

Implementation status of the European DPP in a global context

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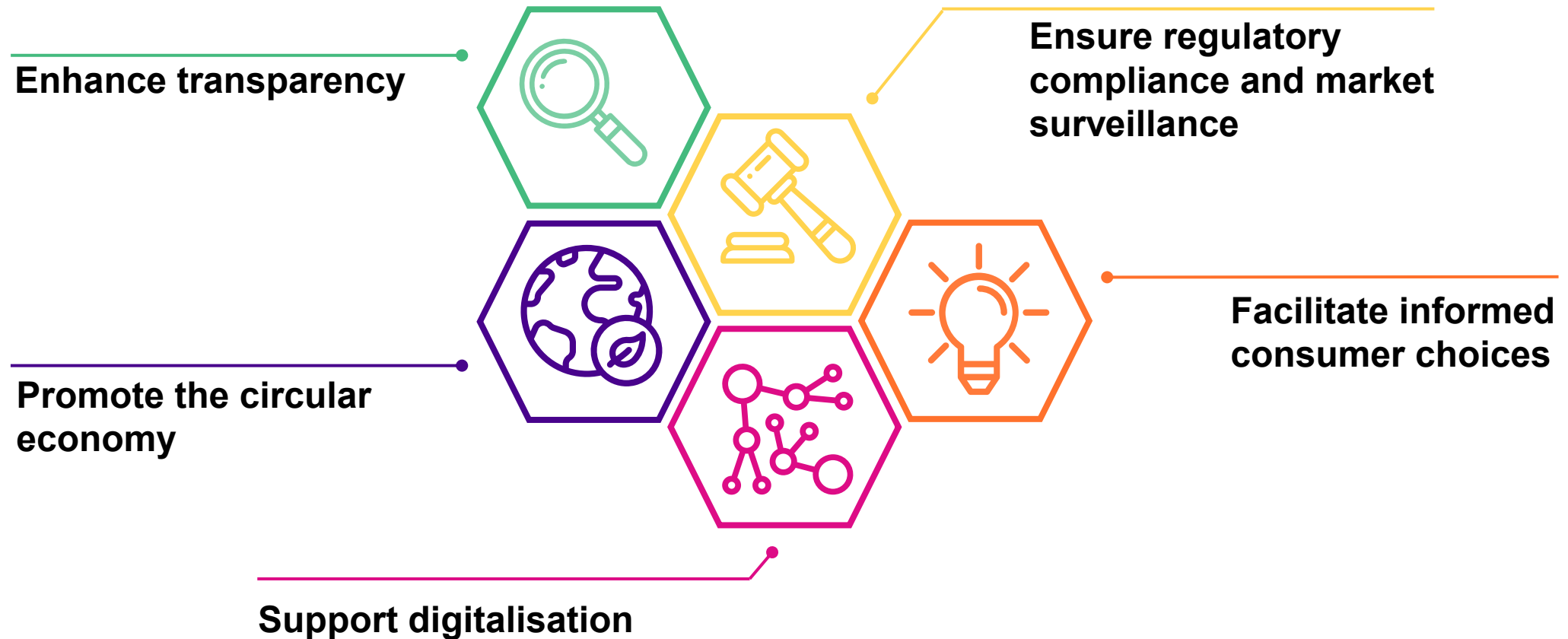
Digital Product Passport in a Nutshell

A **Digital Product Passport (DPP)** is a structured collection of product-related, **machine-readable** data with pre-defined scope and agreed data management and access rights conveyed through a **unique product identifier** and that is accessible via electronic means through a **data carrier**.

The DPP is an **information system** for the **data-enabled Circular Economy**.



Overview of the key benefits of DPP

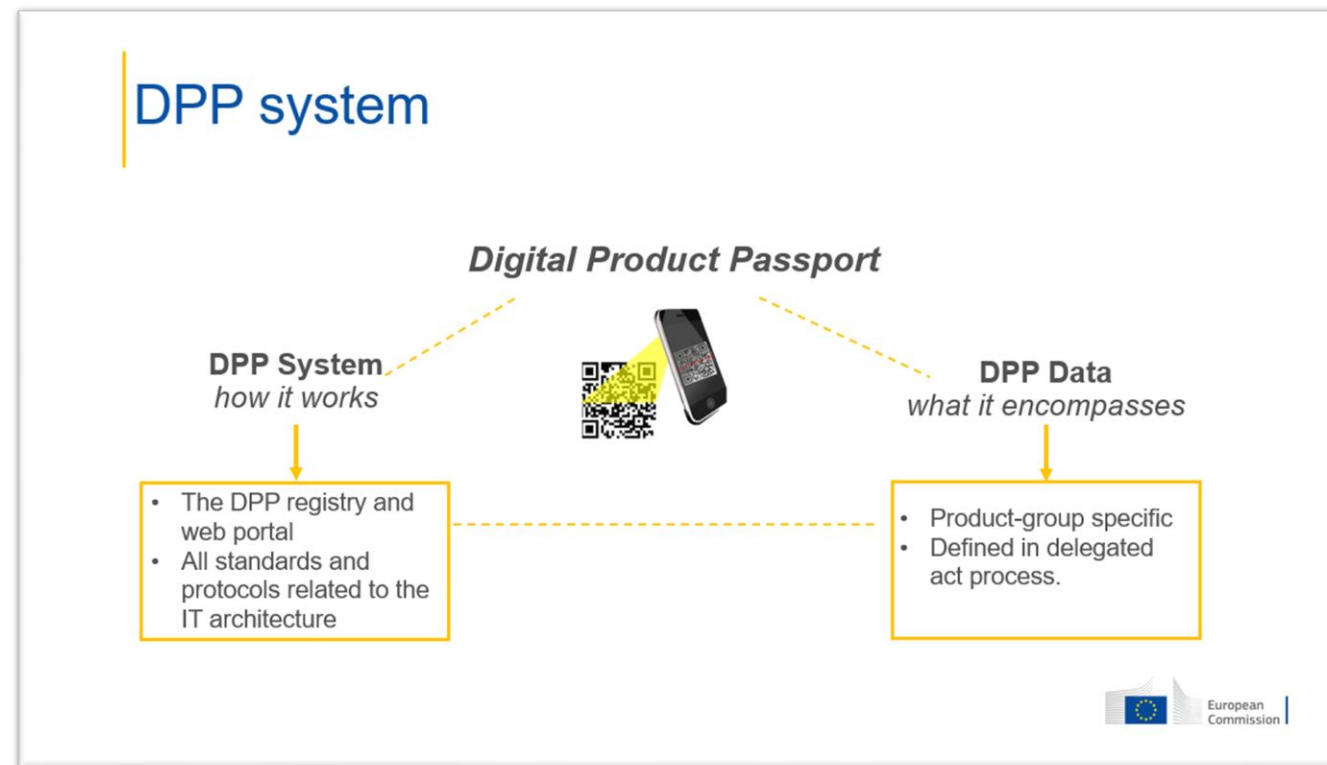


4 things the European Commission is doing very well



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- Clear distinction between the DPP **system** and the DPP **data**



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- Clear distinction between the DPP system and the DPP data
- Request harmonized standards for the DPP system



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- Clear distinction between the DPP system and the DPP data
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- Simultaneous rollout of the DPP and the eIDAS 2.0 Regulation and EUBW

The EU Startup and Scaleup Strategy (28.5.2025)

" The Commission will propose the European Business Wallet as the cornerstone of doing business simply and digitally in the EU, establishing a digital identity for all economic operators and providing a framework for sharing verified data and credentials to enable seamless digital interactions between economic operators and public administrations across the Union (Q4 2025)."

THE EU STARTUP AND SCALEUP STRATEGY

ACTIONS SUMMARY

<u>I. INNOVATION-FRIENDLY REGULATION</u>
Actions
<ul style="list-style-type: none">• 28th regime for companies (Q1 2026)• European Business Wallets (Q4 2025)• European Innovation Act (Q1 2026)• Voluntary "Innovation Stress Test" (Q1 2026)• Reduce regulatory burdens in strategic sectors (as of 2025)• Revision of the Standardisation Regulation (2026)• Study on corporate restructuring (2026)

Announcement expected in 2-3 weeks

https://research-and-innovation.ec.europa.eu/document/download/2f76a0df-b09b-47c2-949c-800c30e4c530_en

4 things the European Commission is doing very well



- Clear distinction between the DPP system and the DPP data
- Request harmonized standards for the DPP system
- Simultaneous rollout of the DPP and the eIDAS 2.0 Regulation and EUBW
- Adoption of the Single Market Strategy

- “The EU needs a paradigm shift from a **document-based** to a **data-based** Single Market.”
- “In the future, the Digital Product Passport (DPP) will allow access to all essential documents required under the EU product legislation.”

Source: Single Market Strategy - Outdated harmonised product rules and lack of product compliance

Roadmap to the operationalisation of the DPP

DPP STANDARDISATION MILESTONES (CEN-CENELEC)

Development and adoption CEN-CENELEC Standards

LEGAL MILESTONES

DPP system secondary legislation

Product-specific rules

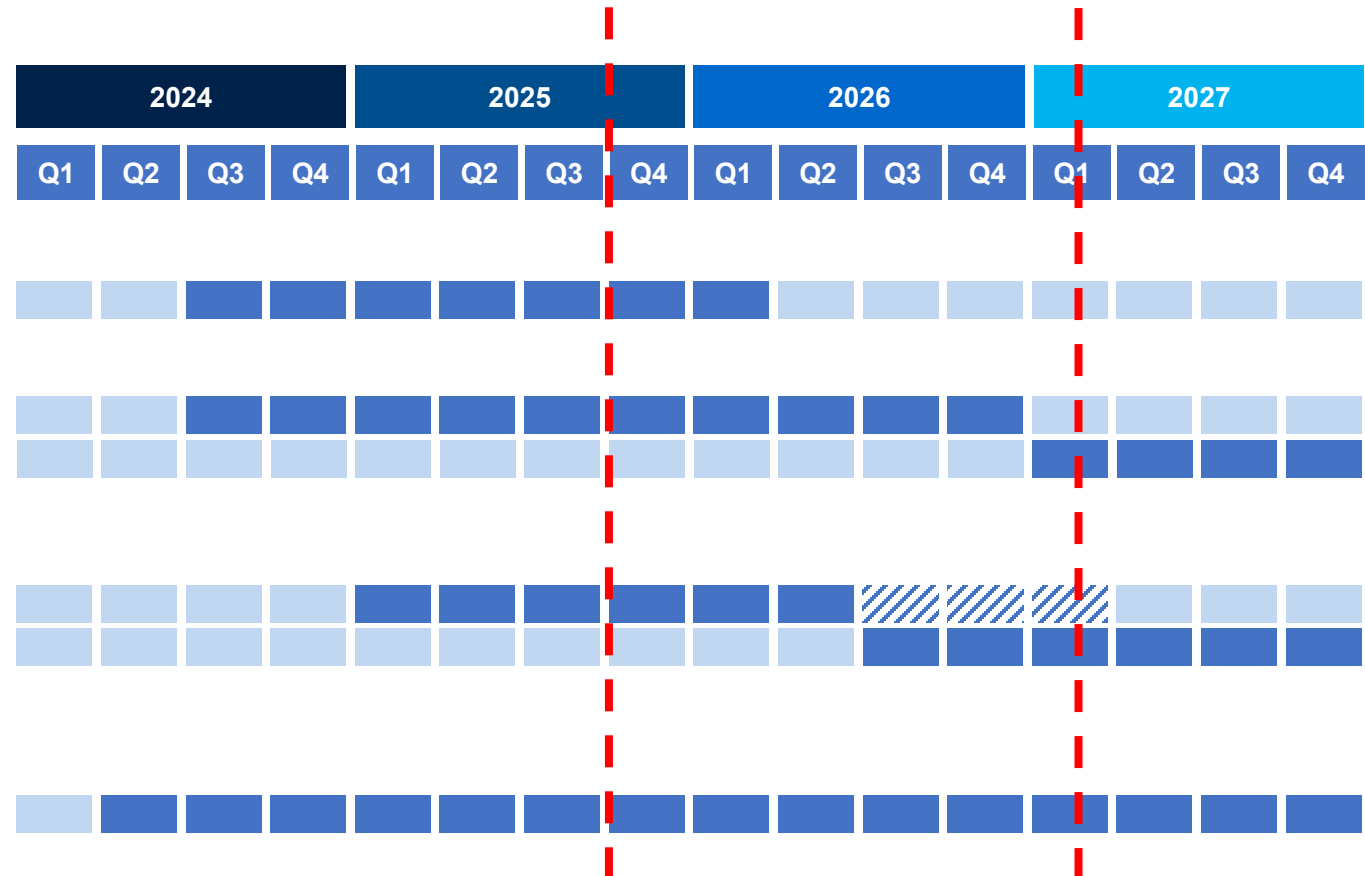
DPP DIGITAL IMPLEMENTATION MILESTONES

DPP Registry

Web portal

STAKEHOLDERS ENGAGEMENT AND COMMUNICATION

Engage stakeholders



Registry established & testing activities with industry

Roadmap to the operationalisation of the DPP

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STAKEHOLDERS ENGAGEMENT AND COMMUNICATION

Engage stakeholders

- An implementing act setting out procedures to issue and verify the digital credentials of economic operators and other relevant actors
- An implementing act setting up requirements for the Central Registry
- A delegated act establishing rules & procedures on the life cycle management of unique identifiers & data carriers



Registry established & testing activities with industry

CIRPASS-2 DPP Pilot Ecosystems



Circular workwear



Textiles lifecycle



Circular garments



Textile sorting



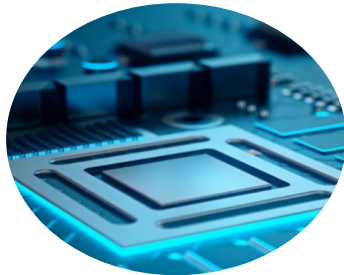
Mattresses



Down-feather bedding



Cordless vacuum
cleaners



AAS-based for
electronic products



Audio equipment



IT second-hand market



Tumble-dryers



Tyres



Construction sector

CIRPASS-2 DPP Pilot Ecosystems

- Pilot diversity is the key to ensuring that what we propose is aligned with the current state of the industry.
- Sector diversity is the key to ensuring that the DPP system proposal is both cross-sectoral and future-proof.
- Goal: Prove that the DPP can be **more** than just a regulatory burden for companies but it can effectively promote economic and environmental sustainability.



Circular workwear



Down-feather bedding



Cordless
c



Wardrobe
dryers



Priority Products proposed by ESPR Work Programme

Products to be included in the work programme



Textiles/Apparel

2027*



Furniture

2028*



Tyres

2027*



Mattresses

2029*

Intermediate products included



Iron & Steel

2026*



Aluminium

2027*



Energy-related
products

2027*



ICT products

2029*

Products included under the transition rules

* indicative timeline for adoption

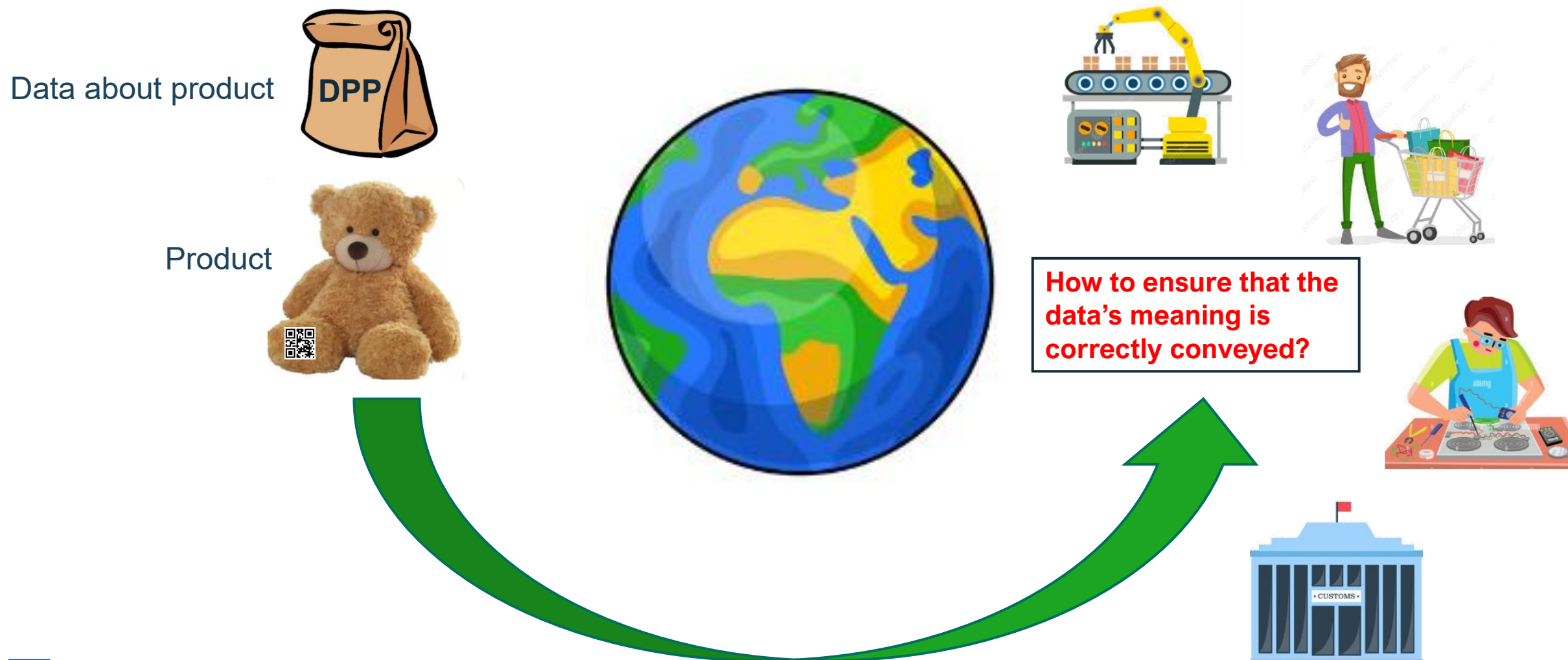
- Step 1 : Start with a large sample of very different existing DPP solutions already in production or in advanced piloting phases.
- Step 2: Build open-source **cross-pilot interoperability tools**.
- Step 3 : Accompany each pilot in its ESPR/CPR-compliance journey...
 - support alignment with JTC-24 draft standards.
 - support alignment with coming international DPP standards.

- They all employ **different DPP service providers**.
- They all have **different business cases** based on ‘voluntary’ data.
- They all use **different data modelling approaches**, some based on standards, e.g. RDF/RDFS, IEC 63278-1:2023, EN ISO 23387/ISO 22057, but most not.
- It is likely that they all will need to **convert pre-existing** ‘voluntary’ DPP use cases into ‘mandatory’ ones in the future.

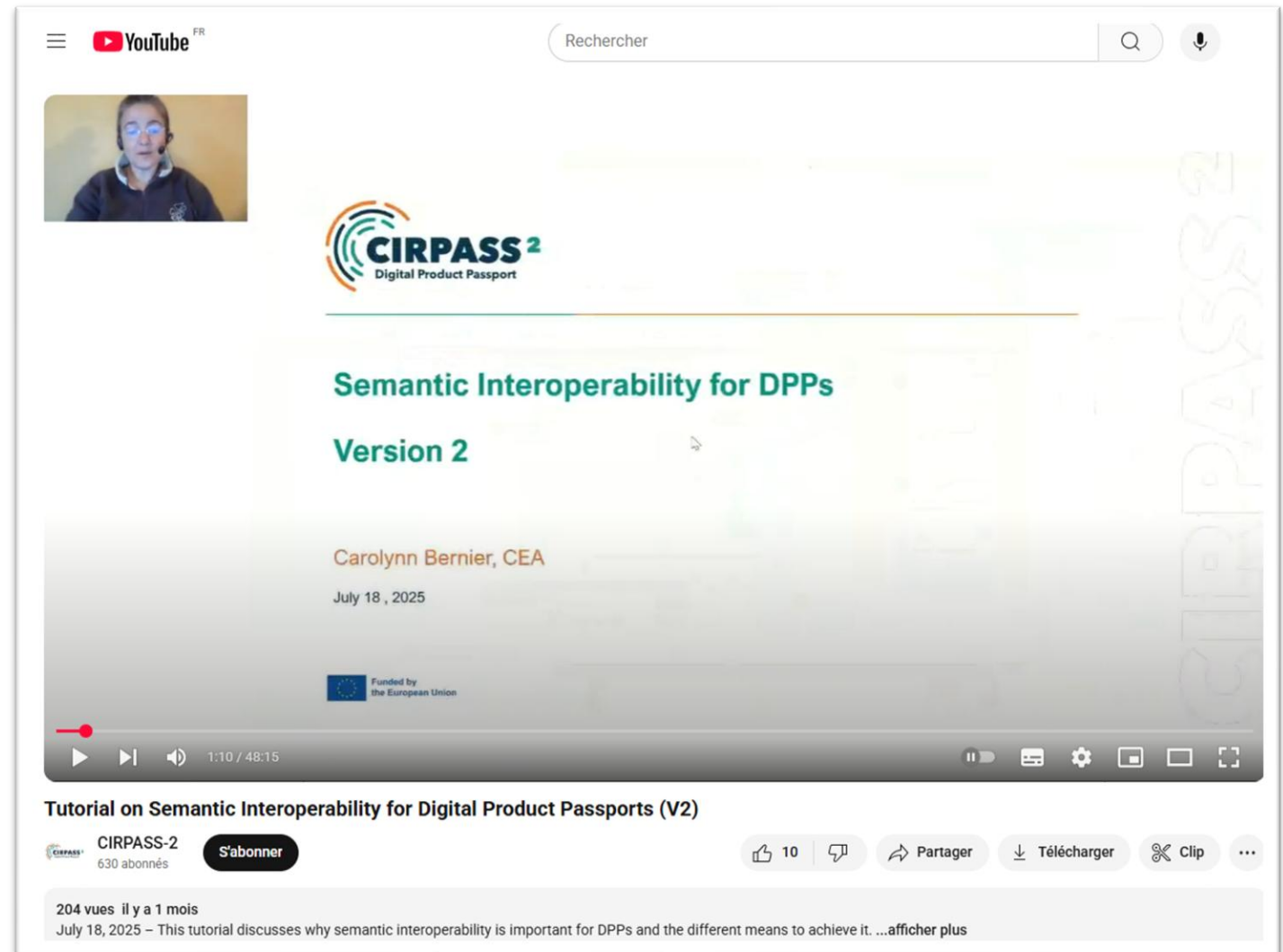


None are interoperable outside of their existing (closed) business ecosystems.

The DPP is NOT a closed data ecosystem.



A deep-dive into semantic interoperability for DPP

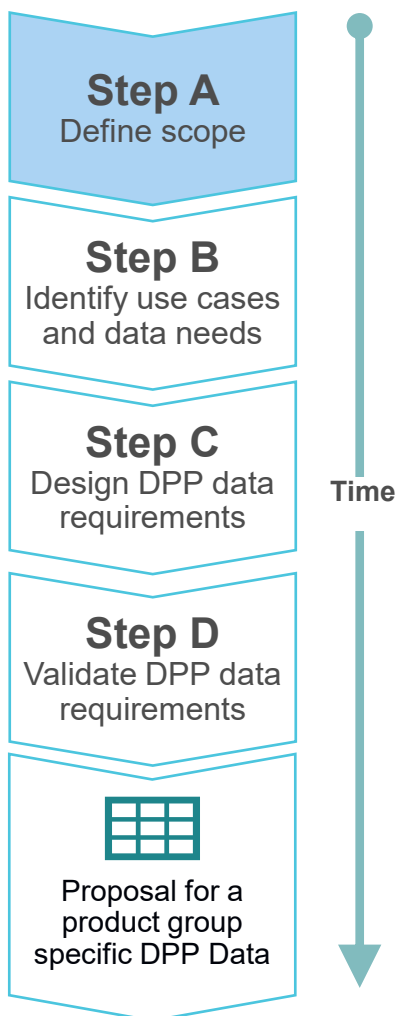


5~~4~~ things the European Commission is doing very well



- Clear distinction between the DPP system and the DPP data
- Request harmonized standards for the DPP system
- Simultaneous rollout of the DPP and the eIDAS 2.0 Regulation and EUBW
- Adoption of the Single Market Strategy
- Publication of JRC methodology for defining DPP data requirements

Methodology - defining DPP data requirements

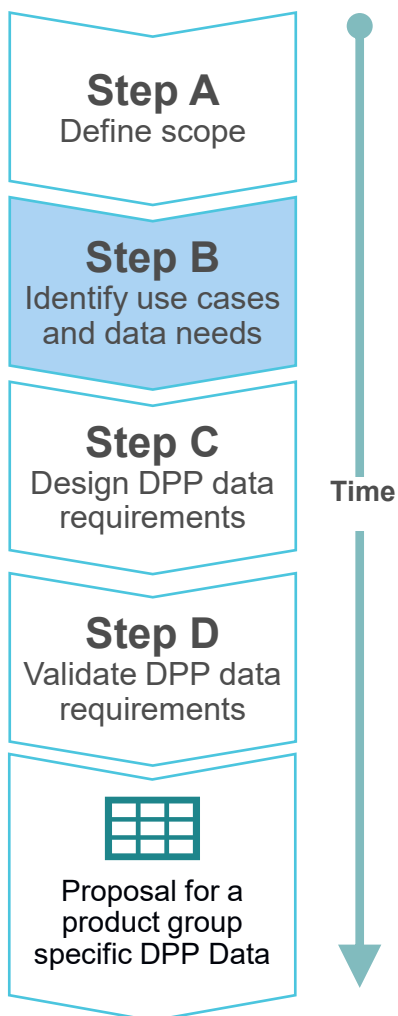


STEP A:

1. Define the product scope and boundaries
2. Review the policy and legal context
 - 2.1. Define stakeholder profile
 - 2.2. Document the existing standards and vocabularies
 - 2.3. Document the value chain (incl. typical data flows)

Supporting annex: list the research questions

Methodology - defining DPP data requirements

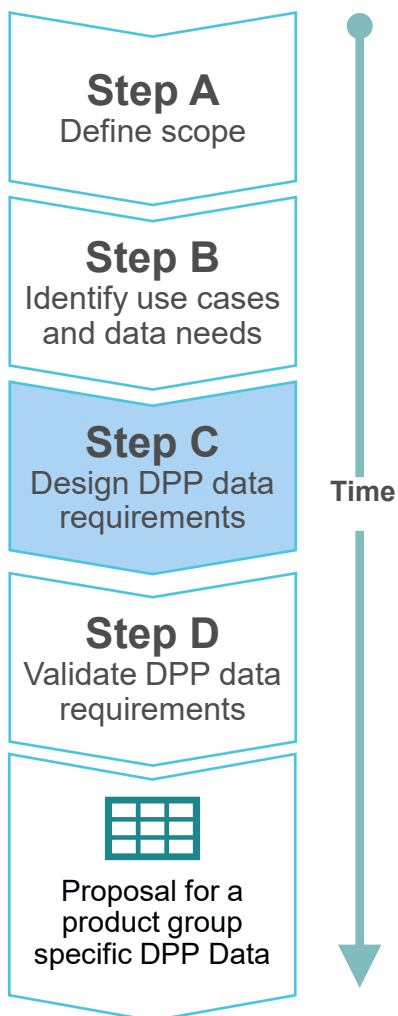


STEP B:

1. Define use cases
2. Identify the data needs
3. Iterate to verify the data needs and use cases

Supporting annexes: Criteria for selecting the relevant use-cases + Generic use cases to be adapted + Generic guidance on the data points by product aspect

Methodology - defining DPP data requirements

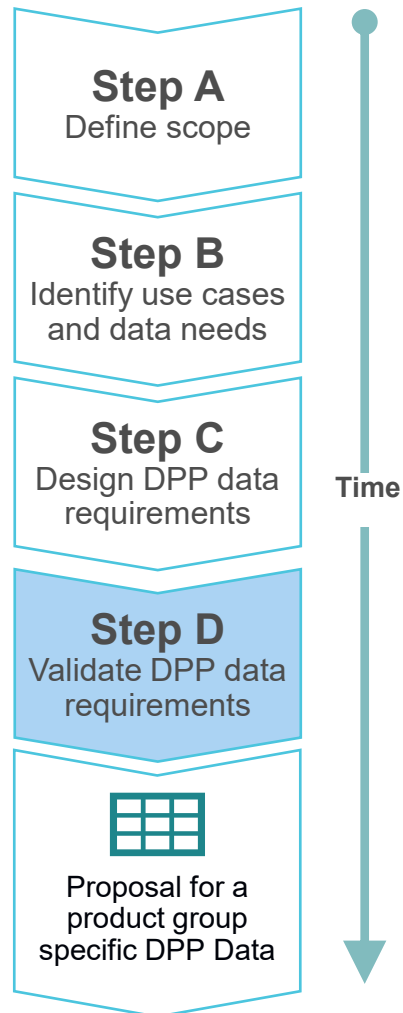


STEP C:

1. Review, benchmark and adapt product-specific vocabulary
2. Set DPP data granularity
3. Set DPP access and sharing rights
4. Set DPP requirements on update and maintenance

Supporting annexes: Guidance for identifying, reusing, and merging existing product classification vocabularies + General rules to determine appropriate granularity levels + Recommendations for editing and data sharing

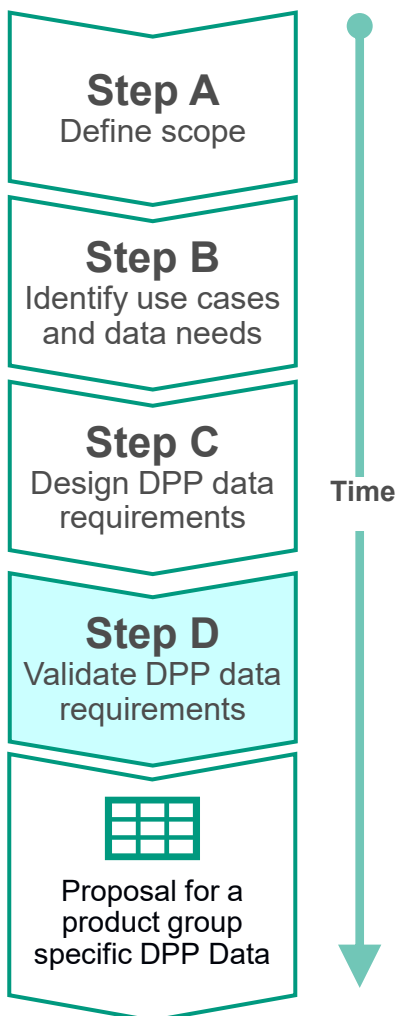
Methodology - defining DPP data requirements



STEP D:

1. Validate the vocabulary internally
2. Validate the vocabulary externally

JRC methodology: Defining DPP data requirements



STEP D:

1. Validate the vocabulary internally
2. Validate the vocabulary externally

Missing step E?

- Creation of machine-readable representations of the vocabularies



- Machine-readable DPP-related ESPR core vocabularies
 - to facilitate semantic interoperability across sectors and beyond EU.

2024/1781

28.6.2024

REGULATION (EU) 2024/1781 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 13 June 2024

establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC

(Text with EEA relevance)

Article 2

Definitions

(22) ‘durability’ means the ability of a product to maintain over time its function and performance under specified conditions of use, maintenance and repair;



human-readable definitions



machine-readable vocabularies

```
<http://dpp.taltech.ee/EUDPP#Durability>  
a owl:Class ;  
rdfs:subClassOf <http://dpp.taltech.ee/EUDPP#QualityIndicators> ;  
rdfs:comment "Durability means the ability of a product to maintain  
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```

- Machine-readable DPP-related ESPR core vocabularies
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2024/1781

28.6.2024

REGULATION (EU)

establishing a framework
sustainable product
Regulation (EU)

Why is this important ?

vocabularies

Definitions

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Addressing the “many DPPs” problem



Today: voluntary DPPs

Addressing the “many DPPs” problem



Tomorrow: mandatory DPPs

→The EU DPP is not just a regulatory tool.

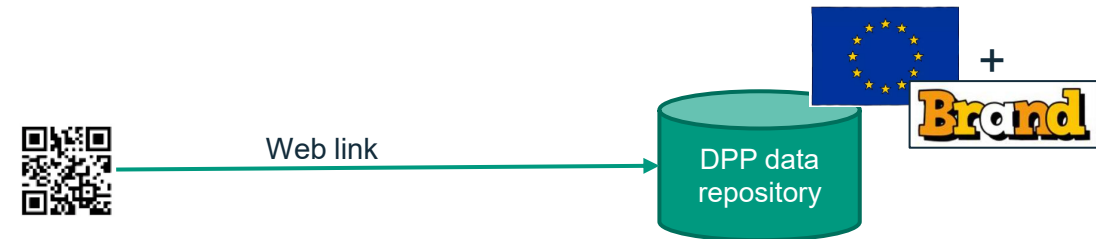
Addressing the “many DPPs” problem



After tomorrow: more DPPs?

- Voluntary DPPs?
- Mandatory DPPs from other jurisdictions?

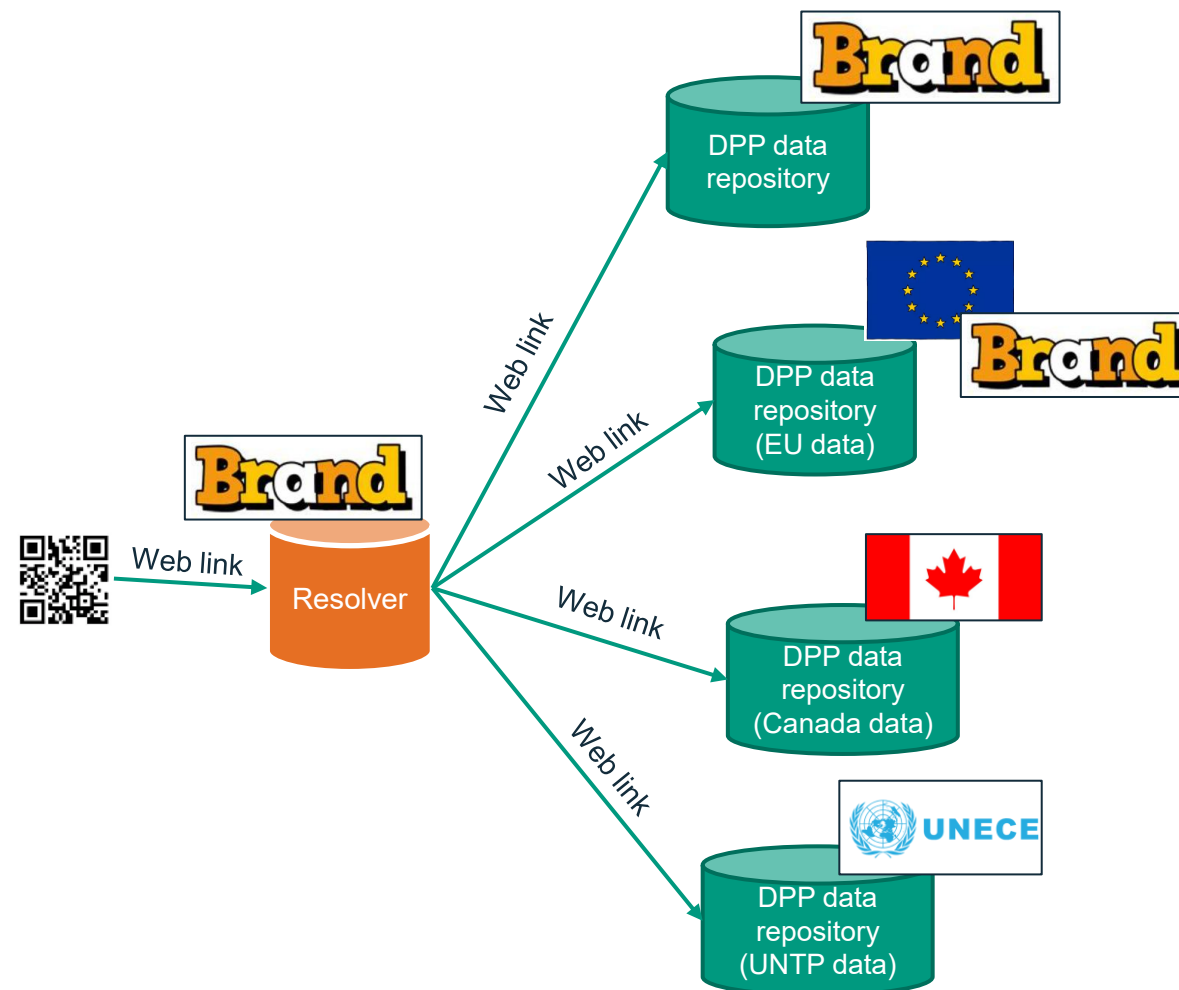
International interoperability – Option 1



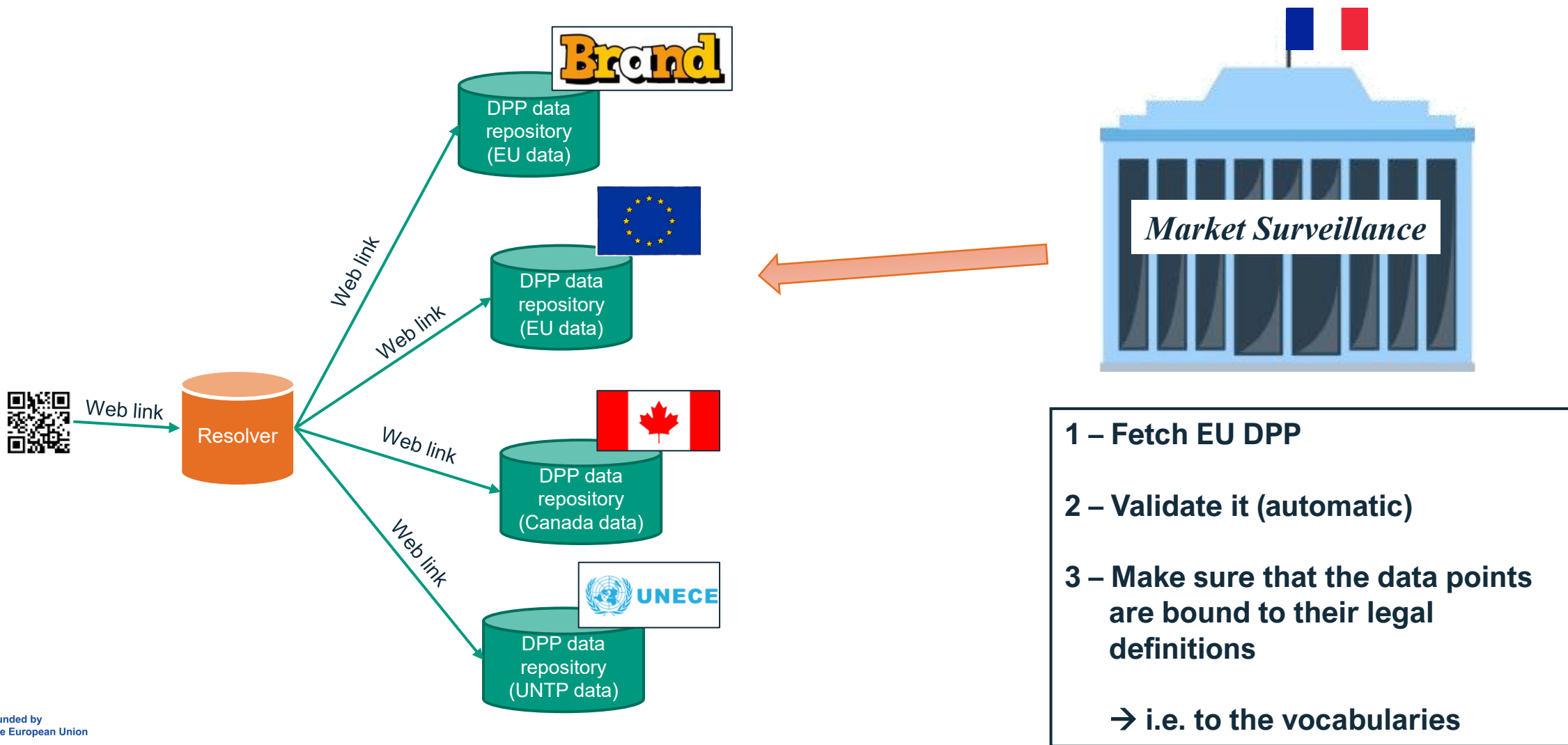
Option 1:

The entire world aligns to the EU DPP information requirements.

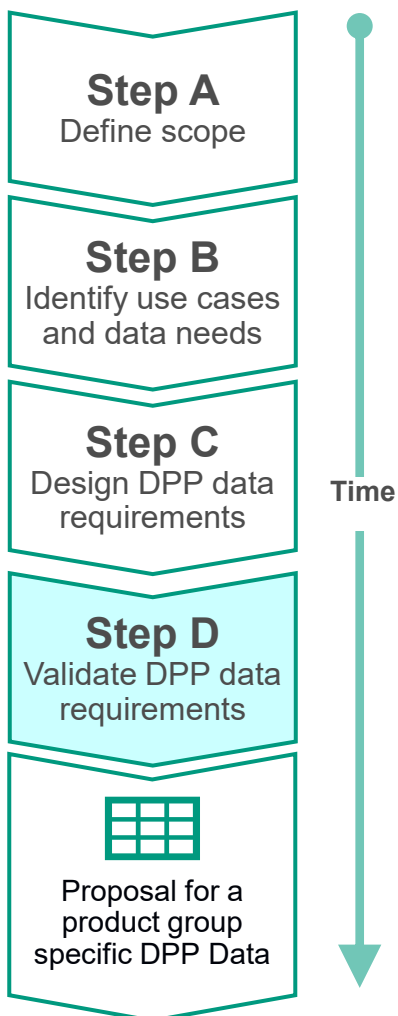
International interoperability – Option 2 (Carolynn's vision)



How to make sense of the data?



JRC methodology: Defining DPP data requirements



STEP D:

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Missing step E?

- Creation of machine-readable representations of the vocabularies



This is not difficult.

Upcoming white papers by CIRPASS-2



- Granularity options for a garments DPP
- The Role of Data Spaces & EU Business Wallet for DPP User Empowerment
- Verifiable Credentials: A comparative brief

Thank you!

www.cirpass2.eu

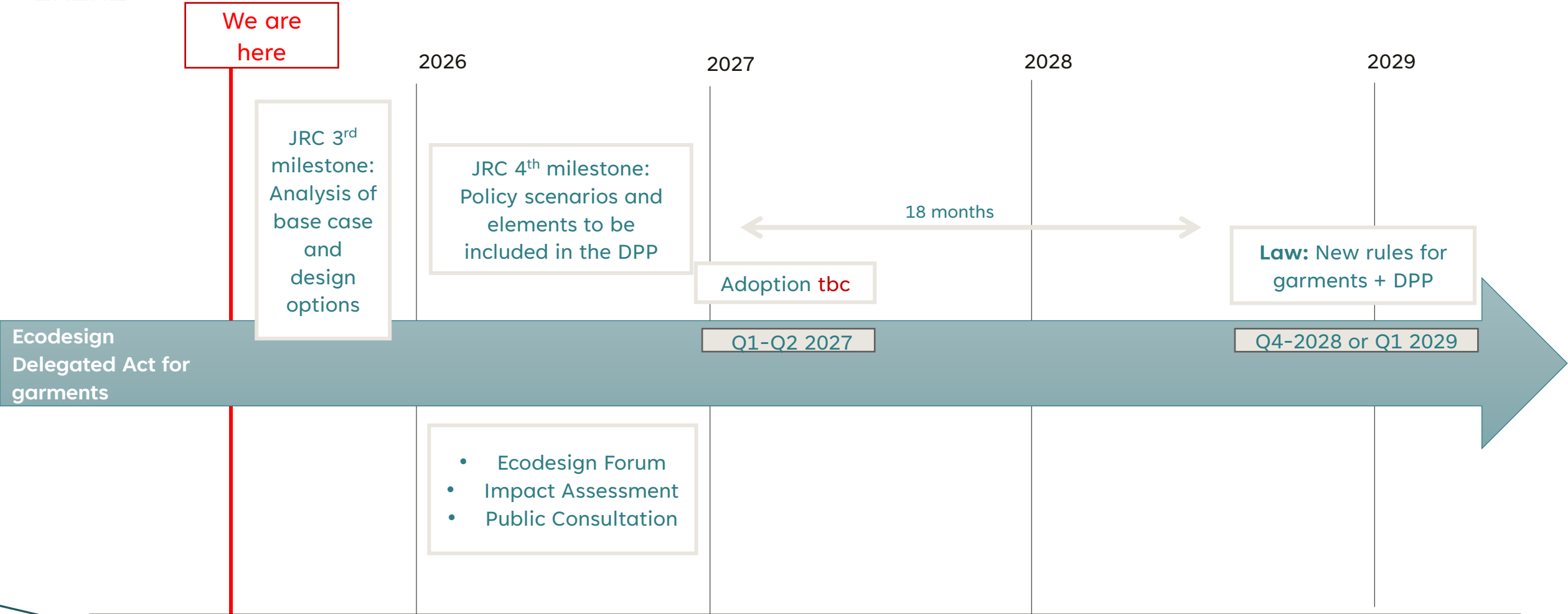
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Delegated Act for garments estimated timeline



What is CIRPASS-2 working on now ?

- Alignment with CEN/CENELEC JTC-24 draft data & semantic models
- Revision of DPP User stories V3 (December 2025)
- Revision of DPP system architecture proposals (April 2026)
- Specification of open-source software components
 - Cross-pilot DPP renderer
 - Cross-pilot lifecycle API
 - Mock EU Registry
- DPP Legal Interoperability: What businesses need to know (webinar)
 - Dr Jeanne Huang, University of Sydney Law School, Oct 27, 13h-14h CET.