

<https://doi.org/10.1038/s44168-025-00314-6>

Scope 3 emission reporting and the EU Data Act: removing barriers for primary data sharing along the supply chain

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Scope 3 emissions across the supply chain typically account for the largest share of a company's carbon footprint. The EU Data Act can remove barriers to primary data sharing required for Scope 3 emission reporting by unlocking primary emission data currently stored in industrial assets. Such primary data sharing would increase transparency and accountability, and would be a step towards mandatory, more effective reporting regulations.

Tackling Scope 3 emissions, which typically account for the largest share of a company's carbon footprint, is essential for pollution accountability and relies heavily on the availability and sharing of emission data between firms along the supply chain¹ (Table 1). Recent technological developments, particularly the digitalization of processes, increased computational power, and storage capacities, enable the recording and sharing of primary emission data. Sharing this data would increase emission transparency and accountability, and would be a step towards mandatory and more effective reporting regulations^{1,2}. Currently, much of the primary data recorded by firms is locked in industrial assets not available for the exact calculation of Scope 3 emissions, and the latter are still mostly reported based on approximations, such as industry averages and using financial data^{3–5}. This commentary discusses the potential of the EU Data Act to foster primary emission data sharing.

In a recent study, ref. 5 finds that the main challenge in measuring Scope 3 emissions, reported by 70% of firms, is “the lack of data from suppliers”. One potential reason that sufficient emission data sharing does not develop voluntarily is that large emitters or inefficient producers may be reluctant to disclose their emissions. Even efficient firms may hesitate to support full transparency if their value chain includes high-emission suppliers, since accurate reporting by those firms would increase the efficient firm's own reported Scope 3 emissions. Yet, it is reasonable that if efficient firms would share their primary emission data, the industry would converge to a norm of primary data sharing, as non-sharing would signal above-average pollution. Aside from this incentive issue, three barriers are preventing even efficient firms that are inclined to share their primary data from doing so¹: (1) a lack of legal clarity and regulatory concerns regarding, for example, the access to and use of data, the rules for sharing data (the consultation process leading to the Data Act reports that 55% of the respondents reported this as an obstacle for B2B data sharing in general⁶), (2) a lack of harmonized standards to measure Scope 3 emissions and the technical infrastructure for it (reported by 53% of the firms as main

challenge for measuring Scope 3 emissions⁵), and finally (3), the perceived risk of exposing sensitive data (reported by 26% of the firms⁵). In the following, we discuss the potential of the EU Data Act to overcome these barriers for primary data sharing for the calculation of emissions along the supply chain (Scope 3).

As of 12 September 2025, the [EU Data Act](#)⁷ is designated to ease the legal and regulatory barrier. In its Chapter II, it gives users (i.e., owners or lessors) of connected products (ranging from Bluetooth-capable toothbrushes, production machinery to vehicles) the right to receive readily available data generated during their use and/or to pass this data on to third parties without costs to the users. This means that what is available to manufacturers (data holders) will be available, in the same quality and in a commonly used format, including the metadata needed to interpret the data, to the user (see example in Table 2). Notably, the Data Act comes with certain limitations and requires safeguards, e.g., for the protection of personal data or trade secrets. This may require contractual and technical and organizational measures. However, the threshold for the data holder to refuse data access is high, and the vast majority of available data will not be subject to trade secret protection. This obligation will apply to all products sold on the EU/EEA market, regardless of where the extracted data or the data holder is located. Moreover, as of 12 September 2026, connected products newly placed on the market in the EU/EEA will by default have to provide direct access to retrievable product data either at the product or via the manufacturer's infrastructure.

The Data Act applies to all connected products placed within the European Economic Area (EEA) market. Its enforcement is subject to a national enforcement regime of member states with national authorities and dissuasive fines for violations that will need to be enforced under local law. While, at present, none of the member states has issued such implementing legislation, users can claim their access rights as a statutory claim before courts, accompanied by damage claims for the failure to provide data in time. Moreover, even though the Data Act is bound to the EEA, this legislation may have indirect effects beyond this territory. Firstly, because—in a still very globalized economy—makers of products will not necessarily design a Data Act compliant version for the EEA only, but implement the data access requirements into their global product, thus making more data available even where not legally required to avoid maintenance of diverging versions of the same product. Secondly, the requirement to provide data including the ‘relevant metadata necessary to interpret and use the data’ (e.g. Article 3 (1) EU Data Act, ref. 7) will make the interpretation of data that can technically be accessed, possible, even where this is not officially supported by the manufacturer.

The Data Act also touches upon the second barrier, standardization, as Article 33 tasks the Commission to develop standards for data sharing. This process was already kicked off in order to create a ‘European Trusted Data Framework’ that provides interoperability of data, of data sharing

Table 1 | Emission data and scopes

For our purpose, **emission data** refers to data related to pollutant emissions (e.g., greenhouse gases). **Primary emission data** is emission data collected directly from the source of activity (e.g. fuel consumption). **Secondary emission data** is not collected directly from the source of activity, and comes from proxies, models, and industry averages.

A firm's emissions are reported across three scopes: **Scope 1 emissions** are emissions from owned or controlled sources (e.g., company vehicles). **Scope 2 emissions** are emissions from the generation of acquired and consumed electricity, steam, heat, or cooling. Finally, **Scope 3 emissions** include emissions that occur along the supply chain, both upstream and downstream¹⁸.

Table 2 | An example

The EU Data Act can help an online fashion store to calculate their Scope 3 footprint for the shipments of their goods based on primary data in the following way. Its shipping contractor will have access to all monitoring data that is available to the vehicle manufacturer (e.g. in its cloud), for example, actual fuel consumption as it is measured by each vehicle (e.g. as throughput of a fuel pump if available to the manufacturer - the extent of available data in automotive was recently analyzed by the EU Commission in a guidance, ref. 19, p. 7). The shipping contractor can request to receive such data into its own systems or demand transfer to third-party systems such as a commercial or non-commercial accounting service. This data will be used to calculate emissions (using a standardized measure) and will be shared as more detailed data or more concise information via an interoperable infrastructure with the online fashion store. This infrastructure should ensure the protection of sensitive information (e.g., by using a secured peer-to-peer system) and allow for verification tests. This example involving two firms (an online store and its shipping contractor) could be extended to any two neighboring firms along the supply chain and thus reveals emissions throughout the entire supply chain.

mechanisms and services⁸. This process is specifically directed at supporting the creation of European Data Spaces, one of which is the [Common Green Deal Data Space](#) (ref. 9, p. 26).

Both independently and complementary to official efforts, standardization and technical interoperability (data-sharing infrastructure) are being addressed and resolved through private initiatives. In particular, the Greenhouse Gas Protocol¹⁰ is now the most widely used standard for measuring and reporting emissions¹¹. The technical infrastructure for data sharing is provided by initiatives and software solutions, such as the [Partnership for Carbon Transparency \(PACT\)](#), [Catena-X](#), [SAP Sustainability Data Exchange \(SDX\)](#), etc., some of which will directly or indirectly contribute to EU's activities in standardization and data spaces. Despite being promoted and mainly funded by the EU, the standardization activities in the field of data spaces e.g. in the International Data Spaces Association (IDSA) go beyond the EU to include companies and initiatives from non-EU-Countries such as the US, Switzerland, Japan or China.

Regarding the third barrier, data sharing—regardless of whether it is mandatory, e.g., under Chapter II Data Act, or voluntary—still needs to resolve issues such as the need to protect trade secrets and personal data. Both the Data Act itself as well as the [Model Contract Terms for B2B Data Sharing](#) currently developed under Article 41, provide some provisions to counter such issues (namely trade secret protection). Nevertheless, such statutory and contractual provisions need to be complemented by technological solutions that bridge the gap between protecting sensitive data from being revealed, and still allowing for accountability and auditability¹². In this regard, privacy-preserving technologies can help to overcome this trade-off between privacy and trade secrets on the one hand and data use on the other^{1,12,13}.

On the regulatory and compliance side, the process initiated with the Data Act, including legislation, standardization, and model terms, will need to continue. We may see legislative acts in the context of the Green Deal Data Space, including new mandatory data-sharing provisions beyond the Data Act (e.g., the [European Health Data Space Regulation](#)). It will also be key to provide more tools for data sharing, both in the legal and regulatory senses, such as model contracts, statutes for organizing data ecosystems, and guidelines to avoid the pitfalls of competition law. This can come from both the EU or member states, and from the industry. Lastly, the legal frameworks described are still EU/EEA-centered. It will be key to address the issues globally and

synchronize with other ongoing initiatives like the [UNCITRAL Default rules for data provision contracts](#)¹⁴.

In sum, primary data sharing among firms may increase efficiency and profitability, reduce costs, identify supply chain bottlenecks, and reduce greenhouse gas emissions^{1,15}. Regarding the last point, reporting emissions alone does not necessarily lead to emission reduction. Indeed, the four major challenges to emission reduction reported by firms concern the benefits versus the costs of reducing emissions⁵. However, we argue that accurate reporting is a required condition for emission reduction: Even though considerable emission reductions are only likely to be achieved by regulation (e.g., taxes or subsidies), any such regulation requires accurate reporting. The EU Data Act, applicable from September 2025, improves access to emission-relevant data and impacts the legal framework of data sharing. One particularly promising application lies in the sharing of Scope 3 emission data along the supply chain, thereby improving the accuracy, transparency, and accountability of corporate greenhouse gas reporting. According to its [impact assessment](#), the EU Commission expects the Data Act to contribute directly to emission reduction through data use (ref. 16, p. 96). By lowering legal barriers, fostering standardization, and encouraging the use of privacy-preserving technologies, the Data Act can serve as a catalyst for a systemic shift toward verifiable, primary data-driven sustainability reporting. While the effect may be relatively modest in the short term, it could induce systemic change in the long run once an adoption threshold is surpassed, beyond which further uptake becomes self-reinforcing¹⁷.

Data availability

No datasets were generated or analyzed during the current study.

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Received: 26 September 2025; Accepted: 12 November 2025;
Published online: 04 December 2025

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Acknowledgements

We are grateful to the Editor-in-Chief and two anonymous reviewers for their thoughtful reading of the article and their helpful comments and suggestions. We are also thankful to Alienor Cameron, Nicolas Duvoisin, Yannick Hemmerle, Mauro Pisu, Martin Pomperly, and Francesco Voegelzang for their reading of the initial versions of the article and their insightful comments and suggestions.

Author contributions

I.W., M.N., and A.S. wrote the manuscript. All authors have read and approved the manuscript.

Competing interests

I.W. is an associate editor of *npj Climate Action*. The other authors declare no competing interests.

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