

Prepared by DigitalTrade4.EU



Digitalising Recycled Plastic Content Reporting: Enhancing Transparency and Compliance in Single-Use Beverage Bottles for a Sustainable EU Single Market

Feedback to the EU Commission

July 2025

About Us

The **DigitalTrade4.EU consortium** envisions a **seamlessly interconnected Europe** and **neighbouring regions** powered by harmonized standards for the digitalisation of trade documents and processes. By fostering the digital transformation of trade, we aim to promote economic integration, enhance cooperation, and ensure long-term trade facilitation across borders.

Our consortium is made up of **experts in their field**, including **108 full partners**—trade associations, logistics providers, shipping lines, banks and insurances, technology innovators, etc.—**from 17 European Union countries** (*France, Belgium, Netherlands, Austria, Estonia, Finland, Italy, Latvia, Spain, Germany, Sweden, Poland, Luxembourg, Lithuania, Slovenia, Denmark, Bulgaria*) and **22 non-EU countries** (*United Kingdom, Switzerland, Montenegro, Japan, Singapore, Hong Kong, Australia, New Zealand, India, Nepal, Canada, United States of America, Cameroon, Morocco, Egypt, Kenya, Pakistan, Nigeria, Brazil, Uzbekistan, Turkey, Ukraine*).

Our consortium is already **aligned with the fundamentals of the EU Competitiveness Compass**. Learn more:

1. How DigitalTrade4.EU Can Help Achieve the Objectives of the EU Competitiveness Compass (February 2025)

<https://www.digitaltrade4.eu/how-digitaltrade4-eu-can-help-achieve-the-objectives-of-the-eu-competitiveness-compass/>

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Executive Summary

This feedback from DigitalTrade4.EU **wholeheartedly endorses and welcomes the European Commission's ambitious renewed commitment** to forging a truly simple, seamless, and strong Single Market, as meticulously articulated in the pivotal "The Single Market: our European home market in an uncertain world" Strategy (COM(2025) 500 final). We are particularly **impressed by and applaud the strategic emphasis on digitalization** as a foundational pillar for achieving these overarching objectives. Our core recommendation centers on the **accelerated and strategic implementation of the Digital Product Passport (DPP)**. We believe the DPP possesses immense potential to **significantly enhance transparency, traceability, and robust compliance** across the entire Single Market, especially concerning product-related information and the critical pursuit of sustainability goals.

Furthermore, DigitalTrade4.EU asserts that a **robust, universally adopted, and interoperable DPP framework**, underpinned by **decentralized architectures and trusted digital identities (LEI/vLEI)**, can effectively address and mitigate many of the "Terrible Ten" barriers previously identified. This includes, but is not limited to, fragmented rules on packaging, labelling, waste management, and overall product compliance.

By streamlining these processes, the DPP, in conjunction with **interlinked digital compliance portals and platforms**, will **substantially simplify administrative burdens for businesses**, particularly benefiting small and medium-sized enterprises (SMEs) by fostering a more efficient and predictable operating environment within the EU. This holistic digital approach will solidify the Single Market's future prosperity and resilience.

We particularly emphasize the critical role of digital tools in ensuring accurate, transparent, and traceable reporting of recycled plastic content, which is essential for meeting the EU's sustainability goals and reducing environmental impact.

Introduction

The European Single Market is a **cornerstone of the EU's prosperity and competitiveness**, bringing together 30 states, 450 million consumers, and 26 million companies. In an increasingly uncertain global landscape, its **strength and resilience are more critical than ever**, serving as a vital engine for economic growth, innovation, and social cohesion. This vast internal market provides unparalleled opportunities for businesses to scale and for citizens to access a diverse range of products and services, contributing to economic stability and a shared European identity.

The Commission's Strategy for making the Single Market simple, seamless, and strong is therefore a **timely and necessary initiative** to unlock its full, untapped potential and ensure its continued relevance in a rapidly evolving global economy.

DigitalTrade4.EU, as a dedicated advocate for advanced digital trade solutions and a proponent of technological innovation, is deeply committed to **supporting this vision**. We aim to contribute actionable recommendations, particularly focusing on how digitalization can serve as the **primary catalyst** for achieving a truly integrated, efficient, and future-proof Single Market. Our insights are designed to help the Commission navigate the complexities of digital transformation, ensuring that the benefits of a modernized market are accessible to all stakeholders.

Note: In this document, the terms **Small and Medium-sized Enterprises (SMEs)** and **Micro, Small and Medium-sized Enterprises (MSMEs)** are used interchangeably and carry the same meaning and weight. This clarification is important because different sources and contexts may refer to these groups using either acronym, but both encompass the full range of smaller business categories critical for economic development.

Expectations from the Commission's Side: The Objectives

We have thoroughly reviewed the Commission's strategic documents, including the **Strategy for making the Single Market simple, seamless and strong (COM(2025) 500 final)**¹, and the draft eFTI implementing regulation. The **DigitalTrade4.EU consortium** has analysed these **objectives** through the lens of **digital trade facilitation** and **sustainability**. We believe that **digital tools** such as the **Digital Product Passport (DPP)** and **trusted digital identities (LEI/vLEI)** are essential for achieving the **Commission's goals**, particularly in the context of **product compliance** and **environmental reporting**.

In order of criticality to achieving a data-driven Single Market, the Commission's objectives are:

- **Reducing barriers:** Focusing on the "Terrible Ten" most harmful obstacles that hinder trade and investment.
- **Boosting European services markets:** Invigorating services sectors, particularly those relevant for the twin transition.
- **Focusing on SMEs:** Enabling small and medium-sized enterprises to fully leverage the European market.
- **Effective digitalisation:** Moving from a document-based to a **data-based Single Market** to streamline processes and enhance efficiency.
- **Simplification:** Taking immediate action to **reduce red tape** and simplify rules.
- **Effective implementation and enforcement:** Ensuring that agreed policies are **applied uniformly and effectively**.

¹ European Commission, Internal Market, Industry, Entrepreneurship and SMEs. The Single Market: our European home market in an uncertain world (May 2025)
https://single-market-economy.ec.europa.eu/publications/single-market-our-european-home-market-uncertain-world_en

- **Increased ownership:** Fostering greater political and national engagement from Member States.
- **Synergy in EU spending:** Utilizing the EU budget to promote national reforms that advance Single Market objectives.
- **Protection from unfair trade practices:** Shielding EU businesses and citizens from external market distortions.

We particularly note the Commission's ambition to have a **modernised and digitalised European Market framework in place by 2030**. This commitment to digitalization, including the mention of a "Digital Omnibus" and the **Digital Product Passport (DPP)**, aligns strongly with our expertise and proposed solutions.

Approach and Recommendations

DigitalTrade4.EU believes that **digitalization is not merely an enabler but a transformative force** for the Single Market. Our approach centres on leveraging **interoperable digital tools** to create a truly seamless and transparent environment for businesses and consumers.

The "**COMMISSION IMPLEMENTING DECISION (EU) .../... laying down rules for the application of Directive (EU) 2019/904... as regards the calculation, verification and reporting of data on recycled plastic content in single-use plastic beverage bottles**" explicitly highlights the **monitoring of recycled plastic content as a cross-border digital public service** in the meaning of Regulation (EU) 2024/903 (Interoperable Europe Act). This underscores the **critical need for digital solutions** to manage complex data requirements across the supply chain.

Our primary recommendation is the **accelerated and comprehensive implementation of the Digital Product Passport (DPP)** as a central pillar of the digital Single Market. As stated in the Strategy, the DPP "**will become the main tool for disclosing and sharing product information** across all new and revised product legislation." This is a **game-changer** for addressing several of the identified barriers.

Key Recommendations from DigitalTrade4.EU:

1. **Champion EU-wide Adoption of the MLETR Legal Framework:** We strongly recommend that the Commission **champion the adoption of the UNCITRAL Model Law on Electronic Transferable Records (MLETR)**² legal framework across all Member States. This model law provides a **globally recognised legal basis** for electronic transferable records (like e-bills of lading and other Negotiable Cargo Documents) to be treated as functionally equivalent to their paper counterparts. Adopting this framework is the **essential first step** to creating a legally certain, paperless, and

² UNCITRAL. Model Law on Electronic Transferable Records
https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_transferable_records

efficient trade environment that aligns with the practices of key global trading partners.

2. **Embrace Decentralised Architectures:** Rather than mandating a single, centralised system or gate, the EU should **foster an environment that supports technologically neutral, decentralised and resilient architectures** (e.g., based on DLT, peer-to-peer networks). Decentralisation enhances security by **eliminating single points of failure**, increases resilience against cyberattacks, and gives economic operators greater control over their data. For instance, blockchain-based systems used in cross-border logistics (e.g., TradeLens) have demonstrated reduced fraud risks and faster dispute resolution by distributing data across multiple trusted nodes.
3. **Digital Product Passports (DPPs):** We **fully support** the EU's vision for **DPPs** as a **fundamental enabler of supply chain transparency and sustainability**, directly aligned with initiatives such as **UNECE Recommendation No. 49 ("Transparency at Scale")**³. DPPs provide **verifiable, machine-readable data** on a product's **composition, origin, lifecycle, and environmental footprint**.

From a logistics perspective, **Digital Product Passports (DPPs)** are extremely important because they enable **smooth, trusted information exchange** among various parties in the **supply chain** – from manufacturers and transporters to customs authorities and end-users. In line with **Regulation (EU) 2020/1056 on electronic Freight Transport Information (eFTI)**, DPPs facilitate **digital access** to relevant **product and transport data**, supporting the electronic submission and processing of information required by competent authorities. This complete **visibility** helps with efficient handling, better **risk management**, streamlined **customs clearance**, and **compliance** with regulatory requirements. Additionally, DPPs help reduce operational **delays** by providing **real-time, accessible product data** that supports decision-making and **traceability** at every stage of transport and storage, fully aligning with the

³ United Nations Economic and Social Council. Recommendation No. 49: Transparency at Scale – Fostering Sustainable Value Chains (March 2025)
<https://unece.org/sites/default/files/2025-05/ECE-TRADE-C-CEFACT-2025-03E.pdf>

objectives of the **eFTI Regulation** to enhance **interoperability** and **efficiency** in freight transport logistics.

Digital Product Passports (DPPs) are also strongly supported by the **European Union's overarching strategy** to make the Single Market **simple, seamless, and strong**. As outlined in the **EU Strategy COM(2025) 500 final**, the primary goal of this strategy is to enhance the **competitiveness, resilience, and strategic autonomy** of the European Market by **removing barriers, simplifying rules, and accelerating digitalisation**. By leveraging DPPs, the EU aims to **reduce administrative burdens**, promote **sustainability through traceable product lifecycles**, and strengthen **security**—thereby supporting both **commercial and dual-use applications** critical to the Single Market's future **prosperity and stability**.

4. **Interlinking Digital Compliance Portals and Platforms:** To maximize the efficiency and impact of digital trade and regulatory frameworks, the European Commission should **prioritize the seamless interoperability of various digital compliance portals and platforms**, including but not limited to the eFTI platforms, DPP platforms, EU Single Window for Customs⁴, and sector-specific portals such as the F-gas Portal⁵. This interoperability is critical to **avoid data duplication, reduce administrative burdens, and streamline regulatory reporting and enforcement** across Member States. A **harmonized infrastructure shared among Member States at multiple levels**—including platform technology, accreditation procedures, and certification bodies—would substantially simplify the digital ecosystem. By **enabling Member States to use the same technical infrastructure and align accreditation and certification processes**, the Commission can create a more efficient, cost-effective, and secure digital environment for logistics, trade and compliance management.
5. **Leverage eIDAS 2.0 for a Secure and User-Controlled Digital Identity:** The **European Digital Identity (EUDI) Wallet**, established under the Regulation (EU) 2024/1183 (**eIDAS 2.0**), should serve as the **cornerstone of trusted digital identity** in the EU.

⁴ European Commission, Taxation and Customs Union .The EU Single Window Environment for Customs https://taxation-customs.ec.europa.eu/eu-single-window-environment-customs_en

⁵ European Commission, Climate Action. F-gas Portal https://climate.ec.europa.eu/eu-action/fluorinated-greenhouse-gases/f-gas-portal_en

Complemented by the **EU Business Wallet** (a key priority for 2025), these frameworks empower citizens and businesses by granting them full control over their data. Users can securely store and share identity information, verifiable credentials (e.g., licenses, qualifications), and business-related attestations across borders for both public and private services. To support seamless logistics, trade and cross-border interoperability, the EUDI and EU Business Wallets should also prioritize compatibility with international unique identity (UID) systems and registries, such as the Legal Entity Identifier (LEI), to ensure alignment with global standards while maintaining the security and user-centric principles central to eIDAS 2.0. By fostering connectivity with external ecosystems, the EU can strengthen its **Digital Single Market** as a globally interoperable, harmonized hub for trusted digital interactions.

6. **Fostering Supply Chain Security and Transparency through Globally Unique Identifiers:** A secure and transparent supply chain begins with the reliable identification of every legal entity involved in handling goods at each stage. The adoption of globally unique identifiers, specifically the **Legal Entity Identifier (LEI)** as defined by **ISO 17442**, is essential for this purpose. By requiring every economic operator in the supply chain to use an **LEI**, authorities and business partners can instantly validate not only digital documents, but also the legitimacy and current status of consignors, carriers, and consignees. This enables real-time verification against official registries—including business registers and insolvency databases—ensuring that entities are properly registered, solvent, and not subject to legal restrictions.

LEIs are already mandated across several **EU financial regulations** and should now be extended to the **NLF ecosystem** to guarantee regulatory consistency and data interoperability throughout the **Single Market**. The verifiable LEI (vLEI) enhances traditional LEIs by enabling cryptographic verification of organizational identities and roles, such as confirming a company's authority to export regulated goods. KERI (Key Event Receipt Infrastructure) is a decentralized protocol that ensures tamper-proof identity management, offering quantum-resistant security features critical for future-proofing EU digital infrastructure.

The next step is to integrate the **verifiable LEI (vLEI)**, built on the **Key Event Receipt Infrastructure (KERI)** protocol and compatible with **eIDAS 2.0**, which adds robust digital identification for organizational roles and delegations, offering advanced cryptographic features, quantum-resistant identifiers, and resilience against security breaches. We recommend the full integration of **LEI** and **vLEI** into the **eFTI** and **Digital Product Passport (DPP)** frameworks in order to:

- Ensure seamless, cross-border identification of all legal entities involved in transactions, logistics, and compliance processes.
- Harmonise identity frameworks across **Member States**, reducing fragmentation and administrative burden.
- Enable real-time regulatory compliance checks (**KYC**, instant payments, **MiCA**, **ESAP**) and support secure, trusted digital transactions.
- Facilitate **interoperability** with international partners by bridging EU and third-country identifiers.
- Leverage **GLEIF**'s global authority as the foundation for trusted organizational identity in both public and private sector transactions.

From a technical perspective, **vLEI credentials** use **Authentic Chained Data Containers (ACDC)**—cryptographically verifiable, JSON-based data structures that allow for secure, step-by-step disclosure of sensitive information. This enables automated, machine-readable trust relationships between organizations, combining human and technical trust in a scalable model for global supply chains.

Incorporating **LEI** and **vLEI** into **EU digital infrastructure** is already aligned with broader legislative efforts—such as **Digital Operational Resilience Act (DORA)** and the **Anti-Money Laundering (AML) Regulation**—to create a secure, resilient, and interoperable digital **Single Market**. These globally recognized identifiers are essential for the EU's ambitions in **green-digital trade**, **military mobility**, and **strategic autonomy**, providing the backbone for trustworthy, cross-border data flows and supply chain transparency.

Suggested Changes to Implemented Decision

To translate our recommendations into concrete legislative action, we propose the following amendments to the COMMISSION IMPLEMENTING DECISION (EU) .../... laying down rules for the application of Directive (EU) 2019/904 as regards the calculation, verification and reporting of data on recycled plastic content in single-use plastic beverage bottles:

1. Article 1 (Add Definitions):

- **Proposed Change/Amendment:** Insert new definitions for "Digital Product Passport (DPP)", "Legal Entity Identifier (LEI)", and "Verifiable Legal Entity Identifier (vLEI)" into Article 1.
 - *'Digital Product Passport (DPP)’ means a digital record providing verifiable data on a product’s composition, origin, lifecycle, and environmental footprint, as defined in (EU) Regulation 2024/1781 (Ecodesign for Sustainable Products Regulation).*
 - *'Legal Entity Identifier (LEI)': a globally unique, ISO 17442-compliant identifier for legal entities, governed by a global, accredited operating entity.*
 - *'Verifiable Legal Entity Identifier (vLEI)': ISO 17442-3, is a digitally signed credential compatible with eIDAS 2.0, enabling secure and automated entity identification and authorisation, issued by an authorized global operating entity within the LEI ecosystem.*
- **Justification:** These definitions provide clear, internationally recognised legal and technical benchmarks for systems that manage product data and identify legal entities. Their inclusion fosters legal certainty, technological neutrality, and global interoperability, crucial for the effective implementation of the DPP for beverage bottles and for ensuring trusted interactions among economic operators. This aligns directly with the "Trusted Legal Entity Identification and Supply Chain Security with LEI/vLEI" key recommendation, ensuring a

foundation for secure and verifiable digital interactions. Furthermore, the inclusion of these definitions aligns with the broader EU digital strategy and supports the interoperability of product data systems across sectors and borders.

2. Article 8 (Declarations and Certificates via DPP using Decentralized Architectures):

- **Proposed Change/Amendment:** *Amend Article 8(3) to specify that the declaration of recycled plastic content shall be provided by economic operators through a Digital Product Passport (DPP). This process shall leverage decentralized architectures to ensure data integrity, resilience, and economic operator control. Similarly, amend Article 8(9) to require that the certificates issued by verifiers be digitally integrated into the relevant DPPs, ensuring their secure and immediate accessibility through these decentralized frameworks.*
- **Justification:** The current decision requires declarations and certificates to be collected and transmitted. By mandating their digital integration into DPPs via **decentralized architectures**, as supported by the "Embrace Decentralised Architectures" recommendation, the process becomes more efficient, reduces administrative burden, and ensures **real-time data availability and verifiable traceability** across the supply chain. This directly addresses the decision's aim for robust data collection and verification while enhancing security and resilience.

3. Article 9 (Reporting Data via Interlinked DPPs and Compliance Platforms):

- **Proposed Change/Amendment:** *Amend Article 9(1) to state that Member States shall calculate annually the required data (weight of plastic, recycled plastic, and proportion) by directly aggregating information from Digital Product Passports (DPPs). Furthermore, Article 9(2) should specify that the reporting of this data to the Commission shall occur through **interoperable digital compliance portals and platforms**, utilizing the DPP data as the primary source, thereby **avoiding data duplication** and **streamlining regulatory reporting**.*

- **Justification:** This amendment directly supports the "Simplification of Reporting through Interlinked DPPs" and "Interlinking Digital Compliance Portals and Platforms" recommendations. By leveraging DPPs as the primary data source and ensuring interoperability with other platforms, Member States can automate data aggregation for their annual reports, significantly reducing manual effort and potential errors, and fostering a more efficient digital ecosystem.

4. Article 13 (Compliance and Market Surveillance with Trusted Legal Entity Identification):

- **Proposed Change/Amendment:** *Introduce a new Article 13 (or amend an existing one if appropriate) to explicitly empower national market surveillance authorities to access and verify DPP data for single-use plastic beverage bottles, particularly the reported recycled content and compliance with relevant regulations (e.g., Regulation (EU) 2022/1616). This verification shall be enhanced by requiring the use of Legal Entity Identifiers (LEI) and Verifiable Legal Entity Identifiers (vLEI) for all economic operators whose data is contained within the DPP, enabling real-time cross-checks of their legitimacy and status and transforming the compliance process into a dynamic, standards-based risk management tool.*
- **Justification:** This aligns with the "Trusted Legal Entity Identification and Supply Chain Security with LEI/vLEI" recommendation. By providing direct access to verifiable DPP data and integrating LEI/vLEI for trusted entity identification, authorities can more efficiently and effectively ensure product compliance, reduce fraud, and prevent illicit trade, thereby strengthening the integrity of the Single Market and enhancing its security.

5. General Provisions (Interoperability with EU Digital Identity and Business Wallets):

- **Proposed Change/Amendment:** *Add a general provision (e.g., in a new Article or Recital) emphasizing that the implementation of this Decision shall ensure seamless interoperability of the DPP framework for beverage bottles with broader EU digital initiatives, including the European Digital Identity (EUDI)*

Wallet and the EU Business Wallet on base Regulation (EU) 2024/1183. This ensures secure exchange of verifiable credentials and business attestations, fostering a **globally interoperable, harmonized hub** for trusted digital interactions.

- **Justification:** This directly reflects the "Trusted Legal Entity Identification and Supply Chain Security with LEI/vLEI" recommendation, which emphasizes the role of EUDI and EU Business Wallets in a globally interoperable digital identity ecosystem. Ensuring broad interoperability prevents data silos and creates a cohesive digital ecosystem, allowing for secure and efficient data exchange, which is fundamental for the "cross-border digital public service" nature of recycled content monitoring and for strengthening the EU's Digital Single Market.

6. Transitional Provisions (Incentivizing Adoption and Digital Literacy):

- **Proposed Change/Amendment:** *Include transitional provisions that outline specific support mechanisms and incentives for economic operators, especially SMEs involved in the beverage bottle supply chain, to facilitate their adoption and effective utilization of DPPs for reporting recycled content data. This should include provisions for targeted training, digital toolkits, and clear guidance on how to leverage DPPs for supply chain transparency and sustainability.*
- **Justification:** This addresses the "Incentivizing Early Adoption and Digital Literacy" recommendation. Successful implementation hinges on widespread adoption by all economic operators. Providing dedicated support will ensure that businesses, particularly SMEs, can effectively transition to digital reporting via DPPs, leading to higher quality data and more accurate compliance with recycled content targets, while also empowering them to realize the broader benefits of DPPs for their business operations.

Case Studies Supporting the Integration of Digital Product Passports (DPPs)

The concept of the Digital Product Passport is not merely theoretical; numerous projects and initiatives across Europe are actively demonstrating its **transformative potential** in various sectors, as presented in the *DPP4EU Conference Abstract Booklet (2025)*⁶. These case studies demonstrate that the Digital Product Passport is not only a viable tool for digitalising product information but also a proven solution for enhancing transparency, compliance, and sustainability across diverse sectors. Their success underscores the importance of accelerating the adoption of DPPs in the context of recycled plastic content reporting.

1. **RECONSTRUCT Project (Construction Industry):** This Horizon Europe initiative is developing a DPP specifically for the construction sector, aiming to create a **low-carbon, circular built environment**. The RECONSTRUCT DPP tracks material composition, environmental impact, and end-of-life management, demonstrating how DPPs can **address challenges in complex and fragmented value chains** by aggregating both static and dynamic data. Its XML-based architecture ensures **interoperability** and alignment with existing standards, supporting compliance and fostering trust.
Relevant: This project highlights how a DPP can **systematize the collection and reporting of material composition data**, which is crucial for calculating and verifying recycled content in products like beverage bottles, and how **interoperable digital systems** are essential for such complex data aggregation.
2. **BASE Project (Battery Industry):** Funded under Horizon Europe, BASE is developing a comprehensive Digital Battery Passport (DBP) ecosystem to enhance **sustainability, traceability, and circularity** within the battery industry. It focuses on an **interoperable data space** using Catena-X standards and Distributed Ledger Technology (DLT) to ensure **secure and authenticated data transfer** from raw material sourcing to end-of-

⁶ DPP4EU Conference. Abstract Booklet (July 2025)
<https://digipassforum.eu/wp-content/uploads/2025/06/DPP4EU-1.pdf>

life management. Pilot implementations in automotive, marine, and stationary energy storage systems demonstrate the DBP's practical application in promoting second-life use and economic viability.

Relevant: This project's focus on **end-to-end data exchange, secure, and authenticated data transfer via DLT** is directly applicable to the requirements for verifiable data on recycled plastic content throughout the supply chain of beverage bottles, particularly emphasizing the benefits of **decentralized architectures** for data integrity and trust.

3. **Circular Intelligence (Cross-Sectoral Life-Cycle Data Sharing):** The CircThread project developed a **decentralized platform for life-cycle data sharing**, where individual products become traceable across their extended life cycle through Digital Identities and Product Passports. This initiative highlights how DPPs can be used to **collect primary data on the material footprint of products**, significantly improving the accuracy of material flow datasets and supporting companies in setting and achieving circularity targets.

Relevant: This directly supports the need for **accurate and up-to-date data on the weight of plastic and recycled plastic** in beverage bottles placed on the market, showcasing the power of **decentralized data sharing** for comprehensive life-cycle information.

4. **CIRPASS-2 Project (Cross-Pilot Interoperability):** Building on the CIRPASS project, CIRPASS-2 supports 13 pilot deployments of DPP-enabled circular B2B use cases across **textiles, electronics, tires, and construction sectors**. The project's objective is to demonstrate **DPP interoperability** between different pilots and confirm viable, large-scale deployment of DPPs in real-life settings, aiming for measurable environmental and economic benefits. This underscores the importance of a **reference architecture and core ontology** for a cohesive European DPP system.

Relevant: Its focus on **cross-sectoral interoperability** is vital as it ensures that data on recycled content can be seamlessly exchanged and verified across different economic operators in the beverage bottle supply chain, reinforcing the need for **interlinked digital compliance platforms**.

5. **Fluid 4.0 Project (Fluid Power Industry):** This project explores the use of digital data spaces and DPPs for **digitalization and sustainability in the fluid power industry**. It focuses on use cases such as system development with digital twins, energy monitoring and optimization, and cross-industry CO2 balancing, demonstrating how DPPs can integrate manufacturing process data to **enhance sustainability and competitiveness**.

Relevant: This project's integration of **manufacturing process data and CO2 balancing into DPPs** illustrates how comprehensive environmental data, similar to that required for recycled content calculations in the Implementing Decision, can be managed digitally and how DPPs can serve as a **central repository for diverse data streams**.

6. **PSS-Pass (Product Service System Passport for Manufacturing):** PSS-Pass investigates extending the DPP to a Digital Product Service System Passport (DPSSP) to improve **circularity in the manufacturing industry**. By integrating LCA (Life Cycle Assessment) underpinned by Machine Learning and dynamic data from the DPSSP, the project aims for more accurate LCA and supports PSS life cycle decision-making. Pilots in home appliances, complex equipment, and textiles validate its applicability.

Relevant: The principles of **tracking material composition and supporting circularity through data-driven insights** from PSS-Pass are directly relevant to the Implementing Decision's goals for managing recycled plastic content, demonstrating the potential for **advanced data analytics within the DPP framework**.

7. **TRACE4EU (Blockchain-Enabled DPPs):** This project leverages the **European Blockchain Service Infrastructure (EBSI)** to design and implement use cases for product and material traceability with a clear focus on the DPP. It combines organizational wallets and identities with qualified attestations of attributes, ensuring that every part of a product's lifecycle is made evident with **verifiable evidence**, thereby strengthening European digital sovereignty and compliance with supply chain regulations.

Relevant: This project directly addresses the Implementing Decision's emphasis on **verifiable declarations and certificates** for recycled content, demonstrating a secure and transparent method for their digital transmission and storage, and highlighting

the role of **trusted digital identities (LEI/vLEI)** and **blockchain technology** in ensuring data integrity and authenticity.

These diverse case studies collectively illustrate the **breadth of application and the tangible benefits** that Digital Product Passports can deliver across various industries. They reinforce the need for a **harmonized, interoperable, and widely adopted DPP framework** to unlock the full potential of the Single Market's digital and circular transformation.

Conclusion and Next Steps

The European Commission's Strategy for the Single Market is a **bold and necessary step** towards a more resilient and competitive Europe. The **emphasis on digitalization is particularly commendable**. DigitalTrade4.EU believes that the **Digital Product Passport (DPP)** **holds immense potential** to be a central enabler of this vision, addressing critical barriers related to product information, compliance, and sustainability.

We urge the Commission to **prioritize and accelerate the comprehensive implementation of the DPP**, ensuring its mandatory adoption across key sectors, standardized data formats, and seamless integration with existing digital infrastructures. By so doing, the EU can **transform its Single Market into a truly data-driven, transparent, and efficient environment**, benefiting businesses, consumers, and the environment alike.

DigitalTrade4.EU stands ready to **collaborate with the Commission** and Member States in the technical development and strategic rollout of the Digital Product Passport, contributing our expertise to make this crucial initiative a resounding success. We look forward to **continued dialogue and concrete actions** to realize the full potential of the digital Single Market by 2030.

We encourage the Commission to engage in **regular dialogue with stakeholders**, including **trade associations, technology providers, and SMEs**, to ensure the **successful implementation of the DPP framework** and to address any **challenges** that may arise during the **transition**.

Appendix 1. EU Green-Digital Trade Leadership Roadmap (DigitalTrade4.EU, 2025)

activity	objective	indicative metrics	tools/enablers
1. EU-Singapore DTA & Expand DEPA Partnerships	Strengthen digital trade diplomacy in Asia through high-standard agreements.	- 5+ new digital trade agreements with key Asian partners (e.g., Japan, India, ASEAN) by 2030 - 15% increase in EU-Asia digital services trade by 2028	DEPA framework, EU-Singapore DTA, Global Gateway Initiative, eIDAS 2.0
2. Implement Digital Product Passports (DPPs)	Ensure traceable, sustainable supply chains aligned with EU Green Deal.	- 50% adoption of DPPs by 2030 - 20% reduction in supply-chain carbon intensity by 2030	EU Sustainable Products Initiative, CBAM incentives, UNECE Recommendation 49
3. Fund Secure Digital Corridors in Asia	Build interoperable digital infrastructure for EU-Asia trade.	- ~€2B allocated via NDICI-Global Europe - 10+ blockchain-based traceability pilots by 2027	NDICI-Global Europe, ASEAN digital customs systems, EU Customs Data Hub
4. Harmonize Digital Standards (MLETR/eIDAS 2.0)	Enable cross-border recognition of e-documents and digital identities.	- 90% mutual recognition of e-signatures by 2028 - 70% SME adoption of eIDAS wallets	MLETR framework, eIDAS 2.0, EU Transport Law updates, UN/UNECE protocols
5. Implement LEI and vLEI for Supply Chain Trust	Harmonise and simplify legal entity identification across borders	- 90% entity coverage with LEI by 2030; 50% vLEI use in customs and eFTI transactions	ISO 17442, vLEI, eIDAS 2.0, UNECE UID
6. Launch Green-Digital Trade Academy	Upskill SMEs and officials on DPPs and carbon accounting.	- 40% increase in SME participation by 2027 - 60% cost savings for SMEs	Erasmus+ grants, COSME programme, tiered compliance thresholds
7. Integrate ESG into Trade Finance	Link trade finance to sustainability metrics for cheaper capital access.	- €10B/year unlocked for green trade finance - 30% lower Scope 3 emissions by 2030	InvestEU guarantees, CSRD-aligned reporting, FinTech platforms
8. Enforce Platform Interoperability	Prevent vendor lock-in and empower SMEs.	- 100% compliance with CJEU rulings by 2026 - 50% reduction in platform dominance	Court of Justice of the European Union (CJEU) Case C-233/23, DEPA, eIDAS 2.0, Digital Markets Act (DMA)
9. Global Digitalisation Projects with EU Standards	Extend EU digital infrastructure and norms globally.	- 20+ co-funded projects by 2030 - 80% interoperability with EU systems	Digital Europe Programme, CEF funding, EU-Asia Digital Standards Taskforce
10. Advance UNECE Transparency Protocols	Globalize EU sustainability standards for supply chains.	- 100% alignment with UNECE Rec. 49 by 2028 - 30% reduction in greenwashing claims	UNECE CEFACT, W3C Verifiable Credentials, EU CBAM registry
11. Pilot CBAM-DPP Corridors	Link trade finance to verifiable ESG metrics for tariff incentives.	- 20% CBAM compliance cost reduction - 50% DPP adoption by 2030	IoT carbon trackers, CBAM rebate schemes, EU Customs Single Window

Table 1. The EU Green-Digital Trade Leadership Roadmap, as proposed by DigitalTrade4.EU, translates the recommendations in this document into actionable steps for the European Commission's "International Digital Strategy." The roadmap outlines strategic activities to strengthen global digital trade cooperation, enhance supply chain transparency, and align digital and sustainability objectives across borders. For instance, prioritizing digital trade agreements (Activity 1) and harmonizing digital standards (Activity 4) will facilitate cross-border interoperability, support SME participation in digital markets, and ensure alignment with global sustainability frameworks such as UNECE Recommendation No. 49 and the EU Green Deal.