

Monetizing the Digital Product Passports:

Unlocking Revenue Streams



MONETIZING THE DIGITAL



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Overview



The circular economy represents a paradigm shift in how we produce, consume, and manage resources. It offers a promising path to address the pressing environmental challenges we face, including climate change and resource depletion. With mounting pressure on companies to adopt sustainable practices and the advent of new technologies, the transition to a circular economy is not just necessary but increasingly feasible. As we move forward, embracing circular principles will be crucial to our collective effort to create a more sustainable and resilient global economy.

Digital traceability can enhance supply chain transparency, allowing for better tracking of materials and ensuring the authenticity of recycled or sustainably sourced products. This innovative approach to product lifecycle management offers a comprehensive digital record of a product's journey, from raw material sourcing to end-of-life disposal, creating a digital product passport (DPP) to drive sustainability and transparency across supply chains.

This ebook delves into the concept of DPP, examines the regulatory landscape driving its adoption, and highlights the benefits for businesses in terms of achieving ESG goals and fostering a circular economy.

Additionally, we will present MARCO Track & Trace, Finboot's innovative traceability solution to automate ESG and sustainability credit record-keeping, create digital product passports, and manage sustainability declarations and certifications.





Monetizing the Digital Product Passports

The circular economy represents a paradigm shift in how we approach production, consumption, and resource management. This innovative economic model is designed to revolutionize our traditional linear "take-make-dispose" approach by eliminating waste and maximizing resource efficiency throughout the entire product lifecycle.

At its core, the circular economy is built on three fundamental principles:

- 1 Designing out waste and pollution from the outset
- 2 Keeping products and materials in use for as long as possible
- 3 Regenerating natural systems to ensure long-term sustainability

According to various reports, projections indicate substantial growth opportunities across various sectors within the circular economy. As consumers become more environmentally conscious and regulations tighten around waste and emissions, businesses that embrace circular and low-carbon models are likely to see increased demand and potential for profitability.

Recent [McKinsey research](#) proved that consumers care about sustainability, and they back it up with their wallets. Products that make ESG claims have disproportionate growth. On average, across 32 different categories, consumer products with [ESG claims have 1.7% higher growth](#) than products with no claims. Some categories, like paper and plastics, have seen as much as 20% higher growth.



Global Market Size:

The [Ellen MacArthur Foundation](#) estimates that the circular economy could unlock more than half a trillion euros in economic benefits annually by 2035.



Electronics: By 2030, 80% of hardware vendors' product portfolio will be linked to circular initiatives, up from 20% in 2023, according to Gartner. In fact, re-manufacturing and reusing end-of-life devices instead of having them end up in a landfill has become top of mind for most businesses around the world.



Recycled Plastics Market:

The global recycled plastics market is projected to reach \$72.6 billion by 2026, growing at a CAGR of 8.5% from 2021 to 2026 (MarketsandMarkets).





Circular Fashion: The secondhand clothing market is expected to reach \$64 billion by 2024, growing 39% annually (ThredUp).



Renewable Energy: The global renewable energy market is projected to reach \$1,977.6 billion by 2030, growing at a CAGR of 8.4% from 2021 to 2030 (Allied Market Research).



Electric Vehicles: The global electric vehicle market is expected to reach \$802.81 billion by 2027, growing at a CAGR of 22.6% from 2020 to 2027 (Allied Market Research).



Sustainable Packaging: The global sustainable packaging market size was valued at USD 244.30 billion in 2022. It is projected to reach USD 476.28 billion by 2031, growing at a CAGR of 7.70% during the forecast period (2023-2031).

Embracing sustainability isn't just about boosting revenue; it's about cultivating a diverse array of enduring economic advantages by transforming eco-friendly initiatives into profitable enterprises. While initial investments may be necessary, they hold significant potential for long-term gains. This is particularly true because circular practices significantly reduce expenses related to raw materials, energy consumption, and waste management.

Being a first mover will put you in a strong position as we explore new revenue streams and business opportunities that can only be unlocked through digital traceability and green supply chain management. Consider techniques such as solvent recovery, material recycling, and waste repurposing. These methods aren't merely environmentally responsible; they're financially astute. They lead to considerable cost savings, increased revenues, and enhanced profitability.

In the circular economy, companies have several strategic positioning options within the value chain:

- **Circular Design and Materials:** Utilize bio-based or other sustainable materials in product design to minimize environmental impact throughout the product lifecycle.
- **Comprehensive Product Stewardship:** Adopt models like "product as a service" to maintain control over materials and ensure their return to the production loop. For example, "polymer as a service" in the chemical industry.
- **Resource Sharing and Recovery:** Implement innovative approaches such as shared platforms and technologies to maximize resource efficiency.
- **Value Chain Coordination:** Orchestrate local or regional loops to optimize material flow and resource utilization.



"This huge business opportunity is only temporary."

Once the regulatory push catches on, these practices will become the new normal. So, depending on your sector, you have between 3 to 5 years, and in some cases maybe as much as 10 years, to financially and reputationally benefit from this opportunity.

Juan Miguel, CEO of Finboot.

[Watch it now!](#)



By adopting these circular economy principles, businesses can simultaneously drive profitability and environmental sustainability, creating a win-win scenario for both their bottom line and the planet.

Understanding the Value of the Green Premium

As businesses transition towards a circular economy, it's crucial to reassess and reimagine your value chain, particularly regarding the reuse of waste products. The journey begins with a deep dive into your target circular value chain.

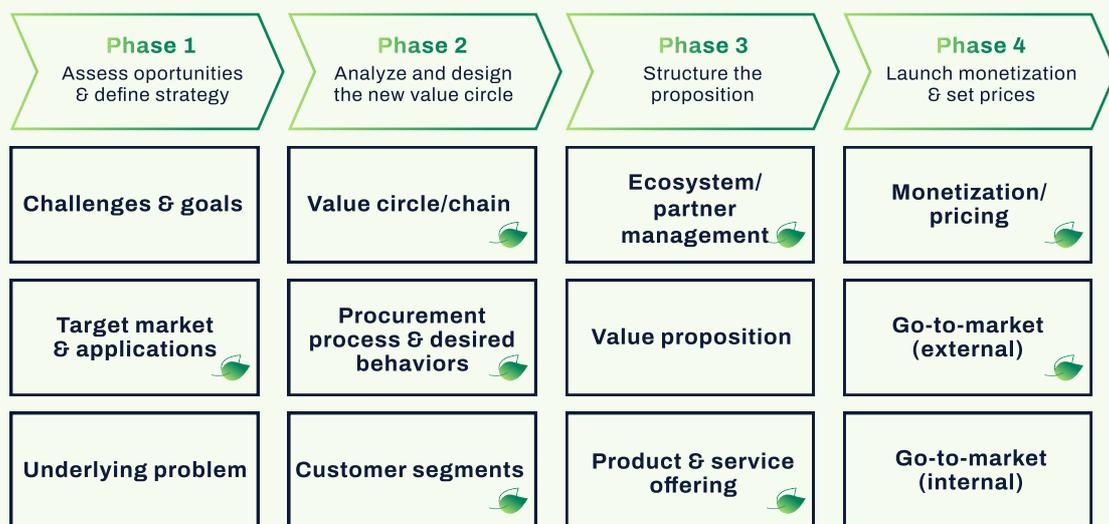
Identifying potential partners along this chain is essential, but equally important is adopting your customers' viewpoint. Scrutinizing their purchasing processes is a critical step in successfully monetizing the green premium. Gone are the days when a product-centric, feature-focused portfolio sufficed.

To effectively sell the green premium, two key factors come into play: product quantification and customer qualification. Quantifying the product requires a shift from traditional cost-based pricing to a value-based approach, addressing the crucial question: "What are customers willing to pay for sustainability?"

[Deloitte](#) outlines four interconnected elements crucial for monetizing the circular economy's green premium. These elements reach their full potential only when integrated into a comprehensive Monetizing Circular Economy Framework.

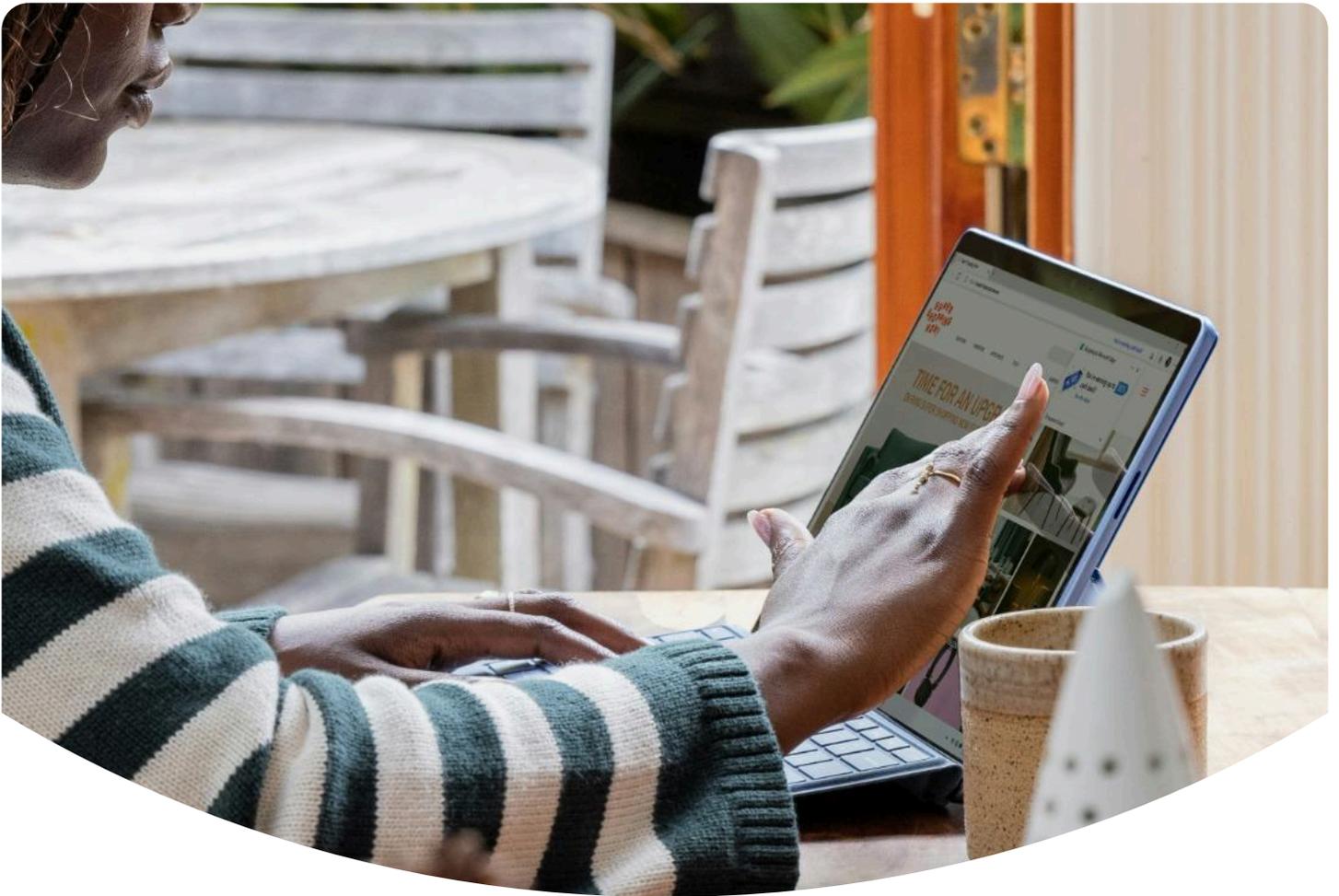
Customer insights and engagement form the backbone of this framework, influencing every aspect from product development to commercialization. By understanding customer perspectives, needs, and preferences, businesses can align their offerings with sustainability-driven demands.

Monetizing CE Framework



 Especially relevant for CE monetization





✓ CHECKLIST FOR MONETIZING THE CIRCULAR ECONOMY:

-  **Identify your position** in the circular value chain
-  Adopt a **circular mindset**
-  **Foster collaboration** and understand customer needs throughout the value chain
-  **Engage customers** and partners early in the process

-  **Continuously challenge** and refine business models
-  Develop a **suitable monetization strategy**
-  Craft a **compelling narrative**

By following this approach, businesses can effectively navigate the transition to a circular economy while capitalizing on the green premium, creating value for both the company and its environmentally conscious customers.



Examples on show companies can establish and monetize the circular economy

In our experience working with forward-thinking clients, we've observed the tangible benefits of adopting cutting-edge technologies to support circular economy initiatives. **Two key tools have emerged as game-changers in this space:**



Digital Product Passports:

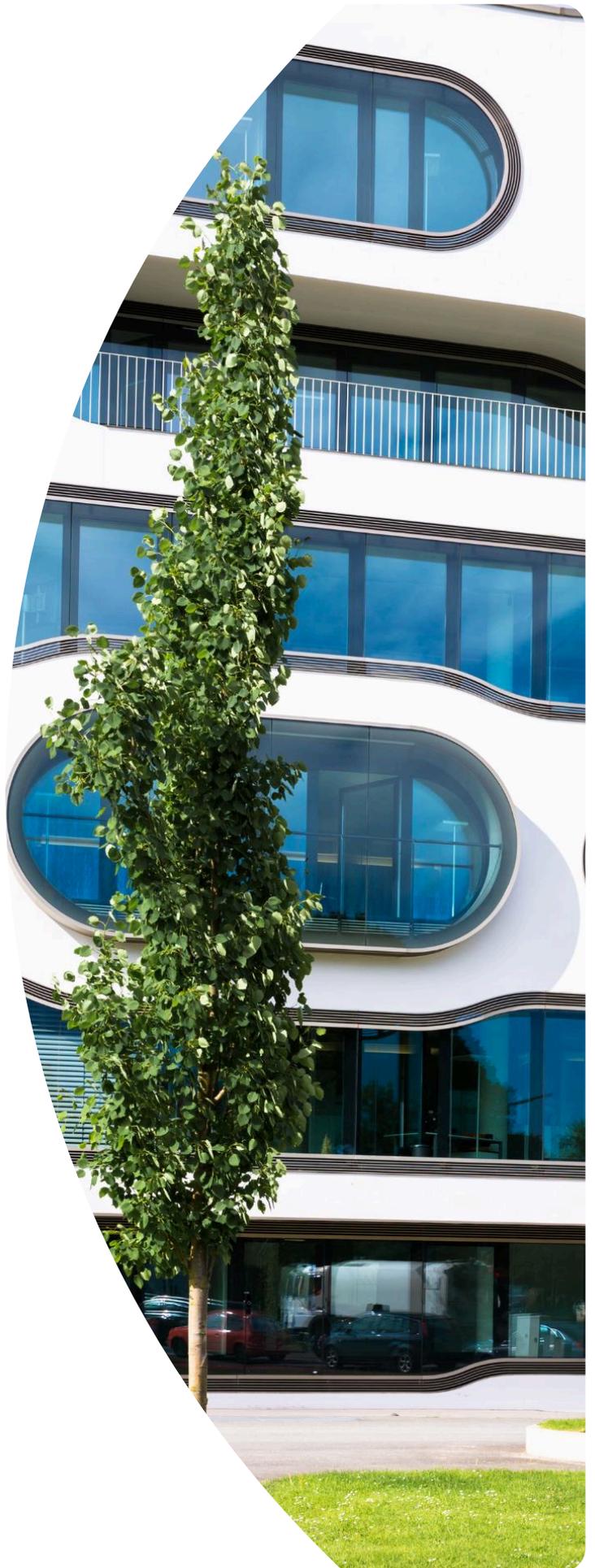
These provide a comprehensive digital record of a product's journey, from raw materials to end-of-life, enhancing transparency and traceability.



Mass Balance Approaches:

These enable companies to track and allocate recycled or bio-based content in complex production processes, supporting credible sustainability claims.

Our clients are already reaping the rewards of implementing these technologies. They're not only enhancing their sustainability practices but also gaining competitive advantages in terms of operational efficiency, regulatory compliance, and market differentiation.



Business Opportunities:

A Recycled Products:

The Cepsa Case: Digital Product Passports for Homecare Products

Finboot's MARCO Track & Trace has allowed Cepsa to implement digital traceability systems for tracking each batch of vegetable oil from its origin to its use in biodegradable surfactant production, in addition to automating bookkeeping and determining what percentage of output is from renewable and circular inputs.

LEARN MORE

B Circular Products:

The SABIC Case: Blockchain to Deliver Sustainable Packaging

SABIC, the global leader in the chemicals industry, becomes the first in their industry to unlock batch-level traceability from waste to packaging for their TRUCIRCLE products through MARCO Track and Trace. The project, with advanced recycling pioneer Plastic Energy and packaging specialist Intraplás, uses the Finboot application to support end-to-end digital traceability of circular feedstock in customer products.

LEARN MORE

C Low-Carbon Products:

The Repsol Case: Full Traceability of net-zero emissions fuels (HVO)

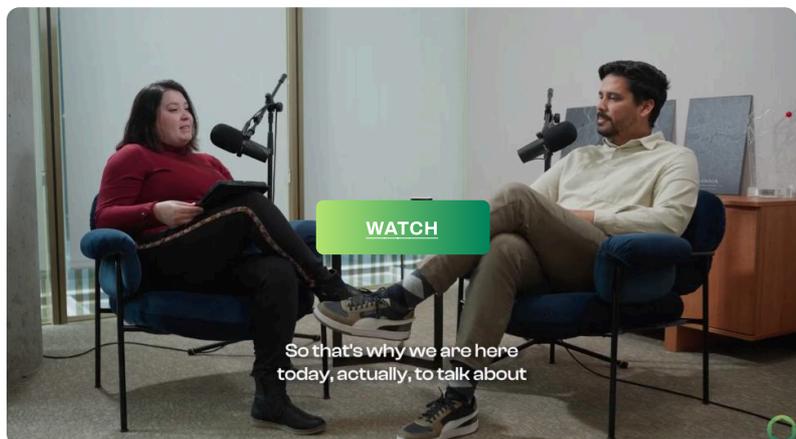
Repsol has been a client since 2018 and uses our digital traceability solutions extensively across several business areas. They use our digital ecosystems for the traceability of low-carbon fuels like HVO (Hydrotreated Vegetable Oil), and circular chemical products like packaging.

LEARN MORE

The transition to a circular economy is not just an environmental imperative; it's becoming a business necessity.

As we move forward, the companies that will thrive are those that embrace these principles and leverage innovative technologies to create value while contributing to a more sustainable future.

The Benefits of Leading in Decarbonization:



What is a Digital Product Passport?

— **A Digital Product Passport (DPP)** serves as a comprehensive digital record of a product's journey throughout its lifecycle. It provides a structured collection of product-related data, accessible via electronic means through a unique identifier. The European Commission defines a 'product passport' as a product-specific dataset that can be electronically accessed via a data carrier to facilitate the electronic registration, processing, and sharing of product-related information among supply chain entities, authorities, and consumers.

The DPP aims to enhance sustainable production, extend product lifetimes, support consumers in making sustainable choices, enable the transition to a circular economy, and assist authorities in verifying compliance.

It tracks a product's entire lifecycle, from material sourcing and extraction to end-of-life recycling, much like a travel passport documents a journey.

Industries Prioritized for DPP Implementation

The European Union has identified several priority sectors for DPP implementation by 2026. These include:

Batteries

Textiles

(garments and footwear)

Electronics

Furniture

(including mattresses)

Iron and steel

Aluminium

Chemicals

The construction industry, which accounts for approximately 40% of raw materials consumption worldwide, is also a high priority for European DPP utilization.



Key Components of a DPP

A Digital Product Passport typically includes the following key components:

Product Identification: Information on the product's name, model, serial number, and other identifying characteristics.

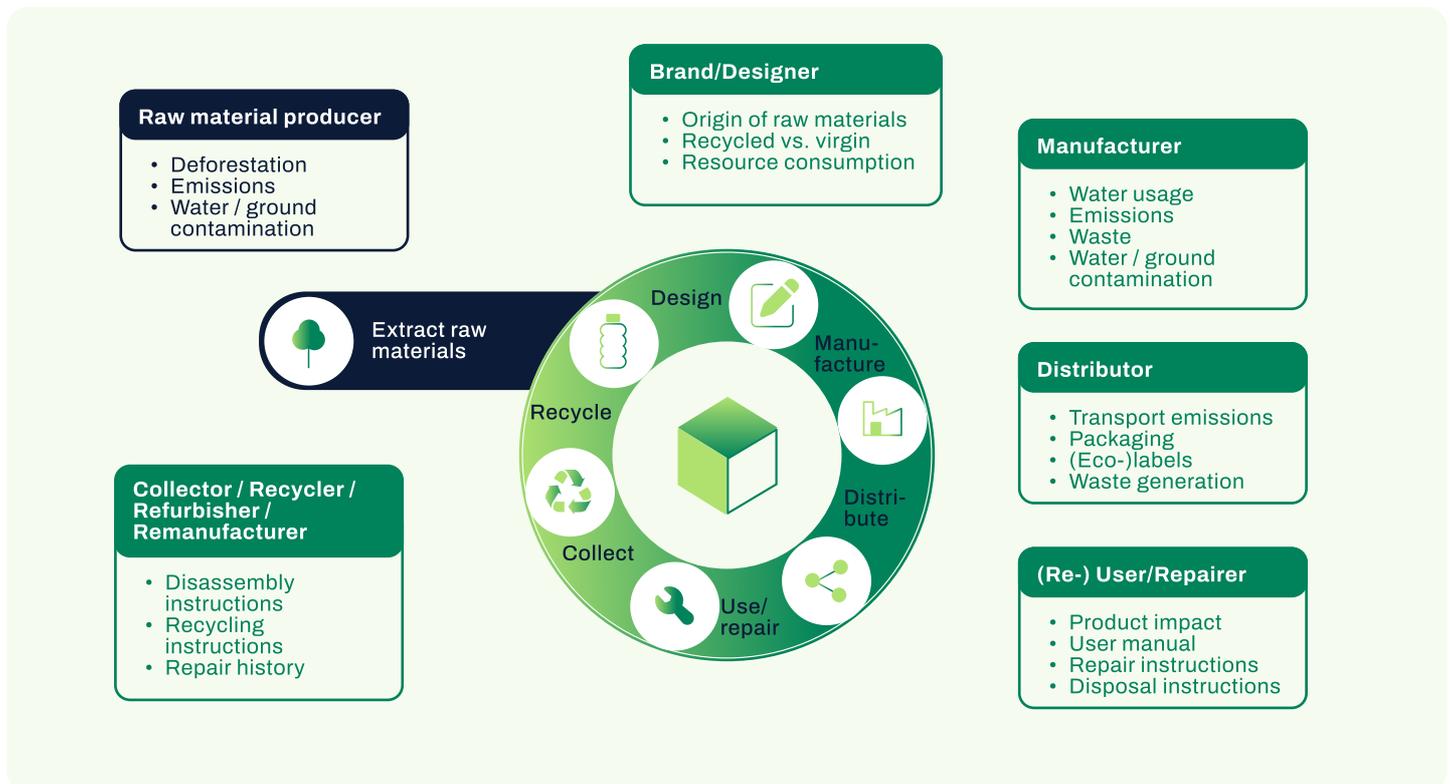
Materials: Details on all materials used within the product's lifecycle, including their origins and availability.

Technical Specifications: Information on the product's performance, capabilities, and other relevant specifications.

Product Lifecycle: Data on the consecutive, interlinked stages of a product from raw material use to final disposal.

Maintenance and Repair: Records of product service, repairs, and upgrades performed.

Environmental Information: Data on the product's environmental impact, including carbon footprint and resource consumption.



Exemplary information shared in a DPP across the product lifecycle

Data Carriers for DPPs

To access the DPP data, an electronically accessible data carrier with a unique product identifier is used. This carrier must be physically present on the product, its packaging, or accompanying documentation. Common options for data carriers include:



QR codes



Barcodes



RFID tags
(NFC or RAIN)

QR codes have gained popularity due to their ease of use and widespread familiarity. They can be read with a smartphone camera without requiring a specific app. The choice between NFC and RAIN RFID tags depends on factors such as read range and bulk reading capabilities.

By leveraging these data carriers, stakeholders can easily access the DPP information, enabling a better understanding of the product's composition, environmental impact, and recycling solutions throughout its lifecycle.





Benefits of Implementing Digital Product Passports



ENHANCED SUPPLY CHAIN TRANSPARENCY

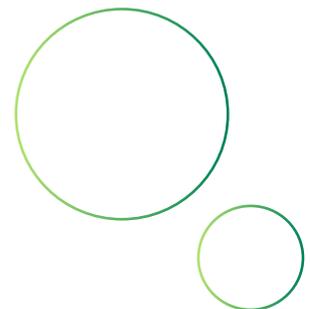
Digital Product Passports (DPPs) revolutionize supply chain transparency by providing detailed information about a product's journey throughout its lifecycle. This comprehensive digital record enables businesses to track and verify the authenticity, origin, and composition of their products. By implementing DPPs, companies gain unprecedented visibility into their supply chains, allowing them to detect and avoid counterfeit goods more effectively. This enhanced transparency protects consumers and maintains brand integrity, which is crucial as 46% of consumers desire clarity on product sourcing.



IMPROVED PRODUCT SUSTAINABILITY

DPPs play a vital role in advancing product sustainability and promoting a circular economy. By tracking the environmental impact of products, including their carbon footprint, DPPs enable consumers and businesses to make informed decisions favoring eco-friendly options. This transparency is particularly important as estimates show agriculture drives over 90% of tropical deforestation; deforestation and land use change, in turn, accounts for 11% of global carbon emissions, significantly contributing to environmental impact.

DPPs also facilitate more efficient recycling processes by providing detailed information about product materials, helping recycling facilities sort and process materials more effectively. This contributes to waste reduction and promotes a circular economy, where products are designed to be reused, repaired, or recycled.





CONSUMER TRUST AND BRAND REPUTATION

Implementing DPPs fosters consumer trust and enhances brand reputation by providing transparent and verifiable information about a product's sustainability and ethical sourcing. This transparency is crucial, as [33% of consumers have stopped purchasing from brands over sustainability concerns.](#) DPPs enable businesses to validate their green claims, combating the issue of greenwashing, which is becoming increasingly problematic. By ensuring that raw materials and manufacturing processes adhere to pre-set standards, DPPs protect consumers from illegitimate, dangerous, and subpar products, safeguarding brands from negative PR issues such as product recalls.



OPERATIONAL OPTIMIZATION

DPPs contribute to operational optimization by streamlining processes, reducing waste, and enabling more efficient resource management throughout the product lifecycle. By providing a centralized platform for all product information, DPPs enhance transparency and simplify compliance with regulatory standards. This centralized approach to data management can lead to measurable gains in time-saving and human error prevention, particularly in the face of mounting regulatory requirements. Additionally, the newfound supply chain visibility offered by DPPs allows businesses to mitigate risks, cut unnecessary procurement costs, and optimize their supply chains.



UNLOCKING REVENUE STREAMS IN RECYCLING

On how organizations can effectively monetize and generate revenue from implementing a digital product passport system, the options should cover a range of potential monetization strategies, such as:

- Charging fees for access to product lifecycle data and traceability
- Offering subscription-based services for supply chain visibility and analytics
- Generating revenue from sustainability credits or carbon offsets enabled by the digital passport
- Monetizing the resale or recycling of products through the digital passport system
- Leveraging the digital passport to enable new circular business models or product-as-a-service offerings





EU Regulations Driving DPP Adoption

The European Union is actively implementing regulations to drive the adoption of Digital Product Passports (DPPs) across various industries. These regulations aim to enhance sustainability, transparency, and circularity in product lifecycles.

ECODESIGN FOR SUSTAINABLE PRODUCTS REGULATION

The Ecodesign for Sustainable Products Regulation (ESPR) is set to replace the current Ecodesign Directive (2009/125/EC) on July 18, 2024. This new regulation expands the scope of ecodesign criteria to a broader range of products, with the goal of making sustainable products and packaging the norm in the EU market.

The ESPR introduces the concept of a digital product passport for all regulated products and packaging, providing easily accessible sustainability information to supply chain actors, regulators, and consumers.

Key aspects of the ESPR include:

- 1 Ban on destroying unsold consumer products
- 2 Disclosure requirements for unsold product disposal data
- 3 Implementation of the Right-to-Repair principle

The ESPR is expected to have a significant impact on energy savings. By 2030, it could lead to energy savings equivalent to the EU's imports of Russian gas.

EU STRATEGY FOR SUSTAINABLE TEXTILES

The textile industry is one of the top priorities for implementing Digital Product Passports. The EU Strategy for Sustainable and Circular Textiles addresses the production and consumption of textiles as part of the European Green Deal and Circular Economy Action Plan. This strategy is crucial, as EU textile consumption has the fourth highest impact on the environment and climate change, after food, housing, and mobility.

The DPP requirements for textiles are expected to be fully implemented by 2030. At this point, all textile products and their components manufactured in or placed on the EU market will need to comply with DPP regulations.





John Fletcher
CHIEF INNOVATION OFFICER AT STAHL

[WATCH VIDEO](#)

Case Study

Stahl Adopts Blockchain for Verified Sustainability in Textile Supply Chain

Stahl, a leading supplier of specialty chemicals for leather, synthetics, and fabric treatments, has revolutionized industry transparency. Using our technology to create digital passports for its renewable products. These digital passports contain provenance data and help track them and aid compliance and life cycle assessments. This offers the brands that use materials treated with Stahl chemicals end-to-end visibility of the manufacturing process, from raw materials to finished products.

CONSTRUCTION PRODUCTS REGULATION

The construction sector is a significant contributor to environmental impact, responsible for:

- 1 50% of all extracted raw materials in the EU
- 2 1/3 of fresh water usage
- 3 250 million tons of CO2 emissions annually from manufacturing alone
- 4 30% of total waste generation in the EU

The revised Construction Products Regulation (CPR) acknowledges the need for ecodesign in construction products.

However, environmental groups have expressed disappointment with the lack of specific guidance, deadlines, and targets for implementation. The regulation mandates disclosure of environmental information, starting with Global Warming Potential (GWP), with other environmental impacts to be included by 2028 and 2030.

NEW EU BATTERY REGULATION

The battery industry is at the forefront of DPP implementation. By February 18, 2027, a "battery passport" will be mandatory for EV batteries, LMT batteries, and rechargeable industrial batteries with a capacity greater than 2 kWh. This electronic record will contain information collected throughout the battery's lifecycle.

The battery passport will include:

- 1 General characteristics (model, manufacturer, production facility)
- 2 Performance and durability data
- 3 Chemical composition
- 4 Information on data collection methods



[Create your own Battery Passport](#)



THE EU DEFORESTATION REGULATION (EUDR)

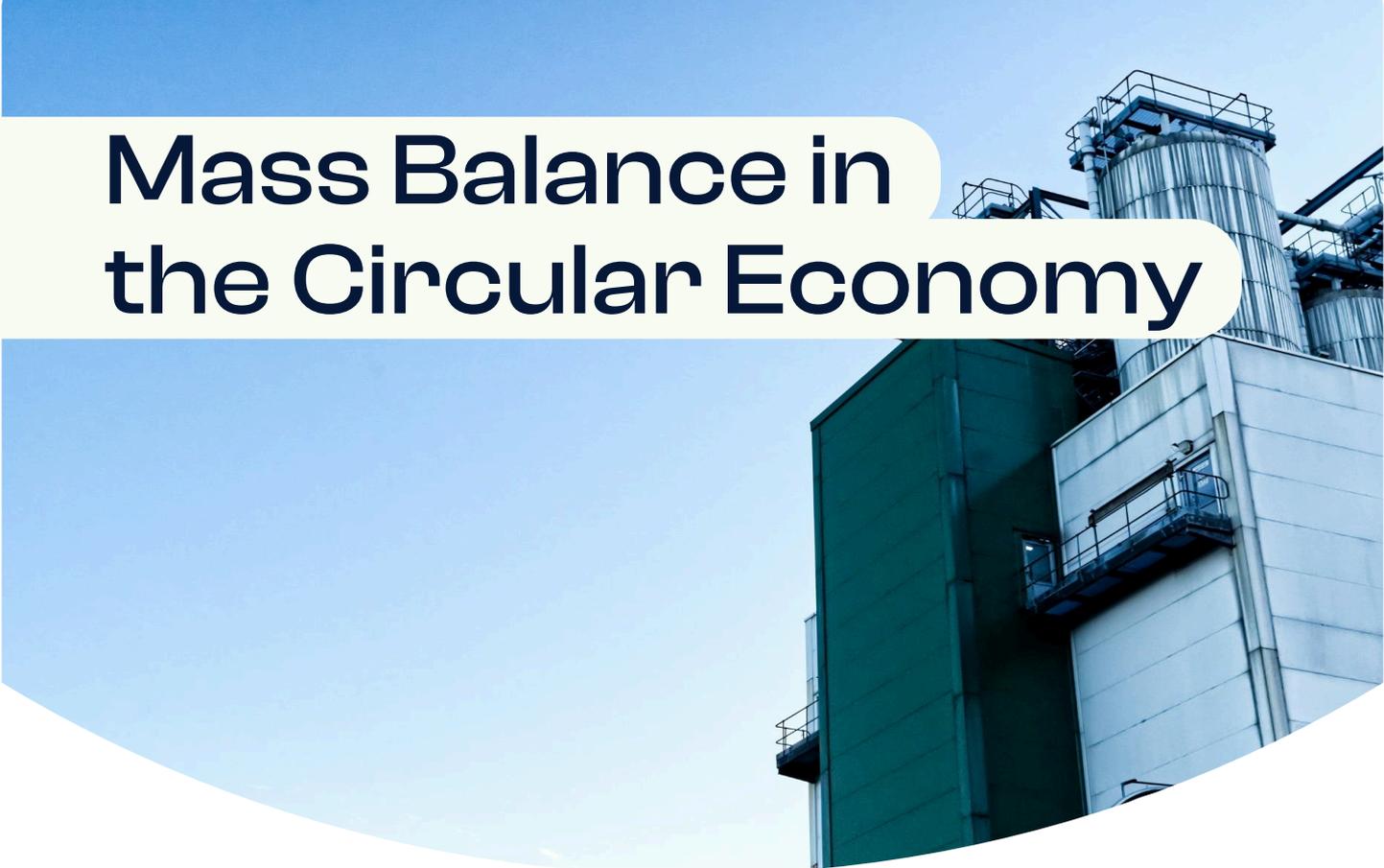
The EU's Deforestation-Free Products Regulation (EUDR) aims to curb deforestation by restricting the sale of certain products in the EU. Targeting commodities like cattle, cocoa, coffee, oil palm, rubber, soy, and wood, which contribute to 90% of global deforestation, the regulation takes effect on December 30, 2024 (June 30, 2025 for small businesses)

To comply, products must be deforestation-free, produced according to the country of origin's laws, and accompanied by a due diligence statement. This initiative aligns with the EU's broader environmental and climate change goals, promoting deforestation-free supply chains.

These regulations collectively demonstrate the EU's commitment to promoting sustainability and transparency across various industries through the implementation of Digital Product Passports.



Mass Balance in the Circular Economy



Chain of custody refers to the documentation and tracking of the handling, movement, and location of materials as they pass through various stages of a supply chain. In the context of sustainability, it's essential to verify the origin, processing, and distribution of sustainable or certified materials.

Mass balance is a method used within the chain of custody framework to track and account for sustainable materials when they are mixed with conventional materials during processing or manufacturing.

This approach allows companies to gradually increase the proportion of sustainable materials in their supply chains without the need for separate processing lines or storage facilities.

This can be particularly beneficial in industries such as palm oil, cocoa, or recycled plastics, where complete segregation might be impractical.

However, to maintain credibility, companies using mass balance within their chain of custody systems must ensure:

- 1 Rigorous accounting:** Accurate tracking of sustainable material inputs and outputs.
- 2 Third-party verification:** Regular audits by independent bodies to confirm compliance.
- 3 Clear communication:** Transparent explanation of the mass balance approach to stakeholders and consumers.



BENEFITS FOR BUSINESSES:



Operational Efficiency and Cost Management:

- Cost reduction by identifying inefficiencies and waste in production
- Risk management through clear visibility of material flows in supply chains
- Long-term resilience against resource scarcity and price volatility



Scalability and Adaptability:

- Gradual introduction of recycled or bio-based materials without immediate, large-scale changes
- Facilitation of circular practices and material recovery/reuse strategies



Regulatory Compliance and Innovation:

- Robust method for demonstrating compliance with sustainability regulations
- Drivers for innovation in product design and manufacturing processes
- Support for developing new circular business models



Enhanced Sustainability and Market Position:

- Improved sustainability credentials through credible claims about recycled or bio-based materials
- Market differentiation appeals to environmentally conscious consumers
- Increased stakeholder trust through transparent reporting

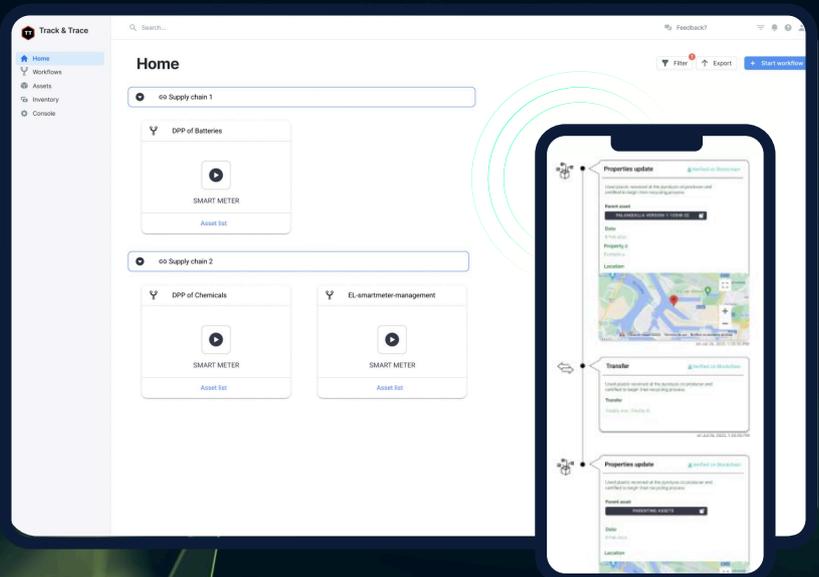




Meet MARCO Track & Trace

Finboot's MARCO Track & Trace is a digital traceability solution powered by blockchain. It is the first Green supply chain management suite for the world's largest capital intensive companies.

MARCO Track & Trace enables trusted shared record-keeping between stakeholders in a supply chain. It empowers businesses to easily configure and create digital product passports and to manage their ESG and sustainability data through end-to-end traceability and visibility (from raw materials to finished products).



Key Features and Capabilities

1 **Creating a Digital Product Passport (DPP)**

Get ahead of regulation and be ready to easily create, configure and share Digital Product Passports with your direct clients, brand owner, and consumers. Secure a competitive advantage and grow your market share by sharing enriched supply chain data and insights with clients.

2 **Automated Sustainability Credits Bookkeeping:**

Finboot enables automated bookkeeping for sustainability credits, compatible with Mass Balance and Book & Claim approaches. Ensure accurate and efficient sustainability credit management and prevent double spending.

3 **GHG Emissions Tracking:**

Designed for supply chain emissions with a special focus on scope 3 emissions. This enables business to gather, verify, and share info on their greenhouse gas emissions linked to specific products. A more transparent monitoring of CO2 and equivalent emissions broken down in each part of the supply chain.

4 **Scheme regulation**

Easily create and manage certification documents for voluntary and regulatory schemes such as Sustainability Declarations for Mass Balance certifications. Streamline compliance and reduce audit costs, giving you more time to focus on your business sustainability goals.

5 **ESG reporting**

also faces the risk of greenwashing, where companies exaggerate or falsely claim environmental benefits. This is where blockchain technology can play a crucial role by providing an immutable record of data transactions, thereby ensuring transparency and accountability. This data is invaluable for investors, allowing them to make more informed decisions.

6 **Supplier and Customer Portals:**

Get supply chain data directly from suppliers and offer your customers an opportunity to join an expand your traceability ecosystem. Our permissioned portals foster supply chain collaboration, enhance data quality and promote more sustainable and collaborative supply chains.



Key Features and Capabilities

7 Enhanced security:
You'll have an immutable record of data transactions. This means no transaction can be changed or altered in any way. This provides an extra layer of reliability and trust.

8 Streamline processes
and reduce the cost and time associated with certain operations, making businesses more productive while reducing waste in the process.

9 Global multilingual solution:
Our solutions are used globally (4 continents and counting). Our web applications are available in 5 languages, with more available on request.

10 Interoperability with legacy and emerging tech:
MARCO, our no-code/low-code solution, offers seamless interoperability with both legacy and emerging technologies. Our clients have integrated our solutions into their ERPs, procurement systems, and financial systems. We can also operate with other emerging technologies like IoT, RFID, and NFC.

Additionally, our partnership with Algorand's environmentally friendly blockchain technology reduces our ecological impact, aligning with our sustainability commitments and ensuring that we meet the environmental expectations of our customers.



**FINBOOT MARCO
Track & Trace -
First Green
Supply Chain
Management Suite**

[WATCH VIDEO](#)

Implementation of MARCO Track & Trace:

We can have MARCO Track and Trace operational in 8 to 12 weeks. This will prepare us for case testing and business case validation.

Implementing MARCO Track & Trace typically involves the following steps:

1 Contact one of our experts.

Jump a call with one of our experts to discuss your situation. What low-carbon, renewable, and circular products is your business working with. What are the biggest challenges in managing these sustainable supply chains.

2 Bespoke product tour.

Get a bespoke product tour with our team showing you exactly how our solution can help ease supply chain management and minimize risks.

3 Business case and solution design.

Our team will work with you to provide a detail solution design and an implementation plan for our technology. We will also help you build a business case and estimate the return on investment.

4 Set up and configuration.

Start working on your own digital traceability eco-system. Our implementation and delivery team will work with you to configure and document your entire solution.

5 Onboarding and scale.

Once the configuration is approved we will start onboarding and training users. Get you traceability ecosystem ready to scale in under 8 weeks.



Conclusion

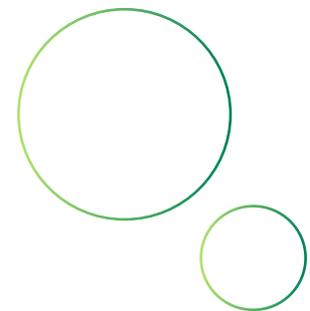
Digital Product Passports are revolutionizing the way businesses approach sustainability and transparency.

By providing a comprehensive digital record of a product's journey, these passports have a significant impact on supply chain management, environmental sustainability, and consumer trust.

The EU's regulatory push, particularly in sectors like batteries, textiles, and construction, is driving widespread adoption of DPPs, creating a ripple effect across industries and stakeholders.

The benefits of implementing Digital Product Passports are far-reaching, from boosting supply chain transparency to improving product sustainability and enhancing brand reputation.

As businesses navigate this new landscape, it's crucial to consider the opportunities DPPs offer for fostering a circular economy and meeting ESG goals.



To get started on your journey towards a more sustainable and transparent future.

CREATE YOUR OWN DIGITAL PRODUCT PASSPORT TODAY.

