

Corporate centric
sustainability information



Georeferenced and linked
sustainability information



Reframing the EU landscape for corporate sustainability information

How moving beyond corporate-centric sustainability information can increase the utility of sustainability data for other key stakeholders critical to the sustainable transition



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GreenDIA investigates the technical infrastructures by which sustainability goals are operationalised, monitored and evaluated by indicators, focusing on land use in spatial planning, real estate and housing. The research project seeks to understand (1) how different actors envision sustainability and negotiate standards, (2) how values and concepts are integrated into indicators and (3) the different effects on spatial infrastructures and bio-physical dynamics.

We highlight the problem of knowledge silos between different sectors involved in land, heat and energy use and develop tools and recommendations for creating transparent, precise and cross-sectoral indicators. GreenDIA connects the disciplines of land management and planning, sustainable finance policy, data science and earth observation. It collaborates with partners from public administration, finance and real estate and develops use cases that create new insights and tools for analysing, reconfiguring and refining data sets, indicator design and data governance.

GreenDIA is an interdisciplinary consortium research project with three partners. The Chair for Land Management (Prof. Walter de Vries, TUM), Chair for Remote Sensing (Prof. Michael Schmitt, Uni BW) and Social Data Science and AI Lab (Prof. Frauke Kreuter, LMU). It is funded by the Bavarian Research Institute for Digital Transformation (bidt) of the Bavarian Academy of Sciences.

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Authors of this report:

Andreas Dimmelmeier

Felicitas Sommer

David Cooke

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Executive summary

This paper advocates for reframing EU corporate sustainability reporting from a purely corporate-centric approach to a model that enhances interoperability with administrative, statistical and third-party datasets and includes georeferenced data. This shift would address certain conceptual and practical issues associated with current sustainability reporting and improve data quality. Linking disclosed information to other datasets would also broaden its use beyond the financial sector, enabling other institutions such as public authorities to use the data for their governance of sustainability issues. To operationalise reframing of corporate sustainability information, we propose a series of roadmap recommendations to evolve existing regulation rather than a complete overhaul of the regulatory framework. These recommendations can accommodate any potential concerns about increasing the regulatory burden for disclosing companies.

Section 1 establishes the case for reframing the landscape for EU corporate sustainability information, by reviewing the criticisms that have been levelled against it and against the EU sustainable finance agenda more broadly. We highlight that the exclusive focus on data users from the financial sector can be problematic as it precludes other stakeholders, which have a critical role in the transition towards a sustainable economy, from utilising the disclosed information effectively.

Section 2 reviews the conceptual and practical problems of the corporate-centric approach. Conceptual problems include the issue that companies are not stable units but undergo frequent legal and organisational changes (e.g. through mergers and acquisitions). Attributing sustainability performance to financial metrics like turnover or capital expenditure makes the assessment susceptible to market or currency fluctuations. This can create problems with the temporal consistency for the same company and with comparability between companies. In addition, data aggregation at the corporate level abstracts from the geographically specific environmental and social systems whose sustainability is at stake. Practical problems include inconsistencies in data provision that are introduced by ongoing re-negotiations about company reporting obligations, multiple locations for corporate sustainability information and poor data quality.

Having identified the corporate-centric approach as a key limitation for both data quality and use by non-finance users, Section 3 outlines how more granular and georeferenced sustainability information can help to address these issues. One key benefit relates to the possibility of linking disclosed data with existing datasets from public institutions. Such interlinkages would allow for better data validation, benchmarking of performance against more contextualised (and meaningful) indicators and thresholds, and identification of missing data. Linkage might also enable companies to integrate third party datasets into their disclosures, thus reducing the necessity to report the same information in different formats. A further key benefit relates to non-finance users like ministries, municipalities or statistical offices being able to produce data on and govern units that have distinct geographical-administrative boundaries like a municipality, region or a nation-state. Currently these non-finance users cannot integrate corporate-centric data but would greatly benefit from more granular and georeferenced sustainability information.

Section 4 articulates roadmap recommendations for how better data integration of already existing disclosures can increase the utility for different users. This preference for increasing the utility of existing data, instead of proposing additional reporting requirements or new indicators, reflects the current political discussion on sustainability disclosures which is strongly influenced by concerns in some quarters related to the reporting burden. The recommendations propose targeted interventions of existing regulations (rather than a wholesale overhaul of the regulatory framework) including: (1) integrating a facility for data aggregation into the European Single Access Point; (2) introducing a requirement for georeferencing certain sustainability indicators; (3) exploring how company sustainability information can be integrated with existing administrative and statistical datasets; and (4) conducting a stocktake of use cases and users of sustainability information.

The final section offers concluding thoughts on how georeferencing and data linkage might affect some long-standing debates and conceptual ambiguities related to corporate sustainability information and sustainable finance.

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1. Introduction

This section argues for re-examining the underlying principles of the EU legal and data architecture for corporate sustainability information. It notes that, notwithstanding the expenditure of political, financial and institutional resources, the accuracy and perceived utility of corporate sustainability information remains low. In addition, this architecture targets financial sector users and precludes other stakeholders which have a critical role in the transition towards a sustainable economy. These observations motivate the focus of the paper, which is to problematise the corporate-centric approach from a data perspective and to propose a shift towards disaggregated and georeferenced disclosures.

In 2018, the EU Commission published its first action plan on sustainable finance¹ (the **Action Plan**) (see also *Information Box: Disclosure of sustainability information as part of the evolving sustainable finance regulatory framework*). In the years since, a detailed framework of regulations, legal concepts, assessment tools and datapoints relating to sustainable finance and corporate sustainability information has been established. Major regulations and directives have been adopted alongside detailed delegated acts and technical standards. Taken together these documents now comprise several hundreds if not thousands of pages. In parallel, a new industry of commercial sustainability data and methodology providers has emerged to assist companies with reporting sustainability information and sell aggregated datasets and proprietary ESG scores and indicators.²

Notwithstanding the considerable investment of political, financial and human capital, there remains scepticism about whether the increase in available corporate sustainability information is effectively supporting the three objectives of the Action Plan to reorient financial flows towards sustainable investment, manage sustainability risks and foster long-termism. Critiques have, for instance, questioned whether the mandated sustainability metrics accurately represent corporate sustainability performance.³ In addition, both academic⁴ and policy contributions⁵ have problematised the actual practice of data provision by companies and third parties (such as consultancies or data vendors) noting that the available datasets are not always reliable, comparable, and consistent. Finally, critics have pointed out that the causal effect between increased transparency through more sustainability information and the reorientation of financial flows towards sustainable investments, which is assumed in EU policy documents like the Action Plan, remains unproven and underspecified.⁶

In short, more than five years after the announcement of the Action Plan, there are significant concerns regarding the quality of corporate sustainability information and whether it can be more effectively utilised to support the objectives in the Action Plan (together with the more recent Renewed Sustainable Finance Strategy⁷) and the broader objectives of the European Green Deal.⁸

One critical concern that has received comparatively less attention in this regard is the dominant focus on disclosure being for financial institutions – which while important are far from the only stakeholders that are determinative of company sustainability performance. Indeed, despite the focus on financial institutions as agents of change it remains unclear how effectively they can make use of corporate sustainability information to contribute to reaching sustainability targets in legally binding texts like the Paris Agreement or the European Climate Law. However, the data needs of other stakeholders such as national or sub-national public

¹ European Commission, 2018, Action Plan: Financing Sustainable Growth.

² Condon, M., 2023, Climate Services: The Business of Physical Risk; Foubert, A. L., 2020, ESG Data Market: No Stopping its Rise Now?.

³ Baue, B., 2019, Compared to What? A Three-Tiered Typology of Sustainable Development Performance Indicators.

⁴ Berg, F. et al., 2022, Aggregate Confusion: The Divergence of ESG Ratings. García-Vega, S. et al., 2023, Abominable Greenhouse Gas Bookkeeping Casts Serious Doubts on Climate Intentions of Oil and Gas Companies. Jia, J., Ranger, N., and Chaudhury, A., 2022, Designing For Comparability: A Foundational Principle of Analysis Missing In Carbon Reporting Systems.

⁵ Howell, A., and Schreck, M., 2023, Carbon Conundrum: The Curious Case of Finance Emissions; Raynaud, J., et al., 2020, The alignment cookbook: A technical review of methodologies assessing a portfolio's alignment with low-carbon trajectories or temperature goal. UNRISD, 2023, Indicators That Matter Toward Authentic Sustainability Reporting. NGFS, 2024, Improving Greenhouse Gas Emissions Data – NGFS Information Note.

⁶ 2° Investing Initiative, 2021, Are sustainable finance policies evidence-based? An analysis of whether the EU's procedural framework for sustainable finance policy making is fit for purpose; Christophers, B., 2017, Climate Change and Financial Instability: Risk Disclosure and the Problematics of Neoliberal Governance.

⁷ European Commission, 2021, Strategy for Financing the Transition to a Sustainable Economy.

⁸ European Commission, 2019, The European Green Deal.

institutions which have a critical role in the transition towards a sustainable economy (e.g. ministries, municipalities, regional planning bureaus etc.) as well as civil society organisations are hardly considered when it comes to corporate sustainability information disclosures.

This paper explores underlying problems and possible solutions from a data-centred perspective and articulates how the composition of reporting units, indicators, metrics and data formats has unintended effects on the representation of corporate and financial sustainability. It highlights the shortcomings of the corporate-centric approach and how this contributes to conceptual issues related to the utility, comparability, validity and accuracy of data. The paper advocates for reframing EU corporate sustainability reporting from a purely corporate-centric approach to a model that enhances interoperability with administrative, statistical and third-party datasets and includes georeferenced data. This shift would address certain conceptual and practical issues associated with current sustainability reporting and improve data quality. Linking disclosed information to other datasets would also broaden its use beyond the financial sector, enabling other institutions such as public authorities to use the data for their governance of sustainability issues.

The paper is structured as follows:

- Section 2 summarises key features of the current EU legal and data architecture for corporate sustainability information and articulates four main problems associated with the corporate-centric approach which has been articulated.
- Section 3 discusses implications for different user groups and use cases of the previously identified problems with the corporate-centric approach to the provision of sustainability information. It establishes a conceptual framework for addressing these problems by linking existing datasets and georeferencing data points. This section also highlights how different institutions are already exploring data linkages and the use of georeferenced, disaggregated data.
- Section 4 articulates four high level recommendations for a roadmap to improve the EU legal and data architecture for corporate sustainability information to increase the utility of this information for different non-financial stakeholders who are relevant for reaching sustainability targets.
- Section 5 outlines concluding thoughts on how re-orienting the EU architecture for corporate sustainability information towards data linkage and georeferencing can provide new perspectives on conceptual and political debates in sustainable finance.

2. Problem exposition

This section articulates how the corporate-centric approach to sustainability information provision creates problems for both financial and non-financial users. It describes the evolution of reporting requirements and how the pre-existing legal architecture for providing financial information has translated into a corporate-centric approach for providing corporate sustainability information. This trend continues with recent disclosure requirements relating to environmentally sustainable economic activities under the Taxonomy Regulation. It then articulates four main problems associated with this corporate centric approach: (1) a trade-off between comparability and accuracy; (2) data aggregation issues due to lack of georeferenced data; (3) constraints on access to sustainability information; and (4) poor quality of sustainability information.

2.1 Evolution of the EU architecture for corporate sustainability information

2.1.1 EU architecture for disclosure of financial information prior to the integration of sustainability information

Prior to the growth in sustainability reporting, the legal architecture of periodic reporting for relevant companies was principally set out in the Transparency Directive⁹ and the Accounting Directive.¹⁰ The Transparency Directive covers companies whose shares are listed on a regulated market and requires disclosure of annual and half-yearly financial reports¹¹ while the Accounting Directive covers most companies and articulates the content requirements for the annual report.

The annual report must contain financial statements and a management report which contains qualitative information about the company. This qualitative information must include: 'a fair review of the development and performance of the undertaking's business and of its position, together with a description of the principal risks and uncertainties that it faces'¹² as well as 'the undertakings' likely future development.'¹³ This information should be provided at the corporate level or at a consolidated level where relevant for group companies.¹⁴

2.1.2 Integration of disclosure requirements for sustainability information

Subsequent amendments to the EU regulatory framework to integrate explicit sustainability reporting requirements have *tacked on* sustainability reporting requirements to this existing architecture of information provision.

The Non-Financial Reporting Directive¹⁵ (NFRD) established the first explicit reporting requirements relating to provision of sustainability information. The NFRD outlined additional content requirements for a *non-financial statement* (which is typically included in the management report) through inserting additional articles into the Accounting Directive. The provision of sustainability information in the non-financial statement replicates the same structure in terms of requiring the sustainability information to be provided at the corporate level or at a consolidated level where relevant for group companies.^{16 17}

⁹ Directive 2004/109/EC of the European Parliament and of the Council of 15 December 2004 on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market and amending Directive 2001/34/EC

¹⁰ Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC

¹¹ Art 4 and 5 Transparency Directive

¹² Art 19(1) Accounting Directive

¹³ Art 19(2) Accounting Directive

¹⁴ Art 19 and 29 Accounting Directive

¹⁵ Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups

¹⁶ New Art 19 or Art 29a Accounting Directive

¹⁷ In this context it is also noteworthy that the insertion of sustainability provisions has been disconnected from reforms aimed at greater granularity regarding the provision of financial information such as the OECD's push for country-by-country reporting. While these OECD

Following the Action Plan and the Renewed Sustainable Finance Strategy, there has been an overhaul of reporting requirements for provision of corporate sustainability information. The NFRD has been replaced by the Corporate Sustainability Reporting Directive¹⁸ (**CSRD**). This establishes more specific requirements for the provision of sustainability information through implementing a suite of European Sustainability Reporting Standards (**ESRS**) which detail the specific datapoints and methodologies which should be adopted for compliance with CSRD reporting requirements.

While the CSRD more comprehensively integrates sustainability reporting requirements into the general framework for annual and periodic reporting, the fundamental approach to information provision remains the same. Sustainability information must be provided at either the corporate level or at a consolidated level where relevant for group companies.¹⁹

Information Box: The importance of materiality

Much of current EU sustainability reporting requirements rely on the concept of double materiality (first introduced in the NFRD) which has two dimensions: *impact materiality* and *financial materiality*.²⁰ The ESRS do not require disclosure of any information on environmental, social and governance topics covered by the ESRS if the topic has been assessed as non-material. Therefore, conducting a materiality assessment is the critical first step for relevant companies to identify the material impacts, risks and opportunities which should be reported.²¹ 'A sustainability matter is "material" when it meets the criteria defined for impact materiality [...] or financial materiality [...] or both.'²²

- *Impact materiality*: 'A sustainability matter is material from an impact perspective when it pertains to the undertaking's material actual or potential, positive or negative impacts on people or the environment over the short-, medium- or long-term. Impacts include those connected with the undertaking's own operations and upstream and downstream value chain, including through its products and services, as well as through its business relationships [...].'²³
- *Financial materiality*: 'A sustainability matter is material from a financial perspective if it triggers or could reasonably be expected to trigger material financial effects on the undertaking. This is the case when a sustainability matter generates risks or opportunities that have a material influence, or could reasonably be expected to have a material influence, on the undertaking's development, financial position, financial performance, cash flows, access to finance or cost of capital over the short-, medium- or long-term. Risks and opportunities may derive from past events or future events. The financial materiality of a sustainability matter is not constrained to matters that are within the control of the undertaking but includes information on material risks and opportunities attributable to business relationships beyond the scope of consolidation used in the preparation of financial statements.'²⁴

However even if materiality is clear at a conceptual level – practical implementation is more problematic. In theory, a material matter should be objectively determinable, but in practice subjective interpretation plays a part.²⁵ This is amplified by the fact that financial regulators providing oversight of corporate reporting obligations tend to not want to get involved in the directors' determination of what is material or not. These

reform attempts have primarily sought to increase transparency regarding profit-shifting, they have so far not been translated to sustainability reporting requirements. <https://www.oecd.org/tax/beps/beps-actions/action13/>

<https://www.oecd.org/tax/beps/guidance-on-the-implementation-of-country-by-country-reporting-beps-action-13-DEU.pdf>

¹⁸ Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting

¹⁹ Revised Art 19a or Art 29a Accounting Directive

²⁰ ESRS 1, Paragraph 37

²¹ ESRS 1, Paragraph 25

²² ESRS 1, Paragraph 28

²³ ESRS 1, Paragraph 43

²⁴ ESRS 1, Paragraph 49

²⁵ This means that often there can be two opposing sides to the question of whether a particular issue is material – one side can say that Facts A, B and C point to a matter being material whereas the other side can say that Facts 1, 2 and 3 point to the matter being immaterial.

practical difficulties are recognised in the CSRD²⁶ and as a result ESRS 1 contains detailed guidance to provide more structure to harmonise the different approaches to the materiality assessment. However, it remains to be seen how much the current variability in approaches to the materiality assessment will be harmonised as a result – the very concept of materiality means that subjective assessment will continue to have a role, and this will work against the harmonisation objective. And in addition to this general problem related to practical implementation of the materiality concept, there are further problems considering the focus of this paper.

Where a sustainability matter is judged to be material and is therefore reported, it may still be difficult to get information on the context as to *why* it is material and the *geographic location* which it relates to (as the information would be reported at corporate or consolidated level). ESRS 1 seeks to address this by stipulating that when needed for a proper understanding of material impacts, risks and opportunities, the undertaking shall disaggregate the reported information:

- by country, when there are significant variations of material impacts, risks and opportunities across countries and when presenting the information at a higher level of aggregation would obscure material information about impacts, risks or opportunities; or
- by significant site or by significant asset, when material impacts, risks and opportunities are highly dependent on a specific location or asset.²⁷

However, it is too soon to discern if this has caused a significant transformation in reporting practice as the ESRS apply from 1 January 2024 for financial years beginning on or after 1 January 2024.

A further weakness in the concept of materiality considering the focus of this paper, is the level at which the materiality assessment is applied. By way of example, if X number of companies are all located in a geographic region, their materiality assessment of a given sustainability impact may lead each of them to assess that the sustainability impact is not material for them. However, when aggregating the sustainability impacts of all these companies, the local municipality's materiality assessment of the aggregate of their sustainability impacts may indicate that this aggregate impact is clearly material in that geographic region. However, because each individual company has judged that its sustainability impact is not material, there may be no reported data by these companies (see also Section 2.2.2 for a discussion of this point).

These are a few examples which illustrate how the concept of materiality, which is a key determinant of what information is disclosed in the corporate centric architecture for sustainability information, can work against the information needs of other stakeholders or against achieving a complete and consistent information system.

2.1.3 Disclosure of taxonomy relevant information

The Taxonomy Regulation²⁸ is a further critical element of the regulatory framework for corporate sustainability reporting. This regulation establishes that an economic activity can be considered as environmentally sustainable when it: (1) contributes substantially to one or more of the six environmental objectives²⁹ established in the Taxonomy Regulation; (2) does not significantly harm any of these six environmental objectives; (3) is carried out in compliance with minimum safeguards; and (4) complies with technical screening criteria that have been established by the Commission and incorporated into the regulatory framework by delegated legislation.³⁰

²⁶ 'The fitness check on corporate reporting shows that those two perspectives are often not well understood or applied. It is therefore necessary to clarify that undertakings should consider each materiality perspective in its own right, and should disclose information that is material from both perspectives as well as information that is material from only one perspective.' (CSRD, Recital 29)

²⁷ ESRS 1, Paragraph 54

²⁸ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088

²⁹ These comprise (a) climate change mitigation, (b) climate change adaptation (c) the sustainable use and protection of water and marine resources (d) the transition to a circular economy (e) pollution prevention and control and (f) the protection and restoration of biodiversity and ecosystems.

³⁰ Commission Delegated Regulation (EU) 2023/2486 of 27 June 2023 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to the sustainable use and protection of water and marine resources, to the transition to a circular economy, to pollution prevention and control, or to the protection and restoration of biodiversity and ecosystems and for determining whether that economic activity causes no significant harm to any of the other environmental objectives and amending Commission Delegated Regulation (EU) 2021/2178 as regards specific public disclosures for those economic activities, Commission Delegated Regulation (EU) 2023/2485 of 27 June 2023 amending Delegated Regulation (EU) 2021/2139 establishing additional technical

In addition to this classification of what economic activities can be considered as environmentally sustainable, the main disclosure requirements for corporate entities established in the Taxonomy Regulation relate to: (1) the proportion of turnover derived from products or services associated with environmentally sustainable economic activities; and (2) the proportion of capital expenditure and operational expenditure related to assets or processes associated with environmentally sustainable economic activities.³¹ This information is required to be included in the entity's non-financial statement or consolidated non-financial statement as an addition to the sustainability information articulated in the NFRD (as replaced by the CSRD).³²

2.1.4 Disclosure requirements establish a corporate centric architecture for sustainability information

The previous subsections have described how the evolution of EU disclosure requirements for sustainability information has established a corporate centric approach to how corporate sustainability information is reported and structured. This focus on the corporate level is reflected in the CSRD recitals, which articulate the overall theory of change for the legislation and provide an explanation for why sustainability information should be reported and structured in this way.

*'If undertakings carried out better sustainability reporting, the ultimate beneficiaries would be individual citizens and savers, including trade unions and workers' representatives who would be adequately informed and therefore able to better engage in social dialogue. Savers who want to invest sustainably will have the opportunity to do so, while all citizens would benefit from a stable, sustainable and inclusive economic system. To realise such benefits, the sustainability information disclosed in the annual reports of undertakings first has to reach two primary groups of users. The first group of users consists of investors, including asset managers, who want to better understand the risks and opportunities that sustainability issues pose for their investments and the impacts of those investments on people and the environment. The second group of users consists of civil society actors, including non-governmental organisations and social partners, which wish to better hold undertakings to account for their impacts on people and the environment. Other stakeholders might also make use of sustainability information disclosed in annual reports, in particular to foster comparability across and within market sectors.'*³³

This theory of change identifies two principal user groups for sustainability information: (1) investors, including asset managers; and (2) civil society actors, including non-governmental organisations and social partners. The link between providing sustainability information and the creation of 'stable, sustainable, and inclusive economic system' is not explicitly spelt out. Nonetheless, the recital suggests that investors might contribute to it through capital reallocation, while advocacy from society might put pressure on companies to change their behaviour. However, there appears to be an implicit assumption that the interests of these two principal user groups – and their presumed strategies for change – are best served by aggregating sustainability information at the same level as financial information.

screening criteria for determining the conditions under which certain economic activities qualify as contributing substantially to climate change mitigation or climate change adaptation and for determining whether those activities cause no significant harm to any of the other environmental objectives

³¹ Art 8 Taxonomy Regulation

³² In addition, the ESRS frame some of the reporting requirements by reference to the Taxonomy Regulation.

³³ Recital 9 CSRD

Information Box: Disclosure of sustainability information as part of the evolving sustainable finance regulatory framework

The Action Plan was the first EU policy initiative seeking to comprehensively reform the financial system so it can be part of the solution towards a greener economy. It articulated a package of measures designed to achieve three objectives: (1) reorient capital flows towards sustainable investment to achieve sustainable and inclusive growth; (2) manage financial risks stemming from climate change, resource depletion, environmental degradation and social issues; and (3) foster transparency and long-termism in financial and economic activity.

In addition to the regulatory changes mentioned previously, a further flagship initiative is the Sustainable Finance Disclosure Regulation³⁴ (**SFDR**). This regulation establishes rules for financial market participants and financial advisors on the integration of sustainability risks and the consideration of adverse sustainability impacts in their processes and the provision of sustainability related information with respect to financial products.³⁵ The SFDR, Taxonomy Regulation and CSRD can therefore be considered as the constituent parts of a mandatory disclosure regime for both non-financial and financial companies, providing investors with information to make informed sustainable investment decisions.

Other initiatives under the Action Plan include: creating standards and labels for green financial products (including exploring the EU Ecolabel framework for financial products³⁶); incorporating sustainability when providing financial advice (which led to the regulatory changes to the Insurance Distribution Directive (IDD) and Markets in Financial Instrument Directive (MiFID II) suitability assessment and product governance requirements); creating sustainability benchmarks within the framework of the Benchmark Regulation; and clarifying institutional investors' and asset managers' duties and incorporating sustainability in prudential requirements that are governed by the revised Credit Requirements Regulation (CRR II) and the Credit Requirements Directive (CRD V) and the Implementing Technical Standards from the EBA that provide guidance for financial institutions' disclosures of ESG risks.³⁷

While the Action Plan established the building blocks for a sustainable finance framework, the Renewed Sustainable Finance Strategy identifies four areas where additional actions are needed for the financial system to fully support the transition of the economy towards sustainability. This includes recognising transition activities (in addition to the sustainable activities which are the focus of the Taxonomy Regulation); improving the inclusiveness of sustainable finance; enhancing economic and financial resilience to sustainability risks; increasing the contribution of the financial sector to sustainability; and monitoring an orderly transition to ensure the integrity of the EU financial system.

The focus of this paper is on the architecture for corporate sustainability information which is one part of the broader sustainable finance framework. Nevertheless, it is a critical area of focus as the sustainability information provided by real economy organisations is the data which is connected to sustainability risks and impacts in the real world (i.e. it is these metrics which operate at the intersection between economic activities on one side and natural ecosystems on the other).

³⁴ Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector

³⁵ Art 1 SFDR

³⁶ Although note that the status of the EU Ecolabel for financial products is uncertain.

³⁷ EBA/ITS/2022/01 Final draft implementing technical standards on prudential disclosures on ESG risks in accordance with Article 449a CRR

2.2 Problems with the corporate-centric approach to provision of sustainability information

2.2.1 Trade-off between comparability and accuracy

Comparability

Data users including financial institutions, regulators, (local) government and civil society use corporate sustainability information for a range of purposes including allocating funds, identifying recipients for subsidies and selecting targets for campaigning or engagement. Independent of the use case and interest, these stakeholders want to compare companies to select targets for interventions. For example, governments developing subsidy programmes need to identify sustainability leaders in a sector or region or companies which have the highest potential for transitioning from unsustainable to sustainable business practices. And evaluation of whether these subsidy programmes worked requires comparisons across time for all companies that received support. Similar logics apply to private financial institutions when integrating sustainability criteria into portfolio selection and risk assessments, and civil society actors seeking to select companies for campaigning.

However, comparing companies can be difficult as they have different sizes and operate in different sectors and geographies. These aspects make it hard to compare different companies at the same point in time without complementary information. Comparing disclosures on energy and resource use without any information other than the indicators measuring these aspects, means that smaller companies and companies from less resource intensive sectors (such as Education or ICT) will always outperform entities that are either larger or from more resource intensive sectors (such as manufacturing or mining). Integrating further information can, of course, help to remedy the problem. Companies can, for example, be assigned to categories such as sector classifications, which ensures that only relatively similar entities are compared. In addition, information about the company like its revenue, headcount, investments or production volumes can be combined with environmental or social indicators to create intensity metrics (e.g. tCO₂ equivalent emitted/EUR revenue). But adding this information represents a trade-off as it can lead to distortions in accurately measuring a sustainability issue like GHG emissions (see *Accuracy* sub-section).

Another problem for comparability arises when comparing the same company over time. Comparisons can be difficult because companies are dynamic units that can expand or shrink through mergers and acquisitions, divestments etc. or can change their organisational and legal structure through actions like IPOs, delistings, contractual arrangements etc. These changes in company structures can make it hard to detect a trend for environmental indicators like GHG emissions measured in tCO₂e of the organisation. By way of example, the purchase of a carbon-intensive business can result in large increases in the indicator, which makes it harder to identify whether the company is successfully decarbonizing. Such company-specific changes can also mean that cross-company comparisons of trends become more complex as companies have idiosyncratic organisational histories. Companies might also take advantage of reorganisations to hide bad performance. Indeed, there are already examples where GHG emission intensive assets have been “outsourced” to spin-off companies or where the flexibility of GHG accounting for subsidiaries has been used to report lower figures.³⁸ As above with comparability issues between different companies, there are also methods to enhance comparability over time for companies that have undergone structural changes. Again, the proposed solution is to add further information about these changes to the metrics in question by recalculating baseline and target values of an indicator for the updated company structure.⁴⁰ However, one needs to keep in mind that

³⁸ First instances of this strategy, whereby companies outsource their carbon-intensive assets to separate entities have already occurred in the mining sector in the form of spun-off coal business like Anglo American’s South African Thungela Resources. See Hume, N. (2021, June 7). Anglo American coal spin-off drops on demerger. Financial Times.

³⁹ In addition to changing their organisational structure, companies might also face perverse incentives in the choice of the method for reporting insofar as they might choose the definition of control that allocates the least emissions of subsidiaries, joint ventures and other affiliated units. See Kasperzak et al. 2023. Accounting for Carbon Emissions—Current State of Sustainability Reporting Practice under the GHG Protocol.

⁴⁰ Standard setters have recognised the repercussions of changes in companies’ structures for comparability and proposed methods to mitigate these issues. The GHG Protocol standard, for instance, states that “structural changes” including mergers, acquisitions and divestments as well as outsourcing, methodology changes and the detection of errors, require a recalculation of a company’s base year (i.e. the year against which decarbonisation targets and achievements are benchmarked) emissions. However, the standard leaves it up

these restatements might not always be possible as changes in legal and organisational structures might also result in shifts in reporting requirements. If these changes imply that reporting might no longer be required for the newly created or sold organisations, this might result in “hidden assets” that remain operational (and continue to impact the environment) but disappear from the records.

Accuracy

Data users also have an interest that the disclosed variables represent the measured quality as accurately and directly as possible. If the objective is to measure people’s weight over time, the best indicator would be “weight without clothes” in kg (measurement unit). A related measurement like the Body Mass Index (weight in kg/ height in m squared) is less accurate as it does not represent a person’s weight but the quality of being over- or underweight.⁴¹

Applying this weight and BMI analogy to sustainability disclosures, we might say that the qualities of interest are companies’ influences on the environment (e.g. GHG emissions in tCO₂e). The selection of these indicators and units is, in turn, based on scientific findings that have a – often causal – relation to the sustainability phenomenon of interest. However, as illustrated in the previous sub-section on *Comparability* to compare companies of different sizes and sectors, the absolute number of tCO₂e is often modified to the related metric of emissions intensity such as tCO₂e / EUR revenue.

Rather than answering the question of “how many units of GHG emissions a company is responsible for?”, the intensity metric asks “how efficient is a company releasing GHG to produce economic value?” As with the BMI example, this addition of a variable also creates problems. By introducing a business or financial measure as the denominator, one can no longer be certain that a company with low GHG emissions intensity really emits comparatively fewer GHG as the low ratio value could also be due to a high revenue value. What is more, while adults’ height remains constant over time, companies’ revenues and other business metrics are dynamic. For intertemporal comparisons of the same company, this means that a better performance on intensity metrics can be achieved even in the event of higher GHG emissions if the financial measure in the denominator (i.e. the revenue in tCO₂e/revenue in EUR) grows at a higher rate than the GHG emissions releases in the numerator.⁴²

This possibility for inaccurate representations of GHG emission releases in intensity metrics creates a problem with regards to evaluating and monitoring decarbonisation (and other sustainability-related) strategies over time. This is because intensity metrics can change not only due to efforts of the company to reduce its GHG emissions (e.g. changes in technology, product innovations) but also due to changes that affect the denominator like changes in prices and have nothing to do with a companies’ efforts to improve its sustainability credentials. Using the weight and BMI analogy, judging the success of a sustainability strategy based on intensity indicators would be somewhat equivalent to evaluating the effect of a weight loss drug based on the changes in the BMI in a world where people undergo random variations in their height.

The trade-off

Bringing together the issues of comparability and accuracy, a trade-off emerges. To compare different companies we need to include complementary information such as their changes in organisational structure and revenue. But integrating this additional information leads to methodological complexities and, as in the case of intensity indicators, might distort the measurement of the sustainability issue that users are interested in. Navigating this trade-off means that data users need to engage with different metrics (and apply different levels of methodological scrutiny) depending on whether they want to compare companies, assess the trend of

to companies to establish a “significance threshold” that leads to recalculations (ibid.). In practice, this ambiguity has resulted in problems regarding the choice of assumptions and the lack of transparent documentation of adjustments. See WBCSD and WRI (2004). The greenhouse gas protocol. A corporate accounting and reporting standard, Rev. ed. Washington, DC, Conches-Geneva, p. 35.

⁴¹ And while there is a correlation between weight and a high BMI, the introduction of the height variable in the denominator means that it could be possible that a tall person with a low BMI has a higher weight than a smaller person with a higher BMI thus making the metric inaccurate for measuring weight.

⁴² Raynaud, J., et al., 2020, The alignment cookbook: A technical review of methodologies assessing a portfolio’s alignment with low-carbon trajectories or temperature goal. UNRISD, 2023, Indicators That Matter Toward Authentic Sustainability Reporting. Sustain.Life, 2024, Absolute vs. Intensity Emissions. Ostrovnyaya, A., 2024, COP reflections, Part 1: Economics and Policy.

one company over time or benchmark the performance of a company against a goal for any given sustainability issue. While all of this is theoretically feasible, it, nonetheless shows that the corporate-centric approach to sustainability information comes with important complexities and requires substantial knowledge and investment of analytical resources from data users.

2.2.2 Data aggregation issues due to lack of geographic context

Apart from having to measure the quality of interest as accurately as possible through the choice of variable and unit (see Section 2.2.1), a valid indicator also needs to be aggregated on the same level as the sustainability phenomenon it seeks to measure. If, for example, the sustainability phenomenon was water pollution in a lake, the appropriate indicator would aggregate all pollutants that are released into the lake. If the total pollution was equal (e.g. 1000L/year) it would not matter if all pollution came from one source or from multiple smaller sources (as the level of aggregation that matters from a sustainability perspective is the lake). From a reporting perspective, the aggregation at lake level would necessitate that the owners of polluting assets disclose the amount of released pollutants and their location. But if the amount of released pollutants is aggregated across all polluting assets at the corporate level with no information about their location, the aggregation at lake level cannot be carried out.

Going beyond illustrative examples, the critique against aggregating sustainability indicators at corporate level has been more formally articulated by proponents of context-based accounting. This critique argues that corporate centric reporting cannot meaningfully measure the concept of sustainability as the latter is not measured at the corporate level but at the level of geographically specific social and environmental systems like lakes or forests but also states and cities.^{43 44} Companies, meanwhile, are abstract legal-organisational units that combine multiple activities through their ownership and operations of assets in different locations. And while in the corporate-centric view the geography of assets can be largely ignored, the context-based perspective requires spatial information. This emphasis on local context is informed by the observation that operating the same type of asset might be harmless in one socio-environmental system but have detrimental effects in another.

The context-based accounting perspective hence challenges the aggregation of sustainability indicators at the corporate level and instead privileges disclosures at levels that can be linked to a socio-environmental system. To judge whether a company's activities contribute to the (un)sustainable state of a system, they need to be benchmarked against the needs and capacities of the system at stake. Consequently, company information needs to be disclosed at the same level of granularity as the (geographically specific) socio-environmental system whose sustainability is at stake.

Another implication of aggregating indicators at the level of the socio-environmental system rather than the corporate level is that it puts into focus the interactions of geographically close organisations. If the focus of the analysis is switched from the company to the system, companies' sustainability impacts need to be seen in the context of their interactions with actors like municipalities, civil society organisations and other companies with whom they share the same social and environmental spaces. Integrating these actors into the analysis relaxes the assumption that only the reporting company has agency and that any changes to the sustainability of the system in question must be the result of corporate strategic or operational choices. Instead, (un)sustainability is the cumulative effect of the activities and interactions among all (economic and non-economic) stakeholders that are present within the system's boundaries. Consequently, a focus on transparency is imperative to coordinate the actions and prevent situations where actions by one party offset or negatively affect the activities of another. The focus on shared agency and coordination also implies that due to the uncertainties related to the interactions of (uncoordinated) activities of different actors within one system, an unambiguous bottom-up classification of sustainability performance is conceptually impossible.⁴⁵

⁴³ Sometimes also referred to as various capitals (natural, human, social etc.).

⁴⁴ Baue, B., 2019, Compared to What? A Three-Tiered Typology of Sustainable Development Performance Indicators. Baue, B., and Thum, R., 2022, Thresholds of Transformation UNRISD Sustainable Development Performance Indicators Pilot Testing —Synthesis Report. Utting, P., and O'Neil, K., 2020, Corporate Sustainability Accounting: WHAT CAN AND SHOULD CORPORATIONS BE DOING?

⁴⁵ For a conceptual elaboration of this argument see Krahé, M., 2021, From System-Level to Investment-Level Sustainability: An Epistemological One-Way Street.

As such, it becomes the responsibility of companies to coordinate and communicate their actions and strategies with other proximate institutions to identify synergies and prevent harmful cumulative effects.

To give an example of how this perspective diverges from the corporate centric approach one might consider the sustainability of a green office building. Corporate centric sustainability reporting frameworks would assign the responsibility of the “greenness” of the building entirely to the company that builds the offices. Accordingly, decisions that fall within the purview of the company like the insulation of the building or the choice of materials are sufficient to establish sustainability independently of its location. But a context-based understanding would see these aspects as a necessary but not sufficient condition for sustainability. Sustainability could only be evaluated by taking the agency of other actors into account. If the municipality had demolished an entire neighbourhood in the area where the green building stands or if the local businesses had already a sufficient supply of office spaces meaning that any new builds would result in vacancies elsewhere, the sustainability of the green building could not be established. In this situation the company would need to take these factors that are outside of its control into account when planning where to construct. Consequently, the corporate sustainable activity can only be established by relating the companies’ actions with contextual information.

In summary, if we accept the arguments for context-based accounting, there are two noteworthy implications for corporate sustainability reporting:

- First, rather than assuming the corporate level boundaries applied in financial accounting should also apply to sustainability disclosures, sustainability information must always be disclosed in relation to the geographically specific social or environmental system whose sustainability is assessed.⁴⁶ In consequence, geo-tagging of disclosures and linking to data about the systems in question is imperative.
- Second, the actions of contextual stakeholders including (local) public authorities or other companies that interact with the corporate entity need to be integrated. Coordination and transparency are key in this regard.

2.2.3 Constraints on access to sustainability information

Efforts to reduce corporate reporting burden can be a constraint for sustainability information

A significant constraint on the availability of sustainability information is associated with the current policy objective to reduce the reporting burden on corporates. If companies are the main producers of sustainability information, any effort to limit their reporting burden will correspondingly limit the availability of sustainability information. By way of example, the Commission has set a target of reducing burdens associated with reporting requirements by 25% without undermining the policy objectives of the initiatives concerned.⁴⁷

It is almost certainly the case that reporting requirements relating to sustainability information are more susceptible to any rationalisation and reduction efforts than those relating to financial information. The Commission publicly stated that it will postpone the deadline for adopting the sector specific ESRS to allow stakeholders time to adapt to new requirements.⁴⁸ And even without these formal positions from the Commission, there have been numerous examples of a significant rollback in terms of ambition for corporate

⁴⁶ There is also the question of who should identify the relevant systems and set the quantities and thresholds of resource-use and environmental impacts that are allocated to companies and their assets. Some of the above-cited literature on context-based accounting has argued that threshold and allocation setting is a normative issue that requires scientific, ethical and political legitimacy and suggested that one should create a global governance body of scientists, academics, business practitioners, NGOs and other stakeholders,¹ whose task would be ‘to provide guidance on methodologies for determining ecological (and social) thresholds, as well as guidance on approaches to allocations. Covering these aspects in detail would, however, go beyond the focus on this paper. This being said, we principally agree that normative decisions should be grounded in the expertise and perspective of different stakeholders. We remain, however, more sceptical regarding the suggested creation of a global body, which risks diverging from the emphasis on local-contextual aspects and will struggle to develop both expertise and legitimacy. As advocated in section 3 of this paper, we see greater promise in leveraging existing national and local administrative capacities and data repositories and link them to global sustainability questions instead of trying to establish new top-down systems of governance.

⁴⁷ European Commission, 2023, Reporting burdens and rationalising reporting requirements. To achieve this goal, as of October 2023, the Commission had adopted 15 proposals (since March 2023) that simplify and rationalise reporting requirements. And with the 2024 Work Programme, the Commission is putting forward 26 additional rationalisation proposals to reduce administrative burden without lowering social, safety, consumer protection, environmental or economic standards.

⁴⁸ European Commission, 2023, Reporting burdens and rationalising reporting requirements.

sustainability reporting requirements. Indeed, the final ESRS were themselves significantly reduced in ambition compared to EFRAG's technical advice (through removing the mandatory status of a core set of metrics due to the introduction of a materiality assessment and assigning a voluntary status to certain metrics⁴⁹). And the political negotiation which surrounded the Corporate Sustainability Due Diligence Directive (CSDDD) saw the breadth of in scope companies reduced so that it will now only apply to companies with a turnover of €450 million and a threshold of 1000 or more employees (thereby only covering 0.05% of EU companies and 70% less than what had been previously agreed on).

These examples show that the renewed vigour which is apparent in EU policy making to reduce the reporting burden affects sustainability reporting requirements (perhaps in a disproportionate manner). And with less sustainability reporting requirements (either in terms of requiring disclosure of less data, reducing the scope of companies which are subject to the reporting requirements, or making the reporting requirement voluntary rather than mandatory etc.) this means that less corporate sustainability information is available.

Therefore, the current architecture of corporate sustainability information means that efforts to increase the availability and comprehensiveness of sustainability information are constrained by almost independent factors such as concerns about market competitiveness etc. This type of *issue-linkage*, while common-place in political bargaining, runs counter to the requirement for information systems to be complete and consistent.⁵⁰ Information systems, unlike political negotiations, operate according to a binary rather than a trade-off logic, where the alternative to completeness and consistency is not *a bit less complete and consistent* but rather *dysfunctional and potentially useless*.

One factor that arguably contributes to this problem of issue-linkage is that corporate sustainability reporting is supposed to serve at least two separate purposes. The first purpose is to create accountability for companies. To this end, corporate entities are mandated to disclose items such as risk assessments or transition plans, which then can be used by various stakeholders as a basis to engage with the company. Notably, the political debate referred to above revolves around the conflict between more accountability (through increased disclosures) and less reporting burden (through less disclosures). The second purpose is to increase data availability on corporate activities and their sustainability effects. The focus here is to make data available to various users beyond a company's immediate stakeholders which analyse and monitor corporate performance. For this second purpose, the spatial boundaries of ecosystems and societies that corporate actions affect and interact with are crucial information. In consequence and contrary to the accountability purpose, the data availability purpose prioritises quality, granularity and consistency of information. Accordingly, disaggregated basic and well-understood metrics and units (e.g. tCO₂e, l wastewater, m² land sealing) on smaller economic and geographic units would take precedence over introducing more complex corporate-level disclosures.

In summary, the corporate centric approach to sustainability information can lead to conflating debates surrounding the accountability purpose and the data availability purpose. While increasing the number of reported indicators or in scope companies may lead to higher corporate accountability, this is not decisive for the quality and utility of the data. Moreover, continuous political bargaining about the accountability purpose can negatively affect the data availability purpose.

Unstructured reporting in multiple locations hinders accessibility

To aggregate sustainability information on more than one company it is necessary to harmonise different documents which – despite standards like the ESRS – still have different indicators and information presentation styles. Moreover, to aggregate corporate activity in a given geographical area, this would require identification of the corporate entities which are active in the area through external datasets. Therefore, a user interested in a geographical aggregation of sustainability impacts would need to access the annual report for

⁴⁹ In our view, if metrics are voluntary this means that even if a disclosing company determines this information is material, it can avoid disclosing. This approach runs the risk of excluding large areas of information from the scope of CSRD and contradicts the purpose of CSRD as well as broader EU policy objectives and international commitments.

⁵⁰ Jia, J., Ranger, N., and Chaudhury, A. 2022. Designing For Comparability, p. 5.

each of the corporate entities identified and then seek to identify the relevant information within the annual filings.

The relevant filings are usually contained in the annual report (including the management report and non-financial statement), which contains most corporate sustainability information of companies, and is publicly available through the company website. However, the annual report typically runs to several hundred pages, therefore locating relevant sustainability information is a significant undertaking that either requires substantial manual labour or the purchase of data products from commercial vendors (whose methods remain proprietary and lack transparency).⁵¹ And while various research papers and web-based tools have started to leverage Large Language Models (e.g. GPT-3.5/4 or BERT) based pipelines to extract and analyse sustainability information from disparate and unstandardised reports⁵² there is arguably still no freely accessible and easy to operate system that allows users to accurately extract specific datapoints from a multitude of reports.⁵³ In addition, the provision that reports need to be made available on the company website means that sustainability information is in different locations for different companies.

2.2.4 Poor quality of sustainability information

Data quality has been a longstanding issue for corporate sustainability information. Indeed, replacing the NFRD by the CSRD and ESRS was in part because of recognition that the quality of information being reported under NFRD was not adequate. A 2019 research report analysing the sustainability reports of 1000 companies pursuant to the NFRD⁵⁴ revealed several critical concerns with market practice at that time including heterogeneous reporting practices with respect to different sustainability issues and a common practice of disclosing various environment related policies but without the detailed information necessary to understand the company's situation and development. The Commission's fitness check of the NFRD also identified limited comparability and reliability of sustainability information as significant problems.⁵⁵

As noted in the recitals to the CSRD '[i]n the absence of policy action, the gap between users' information needs and the sustainability information provided by undertakings is expected to grow'⁵⁶ and '[t]he development of mandatory common sustainability reporting standards is necessary to reach a situation in which sustainability information has a status comparable to that of financial information.'⁵⁷

The intended effect of establishing much more detailed reporting requirements in the ESRS is to address this problem of comparability, enhanced reliability and provision of detailed information necessary to understand the company's situation and development. Nevertheless, it is too soon to assess what the ensuing market practice will be in terms of reliability of this information. This also holds true for audit practice in relation to the new reporting requirements. The CSRD establishes enhanced audit requirements for sustainability information, but it is also too soon to see what the audit practice will be and there are several key aspects to the new audit framework which are yet to be put in place. The CSRD mandates the Commission to 'adopt delegated acts [...] to provide for limited assurance standards setting out the procedures that the auditor(s) and the audit firm(s) shall perform in order to draw his, her or its conclusions on the assurance of sustainability reporting'⁵⁸ but the deadline for this is 1 October 2026.

⁵¹ Berg, F. et al., 2022, Aggregate Confusion: The Divergence of ESG Ratings. Condon, M. 2023, Climate Services. BIS Innovation Hub, 2024, Project Gaia: Enabling Climate Risk Analysis Using Generative AI, BIS Technical Report, p. 8.

⁵² Luccioni, A. et al., 2020, Analyzing Sustainability Reports Using Natural Language Processing. Bingler, J., et al., 2022, Cheap talk and cherry-picking: What ClimateBert has to say on corporate climate risk disclosures. Finance Research Letters, 47:102776.; Bronzini, M., et al., 2023, Glitter or Gold? Deriving Structured Insights from Sustainability Reports via Large Language Models.

⁵³ Dimmelmeier, A. et al., 2024, Informing Climate Risk Analysis Using Textual Information - A Research Agenda.

⁵⁴ The Alliance for Corporate Transparency Research Report 2019: An analysis of the sustainability reports of 1000 companies pursuant to the EU Non-Financial Reporting Directive

⁵⁵ Recital 13 CSRD

⁵⁶ Recital 14 CSRD

⁵⁷ Recital 37 CSRD

⁵⁸ Art 3(15) CSRD amending Directive 2006/43/EC

3. Georeferencing and data linkage to improve utility of sustainability information

This section discusses the implications of the previously identified problems with the corporate centric approach to sustainability information for different user groups and use cases. It outlines how linking currently disconnected corporate sustainability information can help overcome some of the limitations that different user groups currently face. It also illustrates the importance of georeferencing data considering the relevance of geographic limits for both sustainability topics and administrative systems of governance.

3.1 Conceptual advantages of georeferencing sustainability information

The previous section identified several problems of the corporate-centric approach to sustainability information. These problems limit the utility of corporate sustainability information for the two principal user groups identified (investors and civil society actors) in the regulatory framework. They also mean that corporate sustainability information has limited utility for other user groups tasked with sustainability governance.

Georeferencing corporate sustainability information (that is providing disaggregated information with geographical identifiers such as coordinates or even the names of cities or regions) can be instrumental in overcoming many of these limitations. And georeferencing corporate sustainability information need not be a complete departure from existing practices as the need for granular and georeferenced information is already acknowledged in parts of financial and sustainability disclosures. Regarding corporate reporting, the recent introduction of country-by-country level⁵⁹ financial reporting for multinational enterprises as part of the measures against base erosion and profit shifting (BEPS), albeit for the time being without public disclosure obligation, shows that information at a more granular level than the corporate entity is not a completely new idea. Regarding sustainability reporting, the CSRD requires country-by-country or even site-specific-information in cases where more aggregated disclosures would lead to the omission of material information (see *Information Box: The importance of materiality*). However, given the novelty of these provisions, their operationalisation is not yet clear.

One key benefit of expanding and further elaborating on these first attempts of georeferencing is that it would lead to greater interoperability with other (georeferenced) environmental data from official statistics, public registries and remote sensing. A first advantage of such linkages would be that the quality of corporate sustainability information could be checked against third party sources.⁶⁰ As such, mis- or underreported data as well as greenwashing could be detected systematically.⁶¹ The potential of such an approach has already been illustrated by research making use of georeferenced production facilities in the oil and gas sector and remote sensing that found considerable discrepancies between reported and observed GHG emissions data.⁶²

A second advantage of increased data linkage is that it can make information more relevant to financial institutions and non-finance users. As to users from the financial sector, georeferenced data could help financiers reduce their internal data collection and risk assessment efforts and limit their reliance on costly third-party data providers, whose methodologies often remain a black box. Georeferenced information might

⁵⁹ OECD, 2015, BEPS Action 13, n.d., BEPS Action 13.

⁶⁰ Including various GIS applications and Remote Sensing data. For an overview see. Oxford Spatial Finance Initiative, 2023, State and Trends of Spatial Finance 2023. <https://www.cgfi.ac.uk/wp-content/uploads/2023/03/State-and-Trends-of-Spatial-Finance-2023.pdf>

⁶¹ For a recent definition and empirical analysis of greenwashing see ESMA, 2024, Final Report on Greenwashing Response to the European Commission's request for input on "greenwashing risks and the supervision of sustainable finance policies

⁶² He, M. et al., 2024, Total Organic Carbon Measurements Reveal Major Gaps in Petrochemical Emissions Reporting.

enable investors to better manage physical and transition⁶³ risks (including reputational risks from greenwashing) as they can compare the disclosed company data more easily with linkable datasets. As to other users, actors from public policy and civil society could utilise georeferenced sustainability data for planning, provisioning and monitoring purposes (see Section 3.2).

A third advantage is that georeferenced data can (at least partially) address some of the conceptual inconsistencies related to comparability, accuracy, aggregation and completeness (see Section 2.2.1 and 2.2.2). Regarding comparability, geographical boundaries, unlike corporate structures, stay constant over time. Regarding the level of aggregation, a considerable number of systems, whose sustainability we need to ensure (including but not limited to land use, water systems, biodiversity and social issues) have an explicit geographic boundary. Regarding completeness, relying on geographical inventories that are linked to official registers minimises the risks of forgotten assets that are significant from a sustainability perspective but might not be recorded due to their marginal (or complex) organisational or ownership status.

A final advantage of georeferencing is that the interactions between sustainability and corporate action could be identified from two directions: not only forward (from corporate head to activity) but also backwards from (spatially embedded) activity to corporation. Hence, georeferencing corporate sustainability information could ensure that the link between reporting and the real-world indicators that matter for sustainability is maintained.

3.2 Enabling different institutions to link and process corporate sustainability information

Georeferencing corporate sustainability information can increase the utility of this data for non-financial users such as public investment agencies, national and local planning and provisioning authorities and official statistical offices. These types of institutions have so far not been targeted by the EU architecture for corporate sustainability information but are critical in working towards a sustainable transition for the EU economy.

Below we discuss a non-exhaustive list of public institutions that have started to integrate corporate sustainability data into their operations (or are planning to do so). Each of these institutions is in the process of scaling up expertise on sustainability data generation and processing but is constrained by the current corporate-centric approach and the problems linked to it. Consequently, a conceptual rethinking of sustainability disclosures (especially with regards to georeferencing corporate sustainability information) would greatly serve these institutions.

3.2.1 Spatial and basic services planning

Planning authorities governing land are an obvious stakeholder in companies' sustainability activities as most corporate transition strategies involve land use and land use change somewhere. Consequently, planning authorities have an intrinsic interest in corporate sustainability disclosures and especially aggregated information on future corporate plans related to sustainability issues for a certain territory (see also *Information Box: Transition plans*). By way of example, renewable energy plants and networks, the refurbishment or construction of factories and infrastructures and the designation of environmental protection and compensation areas are all dependent on the availability of space, secure ownership and on public permissions and regulation. Planning authorities thus need to balance the transition activities of companies, with preparing public infrastructure and basic services for climate change.

Planners tasked with coordinating between companies' strategies and their own priorities would ideally need to identify which combinations of corporate and public transition strategies can have offsetting or net negative effects and which ones lead to mutually reinforcing positive effects. To perform this coordinative role, planning authorities would require corporate information that matches their administrative boundaries. But currently, there is no cross-institutional communication. This lack of exchange is particularly worrying as the

⁶³ On the relevance of georeferences for transition risks see Kruitwagen et al., 2021, Asset-Level Transition Risk in the Global Coal, Oil, and Gas Supply Chains

effectiveness of public and corporate transition plans, especially under changing climatic, legal and economic conditions, is dependent on cross-institutional informed strategies. In the absence of such an information exchange, public strategies might, for instance, miscalculate existing and future environmental demands for commercial or residential areas as well as basic services by extrapolating future needs and activities from current practices. Matching corporate plans and needs with those of regional planning is also relevant for companies pursuing seemingly unambiguous sustainability measures (e.g. expanding renewable energy production) as concentrated efforts in one region might cause harm if they do not align with the capacities and needs in these locations. Such miscalculations can lead to maladaptation with regards to planning practices.

While coordination is important for planning authorities, companies can also benefit from such information exchanges as they help reduce risks and transition costs. Company investments into assets including sustainable data centres, heat networks, circular economy networks or carbon capture and storage facilities would all benefit from early information exchange between stakeholders to anticipate conflicts, undesired cancellations or regulatory and reputational risks. And while companies already take regulatory uncertainties and measures to mitigate them into consideration in their general transition risk assessments, greater attention to regional and local conditions could enhance their risk management capabilities. Mapping regional transition plans can help to identify transition risks usually overseen, especially in countries with more granular and regionally varying zoning regulation.

3.2.2 Evaluation of national investment plans, subsidy programs and public procurement

A second type of public institution with increasing corporate sustainability information needs are ministries and agencies that administer national investment plans, public procurement and subsidy programs. As these government expenditures are increasingly tailored to support the transition towards carbon neutral and sustainable economies, ministries and other public institutions need corporate sustainability information to develop effective programs, define credible and useful selection criteria and carry out evaluations.

Apart from requiring – often country specific – corporate sustainability information for selection and evaluation purposes, public bodies administering subsidy and investment programs also collect extensive and granular information about sustainability related activities of corporations. Yet, to date the information potential of the data that is collected through such programs is not fully explored. An example of such untapped potential for data linkage is the agri-food program within the 54€ billion national investment plan France 2030. The program requires alignment with the DNSH criteria of the Taxonomy Regulation for fundable activities (see *Information Box: Do No Significant Harm*). Currently though data collection and interpretation practices of state operators like the Agence de l'environnement et de la maîtrise de l'énergie (Ademe) or the Banque publique des investissements (BPI), face important shortcomings as data are not compatible, and reliability remains limited.⁶⁴

To match data requirements and data generation by public institutions involved in the disbursement and monitoring of investments, subsidies and procurements, making granular information available on an integrated data platform like the European Single Access Point (see *Section 4* for further information) would reduce the effort for ministries and funding receivers. Project evaluations after the funding period could, in turn, also be shared via a platform like the ESAP. Identifying gaps and trends of the sustainability transition on national level, harbours the potential to stimulate technological innovation and identify and support regional synergies.

⁶⁴ Source: Interviews and field research 2023.

Information Box: Transition plans⁶⁵

A transition plan articulates how a company will ‘take credible, immediate term steps as an effective way of translating the international decarbonisation challenge into a company’s operational roadmap to transition its strategy and operations to align with the 1.5°C trajectory recommended in the Paris Agreement.’⁶⁶ A transition plan therefore communicates the strategies and steps that companies aim to take to fulfil their decarbonisation targets. As opposed to other sustainability indicators (which report current or past performance) a transition plan is forward-looking and provides information about a company’s future activities and investments.

Transition plans can be categorised into three types: (1) voluntary, non-binding communications from companies; (2) mandatory transition plans that are disclosed in accordance with reporting requirements (e.g. those set out in the CSDDD and CSRD); and (3) prudential transition plans that financial institutions communicate to financial regulators (but not to the public) to comply with the updated provisions of the Capital Requirements Directive (CRD V).

Companies are free to choose the content and form of Type 1 transition plans even if they might align with a framework such as the Science Based Target Initiative (SBTI). Type 2 transition plans are governed by the provisions of the corresponding regulation and Type 3 transition plans are governed by the supervisory expectations of the ECB, the EBA and National Competent Authorities.

In theory, Type 2 transition plans are the most consistently governed format (although note that the ESRS apply from 1 January 2024 for financial years beginning on or after 1 January 2024). But it is yet to be seen whether that their scope and level of detail will be enough to be useful for the data users discussed in this section. In their current form, the requirements for what should be included in Type 2 transition plans exclusively focus on climate mitigation. Accordingly, companies are required to set GHG emissions reduction targets and identify decarbonisation levers as well as investments that will contribute to achieving targets. Additional provisions cover governance and business strategy aspects, potential lock-in effects of high-emission/energy assets and the role of supervisory bodies.

The focus on energy and climate change means that the forward-looking focus of transition plans does so far not make any references to impacts and dependencies in any given geographic area, even though spatial aspects come into focus indirectly with regards to the energy transition. If such geographic information on renewable rollout plans was to be disclosed, this would, for instance greatly benefit spatial planning authorities. This is because knowledge of the geographic distribution of planned renewable energy facilities would enable authorities to assess the capacities and necessary regulatory actions to secure the availability of zones for renewable energy projects.

3.2.3 Official statistics

A third user type that is increasingly interested in structured data about companies’ sustainability are national statistical offices (**NSOs**). The surging interest of NSOs in sustainability data reflects the fact that structured information about the state of the climate transition of national economies is critical for governments. Nonetheless, corporate sustainability information is not suitable for official statistics and their quality standards yet. Considering these discrepancies, NSOs as well as central banks (in their capacity as official data providers) have turned their attention to experimental statistics that include efforts to analyse corporate sustainability reports in collaboration with universities despite the challenges due to changing methodologies and inconsistencies within these documents.⁶⁷

In addition, central banks and NSOs seek to validate and enhance the quality of sustainability information by linkage with administrative data. Examples of these data sets include the EU ETS emission trading data contained in the European Union Transaction Log (**EUTL**), which provides aggregated data by country, by main activity type and by year on the verified emissions, allowances and surrendered units of the more than

⁶⁵ Dikau, S. et al., 2024, Prudential Net Zero Transition Plans: The Potential of a New Regulatory Instrument.

⁶⁶ Say on Climate, 2024, Climate Transition Plans

⁶⁷ See for example BIS, 2024. Project Gaia https://www.bis.org/about/bisih/topics/suptech_regtech/gaia.htm

15,000 stationary installations reporting under the EU emission trading system.⁶⁸ Another administrative data source is the European Pollutant Release and Transfer Register (**E-PRTR**), which provides public access to key environmental data from industrial facilities in Member States, Iceland, Liechtenstein, Norway, Switzerland, Serbia and the UK. The E-PRTR contains information about 50,000 industrial facilities operating in the EU, which can contribute to air, water and soil pollution.⁶⁹ Further data sources that are linked to corporate sustainability aspects are registries of environmental impact assessments⁷⁰, biomass production statistics⁷¹ and licences.⁷² In some cases, asset-ownership databases from academic and private providers might be required to link the data from the registries to companies. Finally, ongoing data collection exercises such as the Finnish Real Time Economy Project intend to build up an environment where eInvoices and eReceipts form the basis of structured financial reporting for all ecosystem participants.⁷³ Adapting corporate sustainability information to formats which can communicate with data sources and data collection efforts such as the ones mentioned above could bring great benefits regarding validation and deliver complementary information to close data gaps. In the long run such data linkage has even the potential to reduce reporting burdens for companies as cross-referencing could make duplication of information sharing redundant.

3.2.4 Prudential regulation and risk management

Considering the increased relevance of climate and environmental related risks for financial stability, financial supervisors and prudential regulators are an important user group for corporate sustainability information (particularly from financial institutions). By way of example, the ECB has reviewed sustainability reports and *Pillar 3 disclosures* of financial institutions to assess bank compliance with supervisory expectations regarding management of climate and environmental risks.⁷⁴ Having found the disclosed information to be inadequate regarding completeness, substantiation and soundness, the ECB has issued warning letters to lagging institutions and imposed fines on four banks with consistently poor disclosures.⁷⁵

Outside of Europe, Malaysia's Joint Committee on Climate Change (JC3) has since 2022 published a data catalogue on climate related data for the financial sector. The data catalogue notably differentiates the aggregated data sources by use case and has led to exchanges and collaborations between financial regulators, industry and the Malaysian statistical office to close data gaps.⁷⁶ In addition, it has been proposed to use the information in transition plans for regulatory purposes (see *Information Box: Transition plans*). Accordingly, prudential supervisors could base regulatory interventions such as exposure limits, capital surcharges (under the *Pillar 2 Supervisory Review and Evaluation Process*) or force board re-organisations on the misalignment of bank transition plans with reference pathways.⁷⁷

⁶⁸ European Environment Agency, n.d., Emissions Trading Viewer. NGFS, 2024, Improving Greenhouse Gas Emissions Data, p. 18.

⁶⁹ European Commission, n.d., European Pollutant Release and Transfer Register (E-PRTR)

⁷⁰ UVP-Verbund, n.d., UVP-Verbund Portal

⁷¹ Bundesanstalt für Landwirtschaft und Ernährung (BLE), n.d., NABISY Portal.

⁷² Rohstofftransparenz, n.d., Lizenzregister und Verträge.

⁷³ European Commission, 2023, Finnish Real-Time Economy Project.

⁷⁴ As mandated by the specification of the ITS on the reporting requirements of the CRR Article 449a on ESG risks. Commission Implementing Regulation (EU) 2022/2453 of 30 November 2022 amending the implementing technical standards laid down in Implementing Regulation (EU) 2021/637 as regards the disclosure of environmental, social and governance risks (Text with EEA relevance).

⁷⁵ European Central Bank, 2023, The Importance of Being Transparent: A Review of Climate-Related and Environmental Risks Disclosures Practices and Trends.

⁷⁶ JC3 Malaysia, n.d., Data Catalogue. NGFS, 2024, Improving Greenhouse Gas Emissions Data, p. 20ff.

⁷⁷ Dikau, S. et al., 2024, Prudential Net Zero Transition Plans: The Potential of a New Regulatory Instrument, *Journal of Banking Regulation*

Information Box: Do No Significant Harm

The Do No Significant Harm (**DNSH**) principle is a key concept in the evolving sustainable finance framework and an integral element in the Taxonomy Regulation and the SFDR.⁷⁸ Under the Taxonomy Regulation, the DNSH principle is applied when assessing whether an economic activity is environmentally sustainable. Alongside technical screening criteria to determine whether an economic activity substantially contributes to an environmental objective, there are technical screening criteria to determine whether the economic activity does no significant harm to any environmental objective.⁷⁹ An economic activity must comply with both sets of technical screening criteria to be considered as environmentally sustainable. This assessment is carried out at the level of the economic activity and therefore applies to both non-financial and financial undertakings.

Under the SFDR, relevant financial institutions apply the DNSH principle when assessing whether sustainable investments of financial products comply with the DNSH principle established in the definition of sustainable investment in the SFDR. This is done by considering the principle adverse impact (**PAI**) indicators which have been established in delegated legislation.⁸⁰

There are several papers which critique the specific details of either the DNSH technical screening criteria⁸¹ or the PAI indicators. But the main issue with the DNSH concept is the variable formulation across the different pieces of legislation and lack of precision about how to define significant harm. This has meant that the Commission has had to issue various clarifications of how the DNSH principle should be interpreted in specific circumstances.⁸²

But a critical issue in view of the focus of this paper is the extent to which external data sources inform the application of the DNSH principle. At present the application of the DNSH principle broadly follows the same corporate-centric approach which has been critiqued elsewhere in this paper. Therefore, the extent to which external data sources can inform the assessment of DNSH is not clear. This means that if the records of a local municipality show that a 'harm' is being committed, it is by no means clear how this data should inform the assessment of DNSH of organisations operating in that geographic region or financial institutions linked to those organisations.

For example, the harm might be the result of the aggregate activity of all organisations operating in that geographic region (therefore what does this mean for an individual organisation). Or the harm might not fit into the required definitions in the relevant legislation and there may be no mechanism to link the organisation's DNSH assessment to these local records. At the same time, just as the local records might not be integrated into the DNSH assessment of relevant organisation, the DNSH assessment of these relevant organisations may be of limited utility for local records.

⁷⁸ Note also that the DNSH principle also features in the Benchmark Regulation.

⁷⁹ Commission Delegated Regulation (EU) 2023/2486 of 27 June 2023 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to the sustainable use and protection of water and marine resources, to the transition to a circular economy, to pollution prevention and control, or to the protection and restoration of biodiversity and ecosystems and for determining whether that economic activity causes no significant harm to any of the other environmental objectives and amending Commission Delegated Regulation (EU) 2021/2178 as regards specific public disclosures for those economic activities, Commission Delegated Regulation (EU) 2023/2485 of 27 June 2023 amending Delegated Regulation (EU) 2021/2139 establishing additional technical screening criteria for determining the conditions under which certain economic activities qualify as contributing substantially to climate change mitigation or climate change adaptation and for determining whether those activities cause no significant harm to any of the other environmental objectives

⁸⁰ Commission Delegated Regulation (EU) 2022/1288 of 6 April 2022 supplementing Regulation (EU) 2019/2088 of the European Parliament and of the Council with regard to regulatory technical standards specifying the details of the content and presentation of the information in relation to the principle of 'do no significant harm', specifying the content, methodologies and presentation of information in relation to sustainability indicators and adverse sustainability impacts, and the content and presentation of the information in relation to the promotion of environmental or social characteristics and sustainable investment objectives in pre-contractual documents, on websites and in periodic reports

⁸¹ For example EEB is of the position that the DNSH criteria for a circular economy are 'set in an unharmonised and seemingly arbitrary way.' EEB, 2022, 'Do No Significant Harm' to Circular Economy in the Climate Taxonomy Analysis and recommendations

⁸² See summary of these clarifications in ESMA, 2023, 'Do No Significant Harm' definitions and criteria across the EU Sustainable Finance framework

4. Roadmap recommendations

This section elaborates recommendations to improve the architecture for corporate sustainability information to address the problems identified in this paper. Given that the corporate-centric approach to disclosure of sustainability information is hard wired into the entire EU regulatory framework, these recommendations do not propose a fundamental rewrite of the substantial number of existing regulations and directives which reflect this principle. Rather, we propose enhancing key aspects of the existing regulatory framework to increase the utility of sustainability information which is already provided.

4.1 Integrate a facility for data aggregation into the European Single Access Point

The recently agreed ESAP Regulation⁸³ (together with its associated texts) provides for a European single access point (**ESAP**) for financial and non-financial information on European entities to be operational from 10 July 2027. All information disclosed by regulated entities under the 35 regulations and directives identified in the legislation will be publicly accessible through the ESAP. The information will be collected in three phases,⁸⁴ and information disclosed under the Accounting Directive and the SFDR will only be available from 10 January 2028. The ESAP does not create any new disclosure requirements in terms of content but builds upon existing disclosure requirements contained in the 35 regulations and directives listed in the legislation. And while the ESAP is primarily designed for investors, financial analysts and market intermediaries, there is recognition that easier, European-wide access to reports may also be useful for other users such as civil society, academia, supervisory authorities and other public authorities. Therefore, they will be relevant for a wide range of different users.

Once operational, the ESAP will provide centralised electronic access to a substantial amount of corporate sustainability information. This data can then be mass-downloaded for further analysis and linkage by financial institutions, public authorities, statistical agencies, academia and other users. As a central repository for regulatory disclosures, the ESAP can thus improve data accessibility by providing users with aggregated raw data on sustainability aspects (that is the tagged disclosures by companies) as an alternative to the proprietary products of commercial data vendors. This can have multiple benefits: auditors and financial prudential agencies/financial supervisory agencies would have access to additional information for credibility checks. In cases, where regional or national disaggregated data is available or can be linked to alternative higher-granularity data (see *Recommendation 4.3*), these disclosures could also feed into national or regional materiality assessments of economic activities. These assessments could in turn provide guidance for corporate materiality assessments and support the harmonisation of materiality concepts within sectors or regions.

However, the potential for information exchange through the ESAP remains constrained by the fact that at present the unit of analysis for this information is still the corporate entity. And while there are provisions dealing with ensuring information is accompanied by meta data, being in a data extractable format or machine readable, at present there is no development plan in relation to how data might be aggregated and categorised (for example with the assistance of additional data tags) to collect all relevant information for a defined (geographic) scope.

Much of the implementing legislation to establish the detailed requirements for ESAP is still to be developed. It would be highly beneficial to assess if this could include a focus on how the information available in ESAP could be categorised, aggregated and linked in different ways to increase utility for different user groups

⁸³ Regulation (EU) 2023/2859 of the European Parliament and of the Council of 13 December 2023 establishing a European single access point providing centralised access to publicly available information of relevance to financial services, capital markets and sustainability

⁸⁴ The first phase will cover information relating to the Transparency Directive, the Prospectus Regulation and the Short Selling Regulation and will begin on 10 July 2026. Subsequent phases will begin on 10 January 2028 and 10 January 2030 and will expand the scope of information to the 35 regulations and directives.

including public institutions. Inspiration for such a categorisation could be taken from already existing data repositories like the Malaysian JC3 data catalogue (see *Section 3.2.4*). Introducing these functionalities would not necessitate any additional reporting burden on regulated entities but could be achieved within the data structure of the ESAP itself. Alternatively, the Commission could also explore setting up a separate entity that processes, aggregates and categorises the disclosed information.

4.2 Introduce a requirement for sustainability data points to be georeferenced

As articulated previously, there are only limited requirements to disclose the geographic area which data relates to. With information being provided at corporate or consolidated level with no spatial reference, it is not possible to identify what data refers to a given geographic area which is relevant to local or regional decision-making.

Introducing a requirement for certain sustainability data points to be geographically specific is a critical step to increasing the utility of corporate sustainability information. Alongside the suggested development of ESAP to enable data aggregation and categorisation (as referred to in the previous recommendation) a geographic data tag would be an efficient means to ascertain what sustainability impacts and dependencies are apparent for a given geographic area.

Introducing a requirement for sustainability data points to be geographically specific would require amendment to the disclosure requirements already enshrined in regulation (notably the CSRD and the ESRS). And admittedly in view of the vast amount of different disclosure requirements this would not be an easy process from a legislative point of view. However, regulated entities must already collect and aggregate information from different geographic locations to prepare their own consolidated or entity level disclosures – therefore the additional reporting burden to disclose this information alongside may not be as significant as initially feared, especially if only a number of well-established indicators is targeted. In addition, there is also the new ESRS requirement that when needed for a proper understanding of material impacts, risks and opportunities, the undertaking shall disaggregate the reported information (see *Information Box: The importance of materiality*).

In view of this, EFRAG should be mandated to examine the technical feasibility of introducing these requirements as part of its ongoing role in the development of EU sustainability reporting standards.

4.3 Integrate and link different data sources

As a corollary to the introduction of georeferenced sustainability data points, linking corporate sustainability information to alternative sustainability data sources should be explored. Currently a great wealth of company-linked sustainability information is produced through practices like licensing, public investment or EU subsidy programs and environmental impact assessments. For example, the receipt of agricultural subsidies within the Common Agricultural Policy is dependent on the strict observation of production-related requirements (Cross Compliance controls). In addition, EU and national environmental and meteorological agencies as well as regional planning authorities and municipalities collect information on the state of and pressures on various eco- and social systems. This data includes regional and national maps and cadastres with environmental information and legal environmental restrictions and is often made public through maps and other visualisation tools.

Community-based monitoring and information systems (**CBMIS**)⁸⁵ are already producing data on community strategies, needs and resources. CBMIS are already practiced in various contexts and ‘refer to initiatives by indigenous peoples and local community organisations to monitor their community’s well-being and the state

⁸⁵ Ferrari, F., et al., 2015. Community-based monitoring and information systems (CBMIS) in the context of the Convention on Biological Diversity (CBD). *Biodiversity*, 16(2-3), 57-67.

of their territories and natural resources, applying a mix of traditional knowledge and innovative tools and approaches.⁸⁶ Finally, NSOs have started to collate data from various sources with an eye towards creating sustainability databases that match the quality criteria of official statistics (see *Section 3.2.3*).

Exploring how these different data sources could be linked with corporate sustainability information could help to fill data gaps and validate corporate reporting (including materiality assessments). Given the early stage of data generation and linkage, the Commission in collaboration with the European Environment Agency (**EEA**) as well as Eurostat and NSOs should explore possibilities for linking the currently disparate datasets. In this context, setting up research projects or commissioning studies could be a first step for a proof of concept.

4.4 Stocktake of use cases and users of sustainability information

As illustrated in *Section 3.2*, EU level and national authorities are increasingly exploring the use of corporate sustainability information for policy making and regulatory tasks. However, while different authorities have already started to work together on various aspects, to date there is no comprehensive overview of the interinstitutional relationships and data uses. Consequently, a stocktake of existing and planned uses of corporate sustainability information would be a valuable exercise as institutions and agencies can learn about best practices and identify data gaps.

Relatedly, bringing together different user groups with interest in corporate sustainability information could contribute to capacity building. In this context, it has been noted that in many cases financial supervisors so far lack the capacity to assess the veracity of disclosed sustainability information and thus might benefit from greater collaboration with other agencies.⁸⁷ Such collaboration might also help with the design of regulatory interventions aimed at correcting misalignment of financial institutions with sustainability transition pathways (as these must be legitimised by technical expertise on the sustainability issues in question which is something that financial supervisors (largely) do not possess in-house⁸⁸). Hence, establishing institutionalised channels for technical communication amongst the different users of sustainability data could enhance the quality and legitimacy of regulatory interventions.

In this context it is worth noting that an implication of increased exchange between EU and Member State policy and regulatory institutions from finance and other contexts (e.g. environmental agencies, statistical offices, secretariats and ministries tasked with industrial policy) is that the unit of analysis for data aggregation and the possibilities for data linkages (see *Recommendation 4.3*) must be considered. Since data, assessments and strategies of actors outside of the financial sector tend to be aggregated on (sub)-national boundaries, checks on the veracity or alignment of company-disclosures can only be undertaken if the disclosed data can be matched and rescaled accordingly.

⁸⁶ Forest Peoples Programme, 2015, Community-Based Monitoring and Information Systems

⁸⁷ European Central Bank, 2023, The importance of being transparent A review of climate-related and environmental risks disclosures practices and trends.

⁸⁸ Dikau et al., 2024, Prudential Net Zero Transition Plans

5. Conclusion

This paper has articulated several conceptual issues associated with the corporate-centric approach to the provision of sustainability information and how this limits the utility of this significant volume of information for data users outside of finance. To address these issues, we have identified several recommendations to increase the quality and utility of sustainability information which is already provided (rather than a fundamental rewrite of the substantial number of existing regulations and directives).

Beyond increasing the quality and utility of sustainability information, a change of perspective from corporate centric towards linkable and georeferenced sustainability information may also help reframe some longstanding debates in sustainable finance. Many of the existing debates on issues like reporting burden, data quality, real world impact of sustainable finance and utility of sustainability information can – at least partly – be linked to the corporate-centric, geography-agnostic approach. And some of the ambiguities pertaining to concepts like double materiality, transition plans and the DNSH principle could be addressed by relaxing the corporate-centric focus.

Debates

- **Data quality and reporting burden** are often presented as a trade-off because generating high-quality sustainability information represents a cost for disclosing organisations. But once the explicit focus on the corporate entity as the exclusive source of corporate sustainability information is removed and data linkage with public interfaces and registries is enabled (giving users a starting point for assessing sustainability issues) this trade-off might become less important.
- While the role of the financial sector in steering the economic transition at macro level is often highlighted, it is hard to quantify the actual **impact of sustainable finance**. Similarly, the assumption that increased disclosure of sustainability information will contribute to reorienting both investment flows and company activities as financial institutions exercise a soft control function remains untested. Removing the exclusive focus on the corporate entity and enabling data linkage with public interfaces and registries could produce more robust assessments of the role and impact of the finance sector in the transition towards a sustainable economy.
- The **utility of corporate sustainability information** is limited by the current landscape of unstructured reports and heterogeneity of metrics and methods, which make comparisons hard. The corporate centric approach also limits the universe of potential data users as local and national stakeholders cannot meaningfully process or link the reported data. Once the explicit focus on the corporate entity as the exclusive source of corporate sustainability information is removed and data linkage with public interfaces and registries is enabled, the utility of sustainability information can be significantly increased.

Concepts and Instruments

- The concept of **double materiality** has been subject to criticism regarding its implementation. Improving the current focus on the corporate level for conducting the materiality assessment and linking the sustainability information to public interfaces and registries could help to overcome this issue. A more detailed analysis of sustainability-related impacts at national or regional level would enable a more grounded assessment of materiality as policy documents and national and regional statistics and other data could be used to inform the assessment.
- **Transition Plans** have been singled out as a key development in sustainability reporting as they offer a forward-looking perspective. Nonetheless, the current climate focus needs to be combined with a spatial dimension to prevent conflicts between different environmental objectives (e.g. European land take and climate targets). To date, there are no methodologies to judge the credibility of a corporate transition plan. And if corporate transition plans are not harmonised with spatial transition plans, conflicts and risks can arise as planning authorities cannot integrate corporate plans if they are not on regional level. Georeferencing information in corporate transition plans and linking them with plans and strategies of private and public actors could help with both the structure and the evaluation of these instruments.

- The application of the **DNSH principle** broadly follows the corporate centric approach and the extent to which external data sources can inform the assessment of DNSH is not clear. This means that if the records of a local municipality show that a 'harm' is being committed, it is by no means clear how these records should inform the assessment of DNSH of organisations operating in that geographic region or financial institutions linked to those organisations. Enabling data linkage with public interfaces and registries could significantly enhance the effectiveness of this principle.

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