Prepared by DigitalTrade4.EU

Leveraging Digital Infrastructure for a Next-Generation Carbon 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 **107 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

The DigitalTrade4.EU consortium **welcomes** the European Commission's initiative to conduct a **comprehensive review** of the EU Emissions Trading System (ETS) and the Market Stability Reserve (MSR) by 2026. This is a **pivotal opportunity** to reinforce the ETS's role as a **credible, data-driven instrument** for climate action. This paper argues for **integrating the ETS more closely** with emerging digital tools such as the **Digital Product Passport (DPP)** on base Regulation (EU) 2024/1781 (ESPR), the **EU Financial Data Access Framework (FiDA)**[1], and globally legal frameworks and interoperable digital standards including **UNCITRAL Model Law on Electronic Transferable Records (MLETR)**[2] and **Regulation (EU) 2024/1183 (eIDAS 2.0)**[3].

Crucially, it emphasizes the **seamless interoperability of digital compliance portals and platforms**, including the ETS itself, to **maximize efficiency and reduce administrative burdens**. Such convergence would **increase the efficiency, inclusiveness, and resilience** of the ETS.

Our recommendations focus on **digitalising ETS compliance**, **channelling revenues into digital infrastructure**, and **aligning with international standards** to ensure a **future-proof, digitally integrated carbon market**.

[1] European Commission, Finance. Framework for financial data access
https://finance.ec.europa.eu/digital-finance/framework-financial-data-access_en
[2] UNCITRAL. Model Law on Electronic Transferable Records
https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_transferable_records
[3] European Commission. Discover eIDAS
https://digital-strategy.ec.europa.eu/en/policies/discover-eidas

Introduction

DigitalTrade4.EU is a European **public–private consortium** of over 107 partners spanning 17 EU and 22 non-EU countries. We work to enable a **digitally integrated, sustainable, and rules-based trading system** that reflects the EU's regulatory and strategic values.

Our diverse membership, which includes **logistics operators, exporters, SMEs, banks, tech firms**, and national trade bodies, brings a holistic perspective to the challenges and opportunities in digital trade. We are deeply committed to fostering a **seamlessly interconnected Europe** and neighbouring regions, powered by harmonized standards for the digitalisation of trade documents and processes.

In line with this mission, we actively support EU policies that foster **digital sustainability**, including the Sustainable Products Initiative, the Carbon Border Adjustment Mechanism (CBAM), and international frameworks like **UNECE Recommendation No. 49 ("Transparency at Scale")**[4] on traceability.

We firmly believe that the **2026 ETS reform** represents a significant chance to make **carbon pricing smarter, greener, and more connected** to the evolving digital economy, ensuring Europe's continued leadership in global green-trade governance.

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.*

[4] 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

Expectations from the Commission's Side: The Objectives

The European Commission's initiative to review the ETS and MSR by **Q3 2026** aims to achieve several critical goals:

- **Ensure cost-efficiency and market-based operation**, supporting EU-wide **climate neutrality by 2050**.
- **Expand ETS scope** to additional sectors, potentially including **municipal solid waste incineration**, additional flights and aviation activities, and installations with thermal capacity below 20 MW.
- **Introduce mechanisms for carbon removals and carbon capture and utilisation (CCU)**, addressing negative emissions technologies and non-permanent carbon capture and use.
- **Improve the Market Stability Reserve (MSR)** to address volatility and oversupply.
- **Link ETS with international carbon markets** under ICAO, IMO, and the Paris Agreement's Article 6 framework, while **avoiding double burdens** on maritime operators.
- **Simplify compliance and reporting procedures**, particularly for **SMEs and small operators**.
- **Increase transparency and accountability** of ETS auction revenue spending, maximizing climate benefits.
- **Address carbon leakage risks**, especially for emissions not covered by CBAM.
- **Assess consistency with other EU legislative acts** and identify **simplification options**, including administrative cost reduction.

Approach and Recommendations

DigitalTrade4.EU strongly advocates for **integrating the ETS with emerging digital tools** and **globally interoperable standards** to enhance its efficiency, inclusiveness, and resilience.

1. Integrate Digital Product Passports (DPPs) into ETS monitoring, reporting, and verification (MRV)

- **Commission's Recognition:** The Commission has identified DPPs as a **strategic solution** for increasing traceability, transparency, and circularity, explicitly referencing their role in **interlinking ETS with product regulation, customs enforcement, and sustainable finance**.
- **DigitalTrade4.EU's Recommendation:** **Pilot the use of DPP-based digital emissions reporting** for selected sectors (e.g., steel, cement, batteries, textiles) starting in 2027–2028. This pilot should **test full MRV integration**, data access protocols, and interoperability with CBAM registries and customs systems.

2. Leverage the Finance Digitalisation Act Framework (FiDA) to Enable Rule-Based Green Trade Finance

- **DigitalTrade4.EU's Recommendation:** **Deploy FiDA-compliant systems** that automate access to **ETS revenues, Carbon Border Adjustment Mechanism (CBAM) adjustments, and green investment instruments** (e.g., EIB loans) based on **DPP-verified carbon intensity**. This reduces transaction costs, speeds up climate action, and improves credit access, especially for SMEs.

3. Align ETS Data Exchange with International Digital Standards

- **DigitalTrade4.EU's Recommendation:** **Mandate that all digital documentation** related to ETS or CBAM compliance adhere to:

- **UNCITRAL MLETR:** For **legal recognition of digital transferable records**, ensuring cross-border legal acceptance and reducing political influence over technological development.
- **eIDAS 2.0:** For **digital identity and trust services**, with the European Digital Identity (EUDI) Wallet and EU Business Wallet serving as **cornerstones for trusted digital identity** in the EU.
- **UNECE Rec. 49:** For traceability, carbon declarations, and DPPs.

- **Interoperability Focus:** 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 **EU Emissions Trading System (ETS)**, eFTI platforms[5], DPP platforms, and sector-specific portals such as the F-gas Portal[6]. 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.

  For instance, harmonizing data formats between the ETS and CBAM registries would allow a steel manufacturer to submit emissions data once, which is then automatically validated for both carbon trading compliance and border adjustment reporting. This eliminates redundant submissions and ensures consistency in regulatory enforcement.

[5] European Commission, Mobility and Transport. eFTI Regulation. Digitalising freight transport across the European Union
https://transport.ec.europa.eu/transport-themes/logistics-and-multimodal-transport/efti-regulation_en
[6] European Commission, Climate Actions. F-gas Portal — Explore the F-gas Portal for HFC quota management, import/export licensing, and compliance with Regulation (EU) 2024/573
https://climate.ec.europa.eu/eu-action/fluorinated-greenhouse-gases/f-gas-portal_en

4. Create SME-Compatible Digital Compliance Pathways

- **Commission's Objective:** Simplify compliance and reporting procedures, particularly for **SMEs and small operators**.
- **DigitalTrade4.EU's Recommendation:** Develop a **tiered digital ETS compliance regime for SMEs**, including **simplified online carbon calculators**, standardized e-reporting templates, mobile-friendly DPP integration, and ETS registration via **once-only eIDAS authentication**.

  For instance, a small textile manufacturer could use an online calculator to input energy consumption data, which automatically generates emissions reports compliant with ETS requirements. These reports could then be submitted via the EUDI Wallet, ensuring secure and seamless verification by authorities.

5. Channel ETS Revenues into Digital Climate Infrastructure

- **DigitalTrade4.EU's Recommendation:** **Earmark a portion of ETS Innovation Fund resources** to **scale DPP registries and cross-border carbon data hubs**, **co-fund CBAM–DPP pilot corridors** (e.g., with Singapore, Japan, Korea), and support the **EU–Asia Digital Standards Taskforce** for carbon transparency tools.

6. Foster Supply Chain Security and Transparency through Globally Unique Identifiers

- **DigitalTrade4.EU's Recommendation:** **Mandate the use of the Legal Entity Identifier (LEI)** and its verifiable counterpart (**vLEI**) for every economic operator involved in a transaction within the DPP framework. This provides a **real-time assurance layer for legal entity identification**, reducing fraud, preventing illicit trade, and enhancing compliance.

Digital Product Passport (DPP) Use Cases: Practical Applications for ETS Integration

The DPP4EU Conference highlights several projects demonstrating the practical application of DPPs[7], many of which directly support the objectives of the ETS review by providing granular data for emissions, circularity, and compliance. These use cases illustrate how DPPs can enhance transparency, traceability, and sustainability across various sectors, feeding into a more effective carbon market:

1. **Digital Product Passport for a Low-Carbon, Circular Construction Industry (RECONSTRUCT Project):** This project develops a DPP tailored for the construction industry to track, trace, and document material flows, including **environmental data (carbon footprint and lifecycle assessment results)**. This directly supports the ETS goal of reducing emissions and simplifying MRV by providing product-level carbon intensity data.

2. **Battery Passport for Resilient Supply Chains and Circular Economy Implementation (BASE Project):** Focuses on developing a comprehensive Digital Battery Passport (DBP) ecosystem to enhance **sustainability, traceability, and circularity** within the battery industry. This includes **harmonized Environmental, Social, Governance, and Economic (ESGE) indicators** and circularity metrics, which are crucial for assessing the environmental impact of products under ETS.

3. **Circular Intelligence - a decentralized platform for life-cycle data sharing (Circthread Project):** Aims to interconnect product information from concept to retirement, enabling stakeholders to make decisions for a circular economy. It emphasizes the DPP's potential to **collect primary data on the material footprint of products**, which can significantly improve Eurostat datasets and provide accurate, up-to-date material flow data for ETS-related reporting.

[7] DPP4EU Conference. Abstract Booklet (July 2025)
https://digipassforum.eu/wp-content/uploads/2025/06/DPP4EU-1.pdf

4. **Harmonizing Standards for the Digital Product Passport (CLC-SDPP Project):** Addresses the timely delivery of harmonized standards for DPPs, covering **interoperability IT architectures** and information like **product carbon footprint**. This standardization is essential for the seamless integration of DPP data into ETS compliance frameworks.

5. **Digital Battery Passport for Maritime Applications (eWAVE Project):** Develops a DBP specifically for maritime batteries to support sustainable business models and the circular economy in the maritime sector. This includes providing essential information on materials and design (e.g., recyclability, bio-based components) and using blockchain for **traceability, transparency, and real-time access to historical data**, directly supporting ETS coverage of the maritime sector.

6. **Cross-industry CO2 balancing in use phase (Fluid 4.0 Project):** Aims to develop a standard to show **CO2 for the operation of fluid power products** in systems and machines, with 98% of emissions generated during the use phase. This directly supports the need for more granular emissions data for ETS.

7. **Digital Product Passport for Vanadium Redox Flow Batteries (BatCAT Project):** Focuses on developing a robust, scalable, and compliant DPP system for VRFBs and carbon felt electrodes, documenting **material provenance, performance metrics, and end-of-life management**. This provides critical data for circularity and sustainability compliance relevant to ETS.

8. **Circular & Sustainable Textiles & Clothing (CISUTAC Project):** Contributes to DPP development by providing **standardized data to software platforms for customized product information retrieval**, focusing on enhancing circularity and sustainability in textiles and clothing. This supports broader sectoral decarbonization efforts relevant to ETS.

9. **Enhancing DPP implementation through a digital Quality Infrastructure (QI-Digital Project):** Aims to digitalise the entire Quality Infrastructure process chain, transforming it into a fully digital, interoperable, and future-ready ecosystem. This includes **machine-readable data formats for certificates and verifiable digital**

credentials, which are vital for ensuring the trustworthiness of data used in ETS compliance.

10. **The DPP as a facilitator of high granularity information to industries, territories and regions (THESEUS Project):** Develops dynamically updated DPP schemes to enhance **Material Flow Analysis (MFA)**, improve logistics with territorial dimensions, and feed critical input for **LCA, predictions, and optimization**. This provides highly granular data for decision-making relevant to emissions reduction and resource efficiency under ETS.

11. **Enabling Circularity Through Digital Product Passports and Open Data Systems (CE-RISE Project):** Establishes an open-access information system demonstrating how smarter information management can enable sustainable, circular practices across the electronics value chain, including **Product Environmental Footprint (PEF) calculations**. This directly supports the need for comprehensive environmental data for ETS.

12. **Sustainable Upcycling of Spent NdFeB Magnets and the Integration of Digital Product Passports (NEO-CYCLE Project):** Explores DPP content for electronic devices at end-of-life, the economic viability of tracking DPP data, and the concept of material passports for critical raw materials. This contributes to understanding the lifecycle emissions of complex products.

13. **Digital Product Passports and Circular Manufacturing Data Spaces (Circular TwAIn Project):** Demonstrates that DPPs represent an evolution in B2G and B2C data exchange, integrating data spaces and AI-based Digital Twins for a more circular and environmentally responsible EU Manufacturing Industry. This highlights the potential for comprehensive data ecosystems to support ETS goals.

14. **Digital Material and Product Passports driving circularity, innovation, and quality in the steel supply chain (SMARTChain):** Develops and pilots dynamic DPPs in collaboration with industrial actors across the steel, automotive, consumer goods, and machinery sectors. These passports enable **end-to-end traceability, improved product quality, and more sustainable decision-making**, aligning with regulatory frameworks like the Ecodesign for Sustainable Products Regulation (ESPR). This directly supports the ETS goal of reducing emissions in heavy industry.

Conclusion and Next Steps

The 2026 ETS review presents a **critical opportunity** to evolve the system into a **next-generation, digitally integrated carbon market**. By embracing **trusted digital infrastructure** and **harmonized international standards**, the EU can **more accurately reduce emissions, lower compliance barriers, enable SME participation**, and maintain **global leadership in green-trade governance**. The practical use cases of DPPs demonstrate their immense potential to provide the granular, verifiable data necessary for a truly effective and efficient ETS. For example, the RECONSTRUCT Project's DPP for construction materials enables real-time tracking of carbon footprints, directly enhancing ETS monitoring, reporting, and verification (MRV) systems. Similarly, the BASE Project's battery passport supports carbon removal accounting, aligning with the ETS's inclusion of CCU technologies.

DigitalTrade4.EU stands ready to collaborate with the Commission on the following next steps:

- **Invite consortium experts** to contribute to the Commission's impact assessment and stakeholder workshops.
- **Launch a DG CLIMA–DG GROW–DG FISMA–DG TRADE taskforce** on digital ETS reform.
- **Fund three ETS–DPP interoperability pilots by 2026** (in logistics, construction materials, and maritime fuels).
- **Integrate existing DPP-CBAM pilots** into ETS market modelling tools and MRV systems.
- **Engage in structured dialogue** with DG CLIMA, DG GROW, DG FISMA, DG TRADE, and DG CNECT to elaborate on the practical implementation of these recommendations.
- **Establish a joint task force**, including industry experts, to refine the technical specifications for digital frameworks, ensuring **alignment with global legal frameworks like MLETR**.
- **Collaborate on pilot projects** that test and showcase the application of decentralized and interoperable digital solutions in commercial and environmental contexts relevant to the ETS.

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 roadmap above, DigitalTrade4.EU's input to the European Commission's "International Digital Strategy" operationalises the recommendations outlined in this document. The roadmap outlines actionable steps to align the ETS review with global digital trade trends. For example, expanding digital trade agreements (Activity 1) ensures that carbon pricing mechanisms like the ETS are recognized in international markets, while interoperable digital standards (Activity 4) streamline compliance for SMEs participating in cross-border carbon transactions.