# CIRPASS-2: European initiative for implementing the Digital Product Passport

Anh Dao, E – Circular ApS

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# CIRPASS-2 Partners

CIRPASS 2 Digital Product Passport

## Research institutes

- CIRPASS-2 coordinator
- PTB – Physikalisch-Technische Bundesanstalt, National Metrology Institute
- Fraunhofer IZM
- TAL TECH
- TU Delft
- cbt
- BAIDATA
- TNO innovation for life
- inovalia ASSOCIATION
- CHALMERS INDUSTRITEKNIK

**Expert Working Group partners:**
EWG1, EWG2, EWG3, EWG4, EWG5, CoP

More than 800 experts from industry bringing know-how to support project activities.

## Cross-cutting expertise, Standards, Circular Economy

- maki consulting – Life cycle expert services
- IPOINT
- DKE
- energy web
- GS1 in Europe
- FGS
- CIRCULAR ECONOMY INTERNET
- Textile Exchange
- WORLDLINE
- IMPAKT
- MWX MINDWORKS
- GLOBAL ELECTRONICS COUNCIL
- DIGITALEUROPE
- extrared
- GTS GLOBAL TEXTILE SCHEME
- FUJITSU
- INDUSTRIE 4.0 AUSTRIA
- EURATEX – THE EUROPEAN APPAREL AND TEXTILE CONFEDERATION

## Pilot participants

Not shown: organisations participating in each pilot

### Textiles

- FINNISH TEXTILE & FASHION
- KEZZLER
- EON
- scantrust
- atma.io
- IOXIO
- circular.fashion
- tripleR.io

### Electronics

- whatt.io
- ecowise
- Digital Data Chain Consortium
- OBADA
- Beko
- ASCDI The ITAD Association
- zvei electrifying ideas
- gorenje

### Construction

- cobuilder – CONNECTING CONSTRUCTION TO ITS DIGITAL TOMORROW

### Tyres

- MICHELIN

# CIRPASS-2 DPP Pilot Ecosystems



Circular workwear



Textiles lifecycle



Circular garments



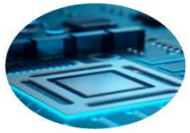
Textile sorting



Tyres



Cordless vacuum cleaners



AAS-based for electronic products



Audio equipment



Constructio n sector



Tumble-dryers



Mattresses



Down-feather bedding



IT second-hand market

- 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 standards are 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.

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# EU DPP

- https://single-market-economy.ec.europa.eu/single-market/digital-product-passport_en: “The **Digital Product Passport** (DPP) is a digital container for products, components, and materials, which will store relevant information to support products’ sustainability, promote their circularity and strengthen and facilitate legal compliance.”

- ESPR (Art.2 (28)): “**‘digital product passport’** means a set of data specific to a product that includes the information specified in the applicable delegated act adopted pursuant to Article 4 and that is accessible via electronic means through a data carrier in accordance with Chapter III”

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# Textile Delegated Act

- JRC will release the fourth (final) milestone report shortly
- This would elaborate on possible options for the rules
- Impact assessment to refine/revise those rules should be done early next year
- EC is expected to disclose the way forward => Performance and information requirements proposed in the Delegated Act
- Adoption expected in Q4 2027
- Transition period of 24months => implemented in appr. 2029
- Scope: the preparatory study is on apparel (incl. clothing accessories)
- Information requirements: robustness, recyclability and recycled content, mandatory recycled content, voluntary carbon or environmental footprint
- Mandatory information on substance of concern => REACH alignment

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# Overview of the Design Options (OD)

| Generic objectives | Specific objectives | Design Options (DOs) | (Potential) Ecodesign requirement |
|---|---|---|---|
| **Decrease the environmental impact of products by diluting one-off effects** | Extend products lifetime | DO1 – Product with an increased robustness | Information requirement on the robustness (robustness score) |
| **Increase the availability of secondary materials** | Increase the share of the waste going to recycling | DO2 – Product with a higher recyclability | Information requirement on the recyclability (recyclability score) |
| **Decrease the environmental impact of raw materials** | Increase the use of secondary materials | DO3 – Product with higher recycled content | 3.1 Information requirement on recycled content<br>3.2 Performance requirement on the recycled content |
| **Decrease the environmental impact of manufacturing** | Decrease the environmental footprint of the manufacturing | DO4.1 – Product with a decreased environmental footprint | Information requirement on the environmental footprint during manufacturing |
| | Decrease the carbon footprint of the manufacturing | DO4.2 – Product with a decreased carbon footprint | Information requirement on the carbon footprint during manufacturing |

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# Horizontal Acts

- DPP Registry Regulation adopted July 16, 2026
  - Operational since July 20, 2026
  - Dedicated page https://single-market-economy.ec.europa.eu/single-market/digital-product-passport/dpp-registry_en
  - Access, Testing environment, User guide

- DPP Requirements for service providers Q3 2027

- European Product Act (EPA) expected to have extensive horizontal DPP provisions to use DPP and its data system for better market surveillance

- Iron & steel DPP data requirement, battery access rights Q4 2026 => test cases

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# International developments

- ISO / JTC5 https://www.iso.org/committee/11760382.html
  - DPP system framework
  - Terminology
  - Semantic dictionaries

- UNECE continues to work on global interoperability (UNTP)

- China piloting its own textile DPP platform through CNTAC

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# DPP Granularity Level Options for Textiles / Apparel

- https://doi.org/10.5281/zenodo.17395422 (Nov. 2025)
  - Mandated level: Item, batch (definition?: ESPR, production, shipping), model
  - Pros and cons of each level of granularity of mandatory information requirements and product identifiers
  - 7 recommendations

- https://zenodo.org/records/21160466 (July 2026)
  - Survey raw data: 48 answers
  - Survey result analysis (7 recommendations)
  - Each recommendation statement was evaluated using 5 mutually exclusive choices

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# Remarks

- All CIRPASS-2 textiles pilots are using item-level identifiers since this is the only granularity that can support all use cases fully.
- The support for item-level identifiers is strong also in the survey, especially if it is not an all-category rule. Relevant product categories can be identified by looking at life expectancy and considering if the category contains products where a second life is expected. Product value should be irrelevant.
- If item-level identifier is a long-term goal for the regulator, it should be strongly encouraged from day 1. Starting on a less granular level will introduce a new and long period with mixed levels a few years down the road.
- Mixed granularity levels (mandatory + voluntary) within a category make using the DPP in some downstream services, like repair, more complicated. The decisions made on this subject will stay with us for many years.
- Batch-level information requirements can be fulfilled with Batch- or Item-level identifiers. Batch is poorly defined in the industry and has much weaker support than Item-level identifiers in the survey, especially if considered per category. Item-level identifiers also offer much more flexibility to provide Batch-level information requirements, since batch relations can be handled in the back-end.

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# Recommendations

- Establish rules for the categories where item-level identifiers should be strongly encouraged and in scope for regulatory requirements future updates.
  - In these sectors, if item-level granularity is not made mandatory in the short term, Commission should find means to incentivize it.
- In case Batch-level identifiers and/or information are required, establish clear definitions of what a batch is.
- Establish whether Batch-level information should be presented as such or aggregated to Model-level (e.g. Carbon footprint that varies seasonally may not be important).
- Trustworthy information on the actual increased operational costs and burden moving to serialized identifiers should be made publicly available.

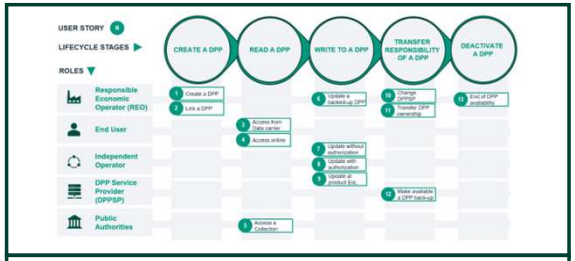
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# CIRPASS-2 resources

- GitHub repositories: https://github.com/CIRPASS-2
- Textiles ontology: https://github.com/CIRPASS-2/ontologie-textiles
- DPP vocabulary & ontologies: https://dpp.vocabulary-hub.eu/specifications
- Open DPP Catalogue: https://cirpass2.eu/open-source-dpp-catalogue/

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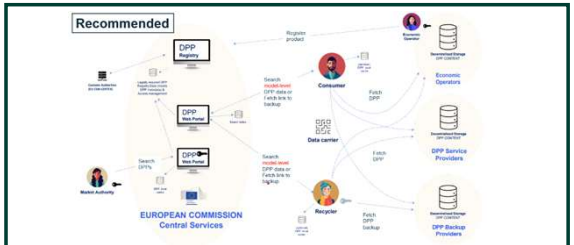
# Published recommendations for DPP system implementation




**USER STORIES V3**
Details all interactions between DPP system and its users, base the ESPR.



**Options for redirection to the**

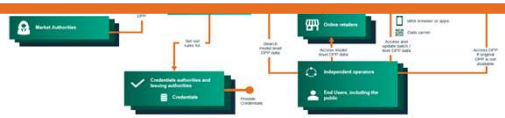



**Options for EU Web Portal search**
Provides considerations and recommendations for the search portal

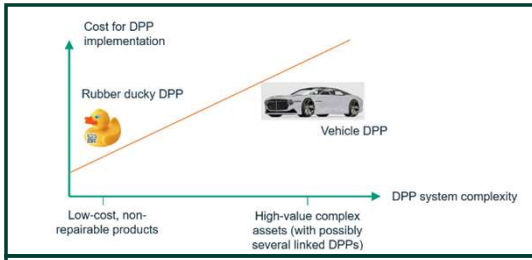
Available on
https://cirpass2.eu/project-results/



**Risks and mitigations**
Analyzes technical and non-technical risks for the DPP system and proposes mitigations



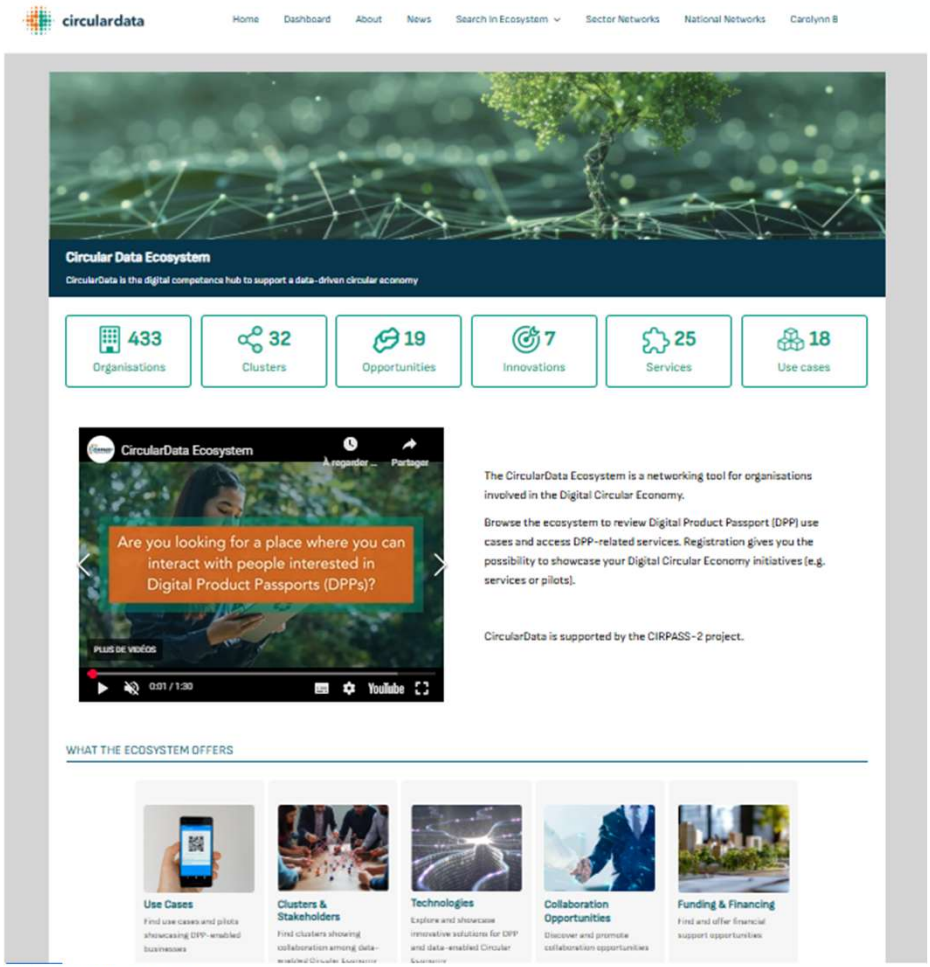
**Reference architecture proposal**
Proposes building blocks and recommendations for a full-fledged DPP system



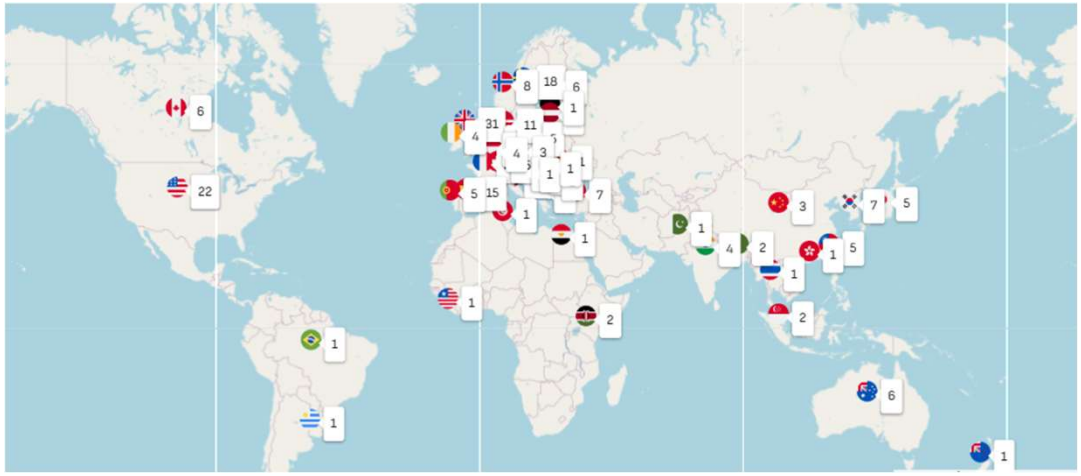

**The simplest DPP system**
Describes a minimal DPP system, as inspiration and starting point for more complex systems

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# Circular-data.org




- A free community to share DPP insight and services.
- Browse by sector, country, capability…



# Thank you!

**www.cirpass2.eu**

Contact us : info@cirpass2.eu

@cirpass2-dpp

@cirpass2_dpp

@cirpass2_dpp

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