Deloitte.

Adopting Blockchain-based E-Liability ESG reporting to comply with the upcoming CSRD regulation

MAKING AN IMPACT THAT MATTERS since 1845

Introduction

Companies face growing pressure from regulatory authorities to provide accurate and transparent data in their environmental, social, and governance (ESG) reporting while preparing for the upcoming Digital Product Passport (DPP)[1] that will impact global supply chains. However, measuring and collecting data from all emissions scopes and stakeholders in their value chain presents significant challenges.

With the introduction of Corporate Social Responsibilities (CSR) and, more recently, the Corporate Sustainability Reporting Directive (CSRD) and Corporate Sustainability Due Diligence Directive (CSDDD) by the European Commission, companies are increasingly aware of the impact of their actions on climate change, pollution, biodiversity, water scarcity, and labor conditions. Regulatory bodies' emphasis on the ESG aspects expands the scope of responsibility to include the entire value chain. Notably, Scope 3 emissions account for over 70% of a firm's total emissions, according to Science Based Target[2], highlighting the necessity of gathering data from suppliers to address emissions throughout the chain.

However, Scope 3 emissions are often overlooked due to the complexities arising from numerous stakeholders in a supply chain network. Additionally, various ESG standards can confuse companies and lead to double-counting or reporting errors. As a result, only 44% of companies collaborate with suppliers to meet sustainability criteria (Deloitte 2023 CxO report), and just 41% of companies within the Carbon Disclosure Protocol (CDP) report at least one Scope 3 category (according to CDP itself).

Supply chains, where companies lack full control due to numerous stakeholders, become a crucial area for focusing on greenhouse gas (GHG) reduction strategies. The lack of visibility on Scope 3 emissions and the existence of various ESG reporting standards create challenges in disclosing GHG emissions. These new regulations call for more transparency and collaboration across the ecosystem. However, today's enterprise architectures are not optimized for collaboration across the value chain and particularly not optimized for product life-cycle perspective. Historically, product data ended when the product was sold to the next supply chain actor. This organizational-focused architecture is not well suited for creating unique digital IDs (digital twins) that lives across multiple actors and create a multitude of challenges now facing new regulation.

To address these issues and ensure transparency, especially in data obtained from suppliers, blockchain technology emerges as a vital component for potential solution designs. By leveraging blockchain technology, organizations can overcome inaccuracies in monitoring these types of data and prevent double-counting, fostering trust with actors part of the value chain, such as regulators, governments, partners, and customers.

In this paper, Deloitte and Horten explore how blockchain-based design might rectify ESG accounting issues. Blockchain's unique characteristics, such as a distributed, transparent, and immutable network system, enable companies to track, trace, and allocate emissions accurately to each stakeholder in the value chain. Moreover, product characteristics can be recorded at each stage of the supply chain by all participating entities. In this paper we exemplify these characteristics via a case from the innovative startup company PaperTale. By adopting a blockchain-based Environmental liability (E-liability) accounting design, companies can exchange E-liabilities that track and trace GHG emissions from raw material origin to the end consumer and beyond ensuring circularity. This collaborative approach provides a clear accounting method for measuring and reporting GHG emissions, offering a potential solution to current difficulties in ESG reporting.

Thank you to Jonas Sveistrup Søgaard, PhD, Blockchain Specialist and Rasmus Winther Mølbjerg for significant and valuable contributions.

1 As of writing, only the EU plans implementing a digital product passport. See more at https://ec.europa.eu/commission/presscorner/detail/en/ip_22_2013

2 For sources, see the reference list in the end of the document.

Blockchain for the COO and CSCO 4

Case: PaperTale 5

Need for better ESG reporting 8

Blockchain-empowered ESG reporting 9

NFT for EU Digital Product Passport 11

Smart contracts—Legal aspects 13

Authors 15

Blockchain for the COO and CSCO

In today's business landscape, Chief Operating Officers (COO) and Chief Supply Chain Officers (CSCO) are facing increasing pressures to navigate complex supply chains, ensure transparency, and meet regulatory requirements.

Blockchain technology has emerged as a potential solution to address various challenges. This article explores different areas of blockchain, such as transparency, ESG reporting, supply chain management, and compliance with upcoming regulations. By leveraging blockchain technology, COOs and CSCOs can achieve several advantages in their operations performance and daily work. Firstly, blockchain can provide enhanced transparency and reliable data for reporting, but more importantly, for planning improvements. Secondly, blockchain enables end-to-end traceability of products and materials throughout the supply chain, which can help with general supply chain management and offer customers accurate track and trace. Thirdly, blockchain can facilitate better stakeholder engagement and collaboration by providing a shared platform for data sharing.

Efficient Supply Chain Management

Naturally, supply chain management is a critical area for COOs and CSCOs, as it involves numerous stakeholders and complex processes. Blockchain technology facilitates collaboration and data sharing across the supply chain network. By adopting blockchain, COOs and CSCOs can seamlessly integrate greenhouse gas (GHG) emissions data at each stage of the value chain. This enables optimized decision-making in areas such as greenhouse gas reduction strategies, sourcing, production, distribution, and transportation. Blockchain also enables COOs and CSCOs to identify inefficiencies, reduce costs, and improve overall supply chain performance.

Enhanced transparency and trust

Blockchain's dispersed and transparent nature offers COOs and CSCOs enhanced visibility into their supply chain operations and increased trust with supply chain partners. By leveraging blockchain technology, companies can accurately track, trace, and allocate emissions throughout the value chain. This transparency fosters trust among stakeholders, including regulators, governments, and customers. COOs and CSCOs can rely on blockchain to ensure that data is accurate, reliable, and tamper-proof, enabling them to make informed decisions based on trustworthy information.

Improved ESG reporting

Accurate and transparent reporting of environmental, social, and governance (ESG) data is crucial for companies to demonstrate their commitment to sustainability, and to secure compliance to regulations. Blockchain-based solutions provide COOs and CSCOs with the tools to overcome challenges such as double-counting and reporting errors. By leveraging blockchain technology, companies can ensure the integrity of their ESG data, leading to more reliable and transparent reporting. This, in turn, enhances the company's reputation, builds trust with stakeholders, and attracts socially responsible investors.

Compliance with Upcoming Regulations

Regulatory compliance is a top priority for the executive suite, including the COO and CSCO, especially with the introduction of regulations such as the Corporate Sustainability Reporting Directive (CSRD) and the Digital Product Passport (DPP) in the EU. Blockchain-based solutions align with these regulations, providing companies with an advantage. By adopting blockchain technology, COOs and CSCOs can be compliant with upcoming regulations.

Case: PaperTale

In this case we will illustrate how an innovative startup company, PaperTale, leverage blockchain, IoT and a number of other smart technologies to enable sustainable supply chain in the complex clothing value chain across multiple players exemplified by Sail Racing.

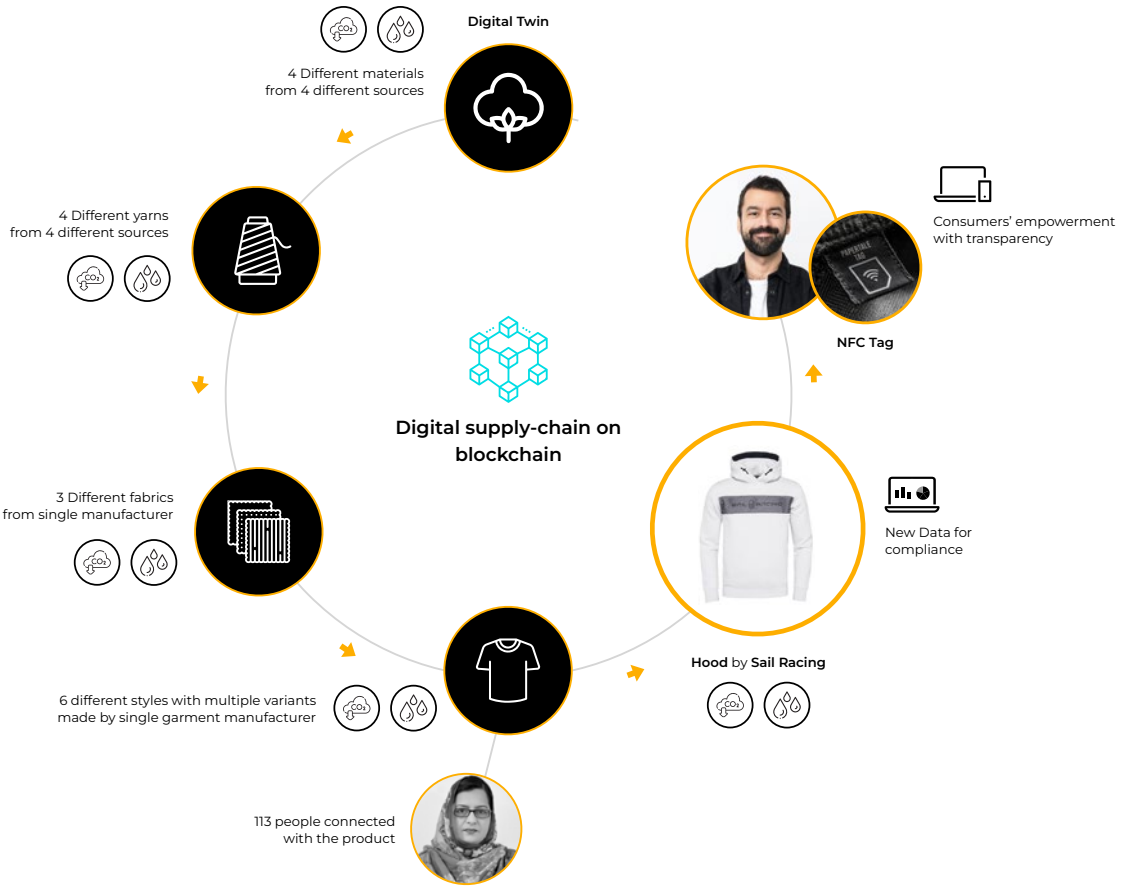
PaperTale has a '3P' core transformation strategy (targeting Planet, People & Product). Grounded in this strategy the startup company is fully dedicated to addressing environmental challenges, promoting social responsibility, and upholding strong governance practices throughout the value chains of consumer goods industries.

In the clothing industry, It is becoming increasingly clear that brands must take better control of their supply chains—similar trends can be seen in other industries as well, especially amongst premium brands. Traditionally, they have relied solely on third-party auditors to validate activities outside the company, which is costly and less effective. There is a clear need for an automated system of primary data collection and verification from value chains to mitigate risks in this complex regulatory landscape which is why Sail Racing and PaperTale formed an innovative partnership.

Learning Through Implementation: Sail Racing Case Study in 2022

Sail Racing, a 40-year-old Swedish high-end sailors brand, collaborated with PaperTale to launch a unique commercial collection to understand the impacts of their products, mitigate supply chain risks, and bring transparency to customers. The project established a Digital-Twin supply chain over blockchain, encompassing a complex network that began with farmers in Australia, involved garment workers in Pakistan, and reached consumers in Scandinavia. This initiative incorporated data collection from these three countries using NFC tags and blockchain technology to provide detailed supply chain insights and ensure regulatory compliance, see illustration.

Figure 1. The digital supply chain of Sail Racing collection on Blockchain



Scan the QR code to track the entire production process and view its environmental and social impact.

6 key learnings from the Sail Racing and PaperTale Project

1. **Complexity of data collection**: Managing a multi-country supply chain with diverse materials requires precise coordination and innovative solutions. Recognizing the challenge of excessive data collection, PaperTale overhauled its core applications to streamline and expedite the process. This transformation significantly reduced data collection challenges, enhancing system efficiency. Blockchain technology enabled seamless integration and traceability, providing Sail Racing with transparent and verifiable data for both material and people traceability. This approach highlighted the importance of developing tools accessible to both large-scale facilities and small-scale organizations, many of which lack advanced ERP systems.
2. **Transition to public blockchain**: Initially, using a private blockchain offered control over value chain data secrecy but lacked transparency. Transitioning to a public blockchain ensured higher levels of transparency and data security. Despite blockchain's reputation for ensuring data integrity, practical challenges hinder its widespread adoption and scaling. To address this, PaperTale pioneered a unique two-point verification methodology to ensure the quality of in-out data. This approach made data secure, tamper-proof, accurate, and trustworthy from the outset, building greater trust with all stakeholders. The project also effectively addressed commercial challenges such as fluctuating transaction fees, scalability issues, and the need to encrypt sensitive business information.
3. **Real-time impact calculations**: PaperTale offered per-product impact data to Sail Racing and its customers directly from the supply chain. Traditional LCAs are static and quickly outdated, but this new approach provided real-time LCA, allowing continuous updates and accurate reporting of environmental impacts at both the facility and product levels. Furthermore, the methodology offered live data for the climate targets and provides actionable insights throughout the production process.
4. **Importance of customizable data carriers:** The project identified the need for various data carriers beyond QR codes, including unique decorative NFC tags developed in formats such as zippers, buttons, textiles, rubber, or leather tags. These NFC tags cannot be easily copied and can be reprogrammed for post-user cases, connecting individual users with products for more precise circular use cases, e.g. distributors, retailers, consumers, repair shops, second hand retailers and recyclers.
5. **Data visualization & reporting:** Providing a web-based platform and a consumer-facing mobile app improved transparency for Sail Racing's customers and user engagement. This transparency made it easier for consumers to access and understand product information, creating significant value for Sail Racing by engaging conscious consumers. New data offered the potential for conscious consumers to become brand ambassadors, thus improving brand value. The transparency in tracking and reporting helped consumers understand the impacts of their clothing choices, while providing Sail Racing with actionable data for reporting and risk mitigation, fostering a deeper commitment to sustainable practices.
6. **Take-back loop**: The project became an ideal use case for a take-back loop, a key area for Digital Product Passport, utilizing the same NFC tags and digital twins of the product to facilitate collection, enabling opportunities for repair, resale, repurposing, or recycling. Sail Racing plans to extend this project to all its products.

Conclusion: Blockchain sews global data together creating transparency + compliance

The Sail Racing project demonstrated that transformative change in supply chains is achievable by setting new standards for sustainability, transparency, and ethical practices through innovative technologies like blockchain. Crucial data collected during the project facilitated the development of a Digital Product Passport (DPP) and met various regulatory reporting needs. As the industry evolves, there is a risk of DPPs becoming mere compliance reports. However, the project emphasized the importance of focusing on extending product lifespans, improving decision-making based on impacts, and promoting circularity.

The Sail Racing case illustrates how a holistic approach can extend beyond DPPs to integrate ESG, EPR, and CSRD requirements, ensuring robust traceability, accountability, and social and governance responsibility across supply chains. This sets new benchmarks for sustainability and compliance. By addressing these challenges with blockchain-enabled smart contracts, the project enhanced transparency and accountability, covering critical issues like fair wages, gender equality, and safe working conditions. It also automated governance compliance and elevated ethical standards and operational transparency.

Overall, the collaborative journey with Sail Racing and PaperTale highlighted the importance of continuous learning and adaptation, resulting in a robust framework for supply chain traceability, regulatory compliance, and social responsibility. This project proved that transparency and sustainable practices can coexist with growth, ensuring long-term success and a positive impact on the planet.

Need for better ESG reporting

The European Union (EU) is actively implementing regulations under the European Green Deal to enhance sustainability practices. These regulations aim to encourage companies to adopt sustainable strategies and operations. Key components of the European Green Deal include the CSRD and the DPP, which are designed to drive initiatives for reducing environmental pressure and promoting circular economy principles.

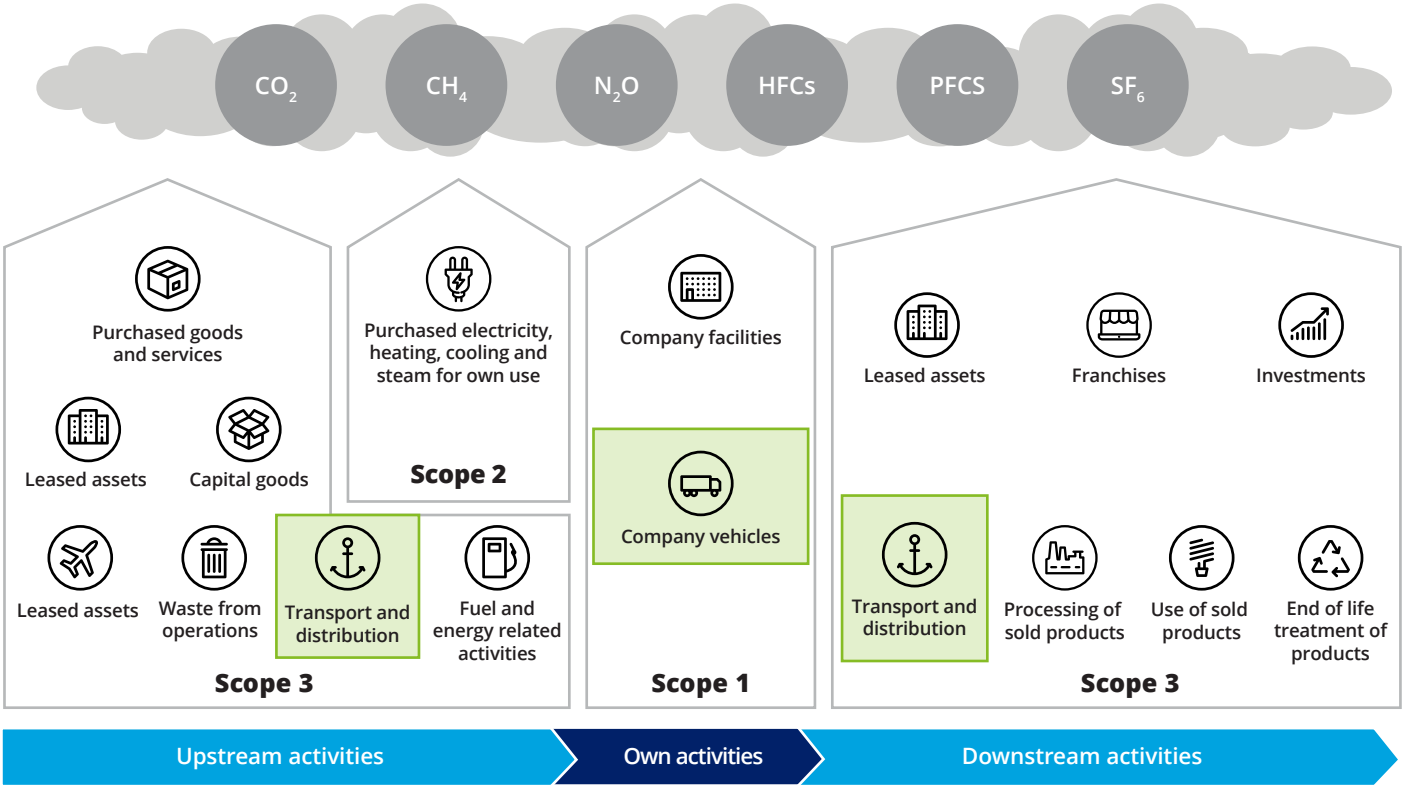
The importance of considering the entire value chain is emphasized in developing a realistic ESG strategy. Particularly, focusing on GHG emissions in Scope 3 is crucial. Refer to the figure below for a comprehensive understanding of the emission scopes.

Complete ESG reporting requires close collaboration between a company and its suppliers. However, ESG standards often cover a wide range of factors, making it more manageable for companies to disclose labor workforce condition improvements rather than changes in the governance structure. Additionally, effectively combining the three elements of ESG into a single measurement principle can be challenging, as S (Social) and G (Governance) data rely more on qualitative perspectives than purely mathematical calculations.

To address these challenges, an idea based on the concept of E-Liability, developed by Harvard and Oxford researchers, has been explored. This approach establishes a clear accounting method to allocate GHG emissions as Environmental-liability, using an activity-based costing accounting method.

The primary objective of this method is to enhance ESG reporting for the Environmental aspect, which often faces errors due to limited visibility, data issues, or double-counting resulting from siloed reporting practices among companies sharing common suppliers. The method focuses specifically on GHG emissions within the value chain and does not encompass other environmental impacts like biodiversity losses, deforestation, or pollution. Nevertheless, it offers a clear guideline for addressing GHG emissions, which represent a critical challenge in combating climate change.

Figure 2. Scope of a company's emissions



Source: Science Based Targets (2023). *CDP Technical Note: Relevance of Scope 3 Categories by Sector.*

Blockchain-empowered ESG reporting

Blockchain, often regarded as a nascent technology, offers paradigm-breaking applications in finance, accounting, and supply chain, including cross-border payments, automated accounting, and traceability. Leveraging the unique attributes of blockchain, such as information immutability, distributed data, and transparency, we propose using a distributed ledger to consolidate essential data within non-fungible tokens (NFTs). NFTs are unique digital identities recorded on a blockchain, making them uncopiable and irreplaceable.

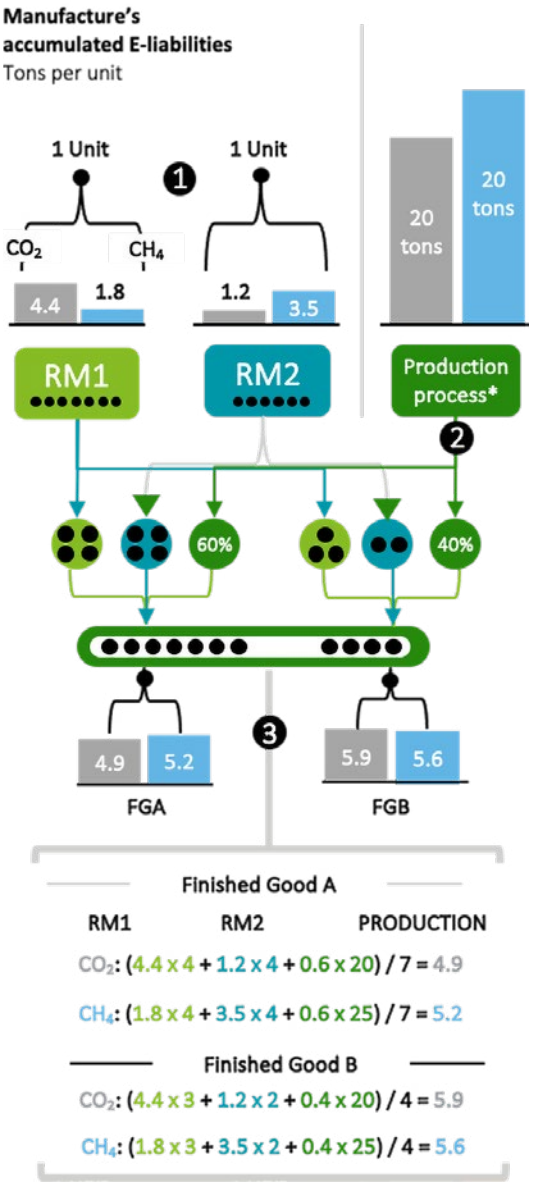
Non-Fungible Tokens serve as the ideal support for establishing ownership of goods, as they maintain a historical record of all previous owners and enable continuous data updates. Various companies already utilize NFTs for supply chain traceability and digital ownership in sectors like gaming.

Our concept involves utilizing NFTs as the technological backbone for data representation and employing blockchain as a cost-effective tool to transfer NFT ownership throughout the supply chain. At each stage of the supply chain, suppliers calculate the amount of GHG emissions produced within their scope 1 activities. This GHG emission data is then transformed into an accounting term known as E-Liability. It represents the corresponding GHG emissions of a product, akin to a virtual E-balance sheet. Through an E-liability accounting system, the emissions are allocated to the product at every step of its life cycle, right up to its final delivery to customers. This allocation method follows the activity-based costing approach, attributing GHG emissions to specific activities occurring within the product life cycle, ranging from raw material extraction to delivery. As a result, each E-liability accounts for the product's overall environmental footprint. The simplicity of this accounting process allows for seamless traceability of a product's emissions throughout its life cycle.

In our proposed approach, each individual raw material used in the final product will be associated with an NFT. When the final product is manufactured, all the NFTs linked to the raw materials will be merged into a single NFT, creating a digital twin representation of the product on the blockchain. By adopting this design, companies can seamlessly integrate data on GHG emissions at each stage of their value chain. As a result, customers will receive the product along with an NFT that contains comprehensive data regarding the product's entire life cycle emissions, enabling them to understand its environmental footprint.

The concept of E-Liability ESG reporting, illustrated by researchers from Oxford and Harvard, outlines the allocation process, using a manufacturer as an example. The manufacturer will accurately measure the greenhouse gases emitted under its responsibility and allocate the corresponding GHG emissions of the products manufactured in its factory using the Activity Based Costing (ABC) accounting method. Since the emissions may vary between different products based on their characteristics, this process enables companies to compare the GHG emissions of two products and prioritize their efforts to reduce the overall emissions.

Figure 3. ABC accounting method from R Kaplan & K Ramanna



Supply chain professionals working on Sales and Operation Planning (S&OP, 3–24 months horizon) can find this approach particularly valuable, as it allows them to develop strategies that prioritize one product over another based on the emissions allocated to each product. This approach contributes to making informed decisions regarding sustainable product offerings within the supply chain. Furthermore, via the S&OP process the planners will be able to optimize flow of goods according to activity, hence placing sourcing, production and distribution stock according to minimum GHG emission.

Once a shorter planning horizon of 0–3 months is in play during the Sales & Operations Planning (S&OP), the planners will be able to allocate best transport modes to the differentiated movement of goods, e.g., selecting sea instead of road, push towards more green fuel shippers, use trains instead of trucks, and deliver last mile via electrical cars.

Similar to income statements, an E-Liability statement can be created to represent the flow of E-liabilities within a specific accounting period.

The creators of the E-liability concept have demonstrated this statement with an example illustrating the changes in booked E-Liability for a car-door manufacturer.

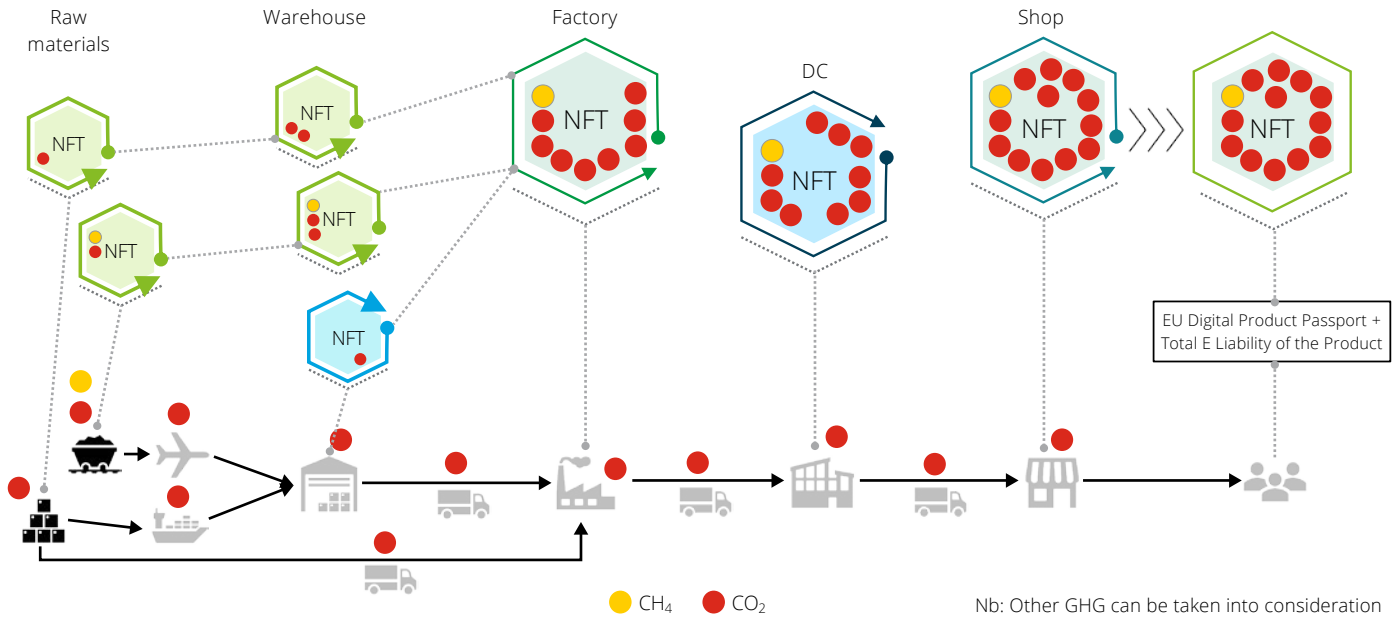
The manufacturer starts by acquiring the E-liabilities from its upstream supply chain, adding them to its opening E-liabilities, along with the E-Liabilities directly produced through its operations. Figure 5 shows an overview of our vision.

The E-liability design described is also applicable for other ESG-related reporting such as the level of plastic intensity of a product for which taxation is calculated and carbon border adjustment mechanism (CBAM) on a range of raw materials that has specific regulations e.g., concrete, steel, aluminum, ammonia, etc.

Figure 4. Example of E-accounting from R Kaplan & K Ramanna

E-liabilities flows	Tons of CO_2
Opening E-liabilities	**3,600**
Add E-liabilities acquired from suppliers	39,800
Electricity	5,600
Sheet steel	10,600
Gloss	5,400
Fabric and plastic	1,200
Other supplies/components	4,800
Capital equipment	12,200
Add E-liabilities directly produced through operations	2,600
Subtract E-liabilities transferred to customers	(32,600)
Closing E-liabilities	**13,400**
Change in E-liabilities during period	9,800

Figure 5



NFT for EU Digital Product Passport

As explained in the previous chapter, each raw material used in the manufacturing process will have its own NFT linked to it, containing the corresponding E-liabilities. Moreover, each component of the raw materials can have its characteristics recorded on its linked NFT, in addition to the E-liabilities.

Subsequently, when the product is manufactured, all the individual NFTs related to its components are merged into a single final NFT representing the finished product. To facilitate this merging process, we propose using a specialized standard of NFTs called the Token Bound Account, also known as the ERC-6551 token. This standard is well-suited to support the merging of NFTs associated with the product's components, ultimately resulting in the creation of the DPP for the finished product. This passport will provide comprehensive information about the product's composition, E-liabilities, and other essential characteristics.

Especially valuable for reverse logistics and promoting circularity, each spare component will retain its own NFT, linked within the Token Bound Account. In the event of product damage where only one component needs replacement, the NFT specific to that component can be dissociated from the DPP. Depending on the repair operations undertaken, different scenarios may unfold.

Figure 6. Metadata of the spare components

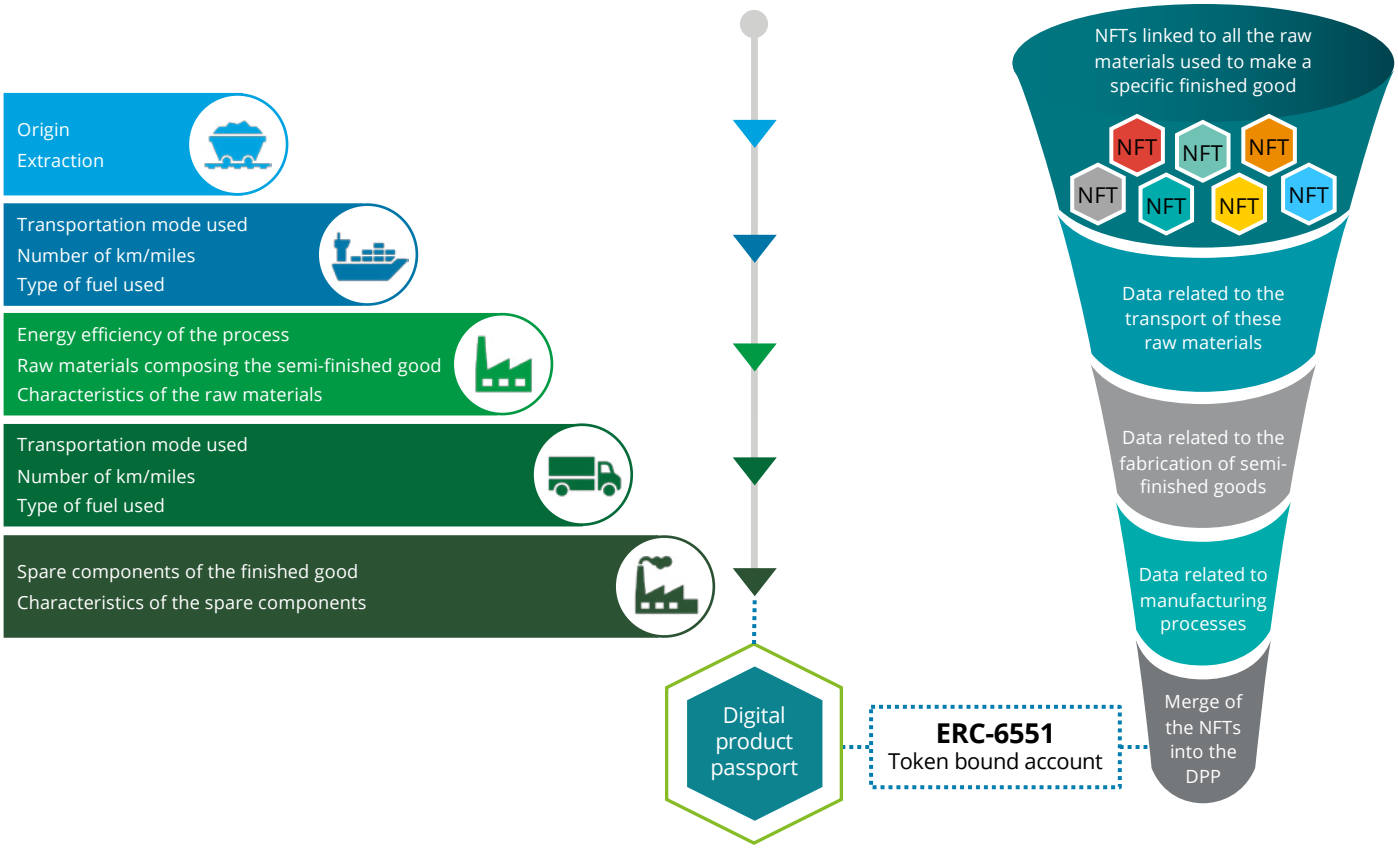
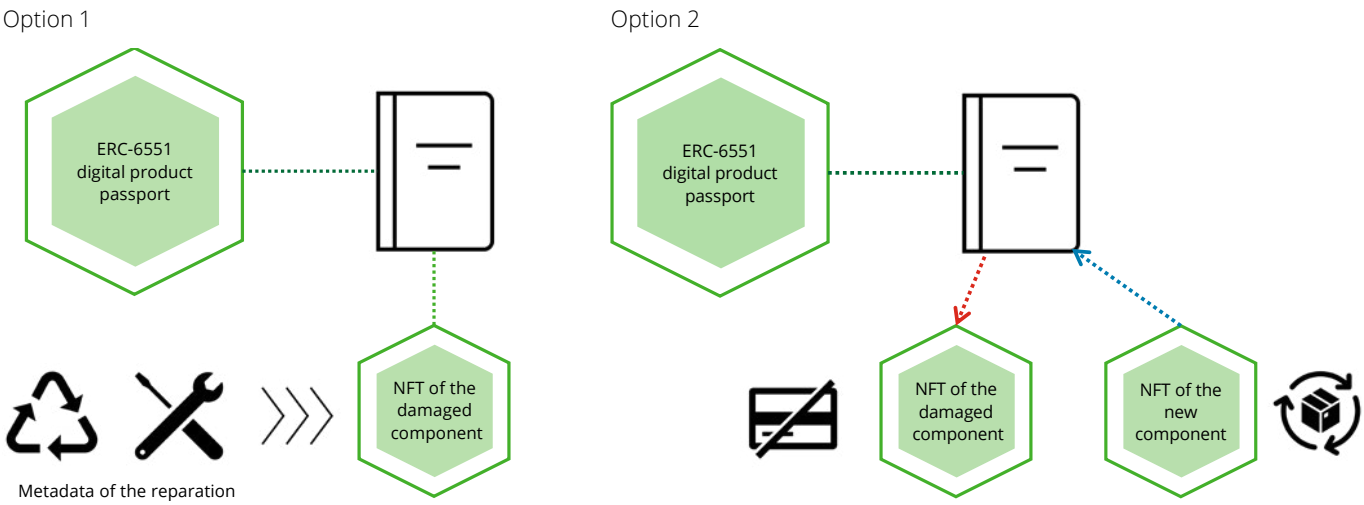


Figure 7



Option 1: If the component is repaired, the metadata of the reparation will be added to the NFT of the component, which will then be integrated back into the Token Bound Account ERC-6551, representing the DPP.

Option 2: If the component is replaced with a similar new component, the NFT will be detached from the DPP, and the NFT linked to the new component will be merged with the DPP once the replacement is completed.

The DPP will encompass all relevant information concerning the product's characteristics and the cumulative GHG emissions throughout the supply chain. Future GHG emissions arising from transportation, potential storage, and other activities will be directly allocated to the DPP ERC-6551, automatically contributing to the overall E-liability of the product. This comprehensive approach ensures seamless tracking of the product's environmental impact and fosters transparency in the supply chain's sustainability efforts.

At the end of the purchasing process, customers access the DPP data through a QR code (or similar), a requirement set by The European Commission. By scanning the code, they can view the carbon footprint and detailed characteristics of the product they bought. As information is continuously registered in the NFT at every stage of the product's life cycle, this design ensures clear traceability, providing transparency and accountability.

NFTs prove to be a powerful tool in addressing various challenges faced by companies. By leveraging blockchain technology with NFT-based solutions, promising applications for future supply chain operations emerge. This approach enhances collaboration among stakeholders in the supply chain network, enables a clear accounting method for ESG reporting, improves traceability of goods through collaboration with suppliers, and fosters circular economy practices, aligning with European regulations and providing companies with a competitive advantage in preparation for upcoming EU requirements.

While the EU DPP is still in development, the EU envisions digitizing and storing the passport in a cloud platform. Blockchain technology could be the suitable foundation for this process due to its secured, distributed, and transparent nature. When choosing the blockchain for this purpose, emphasis should be placed on selecting blockchains running with a proof-of-stake mechanism to minimize the environmental footprint. Additionally, blockchains with many stakeholders are preferred to ensure a robust level of decentralization and security (e.g., Ethereum, Polygon, Avalanche, Algorand, or Hedera, to name a few).

It's essential to note that the EU DPP is an ongoing development, and our idea offers insights to companies and regulators seeking a comprehensive solution to enhance ESG reporting and circular economy practices while aligning business objectives with upcoming EU regulations. This forward-thinking approach aims to contribute positively to sustainability and regulatory compliance for companies in the EU.

Smart contracts—Legal aspects

The advent of blockchain technology including, NFTs and smart contracts offer incredible potential for efficiency and reliability, including with respect to ESG compliance as described above. However, they also raise several legal considerations.

While national legislation of NFTs and smart contracts within the EU/EEA—to our knowledge—generally are based on traditional principles of contract law, specific national legislation affecting the legal assessment of NFTs and smart contracts may apply. For the purpose of this paper, we, however, solely consider general principles of contract law as recognized across the EU/EEA.

Smart contracts are self-executing contracts consisting of a computer program that automatically executes one or many specific action(s)—whether comprising a simple transaction or a complex set of transactions—with the terms of the contract directly written into software code. Smart contracts operate on distributed ledger technology, which inherently promotes trust through decentralization and—through the application of distributed ledgers—ensures that transactions and contract terms are immutable.

However, irrespective of these widely accepted characteristics of NFTs and smart contracts, the key legal concerns remain the same as in traditional analog contracts: how can the contracting parties trust that the contract is an indispensable manifestation of the will of the parties and that the contract is executed accordingly?

Trust. The key precondition in any contract is trust. Trust in contracts assumes and is dependent on the creation of the contract being supported by a continuous, unbroken, and verifiable set of contract-forming actions codifying alignment of the parties' expectations and agreements. All concluded by a final verification of the content of the agreement by either party, i.e., "signature". Trust is closely linked to enforceability. Enforceability requires evidence of contract (and its legally binding effect), which again requires documentation. Documentation requires transparency. And transparency is a fundamental component of trust.

While smart contracts may seem trustless due to their self-executing nature, ensuring transparency and documentation of the NFTs and smart contracts will ensure legal enforceability provided the documentation meets the relevant legal requirements, i.e., documents that the smart contract is an exact expression of the will of the parties.

Accordingly, a key legal consideration is ensuring that the code underpinning smart contracts and the process forming NFTs is free from vulnerabilities and exploitable flaws. Smart contract developers must address this by adhering to proven and best practice architecture and functionality, implementing stringent security practices, and undergoing thorough code audits to build trust in smart contracts. All are to be supported by clear and concise documentation.

Smart contracts and NFTs have disrupted traditional legal paradigms, introducing new challenges and opportunities for trust, transparency, documentation, and evidence. While they offer enhanced security and efficiency, it's essential to ensure compliance with traditional legal principles. Trust in smart contracts—and enforceability hereof—depends on code and process quality, transparency, and documentation (and adherence to specific national laws). If these basic requirements are met, NFTs and smart contracts will be considered valid and enforceable.

E-accounting for ESG reporting

Following Harvard and Oxford researchers' idea of E(environmental)-liabilities and E-assets.

Fixing potential reporting errors and double counting with a clear accounting methodology

Compatibility with Carbon Credit Markets to disclose mitigation actions

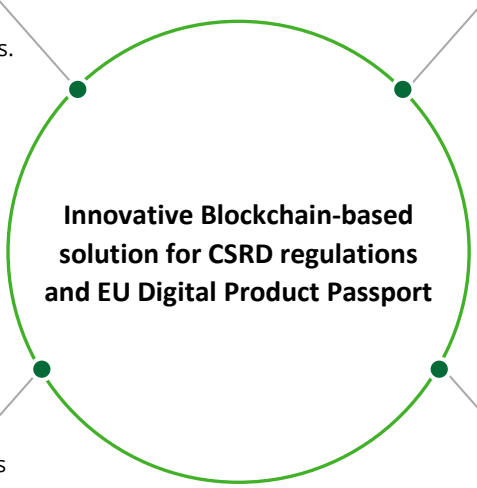
Value chain perspective

Building a solution for value chain perspective that integrates all the scopes of emissions

Scope 1: Direct emissions occurring in a company facilities

Scope 2: Energy bought to power a company's facilities

Scope 3: Upstream operations and downstream activites



Non-fungible Token (NFT)

Exploring the latest innovation of NFT ERC-6551, Token Bound Account application as a support for the EU Digital Product Passport

Providing high level of granularity to enable circular economy in companies' supply chains

Distributed ledger technology

Leveraging Blockchain's unique characteristics to support companies' transition toward a green and more sustainable business model

Bringing trust for stakeholders, regulators, and clients thanks to information traceability, immutability, and security

Building better futures by making an impact on **society's biggest challenges.**

Authors

Henrik
Director, Supply chain specialist

Bilal Bhatti
CEO / Founder – PaperTale AB

Jens Grønkjær Sjølander Pihl
Partner, LL.M

Kasper Blixt Simonsen
Consultant

Guillaume Ruffloch
Associate Analyst

References

Science based target , 2023, “Scope 3: Stepping up science-based action”, Science based target’s website : https://sciencebasedtargets.org/blog/scope-3-stepping-up-science-based-action

Deloitte, 2023, ”Deloitte CxO sustainability report”, Deloitte’s webiste: https://www2.deloitte.com/content/dam/Deloitte/rs/Documents/about-deloitte/2023-deloitte-cxo-sustainability-report.pdf

Carbon Disclosure Project, 2023, ” Companies failing to engage suppliers on nature and climate despite incoming regulation”, CDP’s website : https://www.cdp.net/en/articles/media/companies-failing-to-engage-suppliers-on-nature-and-climate-despite-incoming-regulation

Robert S Kaplan & Karthik Ramanna, 2021, “How to Fix ESG Reporting”, Harvard Business Review : https://www.hbs.edu/ris/Publication%20Files/22-005revised_ed6ac430-c3ca-4ba6-b0be-ca48c549aaf2.pdf

European Commission, 2023, “Corporate sustainability reporting”, European Union’s website : https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en

World Business Council for sustainable development, 2023, ”The EU Digital Product Passport”, WBCSD’s website : https://www.wbcsd.org/Pathways/Products-and-Materials/Resources/The-EU-Digital-Product-Passport

Benny Giang et al, 2023, ”ERC-6551 token Bound Account”, Medium : https://medium.com/future-primitive/tldr-nfts-have-their-own-wallets-try-it-here-http-tokenbound-org-6fac135a1f9d

About Horten

Horten is a full-service law firm with more than 70 years of experience and 350 specialists, all willing to take on new challenges, explore risks and identify opportunities with our clients.

We help leading organizations stay responsive within areas like banking and finance, real estate, green energy, tech, IP, and M&A, so they can make informed and confident decisions—sometimes even bold moves.

When the world changes, so do regulations.
Horten—Find a way.

About Deloitte

Deloitte provides audit & assurance, consulting, financial advisory, risk advisory, tax and related services to public and private clients spanning multiple industries. Deloitte serves four out of five Fortune Global 500® companies through a globally connected network of member firms in more than 150 countries and territories bringing world-class capabilities, insights and service to address clients’ most complex business challenges. To learn more about how Deloitte’s approximately 466,000 professionals make an impact that matters, please connect with us on Facebook, LinkedIn, or Twitter.

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms and their related entities. DTTL (also referred to as "Deloitte Global") and each of its member firms are legally separate and independent entities. DTTL does not provide services to clients. Please see www.deloitte.com/about to learn more

About PaperTale

PaperTale is a transformative blockchain technology offering an out-of-the-box solution that overhauls traditional business models. It connects the industry's critical stakeholders—consumers, brands, factories, and workers—effectively addressing their pain points.

Through PaperTale, consumers gain access to authenticated and transparent information, enhancing their experience and providing key data for brands to understand conscious behaviours. Brands can achieve future-proof compliance and elevate their ethical profile, while factories effortlessly showcase adherence to regulations.

PaperTale is the first to showcase public blockchain-based commercial supply chain traceability projects, demonstrating scalability across various initiatives from Asia to Europe. By creating a blueprint for future supply chains, PaperTale technology enables transparent information, compliance, regulation adherence, and workers' protection. Our 3P core strategy—Planet, People & Product—focuses on environmental challenges, social responsibility, and strong governance, making PaperTale a strong partner for transformation in the consumer goods industry.

For more information, visit the website at: www.papertale.org.

Contact Information: Bilal Bhatti

Founder and C.E.O PaperTale
Mobile: +46 76 801 00 68
E-mail: bilal.bhatti@papertale.org
Address: Jörgen Kocksgatan 65b
SE-211 20 Malmö Sweden
PaperTale website: www.papertale.org

Deloitte.

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited (“DTTL”), its global network of member firms, and their related entities (collectively, the “Deloitte organization”). DTTL (also referred to as “Deloitte Global”) and each of its member firms and related entities are legally separate and independent entities, which cannot obligate or bind each other in respect of third parties. DTTL and each DTTL member firm and related entity is liable only for its own acts and omissions, and not those of each other. DTTL does not provide services to clients. Please see www.deloitte.com/about to learn more.

Deloitte provides industry-leading audit and assurance, tax and legal, consulting, financial advisory, and risk advisory services to nearly 90% of the Fortune Global 500® and thousands of private companies. Our professionals deliver measurable and lasting results that help reinforce public trust in capital markets, enable clients to transform and thrive, and lead the way toward a stronger economy, a more equitable society and a sustainable world. Building on its 175-plus year history, Deloitte spans more than 150 countries and territories. Learn how Deloitte’s more than 415,000 people worldwide make an impact that matters at www.deloitte.com.

This communication contains general information only, and none of Deloitte Touche Tohmatsu Limited (“DTTL”), its global network of member firms or their related entities (collectively, the “Deloitte organization”) is, by means of this communication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

No representations, warranties or undertakings (express or implied) are given as to the accuracy or completeness of the information in this communication, and none of DTTL, its member firms, related entities, employees or agents shall be liable or responsible for any loss or damage whatsoever arising directly or indirectly in connection with any person relying on this communication. DTTL and each of its member firms, and their related entities, are legally separate and independent entities.

©2024