



Blockchain and climate reporting

Audit Insights

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What role might blockchain technology play in the future of Scope 3 environmental reporting?

Over the past decade, leaders across public, nonprofit, and private sectors have been taking steps to curb the drivers and impacts of climate change. Climate-related financial disclosures would become a baseline expectation under new, ambitious proposals¹ from the International Sustainability Standards Board (ISSB), the European Financial Reporting Advisory Group (EFRAG) and the U.S. Securities and Exchange Commission (SEC). Gathering the necessary data is a challenge across industries. In general, unlike financial data, carbon footprint data is incredibly disparate, coming from multiple entities and sources.

In the short term, public company leaders are predominantly focused on their direct emissions and emissions from facilities that generate electricity for the company, known as Scope 1 and Scope 2 emissions. Under the proposed SEC rules, disclosures of Scope 3 emissions, those created from upstream and downstream operations, would only be required if they are material or part of the company's stated goals or targets. For many companies, their environmental impact mostly resides in Scope 3, the area with the greatest challenges to providing reliable, comparable information. In a recent KPMG survey², U.S. CEOs reported the complexity of supply chains and the lack of appropriate technology solutions were the top barriers to achieving net zero.

In the coming years, the companies that will set the standard for stakeholder trust and preparation for regulatory change will be organizations with a strong strategy for collecting and disclosing reliable information about their products and services. Similar to cost accounting today for inventory, the carbon footprint of each product sold will provide valuable information as companies seek to report on their Scope 3 emissions.

Blockchain technology is one way to facilitate the capture, recording, and attestation of carbon footprint data if used jointly by companies and their suppliers. By closely tracking emissions at each stage in the value chain, companies will be able to report a more accurate and inclusive picture of their true greenhouse gas emissions and build more realistic plans to mitigate their environmental impact. But companies who want to take advantage of this solution need appropriate controls in place.

¹ KPMG International, "Comparing sustainability reporting proposals," June 2022, <https://home.kpmg/xx/en/home/insights/2022/05/sustainability-disclosures-issb-efrag-sec.html>

² KPMG LLP, "5 instant reactions from KPMG on SEC proposed rules," March 2022, <https://info.kpmg.us/news-perspectives/industry-insights-research/kpmg-sec-climate-financial-disclosures.html>

Increasing E-liability transparency through blockchain technology

One proposal for a blockchain-based system that would give companies auditable, reliable Scope 3 information was introduced in a *Harvard Business Review* piece³ last year. The idea is to create environmental balance sheets for companies to track "E-liabilities," quantifying carbon emissions and measuring the full environmental cost of doing business, including the currently evasive emissions for upstream inputs.

The E-liability model takes an accounting approach to measure and track emissions at each step in the supply chain, with E-liabilities being assigned to each unit of output and passed up the value chain with that output until it reaches the end customer. One goal of this system is to eliminate time-consuming and potentially duplicative gathering or estimation of emissions data from suppliers and customers, often across international borders.

The *HBR* article uses the example of the manufacturing process for car doors, in which E-liabilities are transferred down the line from mining to shipping to steel production to manufacturing, calculating emissions along the way that are provided to the consumer as a "report card." Notably, companies who choose to directly eliminate greenhouse gases from the atmosphere can subtract those emissions from their E-liability account, therefore reducing the carried-forward liability.

Blockchain technology may be a solution if it is used from the beginning to transfer E-liabilities, as it can provide the transparency needed throughout the vendor-to-customer chain, documenting Scope 3 E-liabilities through purchase orders that are irrefutable and resulting in accounting and auditing cost reduction. In addition, E-liabilities can run on a company's existing financial reporting foundation, changing the unit of measurement from cash to quantity of greenhouse gas emissions. To be sure, the utility of blockchain as a trusted, shared ledger relies on quality source data, participation of all entities in the chain, and a defined methodology for translating emissions reductions to the unit level.

As it stands, companies face a clear tension between the larger social incentives of undertaking low-emission or net-zero approaches and the business reality of growth expectations and scaling, which typically involve an increase in emissions—not the other way around. E-liabilities would invite a closer look at how companies maneuver on this issue.

If E-liabilities become a regular part of doing business, the system would prevent companies from easily washing their hands of the environmental impact associated with their operations, as it would still be clearly traceable on their books. This would shine a light on those trying to outsource some of their environmental burden to third parties, while incentivizing companies to innovate toward lowering their GHG emissions. The E-liability system provides its own materiality standard and an easier way to audit, as it is presented in the familiar asset and liability format and takes place on a trusted, shared ledger where each transaction has been verified among relevant parties.

Risks and opportunities presented by blockchain technology

Many people only think of blockchain as the technology underlying cryptocurrencies such as Bitcoin. But the technology has many other applications, streamlining processes that are normally prone to human error and third-

³ Robert S. Kaplan and Karthik Ramanna, *Harvard Business Review*, "Accounting for Climate Change," November 2021, <https://hbr.org/2021/11/accounting-for-climate-change>

party mediation. According to the KPMG International and HFS International Enterprise Reboot Survey⁴, more than half of business executives are investing in blockchain because of its ability to facilitate trust through transparency and traceability. Organizations across all sectors are evaluating how technology such as blockchain can be used to increase efficiency, enhance data integrity and more. Current and existing financial systems are likely to become blockchain-enabled, and some business processes may be replaced. In the case of carbon emissions, blockchain technology would allow companies to track data from disparate sources on a blockchain, where it cannot be altered.

Blockchain is still an emerging technology, and business and finance leaders need to prepare in-depth controls and address risks to increase trust. Blockchain allows transactions to be recorded in a shared ledger in a secure, immutable, and unalterable manner, which is replicated and distributed to each of the participants that are interacting with the blockchain. Given these features, blockchain technology is being applied in emerging projects related to environmental reporting and sustainability, including verifying and exchanging carbon credits.⁵ It could also be used to record and transfer Scope 3 E-liabilities, as long as the proper methodologies are in place and agreed-upon by all involved parties.

Companies considering blockchain technology to track emissions data should identify the risks associated with using the technology in the value chain. They should identify partners that they'd want to transact with and create controls, including IT controls, to attest to the completeness and accuracy of the data. Leaders should also note the use of blockchain works best at scale, with the cooperation and participation of all the players involved. Organizations might consider using a SOC for supply chain attestation service, creating a report for stakeholders around the risk management processes for their manufacturing, production, or distribution system.

Some have concerns about the environmental impact of data centers and of crypto mining, a process related to the creation of tokens on a blockchain. However, the use of blockchain for recording E-liabilities would likely have a small carbon footprint, smaller even than cloud storage. This is because a privately managed blockchain is only storing a fraction of the data needed to verify the transaction. There is also no "mining" component to private, permissioned blockchains, which is the main driver of energy consumption in cryptocurrencies.

Industry spotlights

While readiness for Scope 3 reporting varies by industry, an individual company's ESG journey will depend on its maturity. For example, whereas retail companies⁶ often find that Scope 3 accounts for the lion's share of their emissions, in the insurance industry, whether through public debt or private placements, there is available data to calculate Scope 1 and Scope 2 emissions. However, Scope 3 emissions become quite tricky due to the nature of underwriting. And in the financial services sector, banks' climate-related disclosures are comparatively mature relative to other sectors. Banks are advancing on the path to collecting Scope 3 data and may be early adopters of next-generation methods.

⁴ KPMG LLP, "Blockchain technology: Transparency and traceability as the cornerstones of trust," September 2021, <https://info.kpmg.us/news-perspectives/advancing-the-profession/blockchain-technology-transparency-and-traceability-as-cornerstone.html>

⁵ UN Environment Programme and Social Alpha Foundation, "Blockchain for sustainable energy and climate in the Global South," January 2022

⁶ KPMG LLP, "ESG should be at the Heart of Board Agendas for Valentine's Day," February 2022, <https://info.kpmg.us/news-perspectives/advancing-the-profession/esg-supply-chain-valentines-day.html>

Conclusion

Whether or not E-liabilities become the status quo, more tracking and examination of environmental impacts is likely in the coming years, and business leaders must consider the current steps they need to take to best position their businesses in a high-scrutiny environment.

Embedding ESG into strategy will unlock value. Climate disclosures are not just about meeting reporting requirements, but having the data and insights and bringing consistent, comparable and reliable – and therefore decision-useful – information to investors. Blockchain technology may go far in helping to achieve that goal.



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