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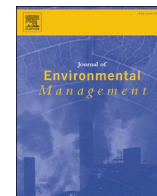
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Research article

European sustainability reporting standards: An assessment of requirements and preparedness of EU companies

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ABSTRACT

The newly released European Sustainability Reporting Standards (ESRS) are a distinctively holistic legal instrument designed to enhance the disclosure of the sustainability performance of companies across the European Union (EU). However, there is currently a lack of evidence as to what the standards are and how prepared companies are to comply with the ESRS. Through an analysis of secondary sources for 20 EU companies, this study therefore aimed to identify the preparedness of EU-based companies. Results indicate that there is substantial variation in preparedness; larger firms exhibit higher levels of alignment with the ESRS, whereas small and medium-sized enterprises (SMEs) struggle with resource limitations and insufficient external support. This timely and unique study contributes novel insights into the variable preparedness of companies transitioning to new, EU-wide compliance standards, and the factors involved in large-scale implementation. Such insights provide direct implications for regional-level policy implementation.

1. Introduction

Sustainability reporting is the organisational disclosure of information about their broader dimensions of performance and impacts, and is often characterised by three main components: environmental, social and governance (ESG) (Aureli et al., 2020). The environmental components relate to an organisation's impact on the environment, including energy usage, greenhouse gas emissions, water consumption, waste management and biodiversity protection, among others (Adams and Abhaya-wansa, 2022; Janik et al., 2020). The social elements relate to an organisation's impact on society, including labour practices, community

engagement, health and safety, as well as diversity and inclusion. Finally, the governance components are related to an organisation's governance structure and practices, including board composition and diversity, ethical practices, risk management, compliance and transparency (Aureli et al., 2020; Bosi et al., 2022). Sustainability reporting aims to provide transparency, hold organisations accountable for their impacts on society and the environment, and demonstrate commitment to sustainable development (Meutia et al., 2021; Swarnapali, 2020). A summary of sustainability reporting features is outlined in Table 1, below.

Evidence suggests that regulatory frameworks can significantly

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Table 1
Key features of sustainability reporting.

Transparency: Providing stakeholders with a transparent view of an organisation's sustainability performance.	Accountability: Holding organisations accountable for their impacts on society and the environment.
Performance Improvement: Encouraging organisations to improve their sustainability performance over time.	Stakeholder Engagement: Engaging with stakeholders and responding to their concerns and expectations regarding sustainability.
Value Creation: Demonstrating how sustainability practices contribute to the long-term value creation of the organisation.	Reputation: Enhanced reputation and brand value.

Source: the authors.

accelerate corporate action on climate change, linking structured reporting to improved environmental performance and reduced carbon footprints (Armstrong McKay et al., 2022). Examples of standards and frameworks that have been used to guide organisations in sustainability reporting include (1) the Global Reporting Initiative (GRI) which provides a comprehensive set of indicators covering environmental, social, and governance aspects (Ismail et al., 2021; de Villiers et al., 2022), (2) the Sustainability Accounting Standards Board (SASB) which focuses on industry-specific sustainability issues that are most likely to impact financial performance (Hales, 2021; Sahib and Malik, 2023), (3) the Task Force on Climate-related Financial Disclosures (TCFD), which provides a framework for reporting climate-related financial information (Nisanci, 2021) (Financial Stability Board (FSB), 2023), and (4) the United Nations' Global Compact, which encourages businesses to adopt sustainable and socially responsible policies (Podrecca et al., 2022; United Nations' Global Compact, 2025).

Despite their increasing significance globally, existing sustainability reporting frameworks have been heavily criticised. In terms of practical implementation, evidence suggests that some organisations may not be fully aware of the benefits or clear business case for investing in sustainability reporting (Tang and Higgins, 2022) or how to go about it (Deloitte, 2024). This can include resource constraints in terms of environmental or social impact data availability and quality, alongside the human, economic and technological resource constraints to be able to generate and interpret them, especially for smaller organisations (Christensen et al., 2021; Söderholm, 2020). Similarly, some key stakeholders, including investors and consumers, may not fully understand or appreciate the significance of sustainability reports (Dissanayake et al., 2021). In each of these cases, the prevailing focus on short-term financial performance and among investors can detract from the attention given to long-term sustainability goals (Rosati and Faria, 2019). Here, evidence highlights a significant risk that sustainability reports might become seen as marketing tools rather than genuine attempts to understand and communicate an organisation's sustainability performance, leading to scepticism among stakeholders (Xiao and Shailer, 2022).

Critically, evidence highlights that in some industries and jurisdictions, there can be a lack of regulatory requirements or support for sustainability reporting (Dissanayake et al., 2021). As such, there can be limited external pressure or demand from stakeholders for sustainability reporting (Sun and Zaina, 2024), which translates into a lack of standardisation and global alignment (Adams and Abhayawansa, 2022). Here, the lack of a single, universally accepted standard can lead to inconsistencies in reporting practices and comparison across organisations and countries. As an example, the GRI emphasises comprehensive ESG coverage but struggles with sector-specific clarity, which can complicate comparative analyses (Ismail et al., 2021). Conversely, the SASB provides industry-specific guidance, but its financial focus limits its applicability across sectors (Hales, 2021). Importantly, the absence of integrated 'double materiality' perspectives across these frameworks has further restricted their utility for organisations aiming to address

broader environmental and societal impacts (Aureli et al., 2020). Moreover, the complexity of these issues has led to guidance around the interoperability between EU and other international standards, created by the European Financial Reporting Advisory Group (EFRAG) (EFRAG & IFRS, 2024).

Overcoming these widespread challenges require a concerted effort from organisations, policymakers, standard-setting bodies, and other stakeholders (Dissanayake et al., 2021). It is with this logic, and within the broader political aspiration to accelerate progress, that the EU established the first set of European Sustainability Reporting Standards (ESRS) in 2023 for implementation by 2025 (Official Journal of the European Union [OJEU], 2022; OJEU, 2023). The ESRS represents a significant departure from prior frameworks by mandating the application of the 'double materiality' approach. Unlike its predecessors, ESRS integrates sustainability risks and organisational impacts with an equal focus on financial and non-financial disclosures, providing a holistic view of sustainability performance (Adams and Abhayawansa, 2022), and thereby aligning more closely to the United Nations' (UN) Sustainable Development Goals (SDGs) and enhancing relevance and applicability across diverse sectors. Compared to alternative standards, ESRS's distinctive approach requires the disclosure of the full spectrum of sustainability impacts, thereby supporting organisations in identifying a greater range of opportunities and risks, and in turn, incentivising longer-term value creation through more robust sustainability planning (Parrondo, 2024).

The ESRS, therefore, is not only significant because of its mandatory reach across a region, but it is also a distinctively holistic approach to compliance. At the same time, due to its recent and rapid emergence, little is known about its requirements and the preparedness of organisations in meeting new compliance requirements at such a scale. This timely and unique study therefore aims to examine the ESRS requirements and the preparedness of EU companies to align with those standards, hypothesising a heterogeneous preparedness from a variety of resource constraints. The paper is organised as follows: the next section discusses the role of reporting standards generally, and the new ESRS more specifically to provide an analytical framework to examine preparedness. Following this, we outline the methods used in the study, the analysis of secondary sources for 20 EU companies. The next section then presents and discusses the results emerging from this study. And finally, conclusions are presented, with recommendations for policy and future research. Ultimately, this study highlights the heterogeneity preparedness for the new standards, which is critical for a range of companies in their legal compliance across the EU, but also the wider support infrastructures to enable and facilitate the standards which are aspirationally designed to accelerate progress in achieving the SDGs.

2. The European Sustainability Reporting Standards

Scientific evidence suggests we are far from meeting the SDGs and that we are pushing past planetary boundaries that support life on the planet (Armstrong McKay et al., 2022). Within this context, governing frameworks are increasingly recognised as providing a universal language that share meaning across countries, institutions, organisations, or communities and drive effective action (Haas and Ivanovskis, 2022). Here, as declining socioecological living conditions become more visible, expectations of organisations to report their sustainability performance will increase (Pattberg and Bäckstrand, 2023). This partly explains a trend that was recognised a decade ago which recognised that voluntary reporting was not delivering sustainability achievements at the pace required (Hess, 2014). It is within this wider context that the European Commission adopted the ESRS on the July 31, 2023, for first application in the 2024 financial year and subsequent publication of the reports in 2025.

The ESRS applies to "Large undertakings, and small and medium-sized undertakings, except micro undertakings, which are public-interest entities" (OJEU, 2022: Art. 19 (1)), which constitutes a

change from previous regulation, which only applied to large undertakings. The ESRS requires these organisations to clearly identify the “information necessary to understand the undertaking’s impacts on sustainability matters, and information necessary to understand how sustainability matters affect the undertaking’s development, performance and position” (OJEU, 2022: Art. 19a). This includes a contextualising description of the business model and strategy, alongside a description of the risks, resilience, and opportunities of the model and strategy adopted in relation to sustainability. Importantly, it also requires a statement of

the plans and actions ... and related financial and investment plans, to ensure that its business model and strategy are compatible with the transition to a sustainable economy and with the limiting of global warming to 1,5 °C in line with the Paris Agreement [...] the objective of achieving climate neutrality by 2050 [...] and, where relevant, the exposure of the undertaking to coal-, oil- and gas-related activities (OJEU, 2022: Art. 19a).

The basic guidelines for the establishment and functioning of the sustainability reporting standards include a description of how organisations take account of their stakeholder interests, how the strategies related to sustainability have been implemented, and sustainability related ‘time-bound targets’ such as “absolute greenhouse gas emission reduction targets at least for 2030 and 2050” and progress towards these, to date (OJEU, 2023). It is expected organisations will report information related to impacts and progress in areas including: (1) climate factors including climate change mitigation, climate change adaptation, water resources, the circular economy, pollution, biodiversity and ecosystems, (2) social rights factors including equal opportunities, working conditions, respect for principles embodied within the International Bill of Human Rights and ‘other core UN human rights conventions, and (3) governance factors including the function, composition and skills of the organisation’s leadership and management roles in relation to sustainability, the organisation’s sustainability decision-making, audit and risk management, ethics within the organisational culture, and how it manages its external relationships with stakeholders affected by its operations (as well as its political activities) (see OJEU, 2023).

The ESRS aims to “ensure the quality of reported information, by requiring that it is understandable, relevant, verifiable, comparable and represented in a faithful manner” (OJEU, 2022). Specifically, it will “specify the forward-looking, retrospective, qualitative and quantitative information, as appropriate, to be reported by undertakings” (ibid). Whilst extensive, the report will, however, “avoid imposing a disproportionate administrative burden” which recognises the challenges “in gathering information from actors throughout their value chain, especially from those which are not subject to the sustainability reporting requirements” (ibid). As such, the report shall “specify disclosures on value chains that are proportionate and relevant to the capacities and the characteristics of undertakings [...], and to the scale and complexity of their activities, especially those of undertakings that are not subject to the sustainability reporting requirements” (ibid). There are exceptions to this, such as reporting which requires an organisation to collect data from small and medium-sized organisations which would not normally be expected to report in the same way (ibid).

At the same time, there are transitional arrangements and flexibilities which are designed to enable companies with less than 750 employees to exclude scope 3 greenhouse gas (GHG) emissions data and disclosure requirements specified in the “own workforce” standard in their first year; they can exclude disclosure requirements specified in the biodiversity and value-chain workers, affected communities, and consumers and end-users’ standards in the first two years. Similarly, in the first year of applying standards, all companies can omit anticipated financial effects related to non-climate environmental issues (pollution, water, biodiversity, and resource use), as well as specific data points related to their own workforce (e.g., social protection). Finally, certain disclosures remain voluntary, including biodiversity transition plans,

specific indicators related to “non-employees” within a company’s workforce, and explanations for considering certain sustainability topics as not material (ibid).

3. Research methods

This study aimed to examine the preparedness of EU companies in complying with ESRS, answering the question: *To what extent do EU companies currently meet the new sustainability reporting requirements?* We examined secondary data sources to address this focus, as an increasingly prominent method in this field (Sideri, 2021; Gatto and Nuta, 2024). We combined both empirical and systematic dimensions with procedural and evaluative steps to perform analysis and produce research findings (Baldwin et al., 2022; Johnston, 2014). Overall, our approach generated analyses using data extracted from relevant documents pertaining to a diverse sample of EU companies.

Sample. For the analysis, we selected 20 companies were chosen to ensure diversity in the sample such as sector, size, turnover, and geographical location within the EU. We used EFRAG’s sector classification for the selection of companies (EFRAG, 2023a,b,c,d): Oil and Gas; Coal, Quarries and Mining; Road Transport; Agriculture, Farming and Fisheries; Motor Vehicles; Energy Production and Utilities; Food and Beverages; and Textiles, Accessories, Footwear and Jewellery. The banking, investments and financial sectors are considered separately by the ESRS as they are prone to distortions in the effective use and quality of sustainability reporting, due to recurring green, blue, pink and rainbow washing (Khan et al., 2021). As such, they are not considered as part of the scope of this study.

Our sample included SMEs since listed companies will be obliged to report their sustainability related data for the first time. The aim was to establish the level of preparedness of EU companies to comply with the ESRS once the delegated regulation entered into force in January 2024, and what their potential duties to meet the new standards as per the requirements. An attempt was made to select EU companies where relevant data was publicly available for meaningful and in-depth data analysis in a comprehensive way. The list of companies chosen in this study, categorised according to their business sectors and origin is presented in Table 2.

Documents. We utilised publicly available documents pertaining to the identified EU companies, given the focus of the ESRS (Baumüller and Sopp, 2021; GawÄ, 2021). The main inclusion criteria for the documents were: (1) the relevance to sustainability reporting, (2) having a geographical focus on the EU, (3) being a credible source such as

Table 2
Companies’ sample for sustainability reporting assessment.

Sector	Companies and country
Oil and Gas	OMV Aktiengesellschaft (Austria) GasTerra B.V. (Netherlands) Repsol (Spain)
Coal, Quarries and Mining	Jastrzebska Spolka Weglowa S A (Poland) Outokumpu (Finland)
Road Transport	DHL Group (Germany) DSV (Denmark)
Agriculture, Farming and Fisheries	Auchan (Group Elo) (France) Bat Agrar (Germany)
Motor Vehicles	Volkswagen (Germany) Renault (France) Airbus (Netherlands)
Energy Production and Utilities	Holaluz (Spain) EDP (Portugal) Polska Grupa Energetyczna (Poland)
Food and Beverage	Ferrero (Italy) Indreca (Spain) Danone (France)
Textiles, Accessories, Footwear and Jewellery	H&M (Sweden) Kirpte (Lithuania)

EU/government and company reports and websites, (4) making use of the most recent available data, and (5) being documents written in English language. Conversely, exclusion criteria included: (1) unverified or unofficial sources, (2) outdated documents, (3) data from reports in languages other than English. This resulted in official EU policy documents, consultancy reports, company reports, and company websites.

Data extraction. Data were then extracted using ESRS instructions and guidelines about what information companies need to report and the way in which they need to report it, including i) cross-cutting; ii) topical; and iii) sector-specific aspects (OJEU, 2023). This includes: ‘Sustainability Statement’, address climate, social and governance issues, including a description of responsibilities; importantly, the documents need to include metrics and targets (OJEU, 2023).

4. Results and discussion

Ferrero, with headquarters in Italy, is one of the largest chocolate confectionary groups in the world, with presence in more than 50 countries spread across a network of more than 100 companies (Ferrero, 2023). Its sustainability reports can be traced back to 2009 (Ferrero, 2010) and from the beginning, have been aligned with the GRI reporting standards. In terms of compliance with ESRS, from Ferrero’s first reports, information is provided on greenhouse gas emissions and reduction targets, action plans, as well as information about governance structures, and actions related to social responsibility and environmental impacts. Importantly, they are already compliant with the requirement of having its sustainability reporting externally certified, with assurance letters added at the end of all reports (Ferrero, 2010, 2023). The ESRS is specifically mentioned in the latest report with steps towards reporting ‘double materiality’ in the following years (Ferrero, 2023). For the moment, the reports include a section on ‘materiality’ (Ferrero, 2022, 2023) but is limited to the assessment of the impacts of their operations and it does not cover risks. It is also worth noting that although there is a section with specific information about the changes over time in CO₂ emissions by Scopes 1, 2 and 3, the beginning of the report highlights that total emissions are increasing.

A different picture can be observed from a giant in the automotive sector, **Volkswagen**, affected by the scandal of the illegal software installed to produce fake NO_x emissions results revealed in 2015 (Bart et al., 2022). The first available sustainability report on their website is for 2017 (Volkswagen, 2018), so it could be argued that sustainability reporting has started as an attempt to improve their damaged reputation. Similarly to Ferrero, it claims to follow the GRI guidelines and its reporting to be externally certified by a third party through ‘limited assurance’. However, the corresponding letters are not part of the report (Volkswagen, 2018, 2023). This information is dispersed across several areas of their website, and it is noticeable that they make the reader visit the annual financial report to access information about sustainability related aspects (Volkswagen, 2023). Risk management and materiality are addressed, but the focus is on the regulatory risks pertaining to emissions and how this will shape the design of new vehicles, rather than environmental and climate related risks (Volkswagen, 2023). There is no mention of ‘double materiality’ nor any reference to European regulation, focusing instead on their compliance with the new German regulation on disclosures and reporting (Volkswagen, 2023).

It is expected that sustainability reporting requirements for SMEs will be more flexible and will account for their limited access to resources in comparison to larger enterprises. In Spain, an alternative stock market is functioning for this type of companies since 2006. The market is called BME Growth, and includes 127 companies (Espallargas, 2022). One such company is **Holaluz** which is dedicated to the installation of solar systems and energy management. Sustainability is mentioned in the main corporate website, with more detailed ESG reporting within the ‘Investors’ section of the website. Reports are available for 2020 onwards, with the latest (for the year 2022) appearing as an integrated report (Holaluz, 2023). It makes specific

mention of the EU taxonomy for the classification of its activities, includes a ‘double materiality’ analysis, analyses company activities by SDGs, measures Scope 1, 2 and 3 emissions, and mentions the existence of a plan to reduce emissions. The company makes a noticeable effort in achieving external recognitions and accreditations, including membership of the UN Global Compact (Holaluz, 2023). Overall, it could be argued that this particular company is prepared for the ESRS. However, it is worth noting that even if classified as SME, the size of the company is considerable (more than 700 employees) and, as a listed corporation, has greater access to financial resources. As such, it is at an advantage compared to other small and micro enterprises.

DHL Group is the world’s leading logistics company in Germany. DHL is engaged in postal and courier services sector including postal and courier activities such as pickup, transport and delivery of letters and parcels. DHL has 600,000 employees worldwide and operates in 200+ countries and territories with 94+ billion Euro revenue generated in 2022 (DHL Group, 2023). Since 2021, DHL has changed its sustainability reporting, and the non-financial statement is now part of the Management Report (Annual Report) and is complemented by the ESG Presentation and the ESG Statbook. In the ESG Presentation, DHL combines all the relevant ESG information and presents various programs with progress. The ESG Statbook includes the published ESG data from 2016 onwards including ESG Disclosure Standards Indices such as GRI, SASB, TCFD and WEF. In the Annual Report 2022, the GRI standard is taken as the main framework for determining material non-financial topics, supplemented by HGB requirements. Key performance indicators (KPIs) are determined in accordance with the HGB (Handelsgesetzbuch - German Commercial Code) and the German Accounting Standard 20 has been applied. DHL is also a signatory to the UN Global Compact and therefore, the Group implements its ten core principles (DHL Group, 2023). DHL’s ESG Roadmap aligns with climate action and environmental protection activities with decarbonisation measures. Additionally, it further defines its strategies towards social responsibility and corporate governance as well as the SDGs. The Roadmap covers ESG aspects of the entire business. Six material topics and KPIs are derived which represent the basis for the alignment of the ESG Roadmap. One of the material topics is climate and environmental protection with a focus on greenhouse gas emissions reduction (Scope 1, 2 and 3), and DHL has environmental targets for 2030. The management and the reporting of these emissions is focused on the reduction of absolute logistics-related emissions (DHL Group, 2023). The company is reporting its contribution to the EU’s environmental objectives of climate change mitigation and climate change adaptation according to the guidelines laid down in the EU Taxonomy regulation.

DSV is a Danish company and is a local and global specialist in air, sea, road, rail transport, logistics solutions, project transport, courier and customs clearance. DSV claims to have strong sustainability ambitions and to be consistently working towards improving its sustainability performance across all ESG areas. DSV has been rated by the international sustainability rating agencies based on their requirements, such as MSCI, Sustainalytics, EcoVadis, the Carbon Disclosure Project (CDP), S&P Global, ISS ESG, FTSE Russel and Moody’s ESG Solutions (DSV, 2024). To meet increasing stakeholder expectations and transparency, DSV appears to be transparent in its ESG performance and its annual sustainability reports are available starting from 2014. In 2023, DSV developed a roadmap for its commitment to reach Net Zero emissions by 2050 in its own operations (Scope 1 and 2) and across its value chain (Scope 3). Its roadmap also has short-term 2030 targets to a 50 % reduction in scopes 1 and 2, and a 30 % reduction for Scope 3 (DSV, 2023). DSV uses several frameworks and reporting standards such as the TCFD to provide reliable information needed by investors and other stakeholders to understand climate-related risks and opportunities faced by the business. The GRI is used as guidance for the sustainability data, and alignment with the topics and metrics within the SASB ‘Air Freight & Logistics’ Standard is highlighted (DSV, 2024).

EDP is a Portuguese electric utilities company which is

headquartered in Lisbon. EDP's businesses are focused on the generation, transmission, distribution and supply of electricity and supply of natural gas. EDP claims to be an ESG leader recognised by top-tier institutions maintaining a leadership position in ESG performance globally. As part of its ESG strategy, EDP addresses a broad range of environmental, social and economic aspects and produces separate reports on different aspects of sustainability such as climate, circular economy, water and biodiversity etc. Historically, EDP has been ensuring consistency and transparency in its corporate reporting system as reflected in its website. EDP is committed to addressing the SDGs and has set concrete goals for nine of the 17 SDGs (EDP, 2022). As part of its decarbonisation plan, EDP has set its targets including being 'coal free' by 2025, 'all green' by 2030, and Net Zero by 2040 (EDP, 2023). EDP's sustainability performance is measured according to the requirements of the standards of the GRI and the Directive 2014 of the European Parliament and the Council of October 22, 2014, that is, disclosure under article 66-B and approval by the general meeting under article 65, both Commercial Companies Code. Additionally, EDP follows other voluntary regulatory reporting frameworks such as the TCFD, SASB, the Portuguese Securities Market Commission, as well as alignment with EU Taxonomy (CMVM) (EDP, 2022).

Polska Grupa Energetyczna (PGE) is Poland's leading power producing company. The company is state-owned. In its third integrated report issued in 2017, PGE declared that it used GRI version of G4 indicators, as well as the International Integrated Reporting Council (IIRC) guidelines (PGE, 2017). The 2017 report's slogan, "We want to shape the responsible energy of tomorrow in our country", summarises the corporation's renewed mission. The Group declares a solid commitment to the SDGs, using ESG criteria including evolutions in the company investments, management, carbon dioxide emissions, and stakeholder inclusiveness. Overall, it explains its rationale is to cope with planetary, corporate, and well-being necessities. Integrated reporting has been discontinued, though, and for instance, we find separate reporting for 'non-financial' aspects in 2022 (PGE, 2022) where the first data on Scope 1, 2, and 3 emissions appear. The same reporting style continues in 2023 (PGE, 2023), showing alignment with the ESRS to report risks and opportunities related to climate change. Here, it offers comparable data of Scope 1, 2 and 3 emissions, showing a decreasing trend. These latest reports include information about the EU Taxonomy regulation.

Jastrzębska Spółka Węglowa SA (JSW) is a lead company, based in the EU Mining, Coal and Quarrying industrial sector, specialising in coke (fuel) production. The group is the first producer of high-quality type 35 (hard) cooking coal. The company's integrated carbon footprint estimation started in 2017, focusing on coal and coke, and estimations focus on the GHG Protocol standard. The Group's carbon footprint report shows the corporation's commitment to greenhouse gas reduction from mining operations (JSW, 2022a). Moreover, the organisation produces an annual report focusing on CSR. Its last version, released in 2022, contains the corporate's environmental strategy (JSW, 2022b), and reports the company's engagement in reducing carbon footprint, improving air quality, biodiversity, circular economy, and land reclamation. On top of that, the Group issues an aperiodic sustainability report, the last one being published in 2022 (JSW, 2022c).

Outokumpu is a steel and chrome producer with headquarters in Finland, does not produce a written sustainability report per se. However, sustainability related data can be found in their website, including Scope 1, 2 and 3 emissions since 2019. The website includes a sustainability area where ESG aspects are covered loosely. They include a commitment to the SDGs but no measurements or assessments about climate change risks and opportunities (Outokumpu, 2024). Similar to other companies, it follows the Science Based Targets Initiative, and updated its targets to reduce emissions in 2021, committing to a 42 % reduction per tonne of stainless steel by 2030 from a 2016 base year. It does not seem to adhere to any of the EU reporting standards per se (and it is worth noting that most of the mining companies operating in EU territory are multinationals (MNCs) with headquarters based out of the

EU).

H&M is a major clothing MNC based in Sweden. The Group declares its prime sustainability goals in relation to three pillars: leading the change, circularity and climate concerns, and fairness and equality. H&M produces an annual sustainability report to track its sustainability achievements and foresee articulate its vision. H&M pioneered sustainability disclosure, but its first full report was issued in 2022. In its last sustainability report (H&M, 2022a), the company sets ambitious goals for halving absolute GHG emissions by 2030 and achieving net zero by 2040. Key sustainability achievements for 2022 include: a reduction in greenhouse gas emissions over previous years; a sharp increase in recycled and sustainable materials; activities and training for workers on gender-based violence and sexual harassment; fostering information on social rights for suppliers; launch of a water strategy 2030; reduction of plastic packaging; and investments for activities beneficial for the community. The Group is preparing additional sustainability disclosure (H&M, 2022b) and sustainability performance reports (H&M, 2020). The company is active in several additional sustainability activities in various sectors all around the world, generating social, economic, and environmental impacts.

On the other side of the spectrum, we find **Kirpė**, a family-based sportswear company with headquarters in Alytus, Lithuania. It is a small company (200 employees) with no sustainability reporting but with an eco-friendly approach and social commitment initiatives as part of the information publicly available on its website (Kirpė, n.d.). It is worth noting that it has received EU funding to innovate its production line, so it can be assumed that they are up to date with the latest EU requirements, even though it is not currently obliged to report it.

Airbus is an EU MNC active in the aerospace industry. As a world aircraft manufacturing leader, the company aims to design and manufacture defence, space, helicopter, and, above all, commercial aircraft. Its headquarters are in the Netherlands, but the corporation has German-French-Spanish-British ownership. The company trailblazes sustainability reporting, as it complies with international sustainability standards, using and disclosing several performance metrics. Airbus has been supporting the TCFD since December 2020 and has been measuring its impact on GHG emissions since 2022 following the Science Based Targets Initiative (SBTi). Additionally, the company follows the GRI standards, the SASB goals, and the UN Global Compact criteria. The MNC has developed a multi-stakeholder approach and conducts the Materiality Matrix annually. The Group publishes an annual report and further non-financial documents (Airbus, 2022). Starting in 2021, Airbus will be the first aircraft manufacturer to disclose its achievements by reporting the in-use emissions of its commercial aircraft (embedded as part of Scope 3, use of sold products).

Danone is an international corporation in the food sector. The company has its headquarters in France. The Group is the largest MNC in fresh dairy products, adult nutrition, and plant-based foods and beverages, and the second largest in packaged water and early-life nutrition. Its business activity pivots mainly around dairy and plant-based products (54 % of the total sales), followed by specialised nutrition (30 % of the total sales), and waters (16 % of the total sales). Most of Danone product sales occur in the West (32 % in Europe and 24 % in North America). Regarding sustainability, the Group declares its first initiatives started in 1972, but its mission to produce healthy foods started in 2009. In terms of other disclosures, 84 % of packaging is reusable, recyclable, or compostable, and 91 % of the Group's products belong to health categories. Last year, Danone redesigned its sustainability roadmap, called the Danone Impact Journey. This blueprint is based on three areas: Nature, People, and Communities, with several targets for the future. The company issues an annual integrated report (Danone, 2022), promoting its activities through various commitments, policies, position papers, and podcasts. Its critical disclosures can be framed within the core priorities and values of health, people, planet, inclusive growth, and the B4IG multi-stakeholder coalition.

OMV Aktiengesellschaft (Austria) and GasTerra (Netherlands) are

two European companies, equally classified as ‘mining’ and ‘petrol’ companies according to HITHORIZONS (2023). We have added both to the ‘Oil and Gas’ sector for our analysis. **OMV Aktiengesellschaft (OMV, 2023a)**, an Austrian MNC in the oil, gas, and petrochemical sectors, with its headquarters in Vienna, Austria. It is engaged in upstream and downstream operations in the oil and gas sector, along with involvement in petrochemicals and the recycling of plastics. Its strategic focus is for OMV to transform into a comprehensive supplier of sustainable fuels, chemicals, and materials, prioritising solutions for the circular economy. Accordingly, the 2030 Strategic Priorities for its Decarbonisation Strategy consists of achieving a 30 % reduction in Scope 1 and 2 emissions, attaining a 20 % reduction in OMV Group Scope 3 emissions, and decreasing the Group’s carbon intensity of energy supply by 20 %. All reduction targets are benchmarked against the 2019 baseline. Interim targets are set for 2030 and 2040, and are established at both absolute and intensity levels, aiming to realize net zero emissions in Scopes 1, 2, and 3 by 2050. For Scopes 1 and 2, OMV aims for an absolute reduction of 30 % by 2030 and 60 % by 2040. In the specified categories within Scope 3, the goal is to achieve an absolute reduction of 20 % by 2030 and 50 % by 2040. Regarding reducing the carbon intensity of energy supply, OMV strives for a decrease of 20 % by 2030 and 50 % by 2040 (OMV, 2023).

OMV is committed to sustainability reporting, delineating the ESG issues deemed most significant to OMV and its stakeholders. OMV has consistently released a Sustainability Report annually since 2008, serving as the company Communication on Progress for the UN Global Compact. The reports, prepared in alignment with the GRI standards, focus on the material topics defined by OMV, providing insights into the company’s accomplishments, challenges, and advancements in sustainability performance throughout the year (OMV, 2023b). Highlights from the OMV Sustainability Report 2022; (OMV, 2022) include an 8 % reduction in absolute Scope 3 emissions versus 2019, 49.5 million EUR in community and social investments, 0.16 % of freshwater withdrawal in water-scarce areas, and a 100 % of new suppliers being screened for social and environmental criteria. In terms of climate change, the targets focus on lowering the carbon intensity of operations, energy supply, and of product portfolio, with each one aiming to be reduced by 30 % in 2025 (Scope 1, versus 2010), by 50 % in 2024 (versus 2019), and by 6 % in 2030 (Scope 3, versus 2010), respectively.

GasTerra B.V. (Netherlands) operates as a wholesale entity specialising in global transactions, procurement, transportation, and distribution of natural and green gases. Its procurement involves the acquisition of gas from both domestic and international producers, as well as transactions on the open gas market. Through these processes, GasTerra ensures a diverse and reliable supply chain, contributing to its position as a critical player in the natural gas industry (GasTerra, 2023a, b). The company caters to electric power stations, energy companies, domestic consumers, and export markets. While soaring prices resulted in a record turnover of 35.5 billion euros, corresponding increases in purchasing costs presented a significant hurdle. According to the company, it maintains a small footprint due to the nature of its activities. Efforts are made to further minimise it whenever feasible, aiming to reduce the environmental impact of its operations. GasTerra offsets the CO₂ emissions of its office buildings, flights, and car leasing by purchasing carbon credits from the Climate Neutral Group (CNG), allowing the company to invest in climate projects in countries where it positively affects the local economy, employment, income, the environment, and the climate. In 2021, GasTerra offset 189 tonnes of CO₂ eq and contributed to the investment in the local production, distribution, and sale of efficient cookstoves, making them widely accessible to households in Africa (compared to 174 tonnes in 2020) (GasTerra, 2023a,b). As in the case of OMV, GRI is expressly cited by the GasTerra Annual Report 2022, highlighting the need to clearly disseminate the performance of the company at various levels (GasTerra, 2023a,b). At the national level, the Netherlands aims to take a leading role in Europe’s efforts to combat global warming, and so its Climate Act encompasses

measures such as intensifying the 2030 CO₂ reduction target to a minimum of 55 %, with an aspiration for 60 %, to achieve climate neutrality by 2050 the latest. Additionally, a climate and transition fund of €35 billion has been allocated, and efforts are underway to enhance the supply of renewable energy sources (GasTerra, 2023a,b).

Repsol is a Spanish MNC in the energy sector with a significant presence in the oil and gas sectors, and operated across 29 countries with 24,000 employees (Repsol, 2023b). It produces 550,000 barrels of oil equivalent per day (net average) through 7 industrial complexes in Spain, Portugal, and Peru (Repsol, 2023c). The company actively works on sustainability and environmental initiatives, committing to reducing its carbon emissions, increasing its use of renewable energy sources, and investing in research and development for cleaner technologies. The company has also been involved in developing low-carbon and circular economy projects, emphasising its commitment to sustainability and responsible practices. It has set a goal of achieving net zero emissions by 2050 (Repsol, 2023d). In 2023, Repsol published its first sustainability report aligned to the ESRS (Repsol, 2023a), providing comprehensive information about its sustainability performance, including its progress towards its net zero emissions goal and its alignment with the SDGs.

Overall, these results demonstrate significant differences in the approaches to reporting, and contrary to previous studies (Christensen et al., 2021; Söderholm, 2020), this does not necessarily relate to the size of the company. The common themes found are outlined in Fig. 1 below. Reporting any type of information related to sustainability is perceived as a good governance practice that can assist with the overall company performance and particularly with their social acceptance (in terms of a social license to operate). Based on the sample of companies analysed here, it can be argued that European MNCs have made a reasonable effort to showcase their adherence to international reporting standards, but not necessarily the EU ones. There is an observable trend towards inclusion of more comprehensive information, particularly with regards to emissions, which contributes to transparency. However, if it is only now that we can see efforts to comply with the regulation approved in 2014, it is reasonable to assume that it will take a number of years for companies to fully comply with the ESRS.

For energy-related companies, including fossil fuel ones, the sector they belong to seems to be a trigger for showing commitment towards the reduction of emissions. Most of the companies analysed have started including information on their emissions reduction efforts and differentiating between Scopes 1, 2, and 3. Reputational aspects seem to be of interest in the automobile sector, as well as the agri-food and clothing sectors, with slogans taking prominent positions in their websites even if reporting on specific measures is not always easy to find. This is particularly the case in the agri-food sector, where companies tend to be part of larger groups and are subject to mergers - such as Auchan being

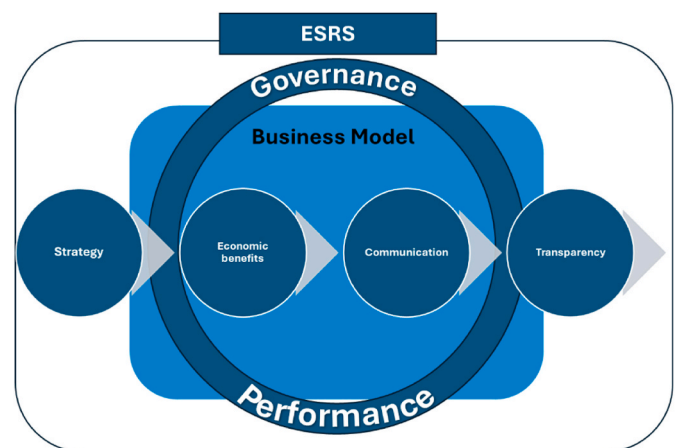


Fig. 1. Some of the common features seen in the sample companies. Source: the authors.

part of the Group Elo (Auchan, 2024), where sustainability reporting is hidden among other information. It is a fair assessment to say that when it comes to the ESRS, the level of preparedness of EU companies is heterogeneous and uneven, and many are likely to be waiting to see what the sector-specific standards mean for them before taking action.

All companies included in the analysis are aligned with the ESRS only in the requirement to include a sustainability statement, but most of them, particularly the smallest ones, are far from compliant with the full requirements. Here, there are significant discrepancies in approaches. For instance, German companies report their compliance with German regulations more than European or international ones, which indicates higher priority given to national laws rather than supranational obligations. A common feature with reporting is the lack of information about ‘opportunities,’ which only a couple of companies mentioned in the most recent report. External certification is also absent in most reports, and compliance on this matter will add extra costs to companies’ activities and reporting, so flexibility in this area may be advisable.

Many companies have established slogans and ambitious targets for ESRS. However, specific metrics and measures are hard to find to back up the achievement of targets and plans. The level of preparedness of EU companies for sustainability reporting is quite uneven. For ESRS, there are discrepancies in approaches and a lack of information about opportunities associated with the reporting for continuous improvement. There seems to be a long way for European companies to fully comply with the new sustainability reporting requirements.

Finally, and as reflected in the extant literature (Christensen et al., 2021; Söderholm, 2020), most SMEs, particularly if not publicly listed, do not provide access to their financial records through their websites, nor do they include any information related to sustainability, whether it is as an area of their website or as a document. When navigating through their specific websites almost no information is provided, other than a description of activities (for example, Mersus Technologies <https://mersus.io/>). An exception was found in Spain, where a company dedicated to the sale of cocoa products (IndcreSA, <https://indcre.com/eng/>), dedicated a specific area to sustainability on its website, though only one very comprehensive sustainability report, for the year 2020 (IndcreSA, 2020).

However, the lack of obligation to report up to now is noticeable in most SMEs, and here, size does matter. Those with more resources and more open to international trade have made an effort to show some sustainability credentials, even if generally with less consistency than larger companies. It should also be recognised the effort required to make information available in English, when it is not the language of the country where those smaller companies are based. In that regard, the flexibility announced by the Commission to be applied to SMEs is welcomed. A particular challenge for SMEs will be the external verification or auditing of the reports, when they have traditionally been exempted from some of the financial accounts validation obligations, and accounts auditing has been progressively decreasing (EFAA, 2019).

5. Conclusions, implications, and future research

This study aimed to examine the level of preparedness among European companies for compliance with the new ESRS, a new and significant legal instrument to drive large-scale change across the EU region. The research successfully met its objective by providing an in-depth analysis of how firms across different sectors are approaching its sustainability reporting and the extent to which they are prepared for ESRS implementation. The results of this study highlight significant disparities in the corporate preparedness for ESRS adoption amongst EU companies, in terms of their ability to fully comply with the new sustainability reporting requirements. Importantly, while many companies have established sustainability targets, the availability of tangible and robust metrics and verifiable evidence to track progress remains inconsistent. Additionally, larger firms, particularly those already engaged in GRI and the TCFD standards, tend to demonstrate higher

levels of alignment with the new standards, and smaller SMEs face considerable challenges to communicate its achievement of the requirements. However, the significant differences in sustainability reporting approach were not solely related to the size of the company. For example, reputational concerns and regulatory pressure appear to be key drivers for sustainability engagement in certain industries, such as energy and manufacturing, while others exhibit a more reactive approach. Similarly, carbon management and emissions reduction were particularly salient in reports from energy sector companies, serving as a key area of alignment with the ESRS. Overall, it seems there is a long way ahead for European companies to fully comply with the new sustainability reporting requirements.

These are novel and significant insights given the large-scale reach and emerging impacts of the new EU-wide ESRS and the lack of current evidence in this field. On a practical level, our findings demonstrate specific gaps in reporting that European companies, particularly MNCs, need to work on, such as the aforementioned distinction between risks and opportunities. Here, it would also be beneficial for transparency purposes that there is a more comprehensive classification of climate risks, to prevent the limitation of reporting simply on legal requirements, with more information about effects on companies’ assets and overall strategies. Critically, implementing this on a larger scale has the potential to embed the promotion of a more robust, longer-term planning commitment to sustainability and environmental management (Parrondo, 2024). These gaps provide specific directions where the EU or its national support agencies, can provide advices, guidance and support to companies, especially smaller SMEs which may not have the resources to engage in reporting.

Despite its contributions, this study has some limitations. First, it relied on publicly available secondary data, which means it did not access a longitudinal perspective of internal and real-time reporting compliance efforts over time. Second, the research focused on a sample of twenty companies across a limited number of sectors, which, while diverse, does not fully capture the breadth of corporate sustainability reporting practices across the EU. Future studies should address these limitations by incorporating longitudinal primary data collection through interviews or surveys, and expanding the sample size to include more SMEs and sector-specific variations. In addition to these limitations, the findings highlight two other developments which are likely to impact how reporting practices evolve: the expansion of overlapping global sustainability frameworks, and the rapid emergence of digital reporting tools and AI-driven analytics in enhancing sustainability reporting accuracy and efficiency. Here, understanding how companies navigate overlapping requirements and apply new technologies will inform both international framework design as well as regulator policy advice, support, and guidance. As such, future research will play a crucial role in understanding their long-term impact on sustainability efforts across Europe, and the refinement of ESRS and other large-scale regulatory instruments.

The ESRS has the potential to significantly further the cause of sustainability in enterprises and can lead to greater transparency. If duly harmonised across EU member states to ensure consistency and comparability, ESRS disclosures may positively influence consumer trust and purchasing decisions. Ultimately, the ESRS represents a pivotal step toward a more transparent and accountable corporate landscape in the EU. However, achieving full compliance will require targeted support, particularly for SMEs, as well as ongoing refinement of the standards to balance regulatory ambition with practical feasibility. As the reporting landscape evolves, continued research will be essential in shaping effective sustainability disclosure practices and ensuring that ESRS contribute meaningfully to the broader sustainability transition.

CRedit authorship contribution statement

Walter Leal Filho: Writing – original draft, Supervision, Methodology, Conceptualization. **Tony Wall:** Writing – review & editing,

Writing – original draft, Formal analysis. **Kent Williams:** Writing – original draft. **Maria Alzira Pimenta Dinis:** Writing – review & editing, Writing – original draft, Formal analysis, Data curation. **Rosa Maria Fernandez Martin:** Writing – review & editing, Writing – original draft, Formal analysis, Data curation. **Muhammad Mazhar:** Writing – review & editing, Writing – original draft, Formal analysis, Data curation. **Andrea Gatto:** Formal analysis, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

Data is publicly available.

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