organizations can construct the necessary systems or software structures to gather the relevant data. This step involves not only the collection of sustainability-related data but also the establishment of processes to ensure the accuracy and comprehensiveness of the data collected. Effective data collection is critical for producing reliable sustainability reports that reflect the organization's performance and progress towards its sustainability goals.

By following these sub-steps in Phase 2, organizations can build a robust reporting process that underpins their commitment to sustainability and transparency. This phase ensures that the necessary groundwork is laid for comprehensive and impactful sustainability reporting, aligning with both regulatory requirements and organizational objectives.

Phase 3: Employee Training

After understanding all the requirements and components necessary for sustainable reporting, it is imperative to train employees across all departments. Developing a comprehensive training program is essential to ensure that every aspect of the organization is aligned with the sustainability reporting goals and practices.

Firstly, employees must have a clear understanding of the requirements for sustainability reporting. This includes familiarizing them with the Corporate Sustainability Reporting Directive (CSRD), the European Sustainability Reporting Standards (ESRS), and the Integrated Reporting and Disclosure (IRO) framework. Training should cover the importance of double materiality, value chain assessments, and risk management in sustainability reporting. A well-structured training program should be developed to educate employees on these topics. The program should include modules on the fundamentals of sustainability, the specific reporting standards and frameworks, and the practical steps involved in gathering and reporting data. Interactive workshops, case studies, and role-playing scenarios can be utilized to

enhance understanding and engagement.

The goal of the training program is to foster a sense of ownership among employees regarding sustainability reporting. By equipping them with the necessary knowledge and skills, employees can actively contribute to the organization's sustainability goals. This ownership ensures that sustainability practices are integrated into daily operations and decision-making processes across all levels of the organization. Training should not be a one-time event but an ongoing process. Regular updates and refresher courses should be provided to keep employees informed about new regulations, best practices, and technological advancements in sustainability reporting. Encouraging continuous learning and improvement will help maintain a high standard of sustainability reporting and ensure long-term success.

By developing and implementing a robust training program, organizations can drive organizational ownership of sustainability reporting. This approach ensures that all employees are committed to and capable of contributing to the organization's sustainability objectives, ultimately leading to more accurate, efficient, and impactful sustainability reporting.

Phase 4: Stakeholder Engagement

After developing internal communication channels and training employees, the next critical step is to establish robust external communication channels. This is essential for engaging with suppliers and external stakeholders, ensuring a comprehensive and transparent approach to sustainability reporting.

Effective external communication is vital for building trust and collaboration with suppliers, investors, customers, regulatory bodies, and other external stakeholders. By establishing clear and consistent communication channels, organizations can convey their sustainability goals, practices, and achievements, thereby fostering a culture of transparency and accountability. Engaging with suppliers is a key component of external communication. Organizations need to ensure that their suppliers are aligned with their sustainability objectives. This can be achieved through regular meetings, joint sustainability initiatives, and shared reporting standards. By collaborating closely with suppliers, organizations can enhance the sustainability of their entire value chain.

External communication should also focus on other stakeholders, including investors, customers, and regulatory bodies. Regular updates through reports, newsletters, and meetings can keep these stakeholders informed about the organization's sustainability efforts and progress. Transparency in reporting helps build credibility and trust, which is crucial for long-term sustainability success. External communication should be a continuous process,

evolving with the organization's sustainability journey. Regularly reviewing and improving communication strategies ensures that the organization remains responsive to stakeholder needs and emerging sustainability trends.

By establishing effective external communication channels, organizations can ensure that they engage meaningfully with suppliers and external stakeholders. This engagement is crucial for building a collaborative approach to sustainability, enhancing transparency, and achieving comprehensive and impactful sustainability reporting.

Phase 5: Monitor Progress Report

After establishing internal and external communication channels, the next step before creating the sustainability report is monitoring the data. This step involves not only the continuous monitoring of data but also ensuring its quality and accuracy. High-quality data is essential for credible and reliable sustainability reporting. Monitoring data is essential for tracking the organization's progress towards its sustainability goals. Regular monitoring allows for timely identification of any deviations from targets and helps in making necessary adjustments. It ensures that the organization remains on track and can provide accurate updates on its sustainability performance.

Ensuring data quality involves several key actions. Firstly, data must be accurate and precise to reflect the true performance of the organization. This involves verifying data sources, validating data entries, and ensuring that measurement methods are reliable and standardized. Consistency in data collection methods and reporting standards should be maintained across different departments and reporting periods to ensure comparability over time and across different sections of the report. Completeness is another critical factor; all relevant data points must be collected and reported to avoid inaccurate assessments and undermine the credibility of the report. Additionally, data should be collected and reported in a timely manner to ensure it reflects the current state of the organization's sustainability efforts, as outdated data can mislead stakeholders and impair decision-making processes. Finally, the data collected should be relevant to the sustainability goals and the specific requirements of the reporting frameworks, such as the CSRD and ESRS. Irrelevant data can clutter the report and distract from the key messages.

By focusing on monitoring and ensuring data quality, organizations can produce reliable and credible sustainability reports. This step is critical for building trust with stakeholders and demonstrating a genuine commitment to sustainability.

Phase 6: Integrate Reporting

After ensuring data quality and consistent monitoring, the next step in the sustainability reporting process is to create the European Sustainability Reporting Standards (ESRS) report. The ESRS provides a comprehensive framework for sustainability reporting within the European Union, ensuring transparency and consistency across organizations. This step involves compiling the gathered data into a structured report that adheres to ESRS guidelines and effectively communicates the organization's sustainability performance to stakeholders.

Phase 7: Invest in Technology & Innovation

In Phase 7, the focus shifts to improving the overall process of sustainability reporting. This phase consists of two key steps: leveraging technology and fostering a culture of innovation. Both steps are important for enhancing the efficiency and effectiveness of sustainability reporting and continuous improvement.

Improving the Process with Other Technologies:

Leveraging technology can significantly enhance sustainability reporting. Organizations need to conduct thorough research to identify and implement technologies that suit their specific processes and needs. This research involves exploring advanced technologies that can streamline data collection, analysis, and reporting processes, making them more efficient and accurate. Potential technologies include data management systems, analytics and business intelligence tools, blockchain for transparency, IoT for real-time monitoring, cloud computing for scalable solutions, and AI and machine learning for advanced data analysis.

By identifying the most appropriate technologies, companies can automate data validation, ensure consistency across reporting periods, and gain deeper insights into their sustainability data. This targeted approach ensures that the chosen technologies effectively support the organization's sustainability goals and enhance the overall reporting process.

Culture of Innovation:

Creating a culture of innovation ensures that new technologies and methods are adopted effectively within the organization. This involves fostering an environment where employees are encouraged to experiment with new ideas and approaches. Regular training sessions help employees understand and utilize new tools and technologies. Training programs should be designed to enhance employees' skills and knowledge in sustainability reporting and the use of advanced technologies.

Encouraging employees to experiment with new ideas and approaches can lead to innovative solutions for sustainability reporting. Providing the necessary resources and support for experimentation can foster a culture of continuous improvement. Promoting collaboration and knowledge sharing across departments can facilitate the exchange of ideas and best practices. Creating forums for discussion and collaboration, such as workshops and innovation labs, can help generate new insights and solutions.

Leadership plays a crucial role in fostering a culture of innovation. Leaders should demonstrate their commitment to innovation by actively supporting new initiatives and recognizing employees' contributions to sustainability reporting. Providing incentives and rewards for innovative ideas and successful implementations can motivate employees to contribute to the organization's sustainability goals. Recognition programs can highlight the importance of innovation in achieving sustainability objectives.

By leveraging technology and fostering a culture of innovation, organizations can continuously improve their sustainability reporting processes. These steps not only enhance the accuracy and efficiency of reporting but also drive the organization towards more sustainable practices and outcomes.

Phase 8: Continuous Improvement

Continuous improvement is the final phase in the sustainability reporting process. This phase focuses on two key steps: defining Key Performance Indicators (KPIs) and gathering feedback. These steps are crucial for ensuring that the sustainability reporting processes remain relevant and effective, promoting ongoing enhancement and adaptation to changing conditions.

Reassess Strategy:

Defining KPIs is essential once the data has been collected and analyzed. KPIs help organizations focus on specific sustainability goals and measure their progress towards these objectives. From interviews, it is evident that companies do not want to engage in sustainability reporting merely for compliance but to genuinely improve their sustainability practices. By establishing clear and relevant KPIs, organizations can target areas that need improvement and track their performance over time.

KPIs should be tailored to the organization's unique sustainability goals and should cover various aspects of environmental, social, and governance performance. For example, they might include metrics such as carbon footprint reduction, water usage, waste management,

employee diversity, and community impact. Regularly reviewing and updating these KPIs ensures that the organization remains aligned with its sustainability objectives and can adapt to new challenges and opportunities.

Gather Feedback:

Gathering feedback is the final step in the continuous improvement phase and is one of the most important. Feedback should be collected from both internal and external stakeholders, including employees, management, customers, investors, and regulatory bodies. This feedback provides valuable insights into how the sustainability reporting process is perceived and where improvements can be made.

Internal feedback can highlight practical issues in data collection and reporting processes, while external feedback can reveal how stakeholders perceive the organization's sustainability efforts and the clarity and impact of its reports. This information is vital for identifying gaps, addressing weaknesses, and enhancing the overall reporting process.

Establishing formal mechanisms for gathering feedback, such as surveys, focus groups, and stakeholder meetings, ensures that the process is systematic and comprehensive. Incorporating this feedback into the sustainability reporting process fosters a culture of transparency and continuous improvement, enabling the organization to make informed decisions and stay ahead of emerging sustainability trends and requirements.

By focusing on defining KPIs and gathering feedback, organizations can ensure that their sustainability reporting processes are not only compliant but also effective in driving real and meaningful improvements. This iterative approach helps organizations stay responsive to changing conditions and continuously enhance their sustainability performance.

4.3.3 Best practical way of performing Double Materiality Assessment(DMA)

The Double Materiality Assessment (DMA) is a critical process under the CSRD framework, requiring organizations to consider both the financial and non-financial impacts of their activities. This approach ensures comprehensive sustainability reporting that addresses the interests of all stakeholders. The Figure 14 illustrates the best practical way of conducting a DMA.

Step 1: Analyze the Company's Activities, Business Model, Business Relationships, and Value Chain

- Objective: The first step involves a thorough analysis of the entire company's activi-

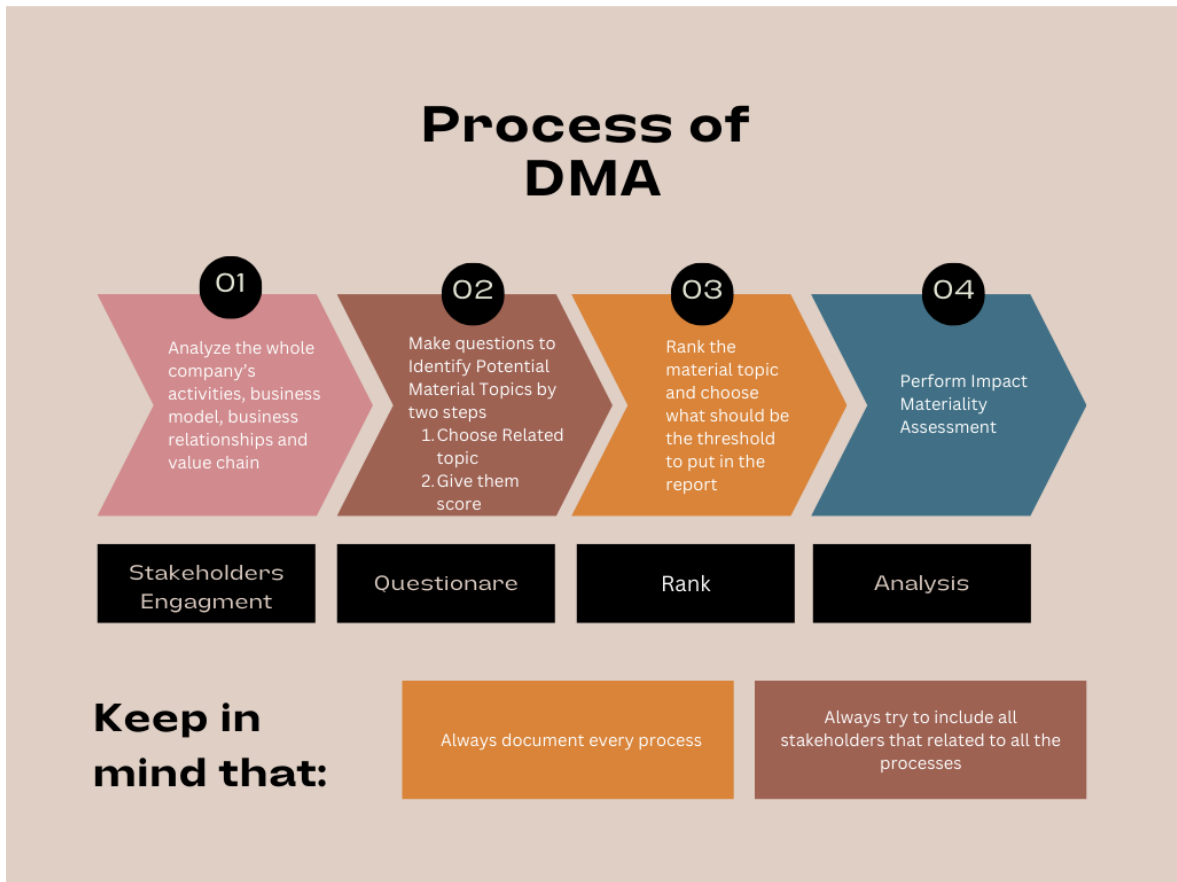


Figure 14: Best practical way of performing Double Materiality Assessment(DMA)

ties, its business model, business relationships, and the value chain. This foundational analysis is essential to identify areas where the company has significant impacts and dependencies.

- **Activities:**
 - Map out all business activities.
 - Analyze the business model to understand how the company creates value.
 - Examine relationships with key stakeholders, including suppliers, customers, and partners.
 - Assess the value chain to identify where the most significant impacts occur.

Step 2: Make Questions to Identify Potential Material Topics

- **Objective:** Develop a questionnaire to help identify potential material topics. This is done in two main steps: choosing related topics and scoring them.
- **Activities:**

- Choose Related Topics: Identify topics that are relevant to the company's operations and its stakeholders.
- Score the Topics: Assign scores based on the significance of each topic to the company and its stakeholders. This helps in prioritizing issues that require the most attention.

Step 3: Rank the Material Topics and Choose Thresholds

- Objective: Rank the identified material topics based on their scores and determine what should be the threshold for including a topic in the sustainability report.
- Activities:
 - Create a ranking of material topics from the most to the least significant.
 - Establish thresholds for reporting. Topics that meet or exceed the threshold are included in the sustainability report.

Step 4: Perform Impact Materiality Assessment

- Objective: Conduct a comprehensive assessment of the identified material topics to understand their impacts on the company and its stakeholders.
- Activities:
 - Perform a detailed analysis of each material topic.
 - Assess the impact of these topics on the company's financial performance and on societal and environmental aspects.

Key Considerations

- Document Every Process: It is essential to document every step of the DMA process meticulously. This documentation ensures transparency and accountability and provides a clear audit trail for internal and external stakeholders.
- Include All Relevant Stakeholders: Always strive to include all stakeholders who are related to the processes being assessed. This inclusion ensures that the materiality assessment is comprehensive and reflects the concerns and priorities of all relevant parties.

The DMA process is vital for ensuring that sustainability reporting is both comprehensive and focused on the most significant issues. By following the structured steps of analysis, question development, ranking, and impact assessment, organizations can ensure that their sustainability reports are aligned with the CSRD requirements and provide valuable insights

to stakeholders. The accompanying Figure 14 serves as a visual guide to understanding and implementing the DMA process effectively.

4.3.4 Data Collection Road map

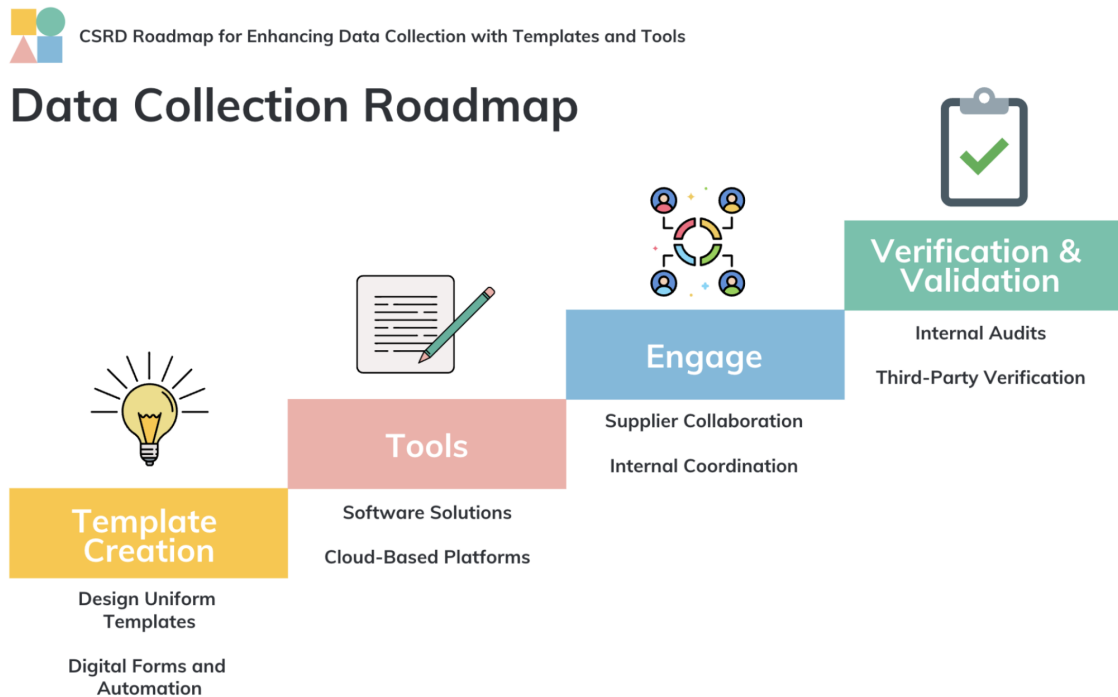


Figure 15: Data Collection Road map

Effective data collection is fundamental to accurate sustainability reporting. The data collection road map provides a structured approach to gathering, verifying, and utilizing sustainability data. The Figure 15 representation illustrates the steps involved.

Data Collection Steps:

1. Template Creation

- **Design Uniform Templates:** Establish standardized templates for data collection to ensure consistency and comparability across different departments and periods. Uniform templates help in capturing all necessary data in a structured manner, reducing the risk of omitting critical information.
- **Digital Forms and Automation:** Implementing digital forms and automation streamlines the data collection process. Automation reduces manual errors, speeds up data entry, and ensures real-time data availability. Digital forms facilitate easy data input and storage, making the process more efficient and less prone to human error.

2. Tools

- **Software Solutions:** Utilizing specialized software solutions for data collection and management can significantly enhance the efficiency and reliability of the process. These solutions can include features like data validation, real-time analytics, and integration with other business systems.
- **Cloud-Based Platforms:** Cloud-based platforms offer scalable and flexible data management solutions. They provide secure, centralized storage for sustainability data, allowing easy access and collaboration among different stakeholders. Cloud platforms also support real-time data updates and sharing, enhancing transparency and coordination.

3. Engage

- **Supplier Collaboration:** Effective sustainability reporting requires accurate data from suppliers. Engaging with suppliers to ensure they provide the necessary data in a timely and consistent manner is crucial. Collaboration can include setting data requirements, providing training, and establishing regular communication channels.
- **Internal Coordination:** Coordinating efforts across different departments within the organization is essential for comprehensive data collection. Internal coordination ensures that all relevant data is captured and reported accurately. It involves clear communication, defined roles and responsibilities, and regular progress reviews.

4. Verification & Validation:

- **Internal Audits:** Conducting internal audits of the collected data ensures its accuracy and completeness. Regular audits help identify any discrepancies or gaps in the data, allowing for corrective actions before the final reporting.
- **Third-Party Verification:** Third-party verification adds an extra layer of credibility to the reported data. Independent verification by external auditors ensures that the data meets all regulatory requirements and industry standards, enhancing stakeholder trust and confidence.

4.3.5 CSRD Canvas

The CSRD Canvas is a strategic tool designed to help organizations visualize and plan their sustainability reporting processes comprehensively. It aligns with the European Sustainability Reporting Standards (ESRS) and provides a structured approach for organizations to map

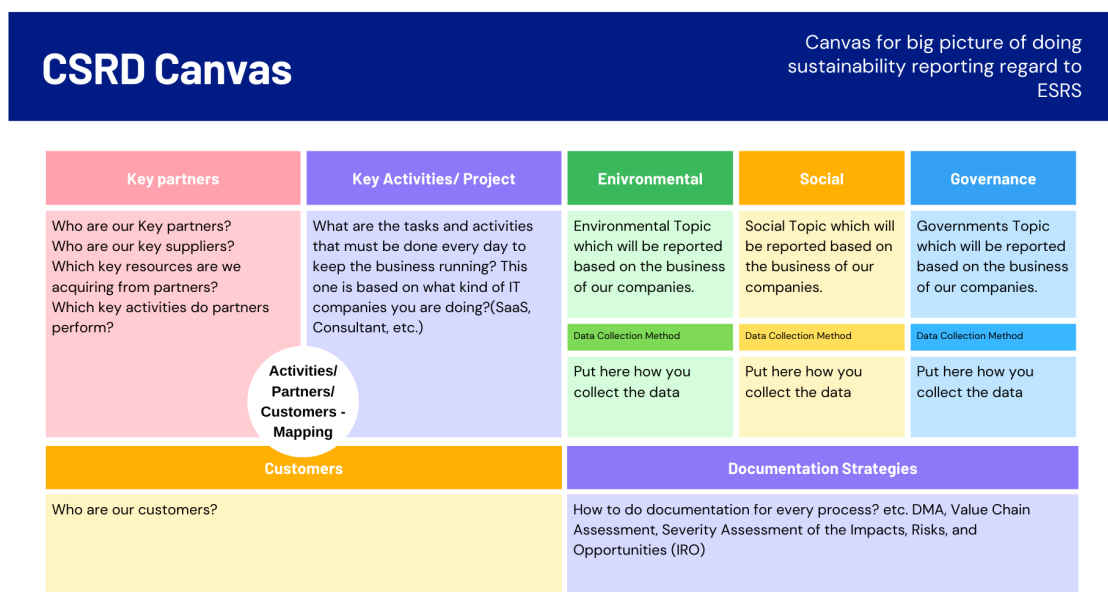


Figure 16: CSR Canvas

out their activities, partners, data collection methods, and documentation strategies. This canvas is particularly valuable for seeing the big picture and understanding the overall landscape of sustainability reporting within the organization.

As highlighted by a participant, *“there’s a lot to intake and it is still really hard to see where we are going and how we can sort of utilize this new information going forward.”* This statement underscores the complexity and volume of information involved in sustainability reporting, which can make it challenging to maintain clarity and direction. The CSR Canvas addresses this challenge by offering a visual and structured framework that helps organizations manage and interpret this information effectively.

Furthermore, the participant emphasized that *“it’s the mere fact that it’s so big of a change that now right, in my opinion, we are focusing very much on the details and I do not want us to lose the focus on what we are actually trying to achieve with all of this.”* This highlights the risk of becoming too absorbed in the minutiae, potentially losing sight of the overarching goals. The CSR Canvas facilitates a balance between detail-oriented tasks and the broader objectives by providing a clear overview that keeps the end goals in focus.

Additionally, the resource-intensive nature of the process was pointed out from the interview: *“So balancing between the details and the big picture, the big obstacle is this takes a lot of resources and a lot of time and still not sort of giving anything back yet.”* The CSR Canvas helps mitigate this issue by streamlining the planning and implementation stages, making the

process more efficient and resource-effective. It ensures that organizations can allocate their resources wisely while maintaining a strategic perspective on sustainability reporting.

In summary, the CSRD Canvas; figure 16 is an essential tool for organizations navigating the complexities of sustainability reporting. It helps manage extensive information, balance detailed work with strategic goals, and optimize resource use, ultimately enhancing the effectiveness of sustainability initiatives.

Key Components of the CSRD Canvas

1. Key Partners

- Questions to Consider:
 - Who are our key partners?
 - Who are our key suppliers?
 - Which key resources are we acquiring from partners?
 - Which key activities do partners perform?
- Purpose: Identifying key partners and suppliers helps in understanding the external resources and activities that support sustainability reporting. Collaboration with partners ensures the acquisition of necessary data and resources to fulfill CSRD requirements.

2. Key Activities/Project

- Questions to Consider:
 - What are the tasks and activities that must be done every day to keep the business running? This section varies based on the type of IT companies (e.g., SaaS, Consultant, etc.).
- Purpose: Detailing key activities helps in planning and executing daily operations essential for sustainability reporting. It ensures that all necessary tasks are accounted for and aligns them with sustainability goals.

3. Environmental

- Topics to Report:
 - Environmental topics relevant to the business of the company.
- Data Collection Method: Detail how environmental data is collected.

- Purpose: This section focuses on environmental aspects such as carbon emissions, energy usage, waste management, and other ecological impacts. It ensures that environmental data is systematically collected and reported.

4. Social:

- Topics to Report
 - Social topics relevant to the business of the company.
- Data Collection Method: Detail how social data is collected.
- Purpose: This section addresses social impacts including labor practices, community engagement, and diversity initiatives. It ensures comprehensive reporting on social sustainability metrics.

5. Governance

- Topics to Report
 - Governance topics relevant to the business of the company.
- Data Collection Method: Detail how governance data is collected.
- Purpose: This section covers governance aspects such as corporate ethics, board diversity, and compliance with laws. It ensures that governance practices are transparently reported.

6. Customers

- Questions to Consider
 - Who are our customers?
- Purpose: Understanding the customer base helps in aligning sustainability reporting with customer expectations and needs. It ensures that the organization's sustainability efforts are communicated effectively to its stakeholders.

7. Documentation Strategies

- Questions to Consider
 - How to Document?: Detail the documentation process for every aspect of sustainability reporting including Double Materiality Assessment (DMA), Value Chain Assessment, and Severity Assessment of Impacts, Risks, and Opportunities (IRO).

- **Purpose:** This section outlines the strategies for documenting all processes related to sustainability reporting. It ensures thorough and accurate documentation, which is critical for verification and validation purposes.

A dedicated part of the CSRD Canvas is represented by a circle in the middle of Key Partners, Key Activities/Project, and Customers, which symbolizes the mapping between these elements. This mapping is crucial as it ensures coherence and soundness in the sustainability reporting process. The interconnections between partners, activities, and customers must be thoroughly mapped to provide a holistic view of the organization's sustainability efforts. This integrated mapping helps in identifying and addressing any gaps or overlaps, ensuring that all aspects of sustainability reporting are aligned and effectively managed.

The CSRD Canvas serves as a strategic guide for organizations to map out their sustainability reporting processes. By using this tool, organizations can ensure that they comprehensively address all aspects of sustainability reporting, from data collection to documentation and stakeholder engagement. The canvas facilitates a structured approach to achieving compliance with CSRD requirements and enhances the overall quality and impact of sustainability reporting. Additionally, the CSRD Canvas helps organizations see the big picture of their sustainability efforts, providing a clear overview of all components and their interconnections. This holistic view is crucial for understanding the overall landscape of sustainability reporting and ensuring that all elements are aligned and effectively managed.

When conducting this CSRD Canvas, the mapping between Key Partners, Key Activities/Project, and Customers must be done together for soundness. This ensures that the interconnections are thoroughly considered and documented, leading to a more integrated and effective sustainability reporting process.

By implementing the CSRD Canvas, organizations in the IT industry can systematically plan and execute their sustainability reporting, ensuring compliance with regulatory requirements while achieving impactful and efficient reporting practices. This tool not only supports the organization's sustainability goals but also builds trust and transparency with stakeholders, contributing to long-term success and sustainability.

5 DISCUSSION

In this section, the multifaceted aspects of enhancing Corporate Sustainability Reporting (CSR) in the IT industry under the Corporate Sustainability Reporting Directive (CSRD) are explored. It begins by addressing the overarching research question, detailing strategies for improving CSR practices. This is followed by an examination of the current state of CSR, highlighting the data collection and utilization processes. Subsequently, the section delves into the challenges faced by organizations in implementing effective CSR. Tangible solutions and roadmaps are then proposed to address these challenges. Finally, the benefits of enhanced CSR practices are discussed, and the limitations of the study are acknowledged, suggesting directions for future research to validate and refine the findings.

5.1 Enhancing Corporate Sustainability Reporting in the IT Industry

This section addresses the overarching research question:

How can organizations in the IT industry effectively enhance their Corporate Sustainability Reporting Directive (CSRD) practices to provide more accurate, efficient, and impactful sustainability reporting?

Through qualitative interviews and an extensive literature review, it has been identified that organizations can enhance their CSRD practices by adopting a structured and integrated approach. Implementing a comprehensive framework involves developing a detailed roadmap with clear guidelines, processes, and responsibilities for sustainability reporting. By integrating CSRD requirements into existing reporting structures, organizations can ensure alignment across all departments with their sustainability goals, facilitating a cohesive and effective reporting process.

Utilizing advanced data analytics is another key strategy, leveraging technology to improve data collection, analysis, and reporting. Automated data gathering, real-time monitoring, and predictive analytics software tools can provide accurate and timely information, making sustainability reports more reliable and efficient. This technological integration not only streamlines the reporting process but also enhances the quality and utility of the data collected, enabling more informed decision-making.

Engaging stakeholders through transparent reporting and regular consultations is essential for refining sustainability strategies and ensuring reports meet both stakeholder expectations and regulatory requirements. Additionally, investing in training programs to build the capacity and skills of employees involved in sustainability reporting is important. Such training

ensures that the team is well-equipped to handle the complexities of CSRD, contributing effectively to the organization's sustainability initiatives. By focusing on these strategies, organizations can enhance the accuracy, efficiency, and impact of their sustainability reporting, aligning their practices with broader regulatory and stakeholder expectations.

5.2 Current State of Corporate Sustainability Reporting (Sub-RQ1)

What is the current state of Corporate Sustainability Reporting among organizations, and how do they gather and utilize data to drive informed sustainability strategies and initiatives?

The current state of Corporate Sustainability Reporting (CSR) in the IT industry reveals a varied landscape. Many organizations have adopted basic reporting practices primarily driven by regulatory requirements. However, there is a significant gap in the depth and comprehensiveness of these reports. Organizations often rely on fragmented data collection methods and lack a unified approach to data management.

Data is typically gathered through internal audits, surveys, and third-party assessments, but the integration of this data into actionable insights remains a challenge. The use of advanced data analytics and real-time monitoring tools is limited, and many organizations do not fully utilize the data to drive sustainability strategies. This indicates a need for more robust data management systems and analytical tools to enhance the effectiveness of sustainability reporting.

5.3 Challenges in Implementing Effective Corporate Sustainability Reporting (Sub-RQ2)

What are the key issues and challenges faced by organizations in implementing and maintaining effective Corporate Sustainability Reporting under the CSRD framework?

Implementing and maintaining effective Corporate Sustainability Reporting (CSRD) within the IT industry presents numerous challenges. Ensuring data quality and consistency is a significant hurdle, as variability in data from various departments and subsidiaries complicates aggregation. The reliance on manual data collection methods, such as Excel, further exacerbates these issues by being time-consuming and error-prone.

Organizations also struggle to keep up with the evolving regulatory requirements of CSRD and the European Sustainability Reporting Standards (ESRS), which necessitates continuous learning and adaptation. Conducting complex and resource-intensive double materiality assessments and accurately interpreting these regulatory requirements into actionable data points add layers of complexity to the process.

Effective communication and stakeholder engagement are also challenges. Ensuring all departments understand and cooperate with CSRD requirements involves frequent, clear communication about deadlines and data needs. Many stakeholders, both internal and external, do not prioritize sustainability reporting, requiring continuous education and engagement efforts to elevate its importance. The process is resource-intensive, demanding significant time and personnel to gather, verify, and report data accurately. Limited internal resources and heavy reliance on external consultants further complicate this task, as does the need for maintaining a reliable audit trail for compliance purposes.

Moreover, adapting to CSRD requirements incurs higher costs, necessitating investments in advanced data collection tools, additional manpower, and external consultancy. Ensuring the correct handling of sensitive or confidential data, in compliance with GDPR and local laws, adds another layer of complexity. Finally, organizations must ensure their sustainability reports remain relevant and responsive to stakeholders' evolving expectations while adhering to regulatory requirements. This involves regularly reviewing and updating the double materiality assessment to maintain the relevance and impact of their sustainability reporting.

5.4 Best Practise for doing CSR under CSRD (Sub-RQ3)

What tangible solutions or roadmaps can be proposed to enhance Corporate Sustainability Reporting in the IT industry, and how can these solutions be practically implemented?

To effectively enhance Corporate Sustainability Reporting (CSR) under the Corporate Sustainability Reporting Directive (CSRD), a structured and comprehensive approach is essential. The **CSRD Comprehensive Framework/RoadMap** encompasses all the specific guidelines, best practices, and regulatory mandates required for successful sustainability reporting. It acts as the foundation for implementing the CSRD, ensuring that every element of the directive is addressed and followed. This structure is important for organizations to align their reporting practices with the standards set forth by the CSRD..

The **CSRD Visual Table of the RoadMap** offers a structured guide that outlines the phases, steps, actions, processes, and stakeholders involved in the sustainability reporting process. This visual representation ensures that each phase, from strategic goal development to continuous improvement, is clearly defined and systematically implemented, promoting a cohesive approach to CSR.

The Best practical way of performing Double Materiality Assessment(DMA) is integral to the CSRD framework, requiring organizations to consider both financial and non-financial impacts of their activities. This process involves analyzing the company's activities, develop-

ing questionnaires to identify material topics, ranking these topics, and conducting detailed impact assessments. This thorough evaluation ensures a comprehensive understanding of the company's sustainability impacts.

Effective data collection is fundamental to accurate sustainability reporting, and the **Data Collection Roadmap** provides a structured approach to gathering, verifying, and utilizing sustainability data. By creating standardized templates, utilizing specialized tools, engaging suppliers, and conducting verification processes, organizations can ensure data accuracy and credibility, which is crucial for reliable reporting.

The **CSRD Canvas** serves as a strategic tool to help organizations visualize and plan their sustainability reporting processes comprehensively. It aligns with the ESRS and maps out key partners, activities, projects, data collection methods, and documentation strategies. This structured approach ensures that all aspects of sustainability reporting are considered and documented, facilitating thorough and transparent reporting.

By implementing these structured roadmaps and solutions, organizations in the IT industry can significantly enhance their Corporate Sustainability Reporting practices, ensuring compliance with the CSRD while achieving impactful sustainability outcomes.

5.5 Benefits of Enhanced Corporate Sustainability Reporting (Sub-RQ4)

What benefits can organizations expect from implementing the solutions or roadmaps for improving their Corporate Sustainability Reporting practices?

Implementing the best practices for Corporate Sustainability Reporting under the CSRD framework offers substantial benefits for organizations within the IT industry. These benefits include enhanced sustainability performance, improved decision-making processes, and increased stakeholder trust. Comprehensive data collection and management protocols ensure the accuracy and consistency of sustainability data across all operational levels. The integration of digital tools and systems streamlines data gathering from various sources, including supply chains, operations, and stakeholder engagements. Effective data management systems help organizations maintain high-quality data, which is crucial for making informed decisions.

Advanced analytical tools, including AI, machine learning, predictive analytics, data visualization software, and decision support systems, significantly contribute to the automation and efficiency of data analysis. These tools help organizations identify trends, forecast future sustainability impacts, and evaluate the effectiveness of sustainability initiatives, allowing companies to gain deeper insights into their sustainability performance and make proactive

adjustments. Additionally, engaging stakeholders through regular consultations and transparent reporting fosters a collaborative environment where stakeholders can contribute to the organization's sustainability strategy, enhancing decision-making and building trust.

Adopting these best practices ensures compliance with the CSRD and other relevant EU regulations, positioning organizations competitively by aligning them with emerging regulatory trends. Standardized and automated processes reduce the time and effort required for data collection, verification, and reporting, allowing organizations to reallocate resources saved from these efficiencies towards further enhancing their sustainability initiatives. Furthermore, fostering a culture of continuous improvement and innovation enables organizations to stay ahead of sustainability trends and challenges. Ultimately, these efforts contribute to achieving global sustainability objectives, ensuring that organizations are not only compliant with current regulations but also proactive participants in the sustainability movement, building greater trust among stakeholders and providing a competitive edge in the marketplace.

It is important to note that these benefits stem from a critical analysis of the challenges identified in Sub-RQ2 and the solutions detailed in Sub-RQ3. While the analysis provides a robust theoretical foundation, it lacks practical validation through real-world implementation. This absence of empirical evaluations by companies is a limitation, highlighting the need for future research to focus on longitudinal studies and practical applications to assess the effectiveness and impact of these solutions on Corporate Sustainability Reporting practices. Such empirical research will be crucial to validate the anticipated benefits and refine the practices based on practical insights.

5.6 Limitations

Despite the comprehensive approach taken in this study, several limitations need to be acknowledged. First, the reliance on interviews and secondary data sources may have introduced biases or inaccuracies due to varying degrees of data quality and transparency across organizations. Second, the focus on the IT industry within the European context might limit the generalizability of the findings to other sectors or geographical regions, which have unique challenges and regulatory requirements not fully captured here. Third, the rapidly evolving regulatory landscape means that the findings and recommendations are based on current regulations, and future changes could impact their relevance. Additionally, while the integration of advanced analytical tools and AI was explored, the fast pace of technological advancements could render some recommendations obsolete. Lastly, the study's limited timeframe restricted the assessment of long-term impacts, emphasizing the need for longitudinal studies to evaluate the sustainability of the best practices.

Furthermore, the benefits identified are derived from a critical analysis of the challenges (Sub-RQ2) and solutions (Sub-RQ3), rather than empirical evaluations by companies. This theoretical foundation is a limitation as it lacks practical validation through implementation in real-world scenarios. Therefore, future research should focus on longitudinal studies and practical evaluations by companies to assess the effectiveness and impact of the solutions on their Corporate Sustainability Reporting practices.

6 CONCLUSION

This thesis explored the enhancement of Corporate Sustainability Reporting Directive (CSRD) practices within the IT industry to provide more accurate, efficient, and impactful sustainability reporting. The research revealed that the IT industry, driven by rapid technological advancements, faces unique challenges in CSRD implementation. Organizations often struggle with understanding and complying with new regulations and encounter burdensome data collection processes. The complexity of capturing reliable data from diverse sources further complicates compliance efforts. Despite these challenges, companies that have integrated sustainability reporting within their annual financial reports exhibit a higher degree of transparency and relevance in their sustainability disclosures.

Key issues identified include technical barriers such as the lack of standardized data collection methods and organizational barriers like insufficient resources and expertise. Additionally, there are strategic barriers, including the misalignment between sustainability goals and business objectives. These challenges hinder the ability of IT organizations to produce accurate and comprehensive sustainability reports. To address these challenges, the study proposed a comprehensive framework for improving CSRD practices, emphasizing the importance of robust data management systems, advanced analytical tools, and enhanced stakeholder engagement. The framework includes the adoption of standardized data collection protocols, leveraging digital tools for data aggregation, and fostering a culture of continuous improvement through regular stakeholder consultations and transparent reporting.

Implementing the solutions offers several benefits, including improved social and environmental performance, enhanced decision-making processes, and increased stakeholder trust. High-quality sustainability reporting aligns corporate activities with broader sustainability goals and fosters greater transparency and accountability. This, in turn, enhances the organization's reputation, attracts sustainability-focused investors, and provides a competitive edge in the marketplace. In conclusion, the effective enhancement of CSRD practices in the IT industry requires addressing both technical and organizational challenges. By adopting the solutions, organizations can achieve more accurate, efficient, and impactful sustainability reporting. This not only ensures compliance with regulatory requirements but also contributes to the broader goal of achieving global sustainability objectives.

Furthermore, the benefits identified are derived from a critical analysis of the challenges (Sub-RQ2) and solutions (Sub-RQ3), rather than empirical evaluations by companies. This theoretical foundation is a limitation as it lacks practical validation through implementation in real-world scenarios. Therefore, future research should focus on longitudinal studies and practical evaluations by companies to assess the effectiveness and impact of the solutions

on their Corporate Sustainability Reporting practices. Expanding the scope of this study to include other industries and geographical regions would provide a more comprehensive understanding of the challenges and best practices in CSR. Conducting long-term studies to evaluate the ongoing impact and effectiveness of the solutions would offer valuable insights into their sustainability and adaptability over time. Additionally, future research should continuously evaluate emerging technologies such as AI, blockchain, and IoT for their applicability to CSR, as these advancements could further streamline data collection, verification, and reporting processes.

As the regulatory landscape evolves, ongoing research should focus on adapting and updating CSR practices to ensure compliance and optimal performance, including monitoring changes in the CSRD and other relevant regulations. Further studies should also explore more effective methods of engaging with a wider range of stakeholders, including smaller suppliers and customers, to ensure a holistic and inclusive approach to sustainability reporting. Developing and implementing more sophisticated metrics and KPIs to measure the impact of CSR initiatives on organizational performance and sustainability goals would provide clearer insights and drive continuous improvement. By addressing these areas, future research can build on the foundations laid by this study, ensuring that CSR practices continue to evolve and meet the increasing demands for transparency, accountability, and sustainability in the corporate world.

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APPENDIX 1 Interview Questions

- How do you create the sustainability report?
 - Who is responsible for the report?
 - What position?
 - Any teams?
 - What knowledge does he need to have for the report?
 - Any software?
 - Any consultants?
 - What are the steps?
 - Who are the stakeholders?
 - What strategies do you employ to engage stakeholders in the sustainability reporting process?
 - How do you integrate feedback from stakeholders into subsequent sustainability reports?
 - What steps are taken to ensure transparency and accountability in the reporting process?
 - How do you ensure the sustainability report aligns with international standards such as GRI (Global Reporting Initiative) or ESRS (European Sustainability Reporting Standards)?
 - Are there any common reporting mistakes? And how do you fix it?
 - How do you handle sensitive or controversial sustainability issues in the report?
 - What measures do you take to ensure the sustainability report remains relevant and responsive to evolving stakeholder expectations and regulatory requirements?
- How does your organization gather the right data?
 - What kind of data do you gather?
 - How do you make sure that it is the right data?
 - Are there any problems when gathering that data?
 - How do you fix that?

- How do you address challenges related to data availability and completeness when compiling the sustainability report?
- What would you say is your company's biggest obstacle or biggest challenge with CSRD?

APPENDIX 2 Consent Form

Declaration of consent for collection and processing of personal interview data

Thesis:

Interviewer: Korawit Rupanya

Interview Date: [Date of the interview]

Description of the project (please tick as appropriate):

oral explanation written explanation

The interviews will be recorded using a digital recording device and may also be documented in writing by the research team. To ensure the confidentiality of the interviewees, all information that could potentially identify individuals will be anonymized or removed from the transcripts. Excerpts from the interviews may be cited in scientific publications but will be presented in a manner that maintains the anonymity of the participants and prevents the overall context from leading to identification.

Personal contact details will be stored separately from the interview data and will be inaccessible to unauthorized parties. Once the research project is completed, all contact information will be automatically deleted.

Participation in the interviews is entirely voluntary. Interviewees have the right to withdraw from the interview at any time, decline further participation, and retract their consent for the recording and transcription of their interviews without facing any consequences.

This research project adheres to the General Data Protection Regulation (EU) 2016/679 (GDPR) to ensure the protection of your personal data. As a participant, you have the following rights:

- **Right to Withdraw:** You may withdraw from the study at any time without reason and without incurring any disadvantages.
- **Right to Data Destruction:** You have the right to request the destruction of any personal data related to your participation in the study.
- **Right to Data Removal:** You may request that your data be removed from the project at any point, ensuring that it will not be used in future analyses or publications.

Your personal data will be processed only for the purposes of this research project, and all necessary measures have been implemented to safeguard your privacy and the confidentiality of your data.

This consent form is to ensure the privacy and confidentiality of participants involved in this research that explores the Corporate Sustainability Reporting Directive(CSRD) practice to understand challenges and try to fix those to enhance corporate sustainability reporting practices(CSR) within the IT industry, going beyond mere data collection to generate impactful insights and facilitate future advancements.

I agree with the context of the project mentioned in the interview.

Yes No

First given name; Last name