Prepared by DigitalTrade4.EU

Enhancing Digital Interoperability, Legal Trust, and ESG Integration in Battery Data Reporting

Feedback on the Draft Implementing Regulation under Regulation (EU) 2023/1542

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/

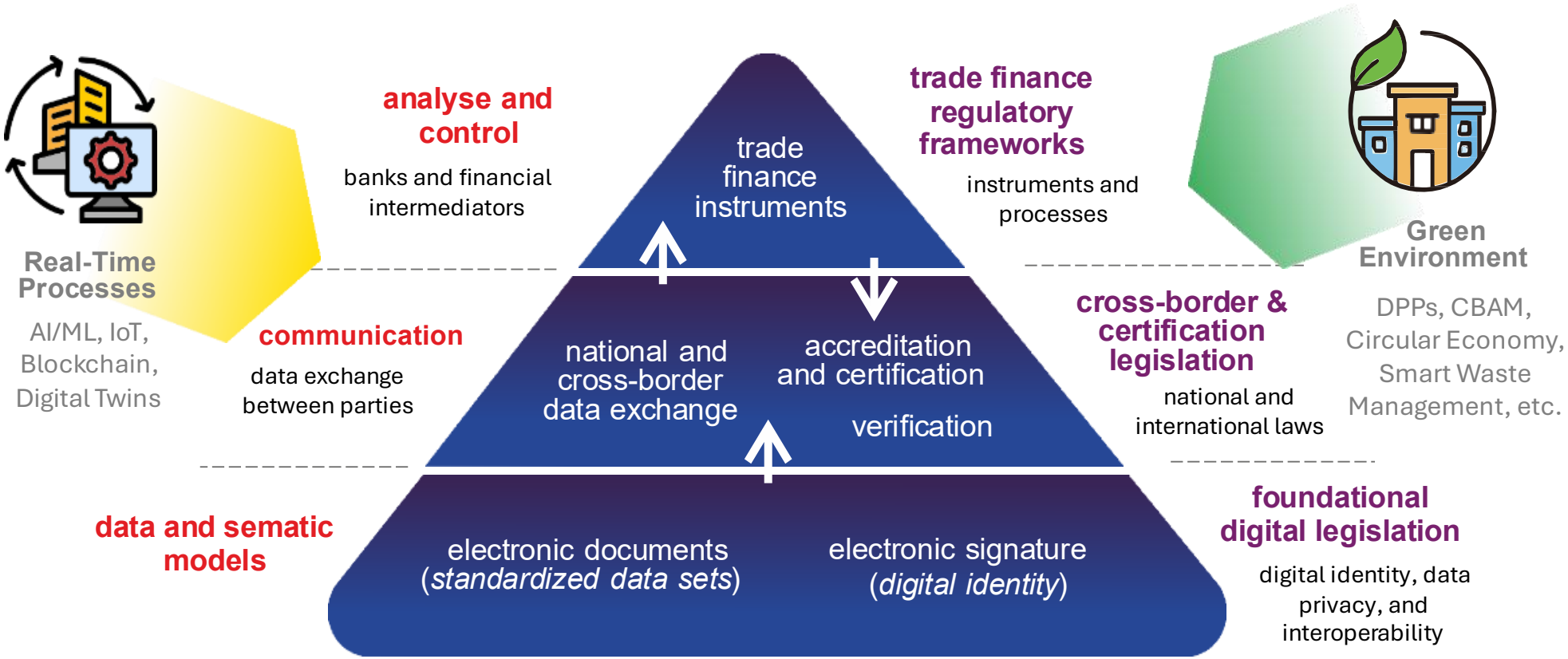
Web page: www.digitaltrade4.eu

EU Transparency Register: 355266197389-94

Contact person: Riho Vedler

Email: riho.vedler@ramena.ee

Strategic Digital Models for Sustainable Trade and Logistics



Source: Riho Vedler, DigitalTrade4.EU. This visual model bridges the European Commission's strategic objectives with the proposed regulatory and operational solutions, illustrating how digital requirements and compliance mechanisms can be implemented in a technologically neutral and future-proof manner. All digital requirements and compliance mechanisms must remain technologically neutral and future-proof, allowing companies to select and reuse their preferred IT solutions. Icons by Flaticon.

Proposed Amendments to the Implementing Regulation and Annexes

1. Preparatory Integration with a Future EU Trade Document Registry (ETDR)

Proposed Legal Text, Indicative location in Implementing Regulation or Annexes: Article 1 (new paragraph 8):

> *Member States shall ensure that battery-related reporting systems are designed to allow future technical interoperability with a potential EU-level Trade Document Registry (ETDR) or equivalent decentralised infrastructure, in order to support traceable, cross-border ESG and regulatory data exchange.*

Justification: The concept of a European Trade Document Registry (ETDR) has been proposed to facilitate trusted, interoperable data exchange across regulatory domains. Battery-related reporting under Regulation (EU) 2023/1542 would benefit from being technically aligned with such an infrastructure from the outset. Early preparation reduces future costs of legal or technical retrofitting. It also enables synergy with emerging frameworks like the Digital Product Passport (DPP) and Carbon Border Adjustment Mechanism (CBAM). Finally, it supports long-term EU digital sovereignty goals by anchoring battery data governance within EU-level infrastructure.

2. Inclusion of Digital Identity and Authentication (eIDAS 2.0)

Proposed Legal Text, Indicative location in Implementing Regulation or Annex III, Part 1 (General Information), Add under “Organisation submitting the data and the quality check report”:

> *The submitting authority shall authenticate itself using qualified digital identity under Regulation (EU) 2024/1183 (eIDAS 2.0), ensuring integrity and traceability of all data flows.*

Justification: eIDAS 2.0 introduces qualified digital identities that are legally recognised across the EU, improving security and trust in digital transactions. Requiring or enabling its use in reporting battery data ensures authenticity and protects against fraudulent submissions. It strengthens auditability and traceability, especially where producer responsibility organisations or subcontractors handle sensitive data. eIDAS credentials are compatible with verifiable credentials (vLEI), supporting scalable digital trust. Moreover, eIDAS 2.0 is becoming a cornerstone in multiple EU policy areas (e.g., customs, finance, health), and harmonising battery reporting with it creates cross-regulatory consistency.

3. Use of Machine-Readable Smart Reporting Formats

Proposed Legal Text, Indicative location in Annex I, introductory paragraph:

> *All tables in Annex I shall be submitted in a machine-readable format (e.g., JSON, XML, or XBRL) to enable automated processing and integration into RegTech platforms.*

Justification: Manual submission formats increase the risk of errors, delays, and inconsistencies in national and EU-level compliance oversight. Machine-readable formats enable automatic validation, improve data quality, and allow seamless integration with regulatory dashboards and ESG monitoring tools. Such smart reporting formats are also essential for integrating with AI-based supervision and smart contract applications. By adopting structured data formats, the Commission and Member States will gain real-time insights into collection, recycling, and recovery performance. This move is aligned with broader EU ambitions for digital regulatory reporting, such as ViDA and RegTech integration in capital markets.

4. Linkage with Digital Product Passport (DPP) Systems

Proposed Legal Text, Indicative location in Annex II, Tables 1–4 (Inputs/Outputs): Add footnote to each table:

> *Where applicable, material fractions shall be linked to Digital Product Passport (DPP) identifiers to enable downstream reuse in carbon footprint, circularity, and CBAM declarations.*

Justification: The Digital Product Passport is becoming a central mechanism for tracking material provenance, environmental performance, and compliance in the circular economy. Linking battery recovery and recycling data to DPP identifiers allows seamless integration of this data into other policy instruments, such as CBAM and green public procurement. It ensures traceability of critical raw materials (like cobalt, nickel, and lithium) across value chains. This cross-use reduces administrative duplication and strengthens the EU's ability to enforce sustainability standards. Furthermore, it empowers downstream actors (e.g. OEMs, investors) to access reliable, granular ESG data in a digital format.

5. Pilot Corridors for Cross-Border Data Exchange

Proposed Legal Text, Indicative location in Article 1 or a new Article 3:

> *The Commission shall support Member States in piloting cross-border digital corridors to facilitate real-time exchange of battery reporting data, using structured and secure data exchange frameworks, taking inspiration from Regulation (EU) 2020/1056 on electronic Freight Transport Information (eFTI), and, where relevant, international legal frameworks such as the UNCITRAL Model Law on Electronic Transferable Records (MLETR) for enabling legally recognised digital documentation of compliance and ESG data.*

Justification: Regulation (EU) 2020/1056 (eFTI) governs the digital exchange of freight transport information across transport modes and serves as a successful EU precedent for **harmonised, machine-readable and secure data flows**. Although it does not apply directly to environmental or battery-related data, its architectural principles—such as structured data sets, authorised platforms, and semantic interoperability—can inform the design of future **cross-border digital corridors for battery reporting**.

At the global level, the **UNCITRAL Model Law on Electronic Transferable Records (MLETR)**[1] provides a **legal framework** for recognising **electronic equivalents of negotiable instruments**[2] **and documents**, including those used in trade and logistics. Applying MLETR

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

[2] United Nations. Draft UN Convention on Negotiable Cargo Documents to modernize and digitize global trade finalized (July 2025) https://unis.unvienna.org/unis/en/pressrels/2025/unisl378.html

principles to ESG and battery compliance data can enhance legal certainty, especially for traceability, ownership transfer, or customs-linked documentation in transboundary movements.

Pilot corridors would allow Member States to test the secure exchange of battery data (e.g. recycling rates, material origin, treatment flows) in near real-time, while ensuring technical and legal compatibility with customs systems, trade finance, and digital product passports (DPPs). These pilots can also surface regulatory gaps, validate decentralised trust technologies (e.g., vLEI), and provide valuable evidence for future legal harmonisation efforts.

In doing so, the EU can demonstrate leadership in **trusted cross-border ESG data management** and strengthen its digital trade infrastructure in alignment with the Green Deal and circular economy goals.

6. Enable vLEI-Based Organizational Authentication in Battery Data Reporting

Proposed Legal Text, Indicative location in Implementing Regulation or Annex III, Part 1 (General Information), Amend "Organisation submitting the data and the quality check report" to include:

> *The submitting organisation may authenticate itself using a Verifiable Legal Entity Identifier (vLEI), issued by an authorized global operating entity in accordance with ISO 17442-3:2024. The vLEI credential may be used to assert identity, legal authority, and role-based responsibility over the submitted data and reports.*

Justification: The **vLEI**, governed by the **Global Legal Entity Identifier Foundation (GLEIF)**[3] and standardized under **ISO 17442-3:2024**, provides tamper-evident, cryptographically verifiable credentials that identify legal entities and their roles. Enabling its use in battery reporting will:

- Strengthen trust and **prevent fraud or misrepresentation** in submissions from producers, PROs, and recyclers;

[3] GLEIF – Global Legal Entity Identifier Foundation
https://www.gleif.org/en

- Support **automated regulatory compliance**, particularly for cross-border ESG traceability and circular economy metrics;
- Reduce administrative burden and improve **traceability** in the context of extended producer responsibility (EPR);
- Align the battery reporting framework with **emerging best practices in digital trust infrastructure**, including use in **financial markets, trade documentation, and ESG-linked instruments**.

Adopting vLEI early ensures that battery data ecosystems are future-proof and compatible with broader EU initiatives under **eIDAS 2.0**, **DPP**, **CBAM**, and **Digital Finance** strategies.

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 roadmap above, DigitalTrade4.EU's input to the European Commission's "International Digital Strategy" operationalises the recommendations outlined in this document. For instance, Activity 1 (EU-Singapore DTA & Expand DEPA Partnerships) directly supports the harmonisation of international digital standards, while Activity 8 (Global Digitalisation Projects with EU Standards) aligns with efforts to promote dual-use infrastructure globally. These activities collectively reinforce the EU's ability to leverage digital trade diplomacy as a tool for both economic growth and strategic security.

Appendix 2. Digital Trade & Capital Markets Integration Roadmap (DigitalTrade4.EU, 2025)

#	activity	objective	indicative metrics	tools/enablers
1	Establish EU Trade Document Registry (ETDR)	Decentralize and secure cross-border trade/ESG data for supervision using a distributed architecture, enabling trusted and interoperable access to regulatory and ESG information across the EU.	- 30% reduction in duplicate filings by 2027 - 100% fraud detection rate	Zero Trust Architecture & cross-border verification (e.g., blockchain-based systems like EBSI), MLETR-compliant systems, PSD3-PSR/FiDA APIs, vLEI
2	Digitalise Tax & Customs Interfaces	Integrate trade, tax, and customs data flows to reduce friction and fraud	- 50% faster customs clearance - 30% reduction in VAT fraud - Full uptake of EU Single Window by 2028	EU Customs Data Hub, Single Window for Customs, VAT in the Digital Age (ViDA), vLEI for trader authentication, eFTI/eCMR linkages
3	Adopt MLETR + eIDAS 2.0	Enable seamless digital negotiable instruments and cross-border recognition	- 70% faster transaction times - 95% SME adoption of e-signatures	MLETR framework, eIDAS 2.0 digital identity wallets, EU legal harmonization tools
4	Develop RegTech supervision tools	Enhance real-time oversight of capital markets and ESG compliance	- 50% reduction in supervisory costs - 80% automated ESG data collection	AI/ML dashboards, Legal Sandboxes, ETDR-linked reporting systems
5	Digital Bonds & Convertibles	Enable automated, ESG-linked debt instruments	- 30% reduction in issuance costs - 20% lower interest rates for ESG-compliant bonds - 100% real-time conversion execution	ETDR registry, smart contracts, DPP/ESG data integration, eIDAS 2.0 authentication
6	SME-friendly compliance frameworks	Ensure SMEs benefit from digital reforms without disproportionate burden	- 40% increase in SME participation - 60% cost savings for SMEs	Tiered compliance thresholds, Green-Digital Trade Academy, Erasmus+ grants
7	Pilot CBAM-DPP Corridors	Link trade finance to verifiable ESG metrics for tariff incentives	- 20% CBAM compliance cost reduction - 50% adoption of DPPs by 2030	Digital Product Passports (DPPs), IoT carbon trackers, CBAM rebate schemes, CBAM certificate registry integration, EU Customs Single Window
8	Harmonize e-document laws	Eliminate legal fragmentation for digital trade documents	- 90% mutual recognition of e-Bills of Lading - 0 paper-based processes	EU Transport Law updates (e.g. eFTI, eCMR), UN/UNECE protocols, Legal Harmonization Sandboxes
9	ESG-linked finance incentives	Reward sustainable supply chains with cheaper capital	- €10B/year green trade finance unlocked - 30% lower Scope 3 emissions	InvestEU guarantees, FinTech platforms, CSRD-aligned reporting templates