



Digital Product Passport (DPP)

Regulatory framework, deadlines, technical status and implementation roadmap for businesses placing products on the EU market

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Scope	EU Digital Product Passport under ESPR, Battery Regulation, DPP Registry, harmonised standards and implementation readiness
Audience	Manufacturers, importers, brand owners, compliance leaders, sustainability teams, product stewardship, IT/data architects, supply-chain leaders, customs, quality and board-level decision-makers

Core thesis

The Digital Product Passport is not a QR-code project. It is a regulated product-data infrastructure that connects sustainability, circularity, compliance, market surveillance, customs, repair, reuse and recycling. The decisive readiness factor is not the passport front end but the governance, evidence quality and interoperability of the data behind it.

Legal note: This white paper provides strategic orientation and does not constitute legal advice. Detailed obligations depend on delegated acts, sector-specific rules, harmonised standards, product scope, market role and implementation guidance applicable at the time of placing products on the EU market.

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1. Executive Summary

The Digital Product Passport (DPP) is one of the central innovations of the EU product sustainability agenda. Its legal basis is the Ecodesign for Sustainable Products Regulation, Regulation (EU) 2024/1781, which establishes the framework for future ecodesign requirements and product information requirements for sustainable products. [1]

The DPP is intended to provide structured, machine-readable product information across the lifecycle. The European Commission describes the DPP as a digital identity card for products, components and materials that supports product sustainability, circularity and legal compliance. [2]

As of July 2026, the regulatory architecture is moving from framework to implementation. The ESPR is in force, the Commission has adopted implementing arrangements for the DPP registry, and harmonised standards for DPP systems are being developed and referenced. The first legally mandatory product passport remains the battery passport, with the obligation starting on 18 February 2027 for covered battery categories under Regulation (EU) 2023/1542. [3][4][5]

Executive insight

The DPP should be managed as a product-data transformation program. Companies should start with data ownership, supplier evidence, interoperability, access rights, and change control. Platform selection is important, but secondary to data readiness.

2. What the DPP Is and What It Is Not

The DPP links a physical product to a digital record containing defined product information. It can support market surveillance, customs checks, consumer transparency, repair, reuse, remanufacturing, recycling and sustainability reporting. Depending on the product group, DPP data may include product identity, material composition, substances of concern, environmental performance, carbon footprint, recycled content, durability, repairability, spare parts, end-of-life information and conformity documentation references.

The DPP is	The DPP is not
A structured and machine-readable product-data record.	A simple marketing webpage or PDF brochure.
A regulated access system with public and restricted information layers.	A mechanism that requires every data point to be public.
A link between physical products and validated digital information.	Only a QR code printed on packaging.
A system that supports legal compliance, circularity and market surveillance.	A stand-alone sustainability label or certification mark.
A cross-functional compliance and data-governance program.	An IT project that can be delegated fully to a software vendor.

3. Regulatory Architecture

Instrument	Status and function	DPP relevance
ESPR Regulation (EU) 2024/1781	Framework regulation for ecodesign and information requirements for sustainable products. Published in the Official Journal on 28 June 2024. [1]	Legal basis for DPP requirements under product-specific delegated acts.
European Commission DPP page	Describes the DPP as a digital identity card for products, components and materials and indicates progressive introduction across selected product groups. [2]	Policy explanation, stakeholder framing and DPP timeline information.
DPP Registry Implementing Regulation (EU) 2026/1778	Sets implementation arrangements for the registry under ESPR, including roles for economic operators, authorities, customs and the Commission. [3]	Defines the registry as a secure infrastructure storing at least unique identifiers and enabling accountable interactions.

Harmonised DPP standards	Commission Implementing Decision (EU) 2026/1736 concerns harmonised standards for DPPs drafted in support of Regulation (EU) 2024/1781. [4]	Technical basis for identifiers, data carriers, APIs, interoperability, security and data exchange.
Battery Regulation (EU) 2023/1542	Sector-specific regulation for batteries and waste batteries, published on 28 July 2023. [5]	First binding DPP use case: battery passport under Article 77 from 18 February 2027 for covered batteries.
PPWR and other sector rules	Other EU rules may connect product, packaging or sector data to DPP-style systems over time.	DPP architecture should be designed for regulatory interoperability, not only ESPR.

4. Timeline and Key Dates

The DPP rollout is phased. The ESPR creates the framework, the registry and standards create the infrastructure, and product-specific delegated acts create concrete obligations for particular product groups. Companies should distinguish legal framework dates, infrastructure dates and product compliance dates.

Date	Milestone	Meaning	Business implication
28 June 2024	ESPR published in the Official Journal. [1]	EU framework for sustainable products and DPP established.	Companies should assess whether product categories may fall under future delegated acts.
18 July 2024	ESPR entered into force, based on the standard 20-day entry-into-force rule following OJ publication. [1]	Framework became legally active across the EU.	Start organizational readiness and data mapping.
16 April 2025	Commission Working Plan 2025-2030 adopted. [6]	Priority product groups and horizontal measures identified.	Track priority categories and prepare sector-specific data.
14 July 2026	Commission Implementing Decision (EU) 2026/1736 on harmonised DPP standards. [4]	Technical standards begin to become operationally relevant.	Build platforms against emerging standard stack.
16/17 July 2026	Commission Implementing Regulation (EU) 2026/1778 on DPP registry arrangements. [3]	Registry implementation rules set for economic operators, authorities and customs.	Prepare for product identifier, operator identifier and passport registration workflows.
19/20 July 2026	DPP registry infrastructure milestone under ESPR Article 13. [2][3]	Commission infrastructure deadline, not a universal product passport deadline.	Do not confuse registry readiness with immediate obligation for all products.
18 February 2027	Battery passport applies to covered batteries under Battery Regulation. [5]	First mandatory DPP use case for EV, LMT and industrial batteries above relevant thresholds.	Battery value chains must be operationally ready before this date.
2025-2030	ESPR Working Plan implementation period. [6]	Priority work for steel, aluminium, textiles, furniture,	Prepare data and evidence before delegated acts make obligations

		tyres, mattresses and energy-related products.	concrete.
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Important distinction

The DPP registry going live is infrastructure. Product obligations arise through sector legislation or delegated acts. The first hard product deadline is the battery passport on 18 February 2027.

5. Product Scope and Rollout Logic

The DPP rollout follows a sector-by-sector approach. Under ESPR, specific data points, deadlines, data-carrier requirements and access rules are defined in delegated acts for each product group. Companies should therefore monitor both the general DPP system and their relevant sector legislation.

Product group / area	Current status as of July 2026	Likely DPP relevance	Preparation priority
Batteries	Battery Regulation already establishes a battery passport from 18 February 2027 for covered batteries. [5]	Full DPP implementation case with lifecycle data and access tiers.	Immediate
Iron and steel	Priority product group in ESPR Working Plan 2025-2030. [6]	Likely early delegated-act focus and upstream-material data relevance.	High
Aluminium	Priority intermediate product in the Working Plan. [6]	Material-level traceability, composition, recycled content and environmental performance.	High
Textiles, especially apparel	Priority final product group in Working Plan. [6]	Composition, durability, repairability, reuse, recycling, substances and supply-chain transparency.	High
Furniture, tyres, mattresses	Priority final product groups in Working Plan. [6]	Durability, materials, repair, recycling and end-of-life data.	Medium-high
Energy-related products	Working plan also addresses energy-related products and horizontal measures. [6]	Repairability, recyclability, software, spare parts and energy performance.	Medium-high
Chemicals and other later sectors	Not necessarily first-wave; future inclusion may follow studies and later working plans.	DPP data could connect composition, hazard, sustainability and supply-chain evidence.	Monitor and prepare data foundations

6. Technical Architecture and Current Status

A DPP system has several layers: a data carrier on or with the product, unique identifiers, a passport data repository, registry registration, APIs, access-rights management, security, data persistence, and user

interfaces for different stakeholders. The current technical status is that the horizontal architecture is becoming sufficiently clear for companies to start implementation pilots.

Layer	Purpose	Technical status	Implementation question
Data carrier	Physically links the product to the passport, typically through QR, NFC, RFID or another specified carrier.	Carrier requirements are linked to horizontal standards and sector delegated acts.	Will the carrier be on product, packaging or accompanying documentation?
Unique identifiers	Identify product, operator and facility consistently across systems.	Unique identifiers are a core DPP standardization area. [4]	What identifier scheme is used and at what granularity: model, batch or item?
Registry	Secure infrastructure storing at least unique identifiers and enabling discovery and enforcement interactions. [3]	Implementing arrangements adopted in July 2026. [3]	Who registers passports and how are updates logged?
Passport repository	Hosts the actual passport data controlled by the economic operator or provider.	Decentralized hosting model expected in practice.	How is availability ensured over product lifetime?
APIs and interoperability	Enable lifecycle management, searchability and exchange between systems.	Harmonised standards and JTC 24 work cover APIs and interoperability. [4]	Can ERP, PLM, LCA, supplier and regulatory systems integrate?
Access rights	Controls public, restricted, authority, customs, repairer/recycler and business-confidential information.	Registry rules and sector acts drive access obligations. [3]	Which data is public, restricted, confidential or authority-only?
Security and persistence	Protects data integrity, authenticity and availability.	Security is a major horizontal standardisation area. [4]	How are records kept available if a company or provider changes?

7. Data Model and Access Rights

The DPP data model should be designed around data domains rather than around a single software screen. Different stakeholders require different data: consumers, customs, market surveillance authorities, recyclers, repairers, customers and business partners do not need the same access level.

Data domain	Typical content	Source systems	Access logic
Product identity	Model, SKU, batch or serial number, product category, manufacturer and responsible economic operator.	ERP, PLM, PIM, master data	Public or authority-accessible depending on sector.
Sustainability performance	Carbon footprint, environmental footprint, recycled content, energy use, water or resource indicators.	LCA tools, ESG systems, supplier data	Public, customer or authority access subject to delegated acts.
Material and substance data	Material composition, substances of concern, critical raw materials, hazardous components.	PLM, regulatory databases, supplier declarations	Often tiered: public summaries and restricted detailed information.

Circularity data	Repairability, spare parts, disassembly, reuse, refurbishment, recycling and end-of-life instructions.	R&D, service, manuals, waste partners	Repairer/recycler and consumer access may differ.
Compliance evidence	Declaration references, conformity assessment, technical documentation references, test reports.	Quality, regulatory, document management	Authority and market-surveillance access.
Supply-chain evidence	Supplier origin, due diligence, certificates, chain-of-custody evidence.	Procurement, supplier portal, audit systems	Restricted and auditable.

Practical principle

A robust DPP separates data classification from data publication. Companies should define what exists, who owns it, what evidence supports it, who may access it, and how it is updated before deciding the publication interface.

8. Governance, Roles and Responsibilities

DPP readiness requires cross-functional governance. Legal accountability may sit with the economic operator placing a product on the market, but operational data ownership is distributed across functions and suppliers.

Function	Role in DPP readiness	Data contribution	Key control
Regulatory affairs / product compliance	Interprets delegated acts, compliance scope and conformity evidence.	Product obligations, declarations, restricted substances and technical documentation.	Legal interpretation and audit-ready evidence.
Sustainability / ESG	Defines environmental metrics and claim methodology.	PCF, LCA, recycled content, circularity KPIs.	Methodology approval and claim substantiation.
R&D / product management	Aligns design decisions with future data and circularity requirements.	Materials, performance, durability, repairability, disassembly.	Stage-gate integration.
Procurement / supply chain	Secures upstream data and supplier evidence.	Supplier declarations, certificates, origin and due diligence data.	Supplier contract clauses and data quality controls.
IT / data architecture	Builds integration, APIs, master data and publication layers.	Data model, workflow, identifiers, access management.	Interoperability, cybersecurity and persistence.
Quality / documentation	Maintains controlled records and change management.	Test reports, versions, approvals, audit trails.	Document control and update governance.
Commercial / customer teams	Uses DPP data for customer transparency and market requirements.	Disclosure needs, customer portals, claims requirements.	Consistency between marketing claims and passport evidence.

9. Business Implications and Risk Areas

Data readiness risk

Most companies do not yet have complete, validated and structured data across product, material, supplier, sustainability and packaging domains.

Supplier dependency

Critical DPP fields may sit upstream with suppliers. Without contractually defined data obligations, deadlines can be missed.

Confidentiality and access rights

DPP transparency must be balanced with business confidentiality, trade secrets, security and personal-data rules where relevant.

Legacy systems and interoperability

ERP, PLM, PIM, LCA, SDS, quality, supplier and document-management systems often use incompatible identifiers and data models.

Claims and evidence mismatch

Sustainability claims, customer disclosures and DPP data must be traceable to the same evidence base.

Market surveillance and customs

The DPP will make compliance more visible to authorities. Incomplete or inconsistent passport data can become a market-access risk.

Lifecycle updates

Some data may change after sale, especially for batteries and products with repair, service, remanufacturing or telemetry data.

10. Implementation Roadmap

Phase	Objective	Key activities	Outputs
1. Discover	Understand exposure and maturity.	Map product scope, market roles, product categories, systems, suppliers and existing data.	DPP exposure map and maturity heat map.
2. Design	Define target operating model.	Set data domains, data owners, access rights, identifier strategy, evidence hierarchy and governance bodies.	DPP operating model and architecture blueprint.

3. Build	Create reusable data and system capability.	Build data model, supplier templates, API architecture, document repository and publication workflow.	Pilot DPP data repository and evidence management process.
4. Pilot	Validate with priority product family.	Run a DPP pilot for one product group or battery-like use case; test data carrier, registry workflow and access rights.	Pilot passport, lessons learned and scaled implementation plan.
5. Scale	Deploy across priority portfolio.	Supplier onboarding, automated data feeds, technical files, dashboards, approval workflows.	DPP-ready priority portfolio.
6. Operate	Maintain continuous compliance.	Monitor delegated acts, update standards, manage lifecycle updates, audit data and supplier changes.	Ongoing compliance assurance and board reporting.

11. Technical File and Evidence Architecture

Companies should avoid building DPPs as isolated digital pages. Each passport should be linked to an evidence architecture that supports regulatory audits, claims review, customer requests, market surveillance and data updates.

Evidence layer	Typical content	Owner
Product master-data file	Product identity, category, model, SKU, variant, batch or item-level identifiers.	Product management / master data
Regulatory compliance file	Ecodesign obligations, declarations, test reports, conformity assessment and restricted-substance evidence.	Regulatory / quality
Sustainability evidence file	PCF, LCA, recycled content, environmental footprint, calculation methods and validations.	Sustainability / product stewardship
Supply-chain evidence file	Supplier declarations, certificates, due diligence, origin and chain-of-custody evidence.	Procurement / supplier quality
Technical architecture file	Data carrier specification, API model, registry registration, access rights and security controls.	IT / data architecture
Publication and claims file	Public DPP view, role-based access, customer disclosures, marketing claims and version history.	DPP governance team

Best practice

Build one controlled evidence repository, then publish different DPP views from it. This reduces the risk that public product information, customer disclosures, technical files and audit evidence diverge over time.

12. Board-Level Priorities

- Appoint executive sponsorship for DPP readiness as a strategic product-data program.
- Identify which product categories fall into first-wave or likely future delegated acts.
- Distinguish registry infrastructure deadlines from sector-specific product compliance deadlines.
- Map product, material, sustainability, supplier, packaging and compliance data sources.
- Define unique identifier strategy and passport granularity: model, batch or item level.
- Create public, restricted, authority-only and confidential information layers.
- Start supplier evidence programs now, especially for sustainability, recycled content, substances and origin data.
- Pilot one DPP use case before product obligations become binding.
- Align sustainability claims, customer disclosures and passport data to one evidence base.
- Monitor DPP standards, delegated acts, registry rules and battery passport implementation closely.

13. Outlook and Conclusion

The DPP will progressively change how products are designed, documented, sold, serviced, repaired, reused and recycled in the EU market. It shifts compliance from static documentation toward dynamic, structured, machine-readable product information.

The companies that prepare early will gain more than regulatory readiness. They will build better product data, stronger supplier control, more credible sustainability claims, faster customer responses, stronger audit resilience and improved circular-economy capabilities. The companies that wait for final delegated acts may find that the most difficult work, collecting and validating cross-functional data, cannot be completed quickly.

Final message

DPP readiness is data readiness. A compliant passport is the visible result of a much deeper capability: governed product information, validated evidence, interoperable systems and accountable ownership across the value chain.

References

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