Navigating the Shift: The Growing Imperative of Software Emissions Tracking

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Key Takeaways

- Emissions from the technology industry continue to grow, leading to increasing pressure to track and reduce emissions due to flow down requirements from blue-chip customers, regulation, investor requests, employee recruitment, and operational efficiency gains.
- Scope 3 emissions continue to make up a majority of software emissions, but tracking these emissions is a complex process that often requires engaging external professionals.

Traditionally, software companies have avoided scrutiny of their emissions footprint due to the perception that their operations have a relatively minor impact compared to industries with more tangible physical operations. However, this perception has undergone a significant shift in recent years that has brought the emissions footprint of software companies into sharper focus.

One of the primary drivers of this shift is the exponential growth in digital dependency across virtually all sectors of society and the increased recognition of the software industry's scope 3 emissions. Widespread adoption of digital technologies, including cloud computing, mobile applications, and internet-connected devices, has led to a dramatic increase in demand for computing power and data storage. This, in turn, has fueled the proliferation of data centers, which are essential infrastructure for supporting the digital economy and a significant portion of software scope 3 emissions. A recent report from the International Energy Agency (IEA) predicts a significant increase in electricity consumption by data centers, with their global energy consumption ranging from 240 to 340 terawatt hours in 2022, constituting approximately 1-1.3% of total global energy usage. To put this into perspective, a single data center can consume as much electricity as tens of thousands of homes, making them significant contributors to greenhouse gas emissions. By 2026, data center electricity consumption could reach up to 1,050 terawatt hours (TWh), equivalent to adding an extra country's worth of electricity demand. This burgeoning growth poses considerable challenges to global electricity infrastructure and underlines the growing significance of software's emissions footprint, particularly in nations such as the US where rapid expansion is anticipated.

The confluence of these factors has prompted calls for greater accountability and action for software companies to mitigate their emissions impact. As awareness grows about the impact of digital technologies, consumers, regulators, investors, and other stakeholders are exerting increasing pressure on software companies to adopt sustainable practices, reduce emissions, and address their environmental footprint. In response to these pressures, software companies are beginning to

recognize the importance of sustainability as a core business imperative. Many companies are investing in renewable energy sources, improving energy efficiency, optimizing data center operations, implementing circular economy principles to reduce e-waste, and incorporating environmental considerations into their product development and supply chain management processes.

Central to these efforts is the implementation of comprehensive emissions tracking systems. By accurately monitoring and analyzing their emissions data, software companies can identify areas of high impact and develop targeted strategies to reduce their carbon footprint. Emissions tracking serves as a crucial tool for measuring progress, identifying areas for improvement, and demonstrating transparency and accountability to stakeholders. As software companies continue to prioritize sustainability, emissions tracking will play an integral role in driving meaningful environmental progress and ensuring a more sustainable future for the industry.

Demand for Software Emissions Tracking

There are multiple pressures incentivizing software companies to track emissions. As businesses prioritize sustainability, B2B customers increasingly demand emissions data, driven by decarbonization commitments, Science-Based Targets Initiative (SBTi) goals, and new climate regulations (e.g., SEC Climate Legislation). This pressure extends to software vendors, who must disclose emissions not only from their operations but also from their entire value chain. For example, Amazon, Microsoft, Apple, and Meta all have net zero goals in place for 2023, which are passed on to their software vendors. Google is working with suppliers to reduce their emissions and to encourage them to shift operations entirely to clean energy; as such, companies in its value chain must ensure they are first tracking emissions in order to begin considering reduction strategies. Concurrently, impending climate legislation, illustrated by California's disclosure laws, further mandates emissions reporting downstream, compelling software companies to track their environmental impact meticulously.

Demand for emissions tracking also expands beyond flow down emission requirements. Investor pressure, driven in part by initiatives such as the Net-Zero Asset Owner Alliance and Net Zero Asset Managers, reinforces the need for emissions tracking among software companies. General partners (GPs) and limited partners (LPs) are increasingly focused on decarbonization, compelling portfolio companies to adopt sustainable practices and disclose emissions data as part of investment evaluations. These investors exert significant influence over portfolio companies, including software firms, and may require stringent emissions tracking and reporting as part of their investment criteria.

Climate sustainability may also have impacts on software companies employee recruitment, retention, and engagement. According to an IBM survey, around one in three employees who switched jobs in 2022 said they accepted a lower salary to move to a sustainable role. Additionally, a 2023 survey of tech workers noted that 43% stated environmental impact is a very important factor when considering a new role. The increasing expectation around climate sustainability incentivizes software companies to demonstrate their commitment to tracking and reducing emissions.

Finally, emissions tracking offers a pathway to competitive advantage and innovation for software companies. By uncovering operational inefficiencies and identifying areas for improvement, companies can streamline processes, reduce costs, and develop sustainable products. Initiatives like green coding and carbon-efficient software not only contribute to emissions reduction but also

enhance user experience, positioning companies for long-term success in an environmentally conscious market. Thus, the integration of emissions tracking into business practices becomes not only a responsibility but also a strategic imperative for software companies aiming to thrive in today's evolving landscape.

Breakdown of Scope 1, 2, and 3 Emissions in the Software Sector

Emissions Type	Breakdown of what's included
Scope 1	Includes emissions generated directly from sources owned or controlled by the software companies themselves. Outside of operating office facilities and their own data centers, this category holds limited significance for software companies.
Scope 2	Indirect emissions from the generation of purchased electricity consumed by the company. For software companies, this manifests as emissions resulting from the energy used to power directly owned data centers, offices, and other facilities where the software company operates (e.g., lighting, computing equipment, air conditioning). For early-stage companies, the footprint is small.
Scope 3	A critical yet complex category for software companies, Scope 3 emissions extend beyond immediate operational boundaries. They encompass emissions from the entire value chain, including suppliers (such as third-party data center providers), partners, customers, as well as business travel, employee commuting, and teleworking. Scope 3 emissions are typically the majority of a company's footprint – for example, Microsoft's scope 3 emissions made up 97% of its total emissions.

Emissions Tracking Execution

Software companies interested in tracking emissions can begin by estimating emissions internally, but robust tracking and reporting of Scope 3 emissions is complex, typically requiring engagement of an external provider. Additionally, new emissions regulations such as the California's emissions reporting regulations will require companies to receive external verification of emissions calculations under reasonable assurance stipulations. Malk is well versed in working with growing software companies to evaluate emissions and determine potential reduction initiatives based on best practices gathered across the industry.

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