



Hochschule Neu-Ulm  
University of Applied Sciences

Bachelorarbeit  
im Bachelorstudiengang  
**Betriebswirtschaft**  
an der Hochschule für angewandte Wissenschaften Neu-Ulm

**CSRD and large German automobile companies  
– the gap to current environmental reporting**

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Thema erhalten: 02.08.2023  
Arbeit abgegeben: 11.11.2023

## **Abstract**

While sustainability reports until now are globally largely not regulated the European Union developed the Corporate Sustainability Reporting Directive (CSRD) to regulate this topic. This new framework comes into force 2024 and will affect all EU based companies with more than 500 employees and later also non-EU companies with more than 150mn revenues in the EU. This regulation fosters the commitment of the EU to a more sustainable economy.

This thesis starts with an introduction into general CSRD regulation (chapter 2). Thereafter we assess the three chosen companies (BMW, Mercedes, VW) 2022 sustainability related disclosure against these general requirements (chapter 3). In chapter 4 we do a deep dive into the climate change related disclosure requirements. Again, we analyse the three chosen automobile companies' disclosure against these requirements (chapter 5). A final analysis is made against the environmental topics beyond climate (chapter 6).

As part of the work, a comprehensive literature - and Internet research on the existing sustainability reporting was conducted. Additional practical insights were gained in the course of an expert interview. Furthermore, a detailed analysis regarding the existing gap between the published sustainability reports of the addressed companies and the ESRS E1 standard is carried out within the scope of this work. The other environmental standards are examined in less detail.

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## List of Abbreviations

c.e.....	circular economy
CapEx.....	Capital Expenditures
CC.....	Carbon Credits
CSRD.....	Corporate Sustainability Reporting Directive
DNK.....	German Sustainability Code
EFRAG.....	European Financial Reporting Advisory Group
ESEF.....	European Single Electronic Format
ESG.....	Environmental, Social & Governance
ESRS.....	European Sustainability Reporting Standards
GAAP.....	Generally Accepted Accounting Principles
GHG.....	Greenhouse gas
GRI.....	Global Reporting Initiative
KPI.....	Key Performance Indicator
LGAC.....	Large German Automobile Companies
MEP.....	Member of the European Parliament
NFRD.....	Non Financial Reporting Directive
OECD.....	Organization for Economic Cooperation and Development
OpEx.....	Operational Expense
SBTN.....	The Science Based Targets Network
SFDR.....	Sustainable Finance Disclosure Regulation
SMEs.....	Small and Medium Sized Enterprises

*„When the last tree has been cut down, the last fish caught, the last river poisoned, only then we will realize that one cannot eat money“.*

*Prophecy of the Cree Indians (1887)*



## 1 Introduction

In today's world, sustainability is more than just a buzzword; it represents a paradigm shift in society's perception of its relationship to the environment, economic growth, and social responsibility. At the heart of this transformative movement is the recognition that the earth's resources are finite and that uncontrolled and unregulated extraction of these resources lead to environmental degradation and social inequality and threaten the well-being of future generations.<sup>1</sup>

Once the political will for change had been established, the EU Commission decided on a 10-point action plan in 2018.<sup>2</sup> These can be divided into three categories: Reorienting capital flows towards a more sustainable economy (main action: EU Taxonomy), mainstreaming sustainability risk into risk management (main action: integrating sustainability in ratings and risk management regulation) and fostering transparency and long-termism (main action: sustainability disclosure and accounting rule-making).

One of the first steps was to define the EU Taxonomy, which clearly stipulates which economic activities are considered taxonomy-compliant and thus sustainable and intergenerationally equitable.<sup>3</sup> The EU Taxonomy is a classification system designed to define environmentally sustainable economic activities within the European Union.<sup>4</sup> Its main goal is to provide clarity and direction to the financial sector regarding what exactly counts as a "sustainable" economic activity. Before its introduction, there was a lack of universally accepted definitions in this area, which led to ambiguity and potential misdirection of funds. One of the main functions of the taxonomy is to direct investments more effectively towards truly sustainable projects and initiatives, thus promoting a greener economic transition. This is particularly important for the EU's ambitious goals, such as the European Green Deal, which aims for climate neutrality by 2050.<sup>5</sup>

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<sup>1</sup> Rath (Ein Grundrecht auf Generationengerechtigkeit?, 2022)

<sup>2</sup> Vgl. Directorate-General for Financial Stability (Renewed sustainable finance strategy and implementation of the action plan on financing sustainable growth, 2018)

<sup>3</sup> Engelen (EU-Taxonomie für Sustainable Finance, 2022)

<sup>4</sup> European Commission (The European Green Deal, 2019)

<sup>5</sup> European Commission (The European Green Deal, 2019)

While the EU taxonomy thus catalogues corporate activities based on comparable criteria, the CSRD (Corporate Social Responsibility Directive) is concerned with the fundamental disclosure of all sustainability information.<sup>6</sup> The development of this directive and its individual components are explained in more detail in the following chapter. In short, the Corporate Sustainability Reporting Directive (CSRD) is the further development of the Non-Financial Reporting Directive (NFRD) and aims to put sustainability reporting on the same level as financial reporting. Part of the CSRD are uniform EU standards for sustainability information, the so-called European Sustainability Reporting Standards (ESRS). Companies that must prepare sustainability reports based on the CSRD in the future disclose information on the ESRS.<sup>7</sup>

It is immediately clear that the companies affected by the new regulations will face huge challenges in meeting the requirements. In addition to state control and certainly high fines, the external impact of an incomplete sustainability report is difficult to assess. In this paper, the challenges that arise are worked out and clarified based on large German automobile companies. How far away are these companies currently from the requirements of the CSRD? What are the main difficulties and in which areas are the companies already well positioned? To shed some light on this questions, CSRD will first be examined in more detail in the next chapter. It is not possible to examine the entire German industry to this extent. The present study focuses on the German automotive industry, represented by BMW, Mercedes, and Volkswagen. As shown in the following chapter, CSRD reporting calls for Environmental, Social & Governance disclosure. Environmental reporting plays a strong and central role.<sup>8</sup> In this thesis we focus only on the environmental part of CSRD disclosure. Of the five published disclosure standards ESRS E1-E5<sup>9</sup>, regulation E1 is examined in detail in this paper, while regulations E2-E5 are presented in less detail.

In addition, a practitioner's interview was conducted in the run-up to this thesis for various reasons. On the one hand, a practical aspect can be integrated into the theoretical work. On the other hand, it may be possible to identify problems and

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<sup>6</sup> Vgl. Mazar (Corporate Sustainability Reporting Directive, 2022)

<sup>7</sup> Vgl. Mazar (Corporate Sustainability Reporting Directive, 2022)

<sup>8</sup> Deloitte (Globale Initiative zur Berichterstattung, 2022)

<sup>9</sup> Vgl. Gnädinger (The Corporate Sustainability Reporting Directive (CSRD), 2022) S. 7

opportunities in personal interviews that would not become apparent in a purely theoretical comparison based on data.

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## 2 Overview Corporate Sustainability Reporting Directive (CSRD)

The Corporate Sustainability Reporting Directive (CSRD) has its roots in the European Union's original efforts to improve corporate transparency on sustainability issues. Initially, the EU implemented the Non-Financial Reporting Directive (NFRD) in 2014. This directive required large public interest entities (with more than 500 employees), and large financial institutions (with more than 1500 employees), to disclose non-financial and diversity data.<sup>10</sup> The goal was to promote a more consistent, current, and comparable view of companies' social and environmental footprints.

Over time, however, several shortcomings of the NFRD became apparent. Many stakeholders, including investors and civil society groups, found that reporting under the NFRD was often inconsistent, not comparable, and not comprehensive enough. There was a growing consensus that a more rigorous, detailed, and standardized approach was needed to meet the information needs of different stakeholders.<sup>11</sup>

Against the backdrop of these discussions, the European Commission unveiled the European Green Deal in December 2019, with the ambitious goal of making Europe the first climate-neutral continent by 2050.<sup>12</sup> A key component of this vision is improving corporate sustainability reporting, which is seen as a key measure for steering private capital into sustainable investments (together with EU Taxonomy). In response to feedback on the NFRD and the aspirations of the European Green Deal, the European Commission proposed the CSRD in April 2021. This was intended as a more robust and comprehensive replacement for the NFRD. The CSRD expands the scope of companies required to disclose sustainability information, sets out more detailed reporting requirements, and aims to achieve much-needed standardization of sustainability reporting in the EU.

While CSRD in itself contains the general disclosure regulation it must always be seen jointly with the detailed European Sustainability Reporting Standards (ESRS) which provide the necessary details on overarching topics (ESRS1,2), five environmental (E1-E5) and four social (S1-S4) topics, amended by an ESRS on governance (G).

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<sup>10</sup> Mazar (Corporate Sustainability Reporting Directive, 2022)

<sup>11</sup> Laufermann/ und Baumüller (Standardisierung der Klimaberichterstattung, 2022)

<sup>12</sup> Commission (The European Green Deal, 2019)

The development of these detailed standards (from EFRAG<sup>13</sup>) as part of the overall CSRD-package underscores the EU's growing commitment to sustainability by combining lessons learned from previous initiatives with global and regional sustainability goals. The following diagram shows the structure of the ESRS in more detail.

Cross-Cutting Standards				
ESRS 1 General requirements		ESRS 2 General disclosures		
Environmental Topical Standards				
ESRS E1 Climate change	ESRS E2 Pollution	ESRS E3 Water and marine resources	ESRS E4 Biodiversity and ecosystems	ESRS E5 Resource use and circular economy
Social Topical Standards				
ESRS S1 Own workforce	ESRS S2 Workers in the value chain	ESRS S3 Affected communities	ESRS S4 Consumers and end users	
Governance Topical Standard				
ESRS G1 Business conduct				

Figure 1 ESRS standards<sup>14</sup>

<sup>13</sup> Vgl. EFRAG (Reports on development of EU sustainability reporting standards, 2021)

<sup>14</sup> Vgl. Deloitte (Globale Initiative zur Berichterstattung, 2022)

## 2.1 Timeline

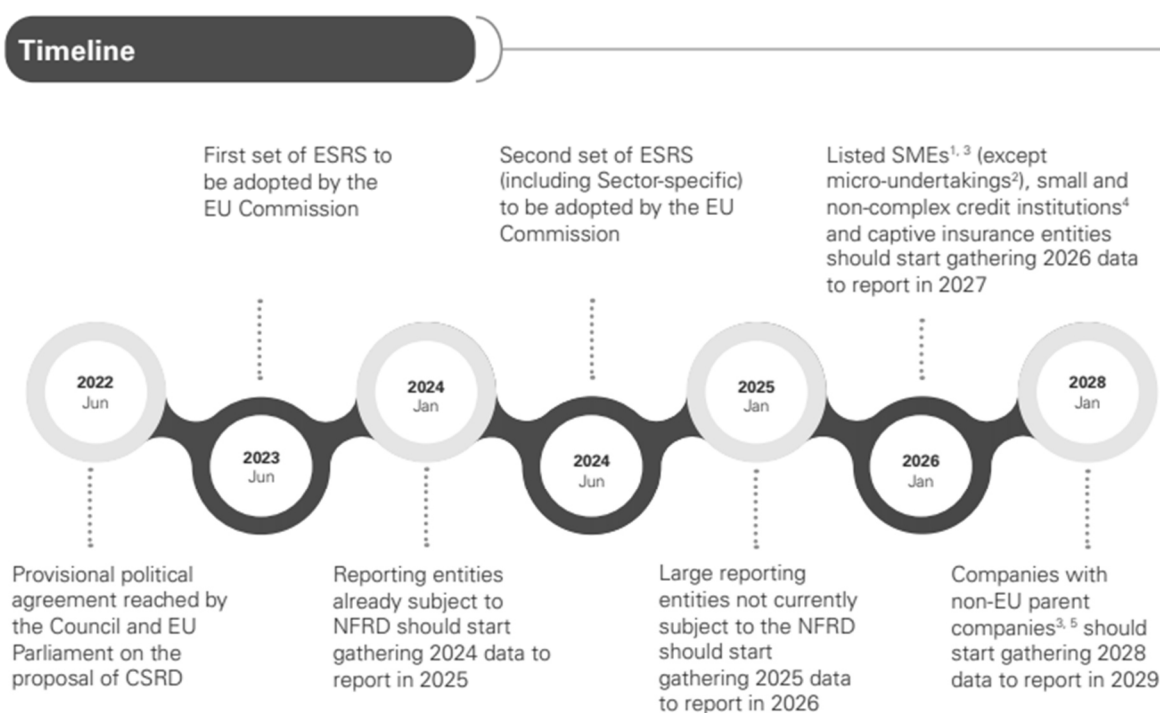


Figure 2 Timeline implementation CSRD<sup>15</sup>

The Corporate Sustainability Reporting Directive (CSRD) has been endorsed by the European Commission and is now starting to become law. In May 2022, European Financial Reporting Advisory Group EFRAG<sup>16</sup> published the first draft of the ESRS standards for public feedback. By June 21, 2022, the CSRD was endorsed by MEPs and EU Governments. In September, the EFRAG presented the ESRS reporting standards to the EU Commission, which were adopted in November. The EU Parliament ratified the CSRD on November 10, and the EU Council approved it on November 28. By December, EU member states incorporated the EU Directive into their national laws, which was then published in the EU Official Journal. This Directive becomes effective 20 days after publication and is expected to be integrated into member states' laws within 18 months.<sup>17</sup>

In 2023, the CSRD became effective for qualifying companies in the 2024 financial year. As such, companies are building ESG (Environmental, Social & Governance; to be highlighted in the next paragraph) reporting mechanisms and infrastructure in 2023 to prepare their CSRD reporting for the following year. Starting in 2024, large qualifying

<sup>15</sup> Gnädinger (The Corporate Sustainability Reporting Directive (CSRD), 2022)

<sup>16</sup> EFRAG (EFRAG, 2019)

<sup>17</sup> Vgl. Gnädinger (The Corporate Sustainability Reporting Directive (CSRD), 2022)

companies would be required to publish a CSRD report in accordance with the first sustainability reporting standards for that financial year. In addition, by June 2024, the CSRD regulation mandates the European Commission to establish specific standards for different sectors, proportionate standards for listed small and medium-sized enterprises (SMEs), and standards for non-EU companies.<sup>18</sup> In 2026, SMEs will start reporting under CSRD using a subsequent simplified reporting framework tailored to smaller companies.<sup>19</sup> In 2028, global companies with an annual turnover in the EU of more than €150 million and at least one subsidiary or branch in the EU above certain thresholds would be required to start reporting under the ESRS (CSRD) at a consolidated group level, including activities outside the EU.<sup>20</sup>

Therefore, companies have been advised to strategize and implement their CSRD compliance approach by 2023 in order to be prepared for the 2024 reporting cycle and maintain compliance. The exact penalties imposed by the EU Commission or individual member states for non-compliance with the CSRD remained uncertain. However, based on the directive's provisions, non-compliant organizations would face significant fines. In addition, a June 2023 announcement revealed that the EU Commission allows companies with fewer than 750 employees to phase in and exclude certain data points, such as scope 3 greenhouse gas (GHG) emissions<sup>21</sup> and certain ESRS disclosures, in their first reporting year. They can also omit certain other disclosures for the first two years. In addition, all companies can exclude expected financial impacts related to non-climate environmental factors and some data related to their workforce in their first year under the CSRD's ESRS standards.

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<sup>18</sup> Vgl. Mazar (Corporate Sustainability Reporting Directive, 2022)

<sup>19</sup> EFRAG (Reports on development of EU sustainability reporting standards, 2021)

<sup>20</sup> Vgl. Gnädinger (The Corporate Sustainability Reporting Directive (CSRD), 2022)

<sup>21</sup> Nasca (Nachhaltigkeitscontrolling 2022)

## 2.2 Scope

CSRD reports will be required to include management commentary and specific data in a separate section of the annual management report. This data should include insights into the company's process for assessing material ESG issues, topics, risks, impacts and focus areas. As outlined by the EU Commission, all standards and disclosures within each standard are subject to a materiality assessment, except for the disclosures listed in the general disclosures' standard. In total, five main categories can be identified, which holistically encompass the scope.<sup>22</sup> These will first be presented in the following, and in the further course of the work a first step will be taken to compare the extent to which the sustainability reports of the year 2022 already cover these requirements.

## 2.3 Value chain

The CSRD framework covers in all aspects the full value chain of companies. The notion of value chain can be separated into three parts, own operations, upstream, and downstream. The upstream value chain consists of the full supply chain of companies, their suppliers and service providers. For production companies like automobile manufacturers this can be seen as all pre-production steps. The main aspect of downstream value chain is the use phase of sold products. In the case of automobile manufacturers foremost the (environmental) impact of the cars sold.

## 2.4. Double Materiality

### 2.4.1. What it is

In its June 2019 guidelines on non-financial reporting, the European Commission introduced the concept of "double materiality": This approach encourages companies to assess materiality through two lenses. The first lens consists of the impact of ESG topics (see 2.6.) on the company's development, performance, risk and return position, and overall value (outside-in perspective). At the same time, the second lens assesses

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<sup>22</sup> Gnädinger (The Corporate Sustainability Reporting Directive (CSRD), 2022)



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the broader environmental and societal impacts of the company's actions on the environment and the society (inside-out perspective).

Elements of this double materiality approach have existing roots, although the terminology is new. For example, the GRI's (Global Reporting Initiative) recent change in definition emphasizes the significant impacts that an organization has on various areas, including the economy, the environment, human rights, and the broader community. The European Financial Reporting Advisory Group (EFRAG) interprets dual materiality by combining both financial impacts and broader societal and environmental impacts. This "impact materiality" examines the entity's activities and assesses their positive and negative impacts on the environment and society, taking into account their severity, scope and direct relevance.

Such perspectives signal a notable shift away from a purely monetary view. Instead, they emphasize the broader opportunities and challenges presented by sustainable development. This assessment is supported by research showing that companies that consider the broader implications of sustainability are more likely to align holistically with the UN Sustainable Development Goals.<sup>23</sup>

The research underscores the importance of first and foremost understanding an organization's impact on sustainable development before looking at its financial impact. Focusing solely on the latter could unintentionally narrow the perspective and lead to short-term profit targets, which can be detrimental to both long-term financial viability and broader sustainable development.<sup>24</sup>

Companies reporting under CSRD must perform a rigid and transparent materiality analysis on all reporting topics, only material topics shall be reported.<sup>25</sup>

#### 2.4.2 Benefits of applying double materiality

The adoption of double materiality in sustainability reporting is a major step forward in stakeholder engagement. Understanding what's important in complex business environments requires extensive and direct interaction with stakeholders. Because

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<sup>23</sup> Vgl Adams (The double-materiality concept -Application and issues, 2022) S. 8f

<sup>24</sup> Vgl. Adams (The double-materiality concept -Application and issues, 2022) S.11

<sup>25</sup> Vgl. Adams (The double-materiality concept -Application and issues, 2022). S12

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stakeholders often have diverse and sometimes conflicting opinions on material sustainability issues, this deeper engagement through double materiality promotes diverse and reciprocal accountability relationships between organizations, stakeholders, and the broader community.

Materiality is perceived as a socio-economic and political concept rather than a technical one. It profoundly influences society's understanding of sustainable development through corporate communication. Organizations consistently shape their sustainability identity, their actions, and their impacts through the analysis of double materiality. Over time, this activity shapes and refines the overall perception of sustainable development. Investing in sustainability may have immediate costs, but it can have long-term benefits. Materiality assessments support investment decisions by identifying the critical stakeholders, the sustainability challenges, and the risks and opportunities associated with them. It shows that investing resources in material sustainability issues can strengthen a company's financial health, while investments that are not material won't have a significant impact on it.<sup>26</sup>

#### 2.4.3 Issues in applying double materiality

The application of double materiality in sustainability reporting faces several challenges. Research shows<sup>27</sup> that there are inconsistencies in how companies disclose and identify material sustainability issues. A key finding is that disclosure of the process for identifying these issues is often unclear, which calls into question the credibility of sustainability reports. Such ambiguity gives companies the opportunity to selectively present positive performance and downplay negative performance, which could mislead stakeholders.

Despite widespread adoption of GRI's materiality concept, practical approaches vary. While some companies use stakeholder engagement to increase transparency, others use it to manage risk, resulting in less materiality in their reports. This difference in approach is attributed to a lack of knowledge about double materiality, leading some companies to hire consultants to provide clarity. In addition, because so far in many

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<sup>26</sup> Vgl. Adams (The double-materiality concept -Application and issues, 2022)

<sup>27</sup> Vgl. eurostat (Statistische Systematik der Wirtschaftszweige in der Europäischen Gemeinschaft, 2008)

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cases materiality assessment is an opinion of management rather than a rigorous process, it is inherently subjective in nature.<sup>28</sup>

## 2.5 Risk, impact, and opportunities

Companies should detail their strategies and action plans, policies and targets including related financial and investment plans, and ensure that their business model is consistent with the transition to a sustainable economy. This should consider the 1.5°C global warming limit under the 2015 United Nations Paris Agreement and the EU's goal of climate neutrality by 2050, as set out in Regulation (EU) 2021/1119<sup>29</sup>. CSRD compliant reports must discuss sustainability risks and opportunities as well as positive and negative impacts for all ten ESRS topics (c.f. Figure 1), additionally for biodiversity the dependency on services provided by nature must be disclosed. Especially this includes the impact of climate change on the company and the impact of the company's value chain on the environment and society. Companies should highlight the robustness of their business model and strategy with respect to sustainability risks, the potential or existing impact of ESG risks on company performance, and how its business model addresses stakeholder interests and sustainability impacts.<sup>30</sup> Stakeholders shall also get insights into the business opportunities related to ESG topics.

## 2.6 ESG

The main components of CSRD are reporting requirements on ESG (environmental, social and governance) aspects.

In the financial sector, the concept of sustainability is still not clearly defined, although legal clarifications are emerging and are expected to be enforceable soon. Interpretations of "green" or "social" vary by provider and product due to the complex nature of sustainability. Global experts are working to establish relevant, measurable, and comparable criteria to help investors make informed decisions. The food industry's

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<sup>28</sup> Vgl. Adams (The double-materiality concept -Application and issues, 2022)

<sup>29</sup> European-Commission (2021/1119, 2021)

<sup>30</sup> Vgl. Mazar (Corporate Sustainability Reporting Directive, 2022)

journey with organic labelling mirrors this development in the financial sector. The food industry has debated how to define sustainability, resulting in various organic labels that range from EU to Demeter. In investing, there are a variety of methods that fall under the umbrella of sustainable investing. Consistent and regulated ESG data and reporting provides a more holistic view that goes beyond traditional financial metrics of investee companies for investors as well as for financial products for consumers when aggregated on product level. They cover not only environmental issues, such as climate and resource protection, but also the social dimension, such as the treatment of employees and human rights, and address sustainable corporate governance issues, such as how to deal with corruption risks.<sup>31</sup>

The “E” in ESG stands for Environment, which we will look at more closely in the course of this work. As already described in the introduction, the gap between the existing sustainability reports and the requirements of the CSRD regarding the environment will be examined. The ESRS E1-E5 disclosure standards look at the extent to which a company or state pollutes the environment, emits greenhouse gases or pollutants, consumes resources or uses energy efficiently. The handling of waste as well as the individual footprint must also be presented. In particular, climate risks are gaining in importance here. The individual components are examined again separately in the main section to define the parameters of the comparison. A widely used standard in relation to environmental management systems is the ISO 14000 family.<sup>32</sup>

The “S” in ESG stands for Social, which encompasses the social and societal impacts of how companies and nations operate. First and foremost is the emphasis on upholding human dignity. This is an evaluation of aspects of the internal environment of the company, such as team diversity, workplace safety and health measures. In addition, the perspective is broadened to include the entire value chain, highlighting areas such as suppliers' adherence to human rights standards or the prohibition of child labour. Going further, fair dealing with customers is also considered. In addition, the company's community involvement is part of this social dimension.

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<sup>31</sup> Vgl. Dr. Möhrer u.a. (Die Rolle des Green Controllings bei der Umsetzung des European Green Deals, 2021)

<sup>32</sup> Vgl. ISO (The ISO 14000 family of International Standards, 2009)

Standards that reflect the social aspect include the OECD Guidelines for Multinational Enterprises, the ILO core labour standards, the ten principles of the UN Global Compact, and ISO 26000.<sup>33</sup>

The "G" in ESG stands for governance.

It emphasizes principles of fairness and transparency and encompasses the concept of responsible corporate governance. For example, a company might have specific policies and codes on corruption or ensure diverse representation on its committees and boards. The provision of transparent details on such issues is intended to assist investors in the identification of potential risks within the company.

Notable benchmarks for effective governance include the German Corporate Governance Code, the UN Global Compact, ISO 37000<sup>34</sup>, and the OECD Principles of Corporate Governance.<sup>35</sup> The German Sustainability Code (DNK) and Global Reporting Initiative (GRI) provide additional insight and guidance.



Figure 3 Three pillars of ESG<sup>36</sup>

<sup>33</sup> Vgl. Bundesministerium für Arbeit und Soziales (ISO 26000 Leitfaden zur gesellschaftlichen Verantwortung von Organisationen, 2011)

<sup>34</sup> Vgl. Bundesministerium für Arbeit und Soziales (ISO 37000 Governance of organizations, 2021)

<sup>35</sup> Vgl. OECD (Principles of Corporate Governance, 2020)

<sup>36</sup> Techtarget (3 Pillars of ESG, 2022)

## 2.7 Third party assurance

Another important requirement in the CSRD framework is third-party assurance. Right from the beginning, companies reporting under the CSRD Regulation must obtain "limited" assurance on the sustainability information they publish. This assurance must be provided by a neutral, credible, and experienced third party that verifies the data. Although "limited" assurance is less rigorous than a financial audit ("reasonable assurance"), it still requires working with an independent sustainability reporting partner organization or auditor.

Later in 2028 it is foreseen that the assurance level will be raised to "reasonable assurance", but final decision is still outstanding.

However, criticism is being raised as part of this approach to financial auditing. Sustainability auditing neglects the process of assessing materiality and other GRI principles, focusing instead on aspects like those of financial auditing. The approach, largely adopted from financial auditing, tends to be narrow in scope and focused on data verification. The lack of mandatory external review of stakeholder engagement and identification of material issues is of concern. Robust identification of material impacts should be the cornerstone for identifying risks to sustainable development. Overall, there is a tendency for organizations to prioritize financial materiality, which could be detrimental to true sustainable development and impact long-term financial success.<sup>37</sup>

A note on the technical reporting requirements:

In terms of digital data and tagging, companies are expected to format their financial statements and management commentary in XHTML or an equivalent electronic format that complies with the ESEF<sup>38</sup> rules and the EU Sustainability Taxonomy. They must then digitally "tag" their disclosed sustainability information based on a digital classification system set out in the CSRD Regulation. Finally, CSRD reporting must be submitted in a specified electronic reporting format, as described in Article 3 of Commission Delegated Regulation (EU) 2019/815. This should be done no later than 12 months after a company's balance sheet date.

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<sup>37</sup> Adams (The double-materiality concept -Application and issues, 2022)

<sup>38</sup> Rowden (European Single Electronic Format (ESEF) for annual reports of EU listed companies, 2021)

## 2.8 Implementing CSRD in sustainability reporting

Today's corporate reporting is subject to a great deal of criticism. Because there are no generally applicable rules, consumer advocates see a danger that large corporations are greenwashing. This can be limited by uniform regulations such as the CSRD. Finally, this is in the interest of the companies (honest efforts towards transformation are still subject to the risk of being labelled as greenwashing). Even if the implementation of the new regulations initially poses challenges for companies, they can ultimately benefit from them.

One of the biggest challenges is certainly that companies also need to identify and analyse significant issues based on impacts, risks and opportunities along their value chain. The way it has to be reported here is very extensive.<sup>39</sup>

To not only rely on literature, we also conducted a practitioners interview (see appendix). This interview highlights again the challenges described above. Even the most advanced companies in sustainability reporting need to improve their reporting to be in line with CSRD requirements. The challenges mentioned are especially stringent materiality assessment, the required external assurance level, and the move to more quantitative and systematic reporting. Exactly these are the topics where we will find the largest gaps between the current sustainability reports of the large German automobile companies and the requirements in the CSRD framework.

One of the most important points is the comparability and resilience of the ESG data, the interviewee added at the end. The constant availability of this data allows all stakeholders to channel their financial resources into truly sustainable activities.

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<sup>39</sup> Vgl. Deloitte (Globale Initiative zur Berichterstattung, 2022) S.20

### 3 Gap between LGAC reporting and CSRD scope

In the following section of this thesis, we will use the available sustainability reports of BMW, VW, and Mercedes for the year 2022 regarding the scope of CSRD presented in chapter 2. The points already presented in chapters 2.3. - 2.7. will be used as aspects of comparison. The summary of the analysis is presented in table one below.

It should be mentioned at the outset that BMW has already integrated its sustainability report<sup>40</sup> into its Group Report since 2020. Volkswagen<sup>41</sup> and Mercedes<sup>42</sup> have published independent sustainability reports for 2022. This will no longer be possible for these companies from reporting year 2024. The CSRD stipulates that the sustainability report must be included in the management report. All the information in the comparison is obtained from these three reports.

Scope CSRD	BMW	VW	Mercedes
Value Chain	●	○	○
Double Materiality	●	○	●
Risk, Impact and Opportunities	○	●	●
ESG	○	○	○
Third Party Assurance	○	●	○

Table 1: Scope CSRD

#### 3.1 Value chain

As can already be assumed, all three companies are strongly positioned here. On the one hand, the reports deal with their workforce along the value chain; on the other hand, the process of raw material extraction, through production, to the life cycle of the cars play an important role. While the working conditions are not least due to growing social pressure and trade unions along the value chain, the environmental pollution plays the overriding role. While downstream is the focus of society (e-mobility), aspects such as water consumption in battery production are not as important to the public (upstream). Here, all three companies still have room for improvement. While all the statements sound praiseworthy, only BMW provides reliable facts (at least with regard

<sup>40</sup> BMW (BMW Group Bericht 2022, 2022)

<sup>41</sup> Volkswagen (Nachhaltigkeitsbericht 2022, 2022)

<sup>42</sup> Mercedes-Benz (Nachhaltigkeitsbericht 2022, 2022)



to water consumption along the value chain).<sup>43</sup> On a positive note, all three companies disclose what percentage of the materials they put into circulation can be recycled.

### 3.2 Double Materiality

As mentioned in the previous chapter plays the reflection (not least also self-critical) of the companies from the inside-out as well as the outside in perspective. While the VW report is far behind in this respect, the Mercedes report stands out. Here, the process of analysis from the perspectives mentioned was shown pictorially. Here, too, the BMW report has a clear advantage in terms of hard facts.<sup>44</sup>

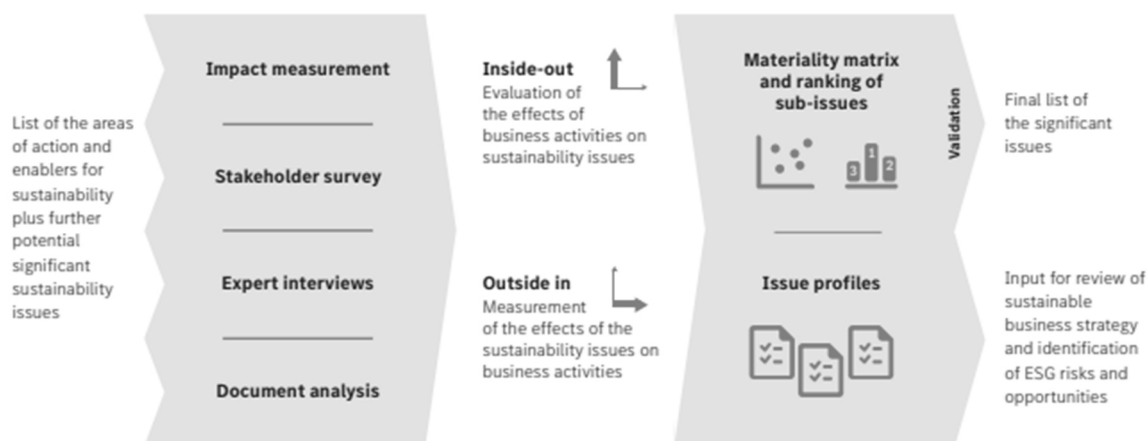


Figure 4: Procedure of double materiality analysis<sup>45</sup>

Overall, all three companies need to improve on the rigidity and transparency of their materiality assessment.

### 3.3 Risk, Impact and Opportunities

Generalizations can be made here for all three reports. Whereas risk management and the avoidance of negative impacts play a central role. Not least because financial interests (but also legal requirements to minimize risks) have existed for a long time, all three companies are well positioned here. It is striking that the opportunities for the

<sup>43</sup> Vgl. BMW (BMW Group Bericht 2022, 2022) S.82

<sup>44</sup> BMW (BMW Group Bericht 2022, 2022) s. 7

<sup>45</sup> Mercedes-Benz (Nachhaltigkeitsbericht 2022, 2022) S.22

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current transformation are very little, if at all, discussed in the report by Mercedes<sup>46</sup>. Here exists the possibility to report more precisely as well as more comprehensively. Last but not least, taking advantage of all the possibilities offered by the new comprehensive regulations of the CSRD can help to attract new financial resources.

### 3.4 ESG

In the following of this work the "E" topic will play a central role. In the next chapter, the corresponding draft (ESRS E1) will be presented in detail, and then the existing gap of the LGAC to the new regulations will be examined and presented. Therefore, I will limit myself to the topics S and G in this general comparison. To start with the social related topics. As regarding the double materiality, the Mercedes report is much more informative and comprehensive than the VW report. The BMW report lists the same aspects as Mercedes, but does not substantiate them with facts, which contradicts the previous approach of the BMW report (regarding value chain related topics). The far-reaching ESRS S1-S4 standard, which will be binding from 2024 (to be reported in 2025), will help to avoid the danger of greenwashing, to create a reliable basis of facts and to establish comparability.

Governance seems to be the topic that the companies under review find most difficult to put into figures and facts. All three reports read very well here, but they are very sparsely populated with figures and facts. A comparable standard, which is now being introduced with the ESRS G1, limits the possibility of greenwashing and gives companies the opportunity to initialize internal processes to meet the requirements of the new standard.

### 3.5 Third party Assurance

This already plays a role in all three reports. The report from VW stands out here, combining the two individual assurances from BMW and Mercedes. While Mercedes only performed a third-party assurance according to ISAE 3000 (for the calculation of

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<sup>46</sup> Mercedes-Benz (Nachhaltigkeitsbericht 2022, 2022) S.26

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CO2 emissions)<sup>47</sup>, the BMW Group only performed a limited assurance of their non-financial group statement<sup>48</sup> in 2022. As already mentioned, VW combines both in its report.

It should be added that an upgrade of the limited assurance to a reasonable assurance is currently being discussed. A decision is expected before the end of 2023 and will probably be positive. This would put the associated workload of companies on a par with financial reporting.

In conclusion, there is no clear winner of this comparison. It should be emphasized that the BMW Group's sustainability report, which has already been included since 2020, appears to be the most progressive. The two other companies still have some catching up to do here. However, these two are more precise in separate categories and provide factual evidence for their statements. Since the CSRD regulations are based on those of the NFRD, all companies are already on the right track. However, the reports, like the NFRD, lack a clear underlying set of rules that create comparable and, above all, measurable KPIs. Based on these, companies can build their processes to meet the newly created legal requirements of the CSRD. On the other hand, it provides stakeholders with a better overview of the players in the market. A clear differentiation between greenwashing and sustainable business is difficult to make without rules that apply to everyone.

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<sup>47</sup> Vgl. Mercedes-Benz (Nachhaltigkeitsbericht 2022, 2022) s.239

<sup>48</sup> Vgl. BMW (BMW Group Bericht 2022, 2022) S. 16

## 4 ESRS E1

As already mentioned, the following section examines the published ESRS E1<sup>49</sup> regulations and identifies nine comparative aspects. Based on these points, the sustainability reports will be examined in detail in the next chapter and if there are gaps, these will be worked out.

The ESRS E1 regulation is one of the five environmental topical standards (Figure 1), consisting of 45 pages, adopted by the European Commission in July 2023, effective from 2024. In the first part, nine disclosure requirements are presented. There are also examples of how companies should implement the regulations and present the figures.

### 4.1. Transition plan for climate change migration

The company must disclose its climate change transition plan. This disclosure aims to explain the company's past, current and expected actions to mitigate climate change to ensure that its strategy and business models are aligned with transitioning to a sustainable economy. The objective is consistent with the Paris Agreement's goal of limiting global warming to 1.5°C and achieving climate neutrality by 2050, considering the company's association with coal, oil and gas activities, where applicable.

The disclosure should include the following:

- Explain how GHG emission reduction targets are consistent with the 1.5°C goal set out in the Paris Agreement.
- Clarification of identified decarbonisation strategies, key planned actions, changes in product and service offerings, and deployment of innovative technologies.
- Details on investments and financial support to facilitate the transition plan.
- A qualitative analysis of greenhouse gas emissions from key facilities and products, including the potential risks they pose to emission reduction targets.

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<sup>49</sup> EFRAFG (ESRS E1 Climate change, 2022)

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- Where applicable, an explanation of the company's alignment with EU-Taxonomy regulation 2020/852<sup>50</sup> and plans for future alignment.
  - An explanation of the company's inclusion or exclusion from the EU benchmarks aligned with Paris.
  - Information on how the transition plan fits into the overall business strategy and financial planning, and whether it has been approved by governance bodies.
  - Progress updates on implementing the transition plan.
  - If the company does not have a transition plan, it should indicate whether and when it intends to adopt one.<sup>51</sup>

## 4.2 Policies related to climate change mitigation and adaptation

Companies are required to disclose the policies they have adopted to manage the key impacts, risks, and opportunities associated with mitigating and adapting to climate change. This disclosure should convey the extent to which the company's policies are effective in identifying, assessing, managing, and potentially remediating its most significant impacts, risks, and opportunities related to climate change. The required disclosure should include summary details of these climate change mitigation and adaptation strategies. In addition, the company should explain whether and how its policies cover areas such as climate change mitigation, climate change adaptation, energy efficiency, the use of renewable energy, and other related areas.

## 4.3 Actions and resources in relation to climate change policies

The objective of this Disclosure Requirement is to provide an understanding of the key actions taken and planned to achieve climate-related policy objectives and targets. The depiction of these actions and resources should adhere to the principles outlined in the draft ESRS 2 DC-A regarding material sustainability issues.<sup>52</sup> Beyond this, entities should:

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<sup>50</sup> European-Commission (2020/852, 2020)

<sup>51</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.4

<sup>52</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.6

- Detail key climate change mitigation actions by decarbonisation lever, including nature-based solutions, taken in the reported year and planned for the future.
- Describe the outcomes of mitigation actions, emphasizing both realized and anticipated greenhouse gas (GHG) emission reductions.
- Connect major monetary amounts of capital expenditures (CapEx) and operational expenses (OpEx) for action implementation to relevant financial statement line items, key performance indicators under article 8 of the Taxonomy Regulation (EU) 2020/852<sup>53</sup>, and, if relevant, the CapEx plan dictated by Commission delegated regulation (EU) 2021/2178<sup>54</sup>.

#### 4.4 Targets related to climate change mitigation and adaptation

Companies are required to disclose the climate-related targets they have set. This disclosure should highlight the targets the company has set to support its climate change mitigation and adaptation strategies and to address its material climate-related impacts, risks, and opportunities.

Whether and how they have established GHG emission reduction targets and other targets to address climate-related issues, such as renewable energy use, energy efficiency, climate change adaptation, and risk mitigation.

If GHG emission reduction targets exist, they must be reported:

- Expressed in absolute terms (tons of CO<sub>2</sub> equivalent or as a percentage from a base year) and, where applicable, in terms of intensity.
- They shall be reported for Scope 1, 2 and 3 GHG emissions (listed in chapter 2.6.), ensuring consistency with GHG inventory boundaries and excluding GHG removals, carbon credits (CC) or avoided emissions.
- Together with the current base year and baseline, with the base year updated every five years starting in 2030. Earlier progress on targets may be reported if consistent with the requirements of the draft standard.
- Provide targets for at least 2030 and 2050, if available. Beginning in 2030, new targets should be established every five years thereafter.

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<sup>53</sup> European-Commission (2020/852, 2020)

<sup>54</sup> European-Commission (2021/2178, 2021)

- Clarify whether they are scientifically sound and consistent with limiting global warming to 1.5°C, including references to the guidelines or frameworks used and potential future developments affecting greenhouse gas emissions and reductions.

The requirements on GHG emission targets must be seen in connection with 4.6 – disclosure on GHG emissions.<sup>55</sup>

## 4.5 Energy consumption and mix

Companies are required to disclose details of their energy use and mix. This disclosure is intended to provide insight into the company's total energy consumption, efficiency improvements, reliance on coal, oil and gas, and the share of renewable energy in its energy mix.

Total Energy Consumed:

Companies should disclose their total energy consumed, measured in MWh, and provide a detailed breakdown:

- Energy from non-renewable sources, detailing consumption of coal, oil, natural gas, other non-renewable energy sources, nuclear products, and purchased electricity, heating, steam, and cooling from non-renewable sources.
- Energy produced from renewable sources, disaggregating consumption for renewable fuels such as biomass, biogas, and hydrogen from renewable sources, and including purchased or self-generated electricity, heat, steam, and cooling from renewable sources.

Energy Production:

Where applicable, companies should report their non-renewable and renewable energy generation separately in MWh.

Energy Intensity:

Companies are required, but only for high climate impact sectors, to report on their energy intensity, which refers to total energy consumption per net sales. They must:

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<sup>55</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.11

- Identify the high climate impact sectors considered.
- Provide a link to the corresponding financial statement or note line item for net revenue from these sectors.

This information is intended to increase transparency and give stakeholders a clear picture of a company's energy profile, particularly regarding its climate impact.<sup>56</sup>

## 4.6 Gross Scopes 1, 2, 3 and total GHG emissions

Entities are obligated to disclose their GHG emissions across various scopes:

GHG Emission Categories:

Scope 1: Direct GHG emissions from owned or controlled sources.

Scope 2: Indirect GHG emissions from purchased or acquired electricity, heat, steam, and cooling.

Scope 3: Indirect emissions not covered in Scope 2 that occur in the value chain, including both upstream and downstream emissions.

Total GHG Emissions: Sum of Scopes 1, 2, and 3.

Objectives of Disclosures:

Scope 1: Understand the entity's direct climate impact and the portion of its emissions regulated under trading schemes.

Scope 2: Gain insight into the indirect climate effects resulting from the entity's energy consumption.

Scope 3: Understand emissions within the entity's value chain beyond Scopes 1 and 2. For many entities, Scope 3 may be a significant part of their GHG inventory, influencing their transition risks.

Total GHG: Gain a holistic understanding of the entity's GHG emissions, encompassing both its own operations and its entire value chain. This comprehensive view helps measure progress towards GHG reduction targets and aligns with EU policy goals.

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<sup>56</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.12f



#### Disclosure Parameters:

Entities must adhere to guidelines for defining the reporting entity and its value chain. They must also clarify GHG emissions accounting from associates, joint ventures, and other related entities.

Scope 1: Entities should include the gross GHG emissions in metric tonnes of CO<sub>2</sub> equivalent and the percentage of these emissions from regulated emission trading schemes.

Scope 2: Entities need to disclose both location-based and market-based emissions in metric tonnes of CO<sub>2</sub> equivalent.

Scope 3: Entities should state the GHG emissions from each significant category within this scope.

Total GHG: The cumulative figure derived from Scopes 1, 2, and 3, detailing both location-based and market-based methods for Scope 2.<sup>57</sup>

#### Clarity on Control:

If an entity has operational control over other entities (e.g., joint ventures, associates), their full Scope 1 and 2 emissions should be included in the reporting entity's GHG emissions. Emissions from entities without operational control by the reporting entity are excluded from its Scope 1 and 2 but are counted within its Scope 3 emissions.

#### Transparency & Consistency:

Any significant changes in what is considered part of the reporting entity and its value chain should be disclosed, explaining impacts on year-to-year GHG emissions comparability.

The goal of these requirements is to enhance transparency and ensure a comprehensive understanding of an entity's total carbon footprint, further supporting EU regulations on sustainability and climate change mitigation.

Entities are required to disclose their GHG emissions intensity based on net revenue:

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<sup>57</sup> Vgl. Gnädinger (The Corporate Sustainability Reporting Directive (CSRD), 2022) S.33f

GHG Emissions Intensity: Entities must disclose their GHG emissions intensity, which is calculated as total GHG emissions per net revenue.

Details: This disclosure should include the total GHG emissions in metric tonnes of CO<sub>2</sub> equivalent per net revenue.

Reconciliation: Entities are required to provide a reconciliation to the specific line item or notes in their financial statements pertaining to the net revenue amounts used in calculating the GHG emissions intensity.<sup>58</sup>

#### 4.7 GHG removals and GHG mitigation project financed through carbon credits (CC)

Companies are required to disclose:

GHG emissions and storage:

- Amount from operations and value chain in metric tons CO<sub>2</sub>eq.
- Goal: Provide clarity on GHG removal actions and target net zero.
- Details include total removals, broken down by activity, and calculation methods.

Emission Credits:

- GHG reductions funded through the purchase of CC.
- Goal: To understand the quality and volume of CC purchased and cancelled.
- Details include total quantity of carbon credits, verification against standards, and future cancellations.<sup>59</sup>

Net Zero Target:

- If claimed, companies must outline methods and plans to neutralize remaining GHG emissions.

GHG neutrality claims:

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<sup>58</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.13ff

<sup>59</sup> Vgl. Deloitte (Globale Initiative zur Berichterstattung, 2022) S.19

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- If carbon credits are used for GHG neutrality, companies must explain the credibility of the carbon credits and their impact on GHG reduction targets.<sup>60</sup>

## 4.8 Internal carbon pricing

Companies must disclose whether they use internal carbon pricing systems and how they help inform decision-making and promote climate-related policies and goals. The details disclosed should include:

Type of internal carbon pricing system used, such as shadow pricing or internal carbon funds.

Scope of the system, including details on activities, regions, and companies.

Pricing details, including assumptions, pricing sources, calculation methodologies, and consistency with scientific guidance.

GHG emission volumes for the year covered by these systems, categorized by scopes 1, 2, and 3, and their share of the company's total GHG emissions.<sup>61</sup>

## 4.9 Potential financial effects from material physical and transition risks and potential climate-related opportunities

Entities must disclose:

Financial Effects from Risks:

- Effects from material physical risks.
- Effects from material transition risks.
- Potential benefits from material climate-related opportunities.

Objective of Disclosure:

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<sup>60</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S. 15

<sup>61</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.16

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- Understand how material physical and transition risks influence financial aspects in short, medium, and long terms. This includes potential effects not recognized in financial statements, informed by resilience analysis results.
  - Gain insight into how the entity might benefit financially from climate-related opportunities.

Physical Risks Disclosure should include:

- Amount and proportion of assets at risk over different time frames, further broken down by acute and chronic risks.
- Proportion of such assets addressed by climate change adaptation.
- Location of significant assets at risk.
- Amount and proportion of net revenue from business activities at risk over time.

Transition Risks Disclosure should include:

- Amount and proportion of assets at transition risk over time.
- Proportion of such assets addressed by climate change mitigation.
- Breakdown of real estate assets by energy-efficiency classes.
- Potential future liabilities recognized in financial statements.

Opportunity Potential:

- Savings from climate actions.
- Market changes from low-carbon products<sup>62</sup>

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<sup>62</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.17

## 5. Deep Dive into ESRS E1

The quest for environmental sustainability has led many industries to rethink their strategies, goals, and impacts. Within the automotive industry, leading companies like BMW, VW, and Mercedes have long recognized the importance of sustainability and publish reports outlining their initiatives, achievements, and future directions. The Environmental Sustainability Reporting Standard (ESRS) E1 is a benchmark for environmental climate related reporting that provides companies with a standardized format and criteria for disclosure of their impacts, risks, and opportunities. In the following, the nine ESRS E1-criteria developed in chapter four are used to examine the scope and content of the 2022 sustainability reports and compare this to the new regulations. For each of these nine parameters, sub-items have been developed to provide a view of the details. In the following subsections, we will examine in detail what is generally presented here.

ESRS E1	BMW	VW	Mercedes
Transition plan for climate change migration	●	●	●
Policies related to climate change mitigation and adaption	●	●	●
Actions and resources in relation to climate change policies	●	●	○
Targets related to climate change mitigation and adaption	●	●	●
Energy consumption and mix	●	●	●
Gross Scopes 1, 2, 3 and total GHG emissions	●	●	●
GHG removals & GHG mitigation projects financed through CC	○	●	○
Internal carbon pricing	○	○	○
Financial effects and opporunities climate-related	●	●	●

Table 2: Scope ESRS E1

From Table 2 it is an immediate conclusion: The reports of the individual car manufacturers are very similar to each other. When looking at the very similar products, this does not seem out of place. An orientation to the respective peer group takes place in each industry. Identified gaps to the new regulations can in many cases be seen from an industry perspective with similar challenges for all companies. In areas where there are already published detailed guidelines, such as the reporting of GHG emissions (GRI standards<sup>63</sup>), all three companies are strongly positioned (ESRS E1-6 GHG emissions partly builds on GRI standards to facilitate the process for companies). In fields that will be newly added, such as internal carbon pricing, all companies face major challenges.

<sup>63</sup> GRI (Global Reporting Initiative) (GRI 305: Emissions, 2016)

## 5.1 Transition plan for climate change migration

A climate transition plan addresses an organization's efforts to mitigate climate change. When communicating this plan, the company should explain how it is adjusting its strategy to align with the goals of a sustainable economy, the Paris Agreements of limiting global warming to 1.5°C, and the ambition to be climate neutral by 2050 as set out in the European Climate Change Act. It should also take into account its involvement in coal and oil and gas activities. While sector-specific pathways are not universally established, the disclosure of compatibility with the 1.5°C warming limit should primarily communicate the organization's greenhouse gas (GHG) reduction target. This should be compared to a 1.5°C pathway that is based on a sectoral decarbonization methodology or on the absolute reduction approach.

Transition plan for climate change migration	BMW	VW	Mercedes
Consistent with 1.5°C goal	●	●	●
Decarbonisation strategies	●	●	●
Financial support to facilitate the transition plan	○	●	○
How does the transition plan fits into overall business strategy	●	●	●

Table 3: Transition plan for climate change migration

All three companies have agreed to the Paris climate agreement and have stated that they want to be climate neutral by 2050 at the latest. Mercedes stands out here with its so-called "Ambition 2039"<sup>64</sup>. This specifies that it wants to be climate-neutral by 2039, which is the most ambitious decarbonization strategy. Mercedes and BMW have a large gap regarding disclosure on financial support needed, here VW is somewhat better. Here as in the report of BMW<sup>65</sup> the EU taxonomy is referred to. The growing EU taxonomy alignment of the company's own activities (via increase of electric vehicles sales) is intended to attract new flows of money.

The following steps must be taken by all three companies to be compliant with the new regulations as of 2024. In disclosing information based on ESRS E1 paragraph 15(d), entities should account for:

- the total projected GHG emissions of primary assets until 2050.
- GHG emissions from the direct use of sold products.

<sup>64</sup> Vgl. Mercedes-Benz (Nachhaltigkeitsbericht 2022, 2022) S.73

<sup>65</sup> Vgl. BMW (BMW Group Bericht 2022, 2022) S. 79f

- Plans to manage or phase out assets and products with high GHG and energy footprints.

For disclosures under ESRS E1 paragraph 15(e), organizations must describe how their economic activities' alignment with the Delegated Act (EU) 2021/2139 advances their move towards a sustainable economy, considering the Taxonomy Regulation's requirements like green revenues and CapEx.

## 5.2. Policies related to climate change mitigation and adaptation

Climate change mitigation and adaptation policies can be presented in different ways due to their unique set of objectives, personnel, actions, and resource requirements. Mitigation policies focus on managing an organization's GHG emissions, removals, and transition risks across its operations and value chain. These may be specific to mitigation, or may also include indirect actions such as training, sourcing, investing, or developing products. On the other hand, adaptation policies manage physical climate risks and related transition risks. These can be climate adaptation only or include indirect measures such as training, emergency protocols, or health and safety measures.

Policies related to climate change mitigation and adaption	BMW	VW	Mercedes
Climate change mitigation	●	●	●
Climate change adaptation	○	○	○

Table 4: Policies related to climate change mitigation and adaptation

While the policies regarding mitigation are well elaborated<sup>66</sup>, those regarding adaptation are mostly missing. As foreseen in ESRS E1, a completely separate statement must be made here. The companies should carry out a clear climate change adaptation strategy as soon as possible. This must contain details down to the level of included resources and manpower needed for the different areas<sup>67</sup>.

<sup>66</sup> Vgl. Volkswagen (Nachhaltigkeitsbericht 2022, 2022) S.56

<sup>67</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S. 25

### 5.3 Actions and resources in relation to climate change policies

The following section examines the actions and resources used to achieve the climate targets set. Here, for the first time, one notices a clear distinction between the reports. While the BMW<sup>68</sup> and VW<sup>69</sup> reports cover the third point of comparison in full, Mercedes only touches on it slightly<sup>70</sup>. All three companies have a long way to go in terms of measurable output. In the form in which this is currently presented, the requirements are not met. All three perform better in the detailed description of their key actions.

Actions and resources in relation to climate change policies	BMW	VW	Mercedes
Understanding of key actions taken	●	●	●
Outcome of mitigation actions	○	○	○
Resources used to achieve the goal (Opex & Capex)	●	●	○

Table 5: Actions and resources in relation to climate change policies

Here the question arises regarding the third comparison point, what Mercedes should do to meet the requirements. They immediately should ensure that the OpEx and CapEx amounts are provided for the actions outlined in paragraph 27(c)<sup>71</sup> are in line with the key performance indicators, particularly the climate target aligned proportions of CapEx and OpEx. In addition, the CapEx plan as detailed in Commission Delegated Regulation (EU) 2021/2178<sup>72</sup>, should be consistent to the CSRD regulation. If there are any discrepancies between the OpEx and CapEx values reported under this ESRS E1 standard and those reported under taxonomy regulation (EU) 2020/852<sup>73</sup>, provide a clear explanation, such as the identification of ineligible economic activities. Finally, to ensure that OpEx and CapEx plans are in line with the Taxonomy Regulation, companies shall consider reporting their CSRD climate actions on the basis of economic activities.

The entire industry has a long way to go in terms of outcome reporting of mitigating actions. While all reports sound great<sup>74</sup>, from 2024 onwards it will be necessary to set "measurable targets" against which the outcome can be clearly determined. In the

<sup>68</sup> Vgl. BMW (BMW Group Bericht 2022, 2022) S.337

<sup>69</sup> Vgl. Volkswagen (Nachhaltigkeitsbericht 2022, 2022) S.67ff

<sup>70</sup> Vgl. Mercedes-Benz (Nachhaltigkeitsbericht 2022, 2022) S.37

<sup>71</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S. 8

<sup>72</sup> Vgl. European-Commission (2021/2178, 2021)

<sup>73</sup> Vgl. European-Commission (2020/852, 2020)

<sup>74</sup> Vgl. Volkswagen (Nachhaltigkeitsbericht 2022, 2022) S.17



definition and underlying calculation to make measurement possible, as well as due to the short time left, external help can be a good advice<sup>75</sup>.

## 5.4 Targets related to climate change mitigation and adaptation

In the following, the focus is on the targets set by the companies. On the one hand, these must be presented in detail, and on the other hand, the extent to which they are consistent with the long-term strategy for climate change adaptation and mitigation must be worked out. The similarities between the reports are striking here. All three companies are strong in reporting their targets on mitigation. Mercedes stands out here with its "Ambition 2039", not least arising from the climate transition action plan<sup>76</sup>.

In contrast to reporting of GHG emissions, not much needs to be adjusted here. The way in which companies can set reliable GHG reduction targets and document their achievement is presented in the next section.

Targets related to climate change mitigation and adaptation	BMW	VW	Mercedes
climate-related target	●	●	●
Are the targets set in line with the strategy?	●	●	●
GHG reduction target (compliant with reporting requirements?)	○	○	○

Table 6: Targets related to climate change mitigation and adaptation

What can and should companies do to close this gap and meet the requirements? This is examined with the help of the appendix of the ESRS E1.<sup>77</sup>

A company's base year and corresponding baseline emissions must be reported with its GHG reduction target. Those with more recent base years or higher baseline emissions may have a less stringent target compared to companies that previously took significant reduction actions. If an entity's past actions are consistent with a 1.5°C pathway, it may adjust its baseline year accordingly in determining its target, but it shouldn't consider reductions before 2020 and must provide evidence of past reductions. Under ESRS E1 AR 30, when companies disclose information, they should detail their mitigation actions, plans for future technology deployment, and consideration of different climate scenarios, including the 1.5°C warming limit.

<sup>75</sup> Vgl. Deloitte (Globale Initiative zur Berichterstattung, 2022)

<sup>76</sup> Vgl. Mercedes Benz Group (Climate Transition Action Plan, 2023)

<sup>77</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.27

According to ESRS E1AR 31, they may use tables or graphs to illustrate their reduction targets and actions over time.

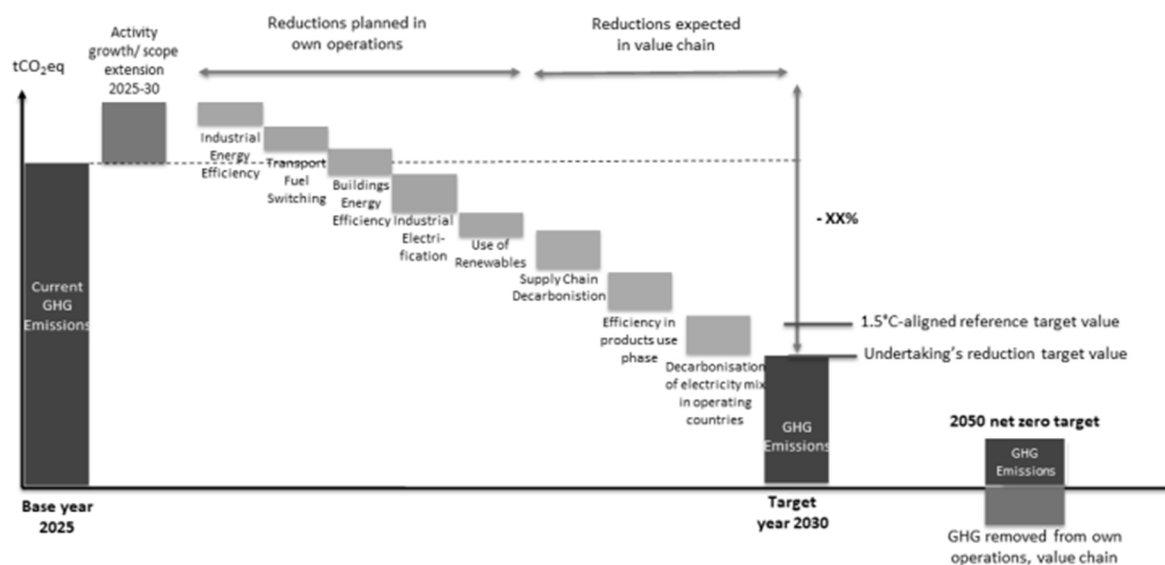


Figure 5: GHG reduction example graph<sup>78</sup>

## 5.5 Energy consumption and mix

The next topic under review is energy use and production. Especially in production, all companies perform perfectly, no actions are necessary. They achieve the necessary split between renewable and non-renewable production. All three producing only renewable energy on their plants. Even though this was not the focus of this evaluation, all three companies, especially VW<sup>79</sup>, want to push the expansion of renewable energies (on their factory premises but also in general).

Mercedes is a little behind in terms reporting on total energy consumed. In order to meet the requirements here, a complete split must occur below the total sum between the type of energy use, but also with regard to the associated companies.

Energy consumption and mix	BMW	VW	Mercedes
Total Energy consumed	●	●	●
Energy Production (if applicable)	●	●	●
Energy Inensity	●	●	●

Table 7: Energy consumption and mix

<sup>78</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.27

<sup>79</sup> Vgl. Volkswagen (Nachhaltigkeitsbericht 2022, 2022) S.31

Companies have the greatest problems in calculating energy intensity in relation to energy-intensive activities. While the formula for the calculation<sup>80</sup> is easy to implement, the real added value of the new regulation lies in the uniform definition of which activities are considered energy intensive.<sup>81</sup>

## 5.6 Gross Scopes 1, 2, 3 and total GHG emissions

The next parameter deals with a central aspect of reporting according to ESRS E1, the GHG emission. As the ESRS E1 standard is based on the regulations of the GRI 305 standard<sup>82</sup>, according to which the companies have been reporting since 2016, all three are very well positioned here. Disclosure of GHG intensity per net revenue is far behind. The steps that the companies can take in this area will be examined in more detail in the next section.

Gross Scopes 1, 2, 3 and total GHG emissions	BMW	VW	Mercedes
GHG emission categories	●	●	●
Objectives of disclosure	●	●	●
Disclosure parameters	◐	◐	◐
Clarity on Control	●	●	●
GHG emissions Intensity per net revenue	◐	◐	◐

Table 8: Gross Scopes 1, 2, 3 and total GHG emissions

The following section describes how the gap to the new requirements can be closed, regarding the reporting of the GHG emission intensity. In particular, the disclosure purely in the financial statement must be initiated and mapped.

When disclosing GHG intensity based on net revenue as mentioned in paragraph 50, an entity should use a formula that divides the total GHG emissions (expressed in metric tonnes of CO<sub>2</sub>eq) by the net revenue (expressed in monetary units like Euros). The GHG emissions and net revenue should be presented showing results for both the market-based and location-based methods. The formula should incorporate the total GHG emissions in the numerator and the overall net revenue in the denominator. The total GHG emissions should be derived as stipulated by paragraphs 41 (d) and 49, and

<sup>80</sup> EFRAFG (ESRS E1 Climate change, 2022) S.31

<sup>81</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.30f

<sup>82</sup> Vgl. Mazar (Corporate Sustainability Reporting Directive, 2022) S.16f

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the net revenue should be computed in alignment with the accounting standards used in financial statements, such as IFRS 15 or local GAAP.

The reconciliation of the net revenue used to compute GHG intensity, can be accomplished by either cross-referencing the relevant line item or disclosure in the financial statements or, if a direct cross-reference isn't possible, by providing a quantitative reconciliation using a specified tabular format.

## 5.7 GHG removals & GHG mitigation projects financed through carbon credits

The next topic covers carbon credits. Often cited in this area are the so-called Oxford Principles for net zero.<sup>83</sup> In the following, we will refer to them to introduce the topic in the context of this thesis. The Oxford Principles relate to the foreseen transition towards offsetting with qualified long-term carbon removals. While a full transition to 100% carbon removals is neither immediately possible nor feasible, organizations should commit to gradually increasing their carbon removals offsets. Today's offsets focus mainly on emissions reductions that, while important, are not sufficient to achieve net zero in the future. Carbon removals directly cleanse the atmosphere of carbon dioxide and allow for offsetting emissions to reach net zero and even achieving net removals for companies that choose to remove more carbon than they emit. Figure 9 provides a basic categorization of offsets and guidance on how to distinguish between these variants.

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<sup>83</sup> Myles (The Oxford Principles for Net Zero aligned carbon Offsetting, 2020)

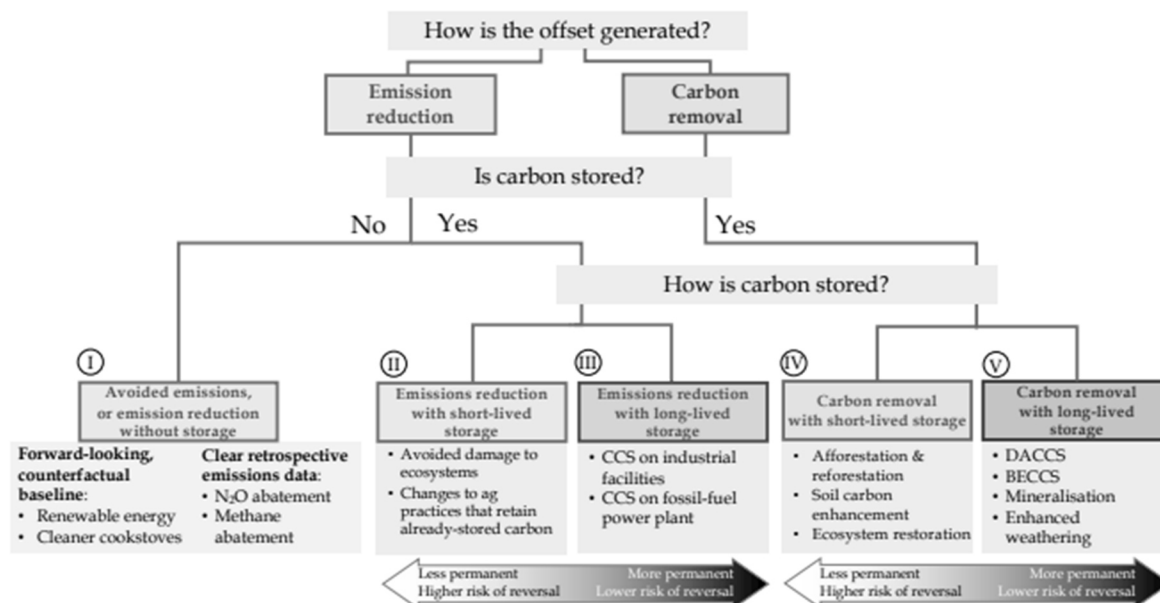


Figure 6: Overview carbon credits<sup>84</sup>

Figure 9 classifies carbon offsets into five categories based on the type and duration of carbon storage. Carbon removal is different from emission reduction. It involves the removal of CO<sub>2</sub> from the atmosphere and its permanent storage, either by natural or technological means. Storage can be either short term (decades) or long term (centuries to millennia). Avoided emissions, while useful, do not guarantee permanent emission reductions due to the potential for carbon leakage. While emission reductions, such as the use of renewable energy, are important, carbon removal offers a longer-term solution because it actively cleans the atmosphere. In line with the Paris Agreement, the focus should be on achieving 100 percent offsets from carbon removals by mid-century, thereby encouraging market growth in this area.

With net zero in mind, carbon credits are becoming more interesting. Currently, the market is developing, and long-term carbon removal credits are far too expensive to be used large scale. But as technology will progress (the possibility to actually physically remove GHG by pressing it under the earth), the topic will become bigger and therefore already included in the CSRD requirements. The tasks that companies must implement as soon as possible are presented in the next section.

<sup>84</sup> Myles (The Oxford Principles for Net Zero aligned carbon Offsetting, 2020) S. 8

GHG removals & GHG mitigation projects financed through CC	BMW	VW	Mercedes
GHG emission and storage	○	●	●
Emission Credits	○	●	○
Net zero target	○	○	○
GHG neutrality	○	○	○

Table 9: GHG removals & GHG mitigation projects financed through CC

As can be seen, companies have great difficulties here, as the ESRS standards set relatively new requirements in content and scope here. Voluntary disclosure frameworks like GRI are less sophisticated. The newly set standard will help the companies to get rid of the reputation of "greenwashing". Only VW provides information on the use of carbon credits.<sup>85</sup> However, these are not in line with the new requirements. At least, however, there is a data base on which to build. This is not evident at the other two companies (at least not publicly).

Entities should transparently disclose how they enhance natural sinks or use GHG removal technologies in their operations and value chains. The standard focuses on these efforts, and GHG removals that are externally supported by carbon credits should be disclosed separately. When disclosing GHG removals, entities should specify the GHGs involved, their origin (biogenic, land-use change, technological), whether they qualify as nature-based solutions, and how they manage the associated risks. In their disclosures, companies should use accepted GHG standards, include removals from their own operations, account for related GHG emissions, and adjust for any reversals. GHG removals within a company's own operations and those in its value chain should be differentiated. Only actively supported or known removals in the value chain should be included.

Entities are encouraged to finance GHG reduction projects outside their value chain by purchasing high quality carbon credits. The draft standard requires entities to disclose their use of carbon credits separately from their GHG emissions and reduction targets. When reporting on carbon credits, companies should provide details such as the proportion from EU projects and alignment with Article 6 of the Paris Agreement. It's important that they adhere to recognized quality standards, clarify the role of carbon credits in their climate plans, and avoid double-counting credits from their value chain.

<sup>85</sup> Vgl. Volkswagen (Nachhaltigkeitsbericht 2022, 2022) S. 167f

They should also avoid using credits to offset their GHG emissions or to meet reduction targets and must account for future carbon credit cancellations.<sup>86</sup>

## 5.8 Internal carbon pricing

The following section deals with the type, scope and details of internal carbon pricing systems. This is not mentioned at all in the Mercedes and BMW reports. Whether they used them or not is not clear from the reports. This is in clear contradiction to the new requirements of ESRS E1-8. Here the report of VW<sup>87</sup> clearly stands out although the way it is reported is not conform, at least some details are disclosed. However, the basis of the calculation as well as the applied volume is not clear.

Internal carbon pricing (if used)	BMW	VW	Mercedes
Type	○	●	○
Scope	○	○	○
Pricing details	○	●	○
GHG emission volumes	○	○	○

Table 10: Internal carbon pricing

What steps do BMW and Mercedes in particular need to take to be ready to report on the past year 2024 at the start of 2025? In disclosing the information required by paragraphs 59 and 60<sup>88</sup>, the entity should, where relevant, provide a narrative explanation of whether and how the carbon prices used in internal carbon pricing systems are consistent with those used in the financial statements. This clarification relates to the internal carbon prices used to assess the useful lives and residual values of its assets, such as intangible assets and property, plant, and equipment; to assess the impairment of assets; and to assess the fair value of assets acquired in business combinations.

<sup>86</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.37ff

<sup>87</sup> Vgl. Volkswagen (Nachhaltigkeitsbericht 2022, 2022) S.51f

<sup>88</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.40

The following is an example of how the requirements can be reported.

Types of internal carbon prices	Volume at stake (tCO <sub>2</sub> eq)	Prices applied (€/tCO <sub>2</sub> eq)	Perimeter description
CapEx shadow price			
Research and Development (R&D) investment shadow price			
Internal carbon fee or fund			
Carbon prices for impairment testing			
Etc.			

Figure 7: Example of a possible presentation of the requested information<sup>89</sup>

## 5.9 Financial effects from various risks and opportunities climate-related

The last point deals with a central aspect of sustainability reporting. Clearly, the new regulations and requirements are initially seen as additional work and a cost factor. But this new reporting can identify (and potentially address) climate change risks at an early stage, and thus prevent a negative financial effect on individual companies. Similarly, the new opportunities presented by climate change need to be identified and reported in the context of a transformative business environment. In this way, potentially positive effects can be identified (and strengthened) at an early stage. The requirements of ESRS E9 provide companies with detailed requirements on how to report identified risks, but also opportunities, to establish a comparable basis. Essentially, all three companies perform equally well here. Mercedes is lagging in terms of opportunity potential, as there is only a cross-reference to the published Climate transition plan.<sup>90</sup> The report there is not in line with the new requirements of ESRS E9. This requires full integration into the group report, as already done by BMW.

Financial effects from various risks and opportunities climate-related	BMW	VW	Mercedes
Financial effects from risks	●	●	○
Physical risks	●	●	●
Transitions risks	●	●	○
Opportunity Potential	●	●	○

Table 11: Financial effects from various risks and opportunities climate-related

<sup>89</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.40

<sup>90</sup> Mercedes Group (Climate Transition Action Plan, 2023)



Material climate-related physical and transition risks can impact an organization's finances, spanning assets, performance, and cash flows. Given the absence of a universally accepted methodology, organizations are tasked with using their internal methods and judgment to disclose these effects, which stand distinct from traditional financial statements.

To comply, companies need to assess and detail the potential financial effects on assets and activities that are at risk, clearly outlining their methodology and showing how it aligns with other risk and climate scenario requirements. It's also essential for companies to calculate and communicate the value and percentage of assets that are at risk, highlighting their locations, especially if they're within the EU, and distinguishing between acute and chronic risks. On an optional note, companies can evaluate and disclose the portion of their revenue coming from business activities that are at risk, ensuring that this aligns with existing accounting standards and provides insights into risk factors and potential financial outcomes over varying periods.

When disclosing information regarding climate related opportunities, companies should detail the type of cost savings, such as those from reduced energy consumption. They should also explain the timeframes, the methodology, including the scope of the assessment, key assumptions, and any limitations. In addition, it should be clarified whether scenario analysis was used.

When sharing information about the value of opportunities (§66b<sup>91</sup>), companies should describe how they've determined the market size or projected changes in net sales of green products and services. This includes describing the scope, timeframe, key assumptions, and limitations of the assessment. They should also indicate how accessible this market is to them. Data on the size of this market can be compared to current revenues in line with EU-Taxonomy regulation 2020/852. Companies could also discuss their strategies to capitalize on climate-related opportunities, ideally linking this to their disclosed policies, targets and actions under disclosure requirements E1-2, E1-3; and E1-4.

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<sup>91</sup> Vgl. EFRAFG (ESRS E1 Climate change, 2022) S.15

## 6. Environmental reporting beyond climate

As already mentioned in chapter 1, it is important to also examine the disclosure requirements E2-E5 in order to get a holistic view on all environmental topics. The methodology will be the same as in chapter 5, at a higher level. First, the requirements E2-E5 are presented in their respective subchapters. In the course of this presentation, comparative parameters are examined. Based on these, the gap to the sustainability reports of the year 2022 of the companies BMW, VW and Mercedes will be worked out.

Cross-Cutting Standards				
ESRS 1 General requirements		ESRS 2 General disclosures		
Environmental Topical Standards				
ESRS E1 Climate change	ESRS E2 Pollution	ESRS E3 Water and marine resources	ESRS E4 Biodiversity and ecosystems	ESRS E5 Resource use and circular economy
Social Topical Standards				
ESRS S1 Own workforce	ESRS S2 Workers in the value chain	ESRS S3 Affected communities	ESRS S4 Consumers and end users	
Governance Topical Standard				
ESRS G1 Business conduct				

Figure 1: (repeated) – ESRS standards

### 6.1 ESRS E2 Pollution

The objectives of the ESRS E2 are to enable all users to understand the impact that a company has on the pollution of air, water, and soil, highlighting both the positive and negative impacts. It also provides information on the actions the company has taken to address negative environmental impacts and the results of these initiatives. In addition, the standard highlights the company's shift in strategy and business model towards a zero-pollution, sustainable economy, in line with the EU's "Towards Zero Pollution for Air, Water and Soil" initiative.<sup>92</sup> The standard also set clear expectations on risks and opportunities related to the company's pollution impacts, the strategies it

<sup>92</sup> European Commission (The European Green Deal, 2019) S. 16

uses to manage them, and the financial implications in the short, medium, and long term due to the company's pollution-related activities and dependencies.

The standard addresses several environmental issues, including details on air emissions (both indoor and outdoor) and efforts to control and minimize them, information on water emissions and methods to control and reduce them, data on soil emissions and initiatives to manage and minimize them, and information on the company's relationship with potentially harmful substances. This includes substances of high concern. Disclosure is intended to provide insight into the consequences of the use, distribution or sale of these substances, particularly in light of potential restrictions.<sup>93</sup>

The comparison, in order to detect possible existing gaps to the new requirements, will be performed on the following five parameters:

- Policies related to pollution
- Actions and resources related to pollution
- Targets related to pollution
- Pollution of air, water, and soil
- Substances of very high concern

ESRS E2	BMW	VW	Mercedes
Policies related to pollution	●	●	●
Actions and resources related to pollution	○	○	○
Targets related to pollution	●	●	●
Pollution of air, water and soil	●	○	○
Substances of very high concern	○	●	○

Table 12: Scope ESRS E2

Once again, the first thing that stands out is that the reports are very consistent with each other. The companies are strongly positioned in the reporting of their targets. All three companies use the method of the Science Based targets Initiative.<sup>94</sup> With a few minor exceptions, the requirements of the new regulations are covered here. The situation is quite different for the actions and resources related to pollution. Here, neither the information provided, nor reporting is sufficient to meet the new requirements. If actions involve upstream or downstream value chain interactions, the organization must disclose the nature of these actions. Operational expenditures might

<sup>93</sup> EFRAFG (ESRS E2 Pollution, 2022)

<sup>94</sup> Vgl. Faber (ISSB global baseline, 2022) S. 52

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include investments in research and development to find sustainable alternatives to harmful substances or reduce emissions. When relevant for meeting pollution-related goals, the organization can also share more details about action plans implemented at specific site locations.

## 6.2 ESRS E3 Water and marine resources

The ESRS E3 standard focuses on the impact of companies on water and marine resources. It is designed to enable readers to understand the actual and potential impacts, both positive and negative, that a company may have on water and marine ecosystems. It also sheds light on the actions companies have taken to protect these resources, highlighting areas such as water consumption, discharges, habitat degradation, and stress on marine resources. In addition, the standard highlights the company's efforts to contribute to various European and global sustainability goals and frameworks, highlighting the European Green Deal, EU frameworks and directives, and specific Sustainable Development Goals. It discusses the company's strategies for transitioning its operations towards a sustainable economy and the global conservation of water and marine resources. The standard also highlights the need to report on various risks and opportunities associated with the company's interactions with these resources, their respective management approaches, and their potential impact on the company's growth, performance, and overall value in the short to long term.

The standard focuses on two key topics. The first, "Water," details the company's relationship with water throughout its value chain, from water use and related impacts to potential risks such as flooding and water scarcity. The second, "Marine Resources," discusses the company's activities that have an impact on marine ecosystems, taking into account factors such as the use of marine resources, environmental discharges and operations in maritime zones.<sup>95</sup>

The comparison, in order to detect possible existing gaps to the new requirements, will be performed on the following five parameters:

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<sup>95</sup> EFRAFG (ESRS E3 Water and marine resources, 2022)

- Measurable targets for water and marine resources
- Water and marine resources action plans and resources
- Water management performance
- Water consumption
- Marine resources related performance

ESRS E3	BMW	VW	Mercedes
Measurable targets for water and marine resources	○	○	○
Water and marine resources action plans and resources	●	○	●
Water management performance	●	●	●
Water consumption	●	●	●
Marine resources related performance	○	○	○

Table 13: Scope ESRS E3

Within the ESRS E3 standard, there is wide variation in the reporting capability of automotive manufacturers between the different requirements. Whereas the area of water consumption meets all the requirements in terms of data material and split in the report. The situation is quite different with regard to the measurable targets. Here, all three reports read well, but unfortunately the measurable targets are missing, on the basis of which an objective comparison is possible. The way to implement these goals is shown in the annex to the regulation.<sup>96</sup> While BMW and Mercedes make use of wastewater at some locations, there is no information on this in the VW report.

Mercedes introduces a water management performance system in their report to track savings and make the targets tangible throughout the group<sup>97</sup>. Unfortunately, none of the companies has yet introduced a system to monitor the performance of marine resource management. Here the systematic materiality assessment imposed by CSRD will show whether this topic is not discussed at all because it is not material. All three companies do not meet the new requirements.

### 6.3 ESRS E4 Biodiversity and ecosystems

The ESRS E4 standard focuses on the impact of companies on biodiversity and ecosystems. The aim is to help readers understand the actual and potential positive and negative impacts that a company may have on biodiversity and ecosystems. The

<sup>96</sup> Vgl. EFRAFG (ESRS E3 Water and marine resources, 2022) S. 16

<sup>97</sup> Vgl. Mercedes-Benz (Nachhaltigkeitsbericht 2022, 2022) S. 211f

Standard highlights the steps companies have taken to mitigate negative impacts and the efforts they make to conserve and restore biodiversity and ecosystems. It also highlights the risks and opportunities associated with the company's impacts on biodiversity and ecosystems, its management approaches, and the potential financial implications over different time periods.

The standard outlines reporting to a company's relationship with terrestrial, freshwater and marine habitats, including diversity within species, between species and ecosystems, and how they interact with indigenous and affected communities. In addition, the concept of biodiversity in sustainability refers to the variety of all living organisms in all ecosystems. An environmental limit typically refers to the threshold beyond which significant adverse, often irreversible, changes may occur, affecting the benefits derived from natural resources and ultimately human well-being.<sup>98</sup>

The comparison, in order to detect possible existing gaps to the new requirements, will be performed on the following five parameters:

- Transition plan on biodiversity and ecosystems
- Policies related to biodiversity and ecosystems
- Actions and resources related to biodiversity and ecosystems
- Targets related to biodiversity and ecosystems
- Impact metrics related to biodiversity and ecosystems change

ESRS E4	BMW	VW	Mercedes
Transition plan on biodiversity and ecosystems	○	○	○
Policies related to biodiversity and ecosystems	●	○	●
Actions and resources related to biodiversity and ecosystems	●	○	○
Targets related to biodiversity and ecosystems	●	●	●
Impact metrics related to biodiversity and ecosystems change	●	●	●

Table 14: Scope ESRS E4

If we compare the reports of the automotive manufacturers regarding the requirements of the ESRS E4 standard, it becomes clear that this is where the largest gap exists. The companies can only score through their objectives, again relying on the SBTN. Unfortunately, all three companies perform poorly with regard to the transition plan on biodiversity and ecosystems. Mercedes is somewhat ahead with its climate transition plan published in March 2023, but the biodiversity requirements are not met in that document. Nevertheless, the steps to be taken are therefore significantly lower than

<sup>98</sup> EFRAFG (ESRS E4 Biodiversity and ecosystems, 2022)

those for the other two companies. Which steps they should take (probably best under the guidance of external help<sup>99</sup>) is shown below.

Companies can adopt targets from the EU Nature Recovery Plan, which includes goals such as reversing the decline of pollinators, reducing the use of chemical pesticides by 50%, promoting organic farming on at least 25% of agricultural land, planting three billion additional trees in the EU, making progress on soil decontamination, restoring 25,000 km of free-flowing rivers, reducing nutrient losses from fertilizers by 50%, and minimizing impacts on vulnerable marine species and habitats. They can also support transformative change through biodiversity business and finance initiatives.

In addition, while reporting on these targets, companies can also consider the Sustainable Development Goals, focusing on targets such as access to water and sanitation (SDG 6), conserving marine resources (SDG 14) , and promoting sustainable land use (SDG 15) , including forest management and biodiversity conservation.

#### 6.4 Resource use and circular economy (c.e.)

The ESRS E5 standard provides readers with an understanding of a company's impact on resource use, both the depletion of non-renewable resources and the sustainable production of renewable resources. The standard discusses the actions companies are taking to offset the negative impacts of their resource use, emphasizing the importance of decoupling economic growth from material consumption. It also highlights the alignment of business strategies with c.e. principles, such as minimizing waste, valuing products, and materials, and promoting efficient use throughout the production and consumption phases. It details management strategies and potential financial impacts in the short, medium and long term, and addresses risks and opportunities related to resource use and the c.e..

As a clarification of its intent, the standard addresses resource inflows, considers the circularity of material sources, and distinguishes between renewable and non-renewable resources. It also addresses resource outflows, product information, and waste management. The circular economy, as defined, seeks to preserve the value of

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<sup>99</sup> Vgl. Deloitte (Globale Initiative zur Berichterstattung, 2022)

products and resources over time by optimizing their use and consumption. It focuses on reducing environmental impacts, minimizing waste, and eliminating hazardous substances throughout a product's lifecycle. The goal is to enhance the value of resources by promoting renewability, long-term use, refurbishment, remanufacturing, recycling, and biodegradation. To evaluate the shift from traditional business models to circularity, the standard emphasizes resource, material, and product flow identification, particularly through resource in- and outflow disclosure requirements.<sup>100</sup>

The comparison, in order to detect possible existing gaps to the new requirements, will be performed on the following five parameters:

- Policies related to resource use and c.e.
- Actions and resources related to resource use and c.e.
- Targets related to resource use and c.e.
- Resource inflows
- Resource outflows

ESRS E5	BMW	VW	Mercedes
Policies related to resource use and c.e.	①	②	①
Actions and resources related to resource use and c.e.	②	①	②
Targets related to resource use and c.e.	②	②	②
Resource inflows	①	②	②
Resource outflows	①	②	②

Table 15: Scope ESRS E5

Compared to the other areas beyond climate, the company performs well in terms of ESRS E5 resource use and circular economy. This is due to two main reasons. Firstly, the sustainable use of resources and the circular economy are the focus of public attention. This is why the companies have positioned themselves in the most progressive way.

All three companies use the Science-Based Targets Initiative for Nature (SBTN) to publish their targets (source) and are thus in line with the new requirements (except for minor inconsistencies in the report, such as the lack of a waste hierarchy report).

Differences can be seen in the reporting of inflows and outflows of resources. While VW and Mercedes already provide the required data (with minor discrepancies in the

<sup>100</sup> EFRAG (ESRS E5 Resource use and circular economy, 2022)



reporting), BMW falls far behind here (source). The required split (source) is completely missing here and must be implemented as soon as possible.

## 7. Conclusion

In this thesis the new sustainability reporting framework CSRD of the European Union is presented. This regulation sets out detailed reporting requirements for all companies with more than 500 employees and will come into force in 2024, first reporting on the business year 2024 beginning in 2025. It fits to other regulatory frameworks like EU Taxonomy or the disclosure regulation for financial products (SFDR). The CSRD regulation always needs to be seen jointly with the detailed disclosure requirements called ESRS (European Sustainability Reporting Standards).

One of the main CSRD concepts is double materiality. Companies need to perform a transparent materiality assessment and need to report on the impact on the environment and society as well as the risk and opportunities for their business model in a systematic way.

Comparing the sustainability reports of BMW, Mercedes and VW with the environmental reporting requirements of the CSRD framework leads to the following three main conclusions:

1) All three reports are very similar in structure and content. Despite the fact that sustainability reporting is up to now only high level regulated in the NFRD the three companies' reports are not substantially different in most areas. The reason might be that over time industry sector specific best practice evolves. Report preparer read in detail the reports of their competitors and do not want to be behind in content and scope as sustainability reports are seen as an important source of information by many stakeholders, especially investors.

2) All three companies have to close a substantial gap to be fully in line with CSRD reporting structure. While most topics are somehow covered in the 2022 sustainability reports the rigidity of the CSRD framework is not met. If a topic is material than CSRD asks for policies, actions, and targets. This structure is at most partially seen in all three reports.

3) The systematic materiality assessment covering all topics is in large parts missing. Examples:

- It is unclear whether the topic pollution or water use is more material or whether both are of similar materiality.

- No company covers the topic marine resources, but it is unclear whether this is due to the fact that this is not material (what the author believes) or just not covered despite being material.

The second and third finding is also reflected in the practitioner interview performed to get an additional sense check.

CSRD compliant reporting will lead to a better information of stakeholders, but the analysis performed shows also that the efforts and resources needed are huge. But these additional efforts are necessary if the European economy shall transition into a sustainable economy respecting the planetary boundaries and assuring well-being also for future generations.

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## Declaration of Originality

I confirm that the submitted thesis is original work and was written by me without further assistance. Appropriate credit has been given where reference has been made to the work of others.

The thesis was not examined before, nor has it been published. The submitted electronic version of the thesis matches the printed version.

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Ulm, 11.11.2023

place, date



signature

## Appendix

Experten Interview: Dr. Udo Riese, Global Head of Sustainable Investing, Allianz Investment Management SE

### General questions:

Q1: Please briefly describe your role with respect to the implementation of CSRD regulation in your company.

A1: The overall CSRD implementation project is under responsibility of our accounting department. My team is responsible for the investment related content.

Q2: What are the three biggest changes to your company's sustainability reporting imposed by the upcoming CSRD regulation?

A2:

- strict materiality based reporting
- move to „reasonable assurance“ level and full integration into annual report
- more fact based, less opportunistic story telling

Q3: Do you see more challenges in the E-topics or in the S-topics of CSRD regulation? Please shortly explain why.

A3: We see equal challenges. While in the S-part as many topics need a more quantitative approach compared to existing reporting framework it is the depth of requirements in the E-part what creates the main challenge.

Q4: Which opportunities do you see for your company with the upcoming CSRD regulation?

A4: The main opportunities are stemming from the high degree of standardisation affecting both - how we are compared with our peers and how we can compare investee companies with their peers in the same sector. The upcoming sector specific standards will of course lead to the next level of comparability in the following years.

Q5: Does your company already have processes in place to actively steer the key material topics of the upcoming CSRD report?

A5: Partially. We are still conducting the materiality assessment so no final answer yet. But we expect no fundamental surprises stemming from the materiality assessment, so we already take care of most relevant topics. Nevertheless, we will need to improve existing processes and also add some new ones.

Q6: Regarding double materiality, is the “inside-out” or the “outside-in” perspective a greater challenge for your company? Please shortly explain why.

A6: The inside-out perspective is a greater challenge. Impact measurement of investment portfolios is highly non-standardized and, so some extend, under-developed globally. Different to the outside-in perspective, we do not have „own“ data on the impact of Allianz investment portfolio on society/ environment.

### Specific Questions:

Q7: What are the most material topics regarding climate change in your company?

A7: From our perspective it is transition risk in the investment portfolio.

Q8: Which are the key challenges regarding climate change?



A8: I think physical risk assessment for investments into companies in investment portfolio. While transition risk can be estimated via emission data the physical risk is dependent on location data and very granular company specific data which are not available yet.

Q9: Please order the topics “water and marine resources”, “pollution”, “biodiversity and ecosystems” and “circular economy” regarding materiality (if necessary, please split into impact, risk and opportunities) for your company.

A9: Most material: Biodiversity and ecosystems

Then:

- water and marine resources
- Pollution
- Circular economy

Same order for all three dimensions: Impact, risks, opportunities

Q10: Any other comments which is important from your company’s perspective.

A10: We highly welcome the CSRD regulation as this will improve systematically the availability and comparability of high quality ESG data.