

# DIGITAL PRODUCT PASSPORT

How can we make circular economy strategies the norm and not the exception?



The event will start at 13:00.

In the meantime, do not hesitate to grab a bite and get to know other participants at our networking lunch.

# WELCOME AND INTRODUCTION

Pascal Leroy | Director General, WEEE Forum



# AGENDA

**12:00 - 13:00 Lunch and registration**

**13:00 - 13:20 Welcome and explanation of the aims of the event** | [Pascal Leroy](#), [WEEE Forum](#)

**13:20 - 13:50 Policy overview: Digital Product Passport delegated acts** | Alexandru Ion, Digital Product Passport Team Leader, European Commission

**13:50 - 14:05 Q&A**

**RE-STRATEGIES x DIGITAL PRODUCT PASSPORT**

**14:05 - 14:20 Re-Criteria as a traffic light on the circular roundabout: Navigating the pathway to a Circular Economy** | [CE-RISE](#)

| [Setenay Saglam](#), [Empa](#)

**14:20 - 14:25 Q&A**

**14:25 - 14:45 Repairability: CIRPASS 2: How to enable RE-strategies via Digital Product Passports?** | [Valeria Muggianu](#),

[DIGITALEUROPE](#)

**14:45 - 15:00 Q&A**

**15:00 - 15:20 Repair: CE-RISE | Phoenix - the story of an independent ICT repair** | [Martin Reddy](#), [GreenIT](#)

**15:20 - 15:30 Q&A**

**15:30 - 15:50 Coffee break**

**15:50 - 16:10 Recycling: CircThread | Can DPPs unlock improvements in recyclability?** | [Rembrandt Koppelaar](#), [Ekodenge/EcoWise](#)

**16:10 - 16:20 Q&A**

**16:20 - 16:40 Remanufacturing and refurbishment: DiCiM | The role of Open Access Digital Platform in the context of Digital**

**Product Passport** | [Farazee Mohammad Abdullah Asif](#), [KTH](#)

**16:40 - 16:50 Q&A**













**16:50 - 17:20 Roundtable discussion** | Moderated by Pascal Leroy, [WEEE Forum](#)

**17:30 - 18:30 Networking drinks**

**17:20 - 17:30 Concluding remarks** | Pascal Leroy, [WEEE Forum](#)

# The ABC of Circular Economy

Your quick reference guide to key terms and concepts within circular economy.

 <b>A</b> Access > ownership	 <b>B</b> Business models	 <b>C</b> Collaboration	 <b>D</b> Design	 <b>E</b> Ecosystems	 <b>F</b> Fossil-free	 <b>G</b> GHGs
 <b>H</b> Holistic approach	 <b>I</b> Industrial symbiosis	 <b>J</b> Justice	 <b>K</b> Knowledge sharing	 <b>L</b> Longevity	 <b>M</b> Materials	 <b>N</b> Net Zero
 <b>O</b> Optimization	 <b>P</b> Product as a service	 <b>Q</b> Quality > quantity	 <b>R</b> 9 R's	 <b>S</b> Systems thinking	 <b>T</b> Technology	 <b>U</b> Upcycling
 <b>V</b> Value chains	 <b>W</b> Waste hierarchy	 <b>X</b> X-efficiency	 <b>Y</b> You	 <b>Z</b> Zero-waste		

Collaboration between Studio Berget & The Circular Economist.

Studio Berget + **thecircular economist.**





# Digital Product Passport (DPP)

*Alexandru Ion - Digital Product Passport Team Leader*

*DG GROW G4 - Data and Knowledge for Policy, Business and People*



# Digital Product Passport

## Context

The DPP is an important deliverable in the Commission strategy to digitalise our economy. Many DGs are actively contributing to its design and deployment (GROW, ENV, CNECT, DIGIT, ENER, JRC, TAXUD)

The objective of the DPP is to simplify digital access to relevant product-specific information in the area of sustainability, circularity, and legal compliance.

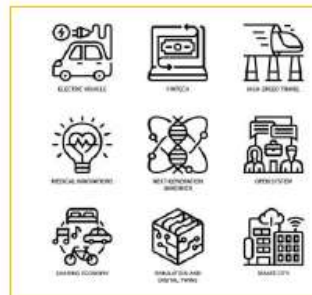
The DPP shall, by its own nature, be cross-sectoral, serving B2B, B2C, and B2G purposes. The aim is to integrate and harmonise.

# Digital Product Passport

## Context



Tracking of raw materials extraction/production, supporting due diligence efforts



Enable manufacturers to link information to products (e.g. products digital twins, embedding all the information required)



Tracking the life cycle of a product, enabling services related to its remanufacturing, reparability, recyclability, new business models



Benefit market surveillance authorities and customs authorities, by making available information they would need to carry out their tasks



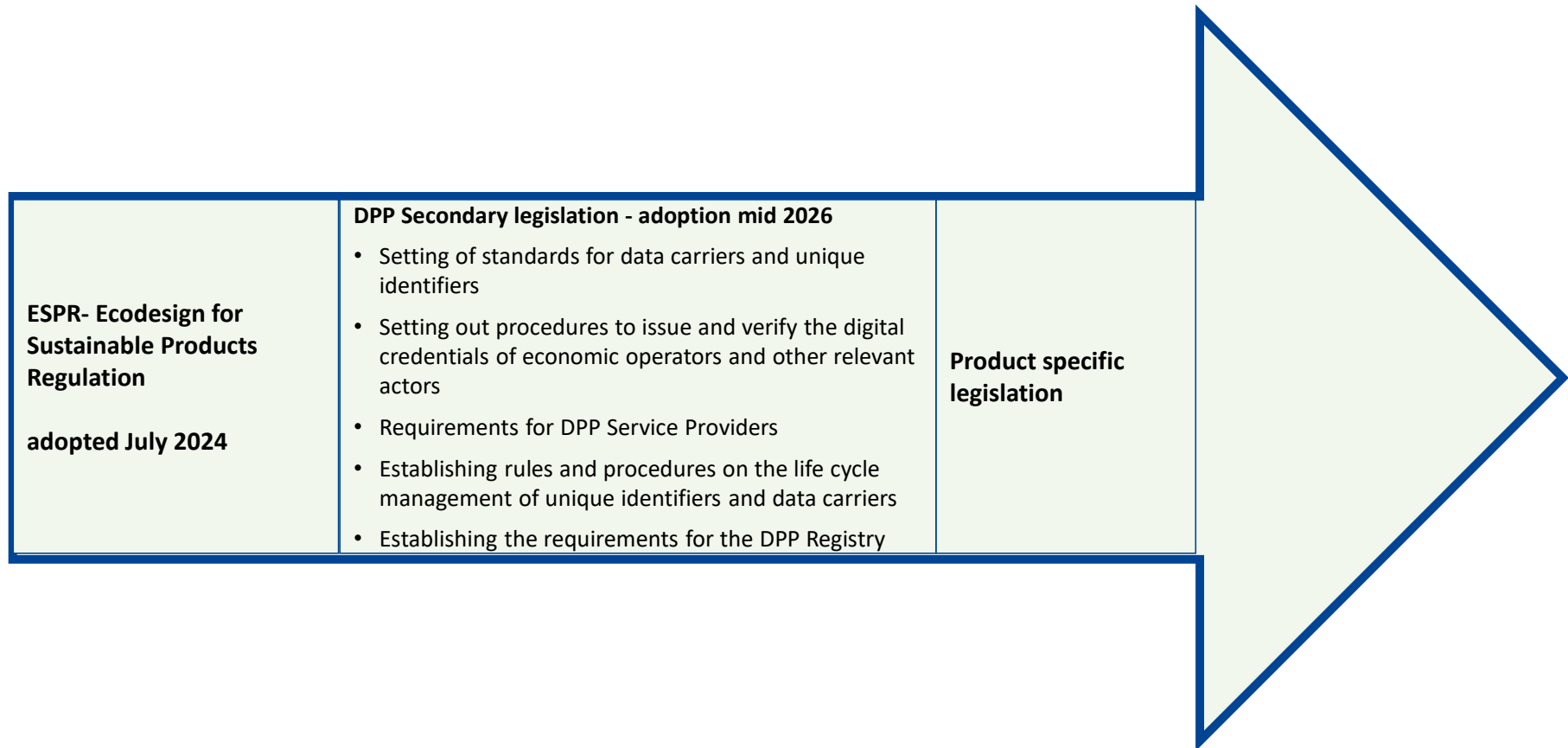
Make available to public authorities and policy makers reliable information. Enable to link incentives to sustainability performance



Allow citizens to have access to relevant and verified information related to the characteristics of the products they own or are considering to buy/rent

# Digital Product Passport

## Roadmap



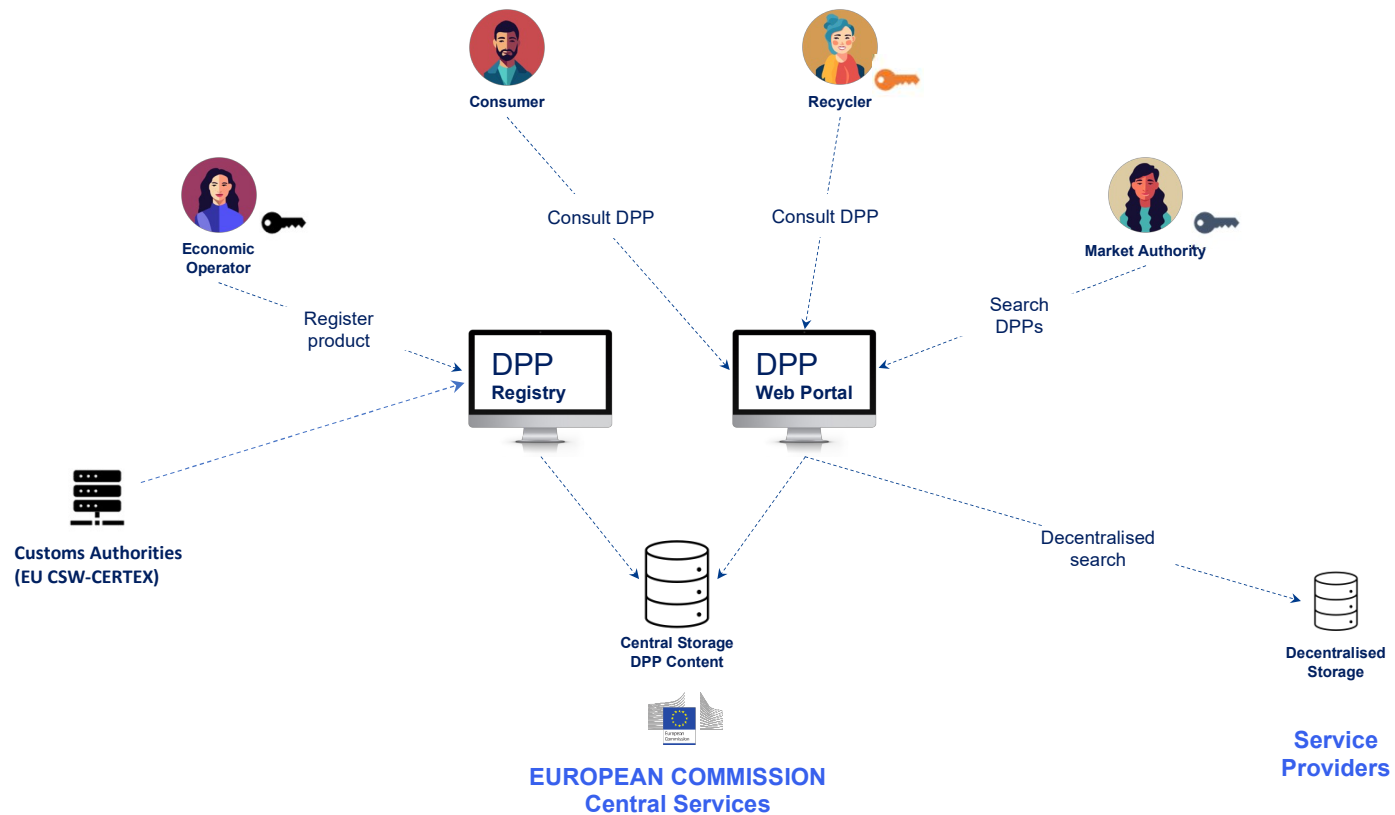
# Digital Product Passport

## Features

- DPP is based on a decentralised approach.
- The DPP shall be uniquely linked to a product.
- Access to data will take place through a (persistent) product unique identifier, embedded in a data carrier.
- Access to DPP-data based on a need-to-know basis (there will be **public** and **restricted** data)
- 3 possible levels of granularity: (i) model, (ii) batch, (iii) item
- 4 unique identifiers will always be required:
  - Product identifier
  - Facility identifier
  - Economic operator identifier
  - Registration identifier (not public)
- Economic operators shall make also available a back-up copy of the DPP through a [certified] independent third-party DPP service provider

# Digital Product Passport

## Set-up of the DPP



# Digital Product Passport

## DPP Registry

The DPP registry is a core component of the whole DPP system:

- The entry point for REOs (responsible economic operators) to upload the 3 DPP mandatory identifiers and the commodity code (other information may be required to be stored in the Registry by Delegated Acts, if justified)
- Creates the registration identifier issued to REOs proving that they were the creators of the DPPs (particularly relevant for customs' controls).
- Help with checking the authenticity of the DPPs
- The interface with EC-CERTEX system for 100% automatic checks by custom authorities
- The trust source for the Web Portal, ensuring that only information coming from 'authentic' DPPs is shown as results of the searches.



# Digital Product Passport

Standardisation work - CEN/CENELEC JTC 24

8 new areas of harmonised standards will be drafted to support the implementation of the proposed DPP-system. In particular:

- a) Unique identifiers
- b) Data carriers and links between physical product and digital representation
- c) Access rights management, information security, and business confidentiality
- d) Interoperability (technical, semantic, organisation)
- e) Data processing , data exchange protocols, and data formats
- f) Data storage, archiving, and data persistence
- g) Data authentication, reliability, integrity
- h) APIs for the DPP lifecycle management and searchability

# Digital Product Passport

## Standardisation process key elements

### Technology neutrality

1.2. *The standards to be developed shall reflect the generally acknowledged state of art and be **technology-neutral** and take into account to the extent possible the energy use and energy efficiency of the DPP-system.*

### Interoperability and reliance on mature standards without overlooking innovative new solutions

1.3. *The standards shall be rooted in **existing mature international standards** while at the same time taking into consideration **new and innovative approaches**, provided that a **full cross-sectoral interoperability** can be guaranteed. In particular, ISO/IEC standards shall be considered first and if necessary, complemented by existing European standards, national standards and fora standards (in this order).*

# Digital Product Passport

Priority groups



**Batteries**  
18/2/2027



**Fertilisers**



**Steel**



**Aluminum**



**ICT products**



**Toys**



**Tyres**



**Furniture**



**Paint, lubricants,  
chemicals**



**Detergents**



**Textiles**



**Construction products**



**Energy-related  
products**

# Digital Product Passport

## Main requirements for companies

- Make sure that a product passport exists, and it is in compliance with essential requirements established in articles 10 and 11 of the ESPR
- Make sure that the product passport is complete, meaning it includes all the mandatory information listed in the corresponding product group-specific Delegated Act.
- Make sure that the information included in the passport is authentic, reliable and verified in accordance with requirements established in the corresponding product group-specific Delegated Act.
- A back-up copy of the DPP is stored by a [certified] third-party product passport service provider.
- Copy of the data carrier or unique product identifier are made available to dealers and online marketplaces selling the corresponding product.

# Thank you!

Keep in touch



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[@EuropeanCommission](https://www.medium.com/@EuropeanCommission)



[EUTube](https://www.youtube.com/EUTube)



[EU Spotify](https://www.spotify.com/EU_Spotify)



# ANY QUESTIONS?

13:50 – 14:05



# RE-STRATEGIES x DIGITAL PRODUCT PASSPORT

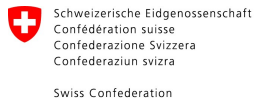




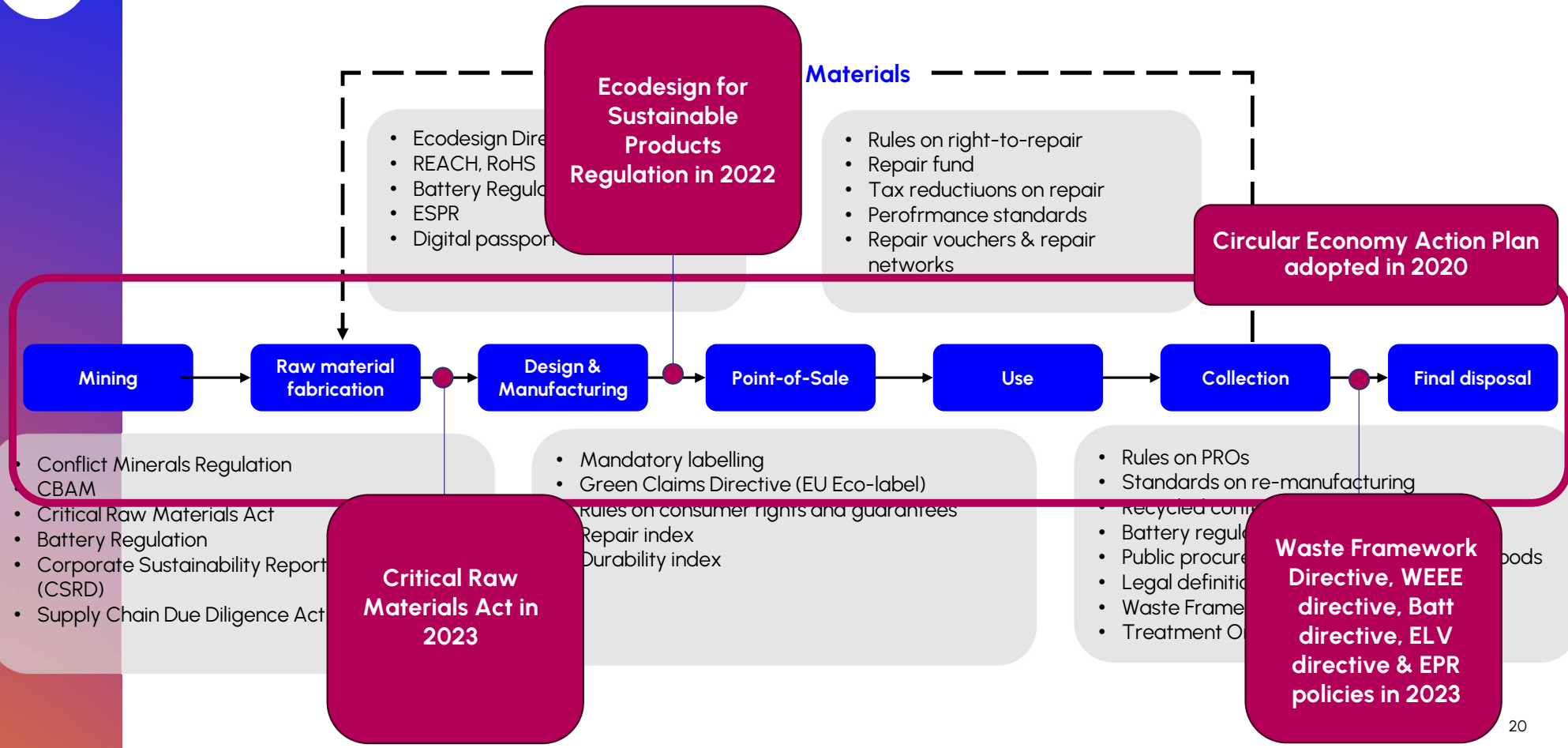


# RE-CRITERIA AS A TRAFFIC LIGHT: NAVIGATING THE PATHWAY TO A CIRCULAR ECONOMY

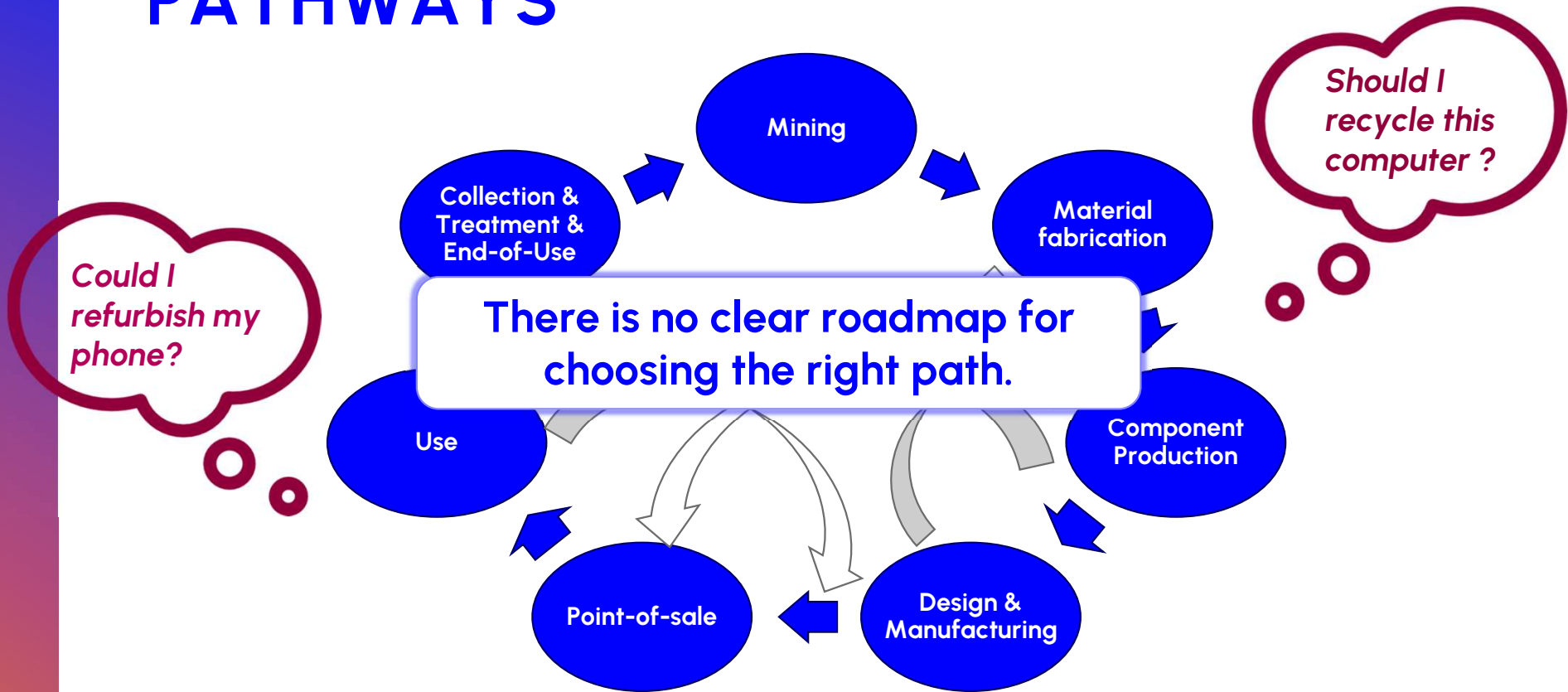
EMPA - Setenay Saglam, Joana F. Morgado, Jha Smriti Anand, Kirsten Remmen



# POLICY LANDSCAPE



# CIRCULAR ECONOMY PATHWAYS

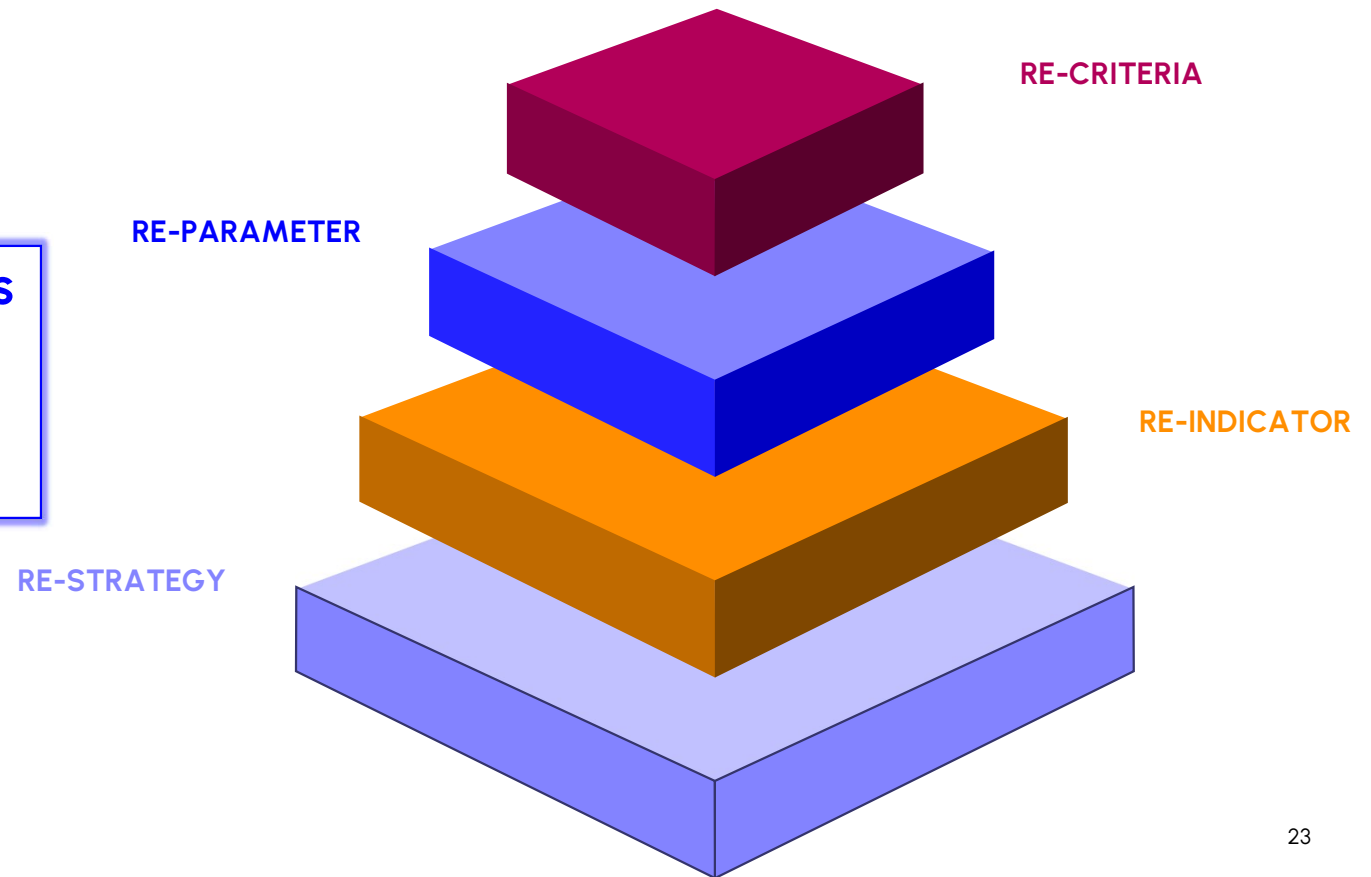




***How to choose the most suitable circular economy pathway?***

# CE-RISE APPROACH

We need to define **concepts** that enable assessing and comparing circular strategies



# RE-STRATEGY



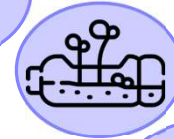
Product

subject to

RE-STRATEGY



1. REuse



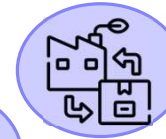
2. REpurpose



3. REpair



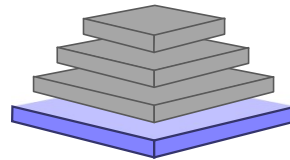
4. REfurbish



5. REmanufacture

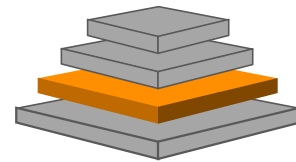


6. REcycle



**RE-STRATEGY:** Strategic action to enhance the circular economy of a product

# RE-INDICATOR



**Product**

subject to

**RE-STRATEGY**

1. Reuse
2. Repurpose
3. Repair
4. Refurbish
5. Remanufacture
6. Recycle

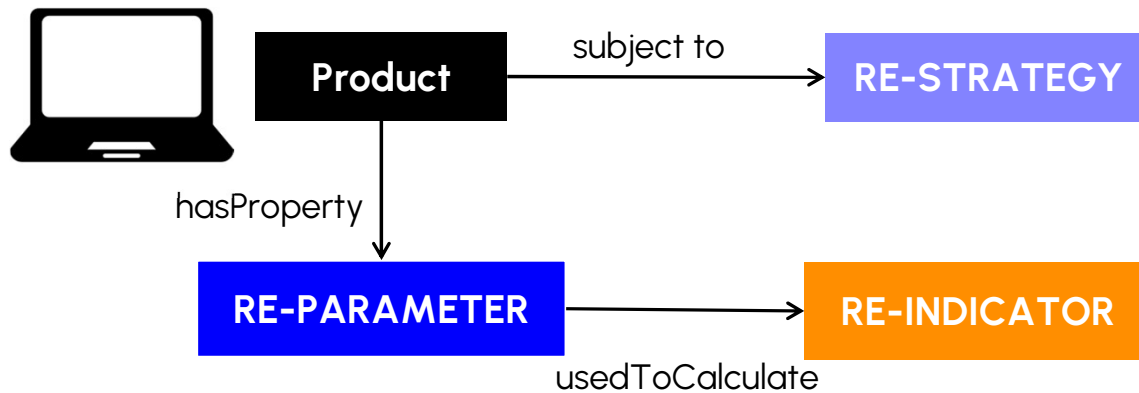
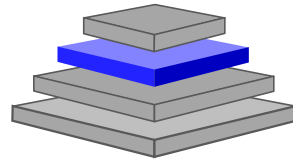
**RE-INDICATOR**

1. **Reusability**
2. **Repurposability**
3. **Repairability**
4. **Refurbishability**
5. **Remanufacturability**
6. **Recyclability**

**RE-INDICATOR:** Semi-quantitative metric of the applicability of a RE-strategy



# RE-PARAMETER



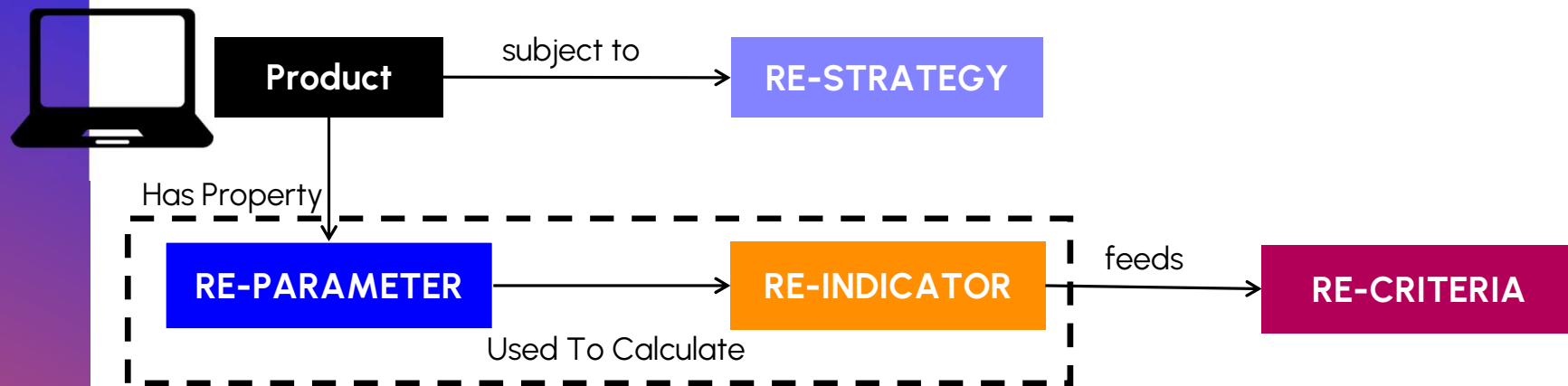
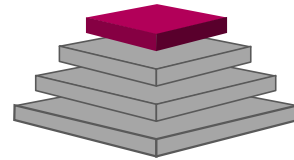
1. Reuse
2. Repurpose
3. Repair
4. Refurbish
5. Remanufacture
6. Recycle

1. Reusability
2. Repurposability
3. Repairability
4. Refurbishability
5. Remanufacturability
6. Recyclability

**RE-PARAMETER:** A property of a product, component, or material system that is used to calculate RE-indicators



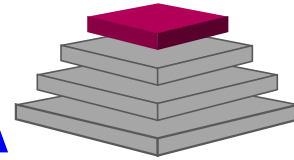
# RE-CRITERIA



Assess the RE-ability of a product

**RE-CRITERIA:** A set of constraints that help establishing thresholds and rank RE-strategies

# BUILDING BLOCKS OF RE-CRITERIA



## Make-or-Break Constraints

- Unavailability of spare parts
- Lack of product modularity (i.e., inseparable components)
- Absence of End-of-Life treatment facilities



## Legal Constraints

- Information on chemical content to ensure a safe repair or refurbishment process
- Safety risks for transport and logistics
- Battery regulations setting a minimum charge level



## Technical Constraints

- Material fatigue and degradation
- Recoverability potential through treatment processes (e.g., reference points for recyclability)
- Environmentally Optimal Lifetime Index



## Constraints due to Labelling and Standards

- Quality criteria for refurbished products to comply with the RecQ label
- EN 45553 standards for assessing the remanufacturability of a product



RE-CRITERIA

- Make-or-Break Constraints
- Legal Constraints
- Technical Constraints
- Constraints due to labelling and standards

We need a holistic and systemic approach to rank RE-Strategies, considering all factors instead of focusing on a single aspect

- Hierarchy of RE-strategies (e.g., REuse -> REpair -> REpurpose)



CIRCULARITY



SOCIO - ECONOMIC  
ENVIRONMENTAL  
IMPACT ASSESSMENT

- Environmental (e.g. energy consumption)
- Social (e.g., labor practices)
- Economic (e.g., recovery of CRM content, operational cost)

# WRAP-UP

Circularity requires **creativity** and **"resourcefulness"** ...

But at the large-scale societal/ industrial level, we need a more **systemic approach to evaluate re-strategies**—ensuring we avoid the same pitfalls as conventional practices.



**BBQ Grill made out of washing machine drum**

# CONTRIBUTIONS

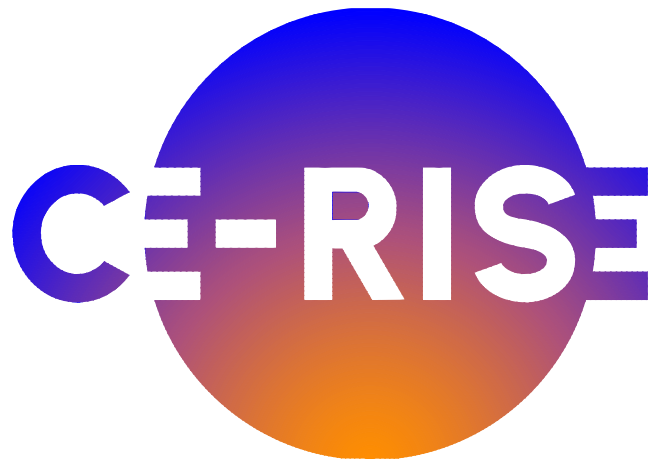
Project Coordinator

Project Contributors



**Project duration:** 4 years  
(Jan 2023 – Dec 2026)

Thank you!



**Setenay SAGLAM**

Researcher

EMPA  Empa  
Materials Science and Technology

Switzerland

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# ANY QUESTIONS?

14:20 – 14:25





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# How do we enable RE-strategies via the DPP?

The CIRPASS and CIRPASS-2 experience

Valeria Muggianu, DIGITALEUROPE

01.10.2024

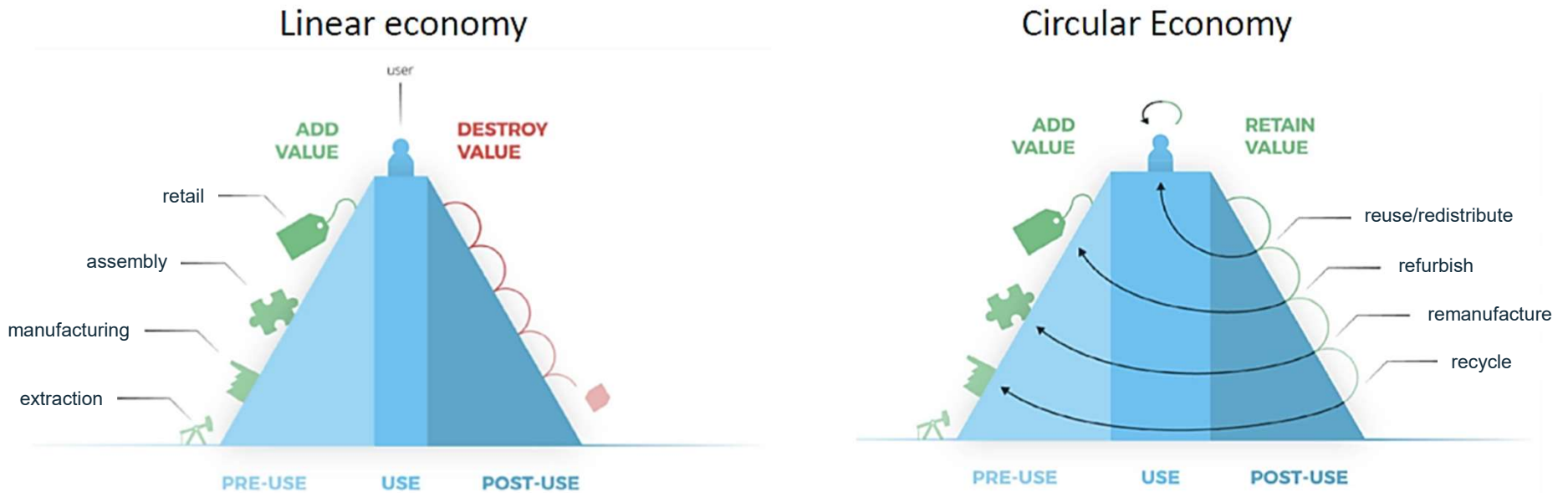


CIRPASS 2

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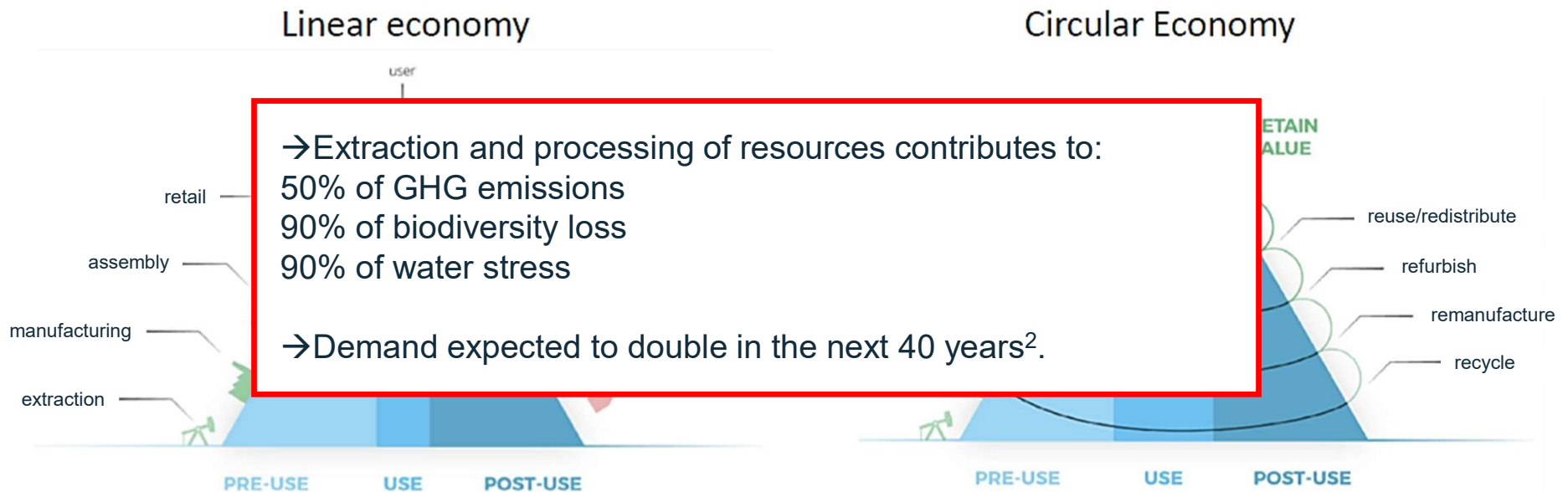
# The role of DPP in a Circular Economy

# Linear versus Circular Economy



Achterberg, E., Hinfelaar, J., Bocken, N.M.P. 2016. Master circular business models with the Value Hill. White paper, September 2016

# Linear versus Circular Economy



Achterberg, E., Hinfelaar, J., Bocken, N.M.P. 2016. *Master circular business models with the Value Hill*. White paper, September 2016

<sup>2</sup>Circular Economy Action Plan, European Union, 2020

# Digital Product Passport (DPP)



Tracking of **raw materials extraction/production**, supporting due diligence efforts



Enable **manufacturers** to create products **digital twins**, embedding all the information required



Tracking the life story of a product, enabling services related to its **remanufacturing, reparability, re-use/re-sale/second-life, recyclability**, new business models



Benefit **market surveillance authorities and customs authorities**, by making available information they would need to carry out their tasks



Make available to **public authorities and policy makers** reliable information. Enable to link **incentives to sustainability performance**



Allow **citizens** to have access to **relevant and verified information** related to the characteristics of the products they own or are considering to buy/rent (e.g. using apps able to read the identifier)



# 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 circular economy**.



# DPP – EU Regulatory sources

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- The DPP is mentioned in many policy and regulatory texts of the European Commission. The most important are :
  - **Battery Regulation**
    - Formally adopted summer 2023.
  - **Ecodesign for Sustainable Products Regulation (ESPR)**
    - Formally adopted in June 2024.
    - Preparatory work for ESPR delegated act for textiles, iron and steel are currently ongoing.
- But also:
  - **Construction Products Regulation**
  - **Toys regulation**
  - **Detergents regulation**
  - **Construction Products Regulation**
  - **Critical Raw Material Act**
  - **Packaging and Packaging Waste Regulation**
- The DPP will become mandatory in 2027 for products in several sectors.



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# CIRPASS-2 Project presentation

# What are CIRPASS and CIRPASS-2 ?



- Funded by the European Commission under the **Digital Europe Programme**
- **Duration:** 18 months (from Oct 2022 to March 2024)
- **Coordination and Support Action**
- **2M euros funding**
- **31 partners**



*Build consensus on a standards-based DPP system*

- Funded by the European Commission under the **Digital Europe Programme**
- **Duration:** May 2024 – April 2027
- **Innovation Action**
- **6M euros funding**
- **50 partners**



*Deploy at scale Digital Product Passports in four target value chains and demonstrate data-enabled B2B activities that promote circularity*

# CIRPASS-2 consortium partners



- **White:** CIRPASS partner
- **Yellow:** new partner

<https://cirpass2.eu/who-we-are/>

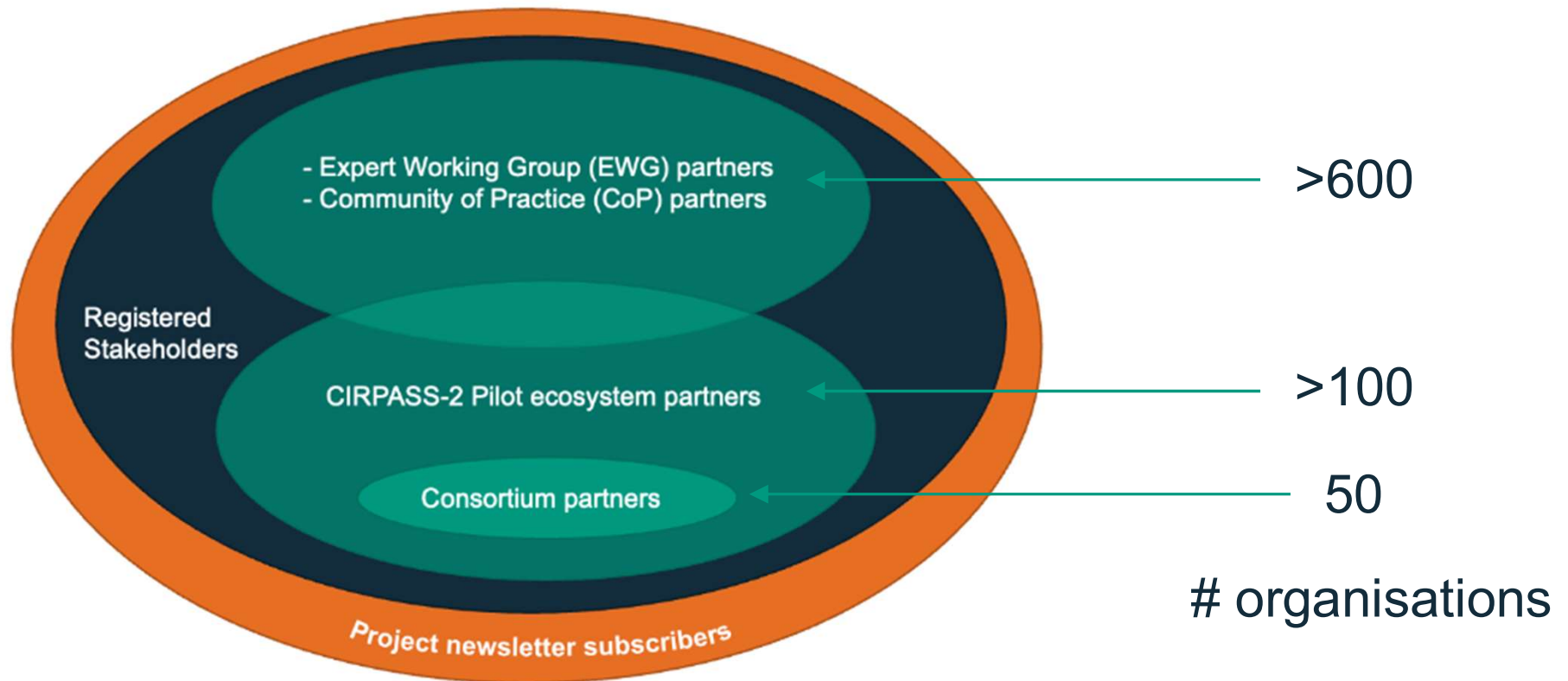
- **This list does not include :**
  - Pilot ecosystem partners
  - Expert working group (EWG) partners

1	CEA	France
2	TALLINNA TEHNIKAÜLIKOOL	Estonia
3	Mindworks Industries OU	Estonia
4	DIGITALEUROPE AISBL*	Belgium
5	E CIRCULAR APS	Denmark
6	F6S NETWORK IRELAND LIMITED	Ireland
7	DIN	Germany
8	VDE VERBAND DER ELEKTROTECHNIK ELEKTRONIK INFORMATIONSTECHNIK EV	Germany
9	Global Textile Scheme	Germany
10	maki Consulting GmbH	Germany
11	Ekodenge Ltd	Turkey
12	STIFTELSEN CHALMERS INDUSTRITEKNIK	Sweden
13	Netherlands association of applied scientific research	Netherlands
14	BioInnovationService	France
15	TECHNISCHE UNIVERSITEIT DELFT NL	Netherlands
16	Energy Web AG	Switzerland
17	ASOCIACION DE EMPRESAS TECNOLOGICAS INNOVALIA	Spain
18	CBT COMUNICACION Y MULTIMEDIA SL	Spain
19	ASOCIACION PARA DESARROLLO DE LA ECONOMIA DEL DATO	Spain
20	GS1 IN EUROPE	Belgium
21	AOC Innovation	France
22	+IMPAKT LUXEMBOURG SARL	Luxembourg
23	Platform Industry 4.0 Austria	Austria
24	Fujitsu	Belgium
25	Fraunhofer IZM	Germany
26	Extra Red	Italy
27	Euratex	Belgium
28	Worldline	France
29	Physikalisch-Technische Bundesanstalt	Germany
30	Ioxio Oy	Finland
31	Suomen Tekstiili ja Muoti ry (Finnish Textile and Fashion)	Finland
32	Kezzler	Norway
33	EON	Hungary
34	Avery Dennison Atma GmbH	Austria
35	CIRCULAR.FASHION UG (HAFTUNGSBESCHRANKT)	Germany
36	TripleR	Belgium
37	Scantrust	Netherlands
38	Arcelik A.S	Turkey
39	Digital Data Chain Consortium GbR	Germany
40	ZVEI	Germany
41	Whatt.io	Sweden
42	ASCDI	USA
43	OBADA Foundation	USA
44	Gorenje gospodinjski aparati, d.o.o	Slovenia
45	Hisense Gorenje Europe, d.o.o.	Slovenia
46	Michelin	France
47	Cobuilder AS	Norway
48	Global Electronics Council	USA
49	Textile Exchange	USA
50	IPOINT-SYSTEMS GMBH	Germany

# CIRPASS-2 in numbers



CIRPASS-2 Stakeholder Community ← >4500

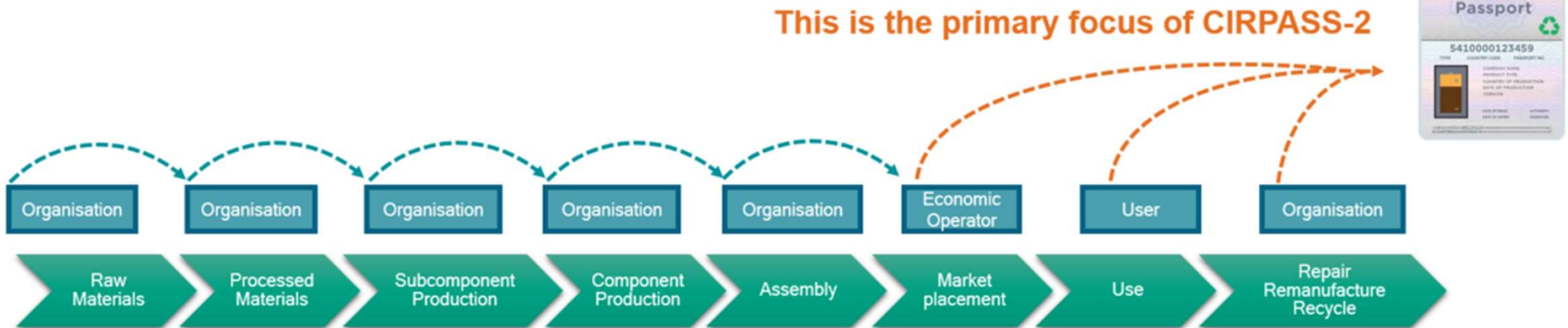


# What problem are we trying to solve?



## ■ Problem statement:

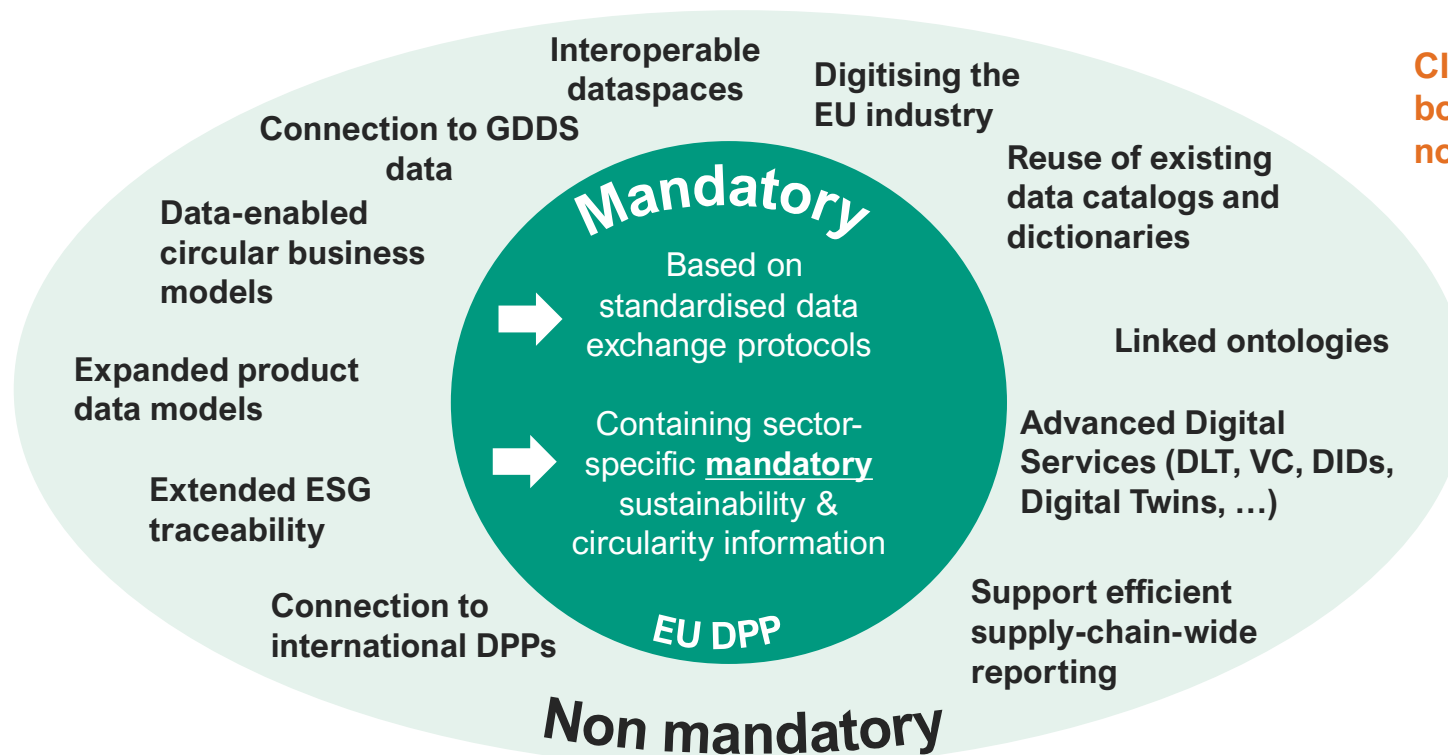
- How can **all industrial sectors** agree on a common DPP system that is:
  - compliant to the regulatory requirements,
  - capable of supporting the massive issuing of DPPs in 2027,
  - is extensible and flexible to support beyond-mandatory data exchanges to enable new circular business models?”



# Why is the DPP System an incredible opportunity?



- **Vision:** The DPP links the EU internal market to the data economy.



**CIRPASS-2 addresses both mandatory and non-mandatory DPPs**

# CIRPASS-2 Objectives

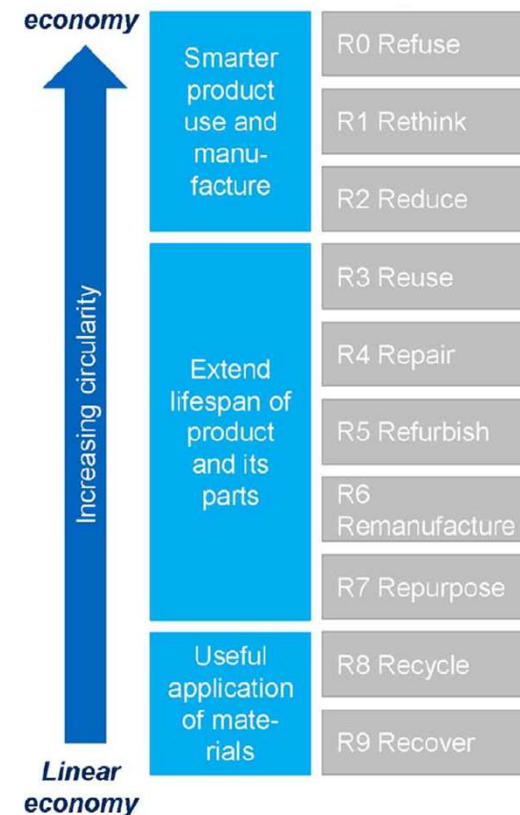


1. Deploy and validate at scale and in real-life setting Digital Product Passports in four target value chains
  - 13 pilots
  - All pilots focus on B2B activities that promote circularity
  - Support the ongoing CEN/CENELEC standardisation work (JTC-24)
2. Demonstrate cross-pilot interoperability
3. Provide support to SMEs in their uptake of DPPs while supporting the deployment of a diverse and vibrant DPP-as-a-Service solution provider community
4. Support the deployment and adoption of DPPs by other sectors targeted by upcoming European regulations and beyond

# What is a “lighthouse pilot” ?

Each “pilot” comes with its own “**eco-system**” including:

- A pilot leader
- A number of **up-stream** partners who will create DPPs for their products
- A number of **downstream** B2B “R” partners, referring to 9R Framework for Circular Economy
- Circular economy business models and DPP **use cases** (necessarily including B2B data exchanges)



9R Framework for Circular Economy.  
Source: J. Kirchherr et al. (2017, page 5)



# CIRPASS-2 Lighthouse Pilot Ecosystems (13)



Pilot	Pilot Leader(s)	DPPaaS?	Upstream Ecosystem Typology	Targeted Products	Targeted "R" Strategies	Downstream Ecosystem typology
PA1	IOXIO	yes	STJM (Finnish Textile and Fashion Industry association), VTT (Research Institute), SITRA (Finnish Innovation Fund), 1 entreprise brand, several SME brands	Textiles - Workwear (PaaS)	Reuse, Repair, Maintenance, Remanufacturing and, eventually Recycling	Coordinated by STJM: Reuse/repair: 1 SME, 1 entreprise, Reman : 1 SME, Waste Collection : 1 SME, Recycling : 1 SME
PA2	Kezzler	yes	Global top 10 brand, SME brand, Upstream traceability solution provider, ERP & CRM system provider, GS1	Textiles - Fashion	Reduce, Reuse, Repair	Retailer, Inventory management system provider, Refurbish : Supply-chain management operator, Repair : SME repair service, Reuse : Resale Service Platform Recycler : Sorting and recycling operator
PA3	EON	yes	PVH (entreprise), SME fashion brand	Textiles - Fashion	Resell, Collection, Sorting and Recycling	Collecting, sorting, re-selling, and recycling : 1 SME
PA4	atma.io & circular.fashion	yes	2 entreprise brands/retail, B2G data model consultant	Textiles - Fashion & Sportswear	Resell, Repair, Sorting, Recycle, Circularity validation	Sorting technology provider : SME Sorting : 1 entreprise, 1 SME Repair, upcycle : 1 SME
PA5	TripleR	yes	6 mattress manufacturers, DPP platform provider	Textiles - Mattresses	Collectors, Remanufacturers/Refurbishers /Dismantlers and Recycling	Refurbish : 2 SME
PA6	Scantrust	yes	label provider, interoperability partner, 6 SME producers, 1 mid-size producer, 1 industry association	Textiles - Bedding, shoes (Electronics)	Reuse, Recycle	Recycling : 1 SME
PB1	Arçelik	no	Arçelik A.Ş	Electronics - Vacuum Cleaners	Reuse, Re-sell, Repair, Refurbish	Arçelik A.Ş
PB2	DDCC, ZVEI	yes	DDCC consortium partners (>50 OEMs & owner/operators)	Electronic & electrical equipment	Reuse, Repair, Refurbish, Remanufacture, Repurpose	DDCC owner/operator partners and ZVEI member companies
PB3	Whatt.io	yes	2 brands, Importer	Electronics - Audio and Emergency Lighting Equipment	Repair, Maintenance, 3D parts manufacturing	Maintenance : commercial building staff Repair : 2 additive manufacturing labs
PB4	OBADA/TBS	yes	ASCDI (trade association and marketplace, trust anchor for its members)	Electronics - IT equipment	Repair, Recycle	2 B2B marketplace
PB5	EcoWise	yes	Gorenje (manufacturer)	Electronics - Tumble Dryers	Repair, Refurbishment, and Recycling	1 end of use collector
PC1	Michelin	no	Industry governance body, 2 ecoorganisms	Tyres	Remanufacturing, Recycling	2 retreaders, 2 collectors, 1 recycler, 1 sorting technology provider,
PC2	Cobuilder	yes	2 manufacturers, eco-organism, legal expert	Construction products	Reuse, Repair, Refurbishing, Repurposing, Recycling	Contractors, quality control

# CIRPASS-2 Lighthouse Pilot Ecosystems (13)



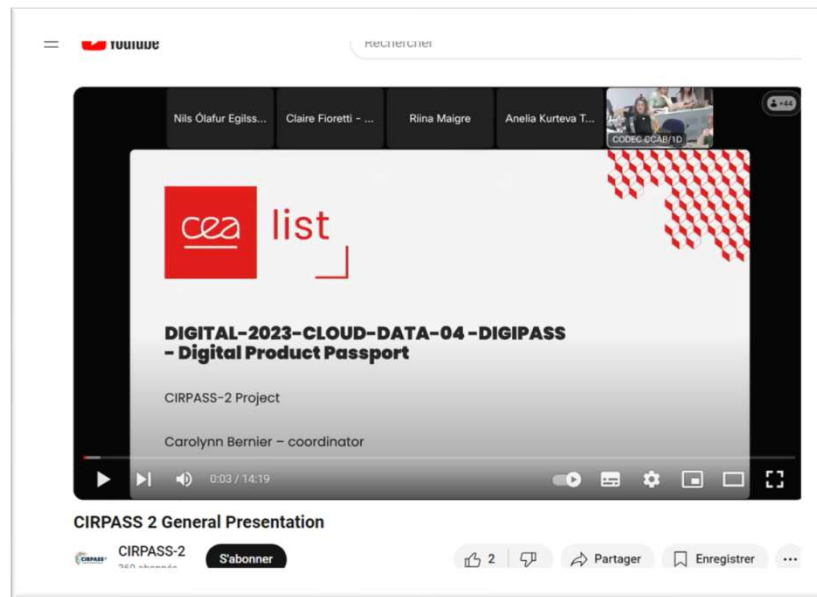
Pilot	Pilot Leader(s)	DPPaaS?	Upstream Ecosystem Typology	Targeted Products	Targeted "R" Strategies	Downstream Ecosystem typology
PA1	IOXIO	yes	STJM (Finnish Textile and Fashion Industry association), VTT (Research Institute), SITRA (Finnish Innovation Fund), 1 entreprise brand, several SME brands	Textiles - Workwear (PaaS)	Reuse, Repair, Maintenance, Remanufacturing and, eventually Recycling	Coordinated by STJM: Reuse/repair: 1 SME, 1 entreprise, Reman : 1 SME, Waste Collection : 1 SME, Recycling : 1 SME
PA2	Kezzler	yes	Global top 10 brand, SME brand, Upstream traceability solution provider, ERP & CRM system provider, GS1	Textiles - Fashion	Reduce, Reuse, Repair	Retailer, Inventory management system provider, Refurbish : Supply-chain management operator, Repair : SME repair service, Reuse : Resale Service Platform Recycler : Sorting and recycling operator
PA3	EON	yes	PVH (entreprise), SME fashion brand	Textiles - Fashion	Resell, Collection, Sorting and Recycling	Collecting, sorting, re-selling, and recycling : 1 SME
PA4	atma.io & circular.fashion	yes	2 entreprise brands/retail, B2G data model consultant	Textiles - Fashion & Sportswear	Resell, Repair, Sorting, Recycle, Circularity validation	Sorting technology provider : SME Sorting : 1 entreprise, 1 SME Repair, upcycle : 1 SME
PA5	TripleR	yes	6 mattress manufacturers, DPP platform provider	Textiles - Mattresses	Collectors, Remanufacturers/Refurbishers /Dismantlers and Recycling	Refurbish : 2 SME
PA6	Scantrust	yes	label provider, interoperability, G2B, G2C, G2E, G2M, G2S, G2T, G2U, G2V, G2W, G2X, G2Y, G2Z, G2AA, G2AB, G2AC, G2AD, G2AE, G2AF, G2AG, G2AH, G2AI, G2AJ, G2AK, G2AL, G2AM, G2AN, G2AO, G2AP, G2AQ, G2AR, G2AS, G2AT, G2AU, G2AV, G2AW, G2AX, G2AY, G2AZ, G2BA, G2BB, G2BC, G2BD, G2BE, G2BF, G2BG, G2BH, G2BI, G2BJ, G2BK, G2BL, G2BM, G2BN, G2BO, G2BP, G2BQ, G2BR, G2BS, G2BT, G2BU, G2BV, G2BW, G2BX, G2BY, G2BZ, G2CA, G2CB, G2CC, G2CD, G2CE, G2CF, G2CG, G2CH, G2CI, G2CJ, G2CK, G2CL, G2CM, G2CN, G2CO, G2CP, G2CQ, G2CR, G2CS, G2CT, G2CU, G2CV, G2CW, G2CX, G2CY, G2CZ, G2DA, G2DB, G2DC, G2DD, G2DE, G2DF, G2DG, G2DH, G2DI, G2DJ, G2DK, G2DL, G2DM, G2DN, G2DO, G2DP, G2DQ, G2DR, G2DS, G2DT, G2DU, G2DV, G2DW, G2DX, G2DY, G2DZ, G2EA, G2EB, G2EC, G2ED, G2EE, G2EF, G2EG, G2EH, G2EI, G2EJ, G2EK, G2EL, G2EM, G2EN, G2EO, G2EP, G2EQ, G2ER, G2ES, G2ET, G2EU, G2EV, G2EW, G2EX, G2EY, G2EZ, G2FA, G2FB, G2FC, G2FD, G2FE, G2FF, G2FG, G2FH, G2FI, G2FJ, G2FK, G2FL, G2FM, G2FN, G2FO, G2FP, G2FQ, G2FR, G2FS, G2FT, G2FU, G2FV, G2FW, G2FX, G2FY, G2FZ, G2GA, G2GB, G2GC, G2GD, G2GE, G2GF, G2GG, G2GH, G2GI, G2GJ, G2GK, G2GL, G2GM, G2GN, G2GO, G2GP, G2GQ, G2GR, G2GS, G2GT, G2GU, G2GV, G2GW, G2GX, G2GY, G2GZ, G2HA, G2HB, G2HC, G2HD, G2HE, G2HF, G2HG, G2HH, G2HI, G2HJ, G2HK, G2HL, G2HM, G2HN, G2HO, G2HP, G2HQ, G2HR, G2HS, G2HT, G2HU, G2HV, G2HW, G2HX, G2HY, G2HZ, G2IA, G2IB, G2IC, G2ID, G2IE, G2IF, G2IG, G2IH, G2II, G2IJ, G2IK, G2IL, G2IM, G2IN, G2IO, G2IP, G2IQ, G2IR, G2IS, G2IT, G2IU, G2IV, G2IW, G2IX, G2IY, G2IZ, G2JA, G2JB, G2JC, G2JD, G2JE, G2JF, G2JG, G2JH, G2JI, G2JJ, G2JK, G2JL, G2JM, G2JN, G2JO, G2JP, G2JQ, G2JR, G2JS, G2JT, G2JU, G2JV, G2JW, G2JX, G2JY, G2JZ, G2KA, G2KB, G2KC, G2KD, G2KE, G2KF, G2KG, G2KH, G2KI, G2KJ, G2KK, G2KL, G2KM, G2KN, G2KO, G2KP, G2KQ, G2KR, G2KS, G2KT, G2KU, G2KV, G2KW, G2KX, G2KY, G2KZ, G2LA, G2LB, G2LC, G2LD, G2LE, G2LF, G2LG, G2LH, G2LI, G2LJ, G2LK, G2LL, G2LM, G2LN, G2LO, G2LP, G2LQ, G2LR, G2LS, G2LT, G2LU, G2LV, G2LW, G2LX, G2LY, G2LZ, G2MA, G2MB, G2MC, G2MD, G2ME, G2MF, G2MG, G2MH, G2MI, G2MJ, G2MK, G2ML, G2MM, G2MN, G2MO, G2MP, G2MQ, G2MR, G2MS, G2MT, G2MU, G2MV, G2MW, G2MX, G2MY, G2MZ, G2NA, G2NB, G2NC, G2ND, G2NE, G2NF, G2NG, G2NH, G2NI, G2NJ, G2NK, G2NL, G2NM, G2NN, G2NO, G2NP, G2NQ, G2NR, G2NS, G2NT, G2NU, G2NV, G2NW, G2NX, G2NY, G2NZ, G2OA, G2OB, G2OC, G2OD, G2OE, G2OF, G2OG, G2OH, G2OI, G2OJ, G2OK, G2OL, G2OM, G2ON, G2OO, G2OP, G2OQ, G2OR, G2OS, G2OT, G2OU, G2OV, G2OW, G2OX, G2OY, G2OZ, G2PA, G2PB, G2PC, G2PD, G2PE, G2PF, G2PG, G2PH, G2PI, G2PJ, G2PK, G2PL, G2PM, G2PN, G2PO, G2PP, G2PQ, G2PR, G2PS, G2PT, G2PU, G2PV, G2PW, G2PX, G2PY, G2PZ, G2QA, G2QB, G2QC, G2QD, G2QE, G2QF, G2QG, G2QH, G2QI, G2QJ, G2QK, G2QL, G2QM, G2QN, G2QO, G2QP, G2QQ, G2QR, G2QS, G2QT, G2QU, G2QV, G2QW, G2QX, G2QY, G2QZ, G2RA, G2RB, G2RC, G2RD, G2RE, G2RF, G2RG, G2RH, G2RI, G2RJ, G2RK, G2RL, G2RM, G2RN, G2RO, G2RP, G2RQ, G2RR, G2RS, G2RT, G2RU, G2RV, G2RW, G2RX, G2RY, G2RZ, G2SA, G2SB, G2SC, G2SD, G2SE, G2SF, G2SG, G2SH, G2SI, G2SJ, G2SK, G2SL, G2SM, G2SN, G2SO, G2SP, G2SQ, G2SR, G2SS, G2ST, G2SU, G2SV, G2SW, G2SX, G2SY, G2SZ, G2TA, G2TB, G2TC, G2TD, G2TE, G2TF, G2TG, G2TH, G2TI, G2TJ, G2TK, G2TL, G2TM, G2TN, G2TO, G2TP, G2TQ, G2TR, G2TS, G2TT, G2TU, G2TV, G2TW, G2TX, G2TY, G2TZ, G2UA, G2UB, G2UC, G2UD, G2UE, G2UF, G2UG, G2UH, G2UI, G2UJ, G2UK, G2UL, G2UM, G2UN, G2UO, G2UP, G2UQ, G2UR, G2US, G2UT, G2UU, G2UV, G2UW, G2UX, G2UY, G2UZ, G2VA, G2VB, G2VC, G2VD, G2VE, G2VF, G2VG, G2VH, G2VI, G2VJ, G2VK, G2VL, G2VM, G2VN, G2VO, G2VP, G2VQ, G2VR, G2VS, G2VT, G2VU, G2VV, G2VW, G2VX, G2VY, G2VZ, G2WA, G2WB, G2WC, G2WD, G2WE, G2WF, G2WG, G2WH, G2WI, G2WJ, G2WK, G2WL, G2WM, G2WN, G2WO, G2WP, G2WQ, G2WR, G2WS, G2WT, G2WU, G2WV, G2WW, G2WX, G2WY, G2WZ, G2XA, G2XB, G2XC, G2XD, G2XE, G2XF, G2XG, G2XH, G2XI, G2XJ, G2XK, G2XL, G2XM, G2XN, G2XO, G2XP, G2XQ, G2XR, G2XS, G2XT, G2XU, G2XV, G2XW, G2XX, G2XY, G2XZ, G2YA, G2YB, G2YC, G2YD, G2YE, G2YF, G2YG, G2YH, G2YI, G2YJ, G2YK, G2YL, G2YM, G2YN, G2YO, G2YP, G2YQ, G2YR, G2YS, G2YT, G2YU, G2YV, G2YW, G2YX, G2YY, G2YZ, G2ZA, G2ZB, G2ZC, G2ZD, G2ZE, G2ZF, G2ZG, G2ZH, G2ZI, G2ZJ, G2ZK, G2ZL, G2ZM, G2ZN, G2ZO, G2ZP, G2ZQ, G2ZR, G2ZS, G2ZT, G2ZU, G2ZV, G2ZW, G2ZX, G2ZY, G2ZZ	Recycling : 1 SME		
PB1	Arcelik	no				Arçelik A.Ş
PB2	DDCC, ZVEI	yes	DDCC co	equipment	Remanufacture, Repurpose	DDCC owner/operator partners and ZVEI member companies
PB3	Whatt.io	yes	2 brands, Importer	Electronics - Audio and Emergency Lighting Equipment	Repair, Maintenance, 3D parts manufacturing	Maintenance : commercial building staff Repair : 2 additive manufacturing labs
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PC2	Cobuilder	yes	2 manufacturers, eco-organism, legal expert	Construction products	Reuse, Repair, Refurbishing, Repurposing, Recycling	Contractors, quality control

For more information please visit:  
<https://cirpass2.eu/lighthouse-pilots/>

## For further general information about CIRPASS-2



- Please see 15 minutes presentation by Carolyn Bernier, project coordinator
- Available <https://cirpass2.eu/videos/>



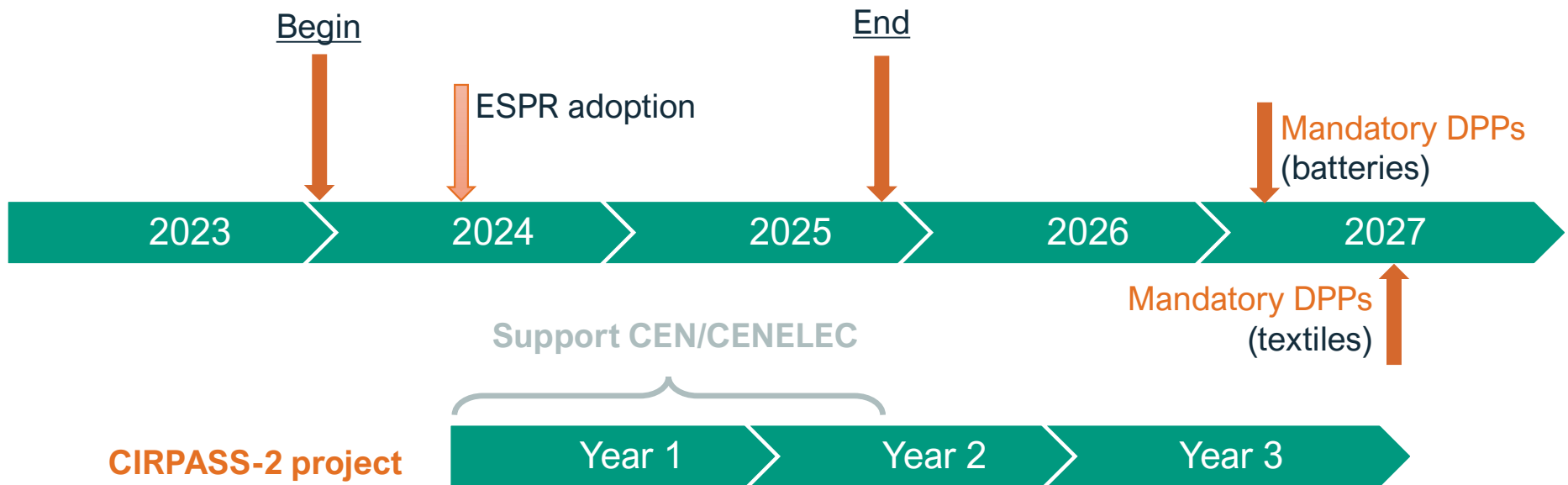
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# Regulatory and standardization context

# DPP System Standardisation - Timeline



Standardisation Request – DPP System standards CEN/CENELEC JTC-24



## Resources



- 
- The following 4 slides provide links to in-depth information on DPP implementation.



## 6. Implementation work ahead

- Availability of harmonized standards on DPP-system by **end of 2025**.
- Adoption of Acts on "DPP governance" in **2025**.
- EC-driven activities to support DPP implementation by companies (especially SMEs), DPP service providers, Member States in **2026**.
- The adoption of the first ESPR Delegated Acts (textiles, steel) may happen in Q3-Q4 2025. Considering that there is an 18 months delay of entry into force for each Delegated Act (to allow economic operators to comply with the new requirements), the expected entry into force of the first ESPR Delegated Acts is expected around **mid 2027**.
- Requirements on DPP will have the same entry into force as the corresponding product specific Delegated Acts, with one notable exception: the DPP for **batteries** will entry into force in **February 2027**.



# EC actions to implement the **DPP** and the **DPP system**



## 6. Implementation work ahead

- Prepare the adoption of delegated acts setting out the **rules and requirements to be followed by DPP service providers**, including a certification scheme to verify such requirements.
- Prepare the adoption of implementing acts setting out **procedures to issue and verify the digital credentials of economic operators and other relevant actors** that shall have access rights to information included in the product passport.
- Prepare the adoption of delegated acts to establish **rules and procedures related to unique identifiers and data carriers' lifecycle management**
- Design and set-up the DPP registry.
- Design and set up the DPP web portal.





# Implementation of the ESPR



- European Commission online information session on the ESPR, May 22, 2024
  - Recording: <https://webcast.ec.europa.eu/online-information-session-on-the-new-ecodesign-for-sustainable-products-regulation-espr-24-05-22>
  - Slides: [https://commission.europa.eu/document/download/c5db3b9e-23ae-42c8-a50a-b549f20a377d\\_en?filename=2024\\_05\\_22\\_EC%20Presentation%20ESPR%20Webinar\\_final.pdf](https://commission.europa.eu/document/download/c5db3b9e-23ae-42c8-a50a-b549f20a377d_en?filename=2024_05_22_EC%20Presentation%20ESPR%20Webinar_final.pdf)
- Core elements of the ESPR legal text (Anna Szajkowska, ENV.B.4 - Paola Zanetti, GROW.I.3)
  - Ecodesign requirements
  - Self-regulation measures
  - Green Public Procurement
  - Market Surveillance
- Topics:
  - Destruction of unsold goods (Carsten Wentink - ENV.B.4)
  - Digital Product Passport (William Neale - ENV.B)
  - Substances of Concern (Wojtek Sitarz - ENV.B.4)
  - Ecodesign Forum (Yolanda Villar Ruberte - ENER.B.3)
  - Current Ecodesign / transition regime (Ian Hodgson - ENER.B.3)
  - Working plan product priorities (Pierre Henry - ENV.B.4)
  - Support to SMEs (Alberto Parenti - GROW.I.3)

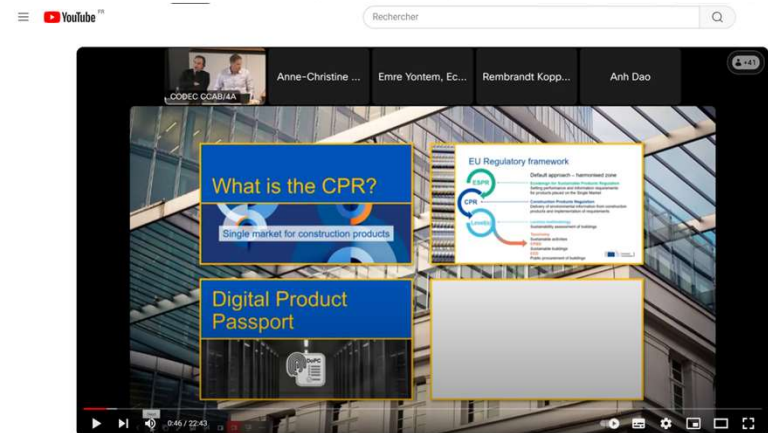
# Useful policy status videos



- <https://cirpass2.eu/videos/>
- Status on ESPR Delegated act for **Textiles**, May 13, 2024 presentation by Mauro Scalia, Euratex
- Status on **Construction Product Regulation** and alignment with ESPR, May 14, 2024 presentation by Lars Fredenlund, Cobuilder



Status on ESPR Delegated Act for textiles – May 13, 2024 presentation by Mauro Scalia, Euratex



Status of the Construction Product Regulation and alignment with ESPR – May 14, 2024 presentation by

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# CIRPASS2 Ongoing actions

# Project status – September 2024



Project website active and being populated with new content on a weekly basis: [www.cirpass2.eu](http://www.cirpass2.eu)

Lighthouse pilot presentation videos

EWG/CoP partners are welcome to share useful information of general interest (no opinions, please!) : <https://cirpass2.eu/other-useful-publications/>



Submission to CEN/CENELEC JTC24 of standardisation liaison request.



Revision of "**DPP User Stories V2**" from <https://cirpassproject.eu/project-results/>

DPP User Stories describe actor interactions with the DPP System.

Following feedback from EC and partners.

Publication of V3 towards mid-October.

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# Detailed description of project workstreams

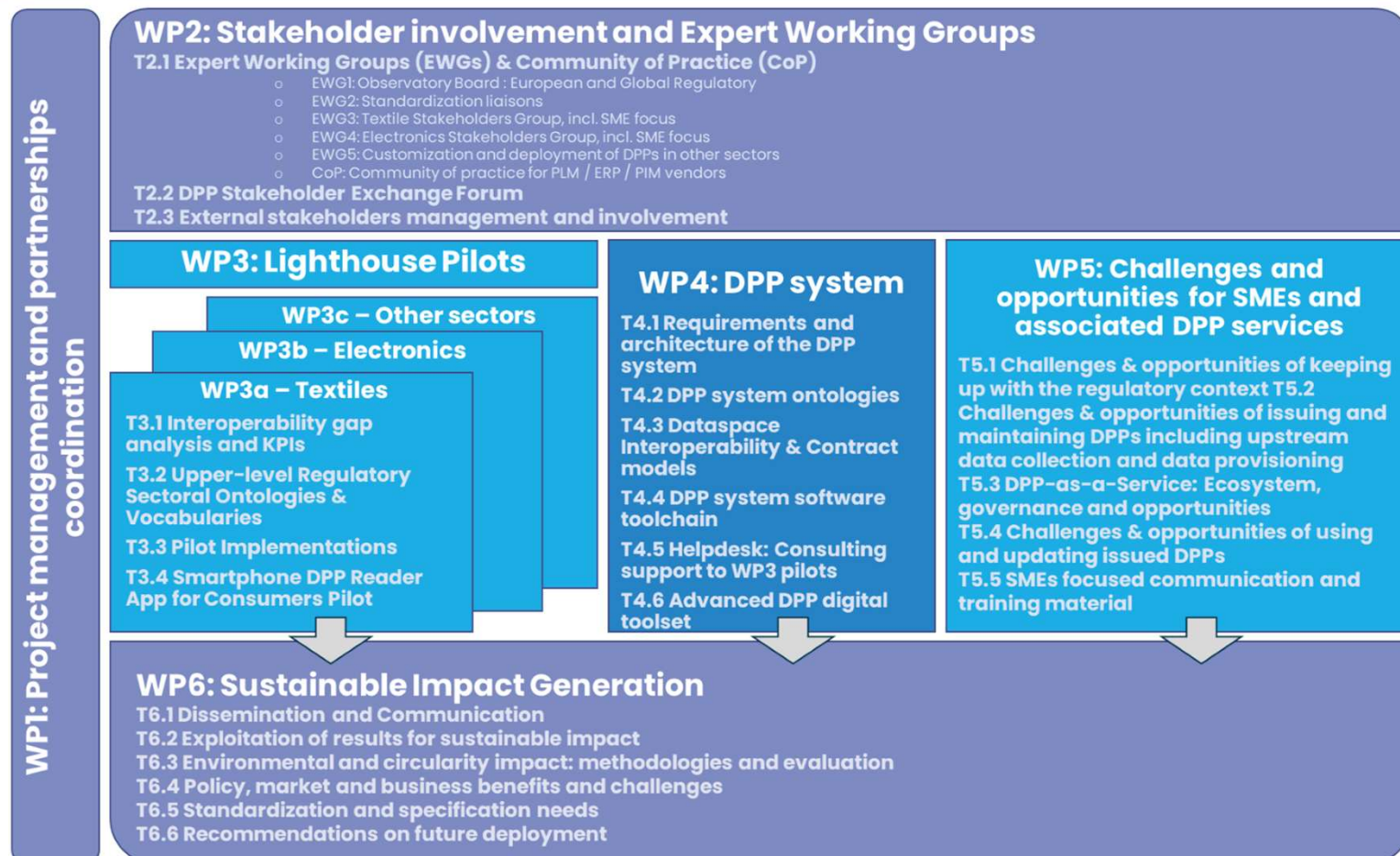
## CIRPASS-2 Detailed description of project Work Packages (WP)

---



- WP1 – Project management
- WP2 – Stakeholder Involvement and Expert Working Groups
- WP3 – Lighthouse Pilots
- WP4 – DPP system
- WP5 – Challenges and opportunities for SMEs and associated DPP services
- WP6 – Sustainable Impact Generation

# CIRPASS-2 Detailed description of Work Packages





# Work Packages structure and interconnection

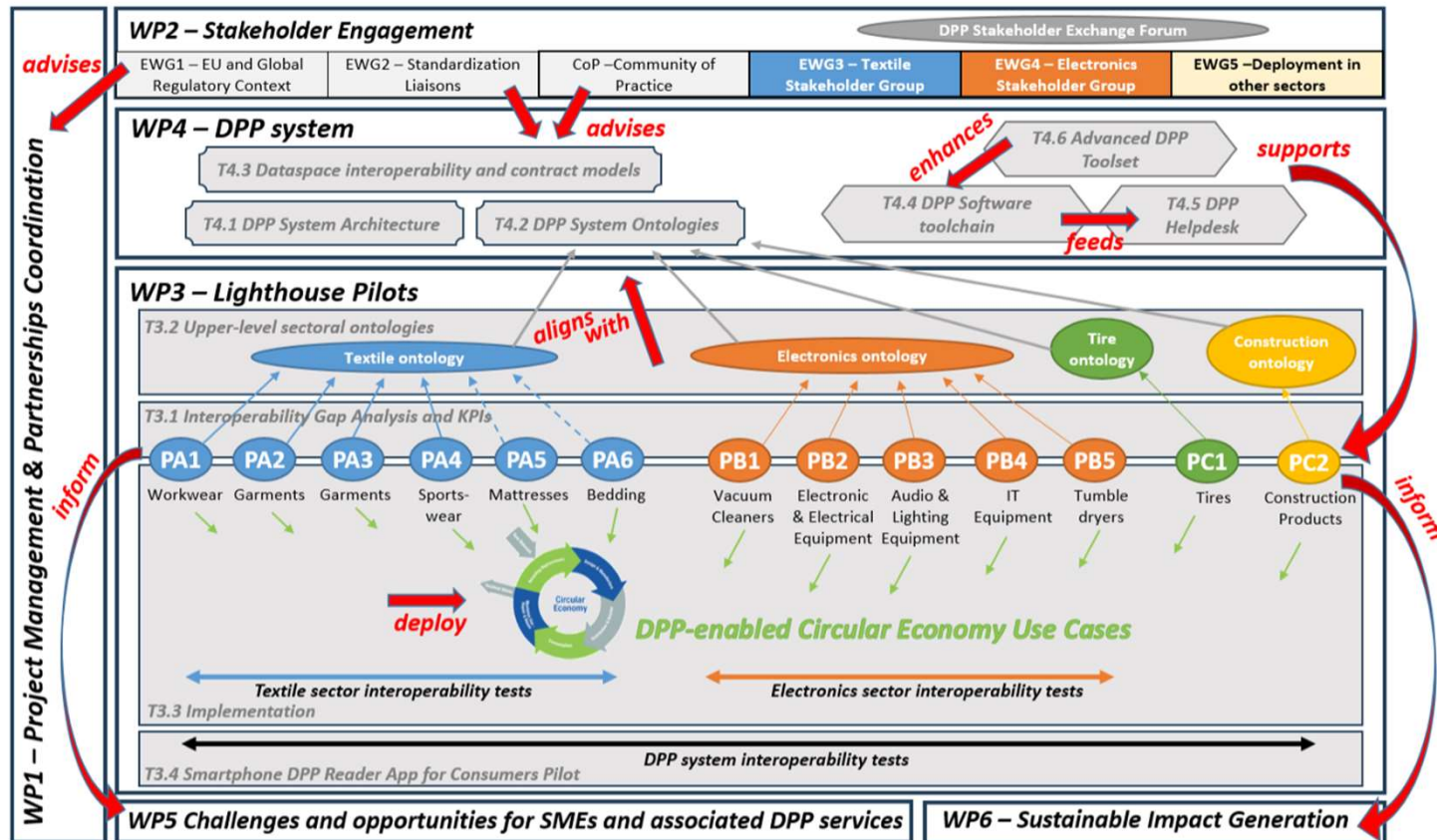


Figure 3 Overview of project implementation plan



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# CIRPASS2 EWGs and CoP Governance

# Experts Working Groups and Community of Practice



## EWG1

### Observatory Board

Monitor DPPs-related policy

**Moderator: Shaileendra Mudgal (BioIS)**

## EWG2

### Standardization Liaisons

Monitor and report on standardisations activities to ensure interoperability

**Moderator: Jens Gayko (VDE) and Benjamin Helfritz (DIN)**

## EWG3

### Textile Stakeholders

Bring insights on the sector, its value and supply chains to clarify benefits and challenges, validating new business models

**Moderator: Andreas Schneider (GTS)**

## EWG4

### Electronics Stakeholders

Bring insights on the sector, its value and supply chains to clarify benefits and challenges, validating new business models

**Moderator: Chiara Sandionigi (CEA)**

## EWG5

### Other Stakeholders

This group will explore the characteristics of other value chains and sectors that might be affected by DPP

**Moderator: Marc-Andree Wolf (maki)**

## Community of Practice

This group of experts aims to involve PLM / ERP / PIM software vendors in the design and deployment of the DPP system to ensure interoperability across different technologies. The CoP will be limited to 100 participant entities.

**Moderator: Valeria Muggianu (DE)**

## EWGs and CoP objectives



The Expert Working Groups (EWGs) and the Community of Practice (CoP) are pivotal to the CIRPASS-2 project, providing a structured platform for diverse key stakeholders and experts to contribute their expertise and insights. These groups aim to:

- Support the implementation of DPPs by leveraging **industry-specific knowledge** and cross-sectoral collaboration.
- **Disseminate** DPP knowledge and expertise beyond the reach of CIRPASS-2.
- **Ensure future compliance, interoperability and adoption of standards** through consistent monitoring of regulatory and standardisation developments.
- **Facilitate knowledge sharing among stakeholders**, enhancing the collective understanding of challenges and opportunities in DPP deployment.
- **Promote Innovation and Sustainability by exploring new business models** and sustainable practices.



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# Thank you!

[www.cirpass2.eu](http://www.cirpass2.eu)

Contact us : [info@cirpass2.eu](mailto:info@cirpass2.eu)

 [@cirpass2-dpp](https://www.linkedin.com/company/cirpass2-dpp)

 [@cirpass2\\_dpp](https://twitter.com/cirpass2_dpp)

 [@cirpass2\\_dpp](https://www.youtube.com/channel/UC...)



Funded by the European Union under the GA No 101158775. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Health and Digital Executive Agency (HADEA). Neither the European Union nor the granting authority can be held responsible for them.

CIRPASS 2

# COFFEE BREAK

15:20-15:35





# GREENIT REMANUFACTURING WHY A DPP?

01.10.2024 Martin Reddy



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,  
Education and Research EAER  
**State Secretariat for Education,  
Research and Innovation SERI**

EU Framework Programmes



**Funded by  
the European Union**

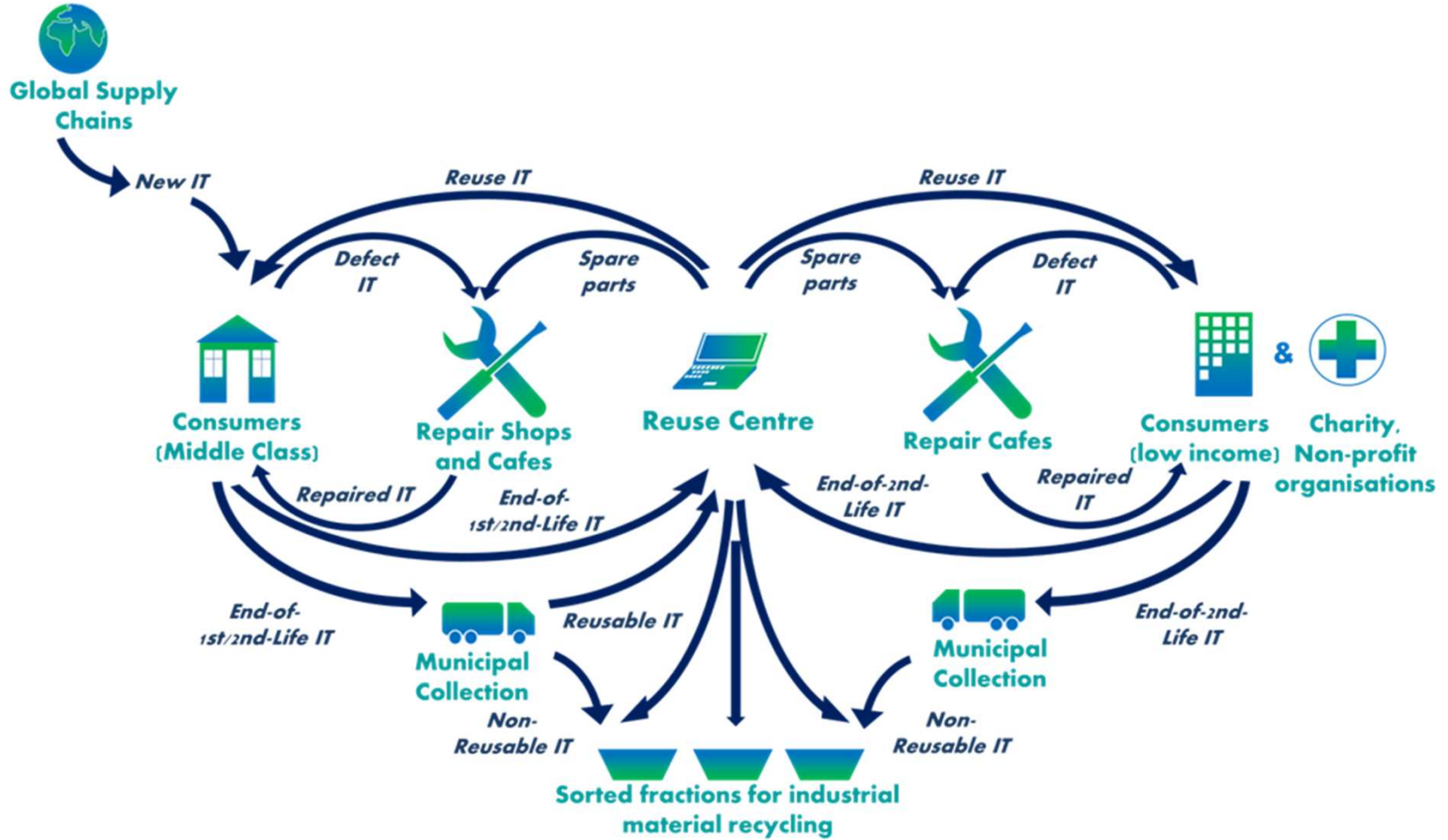


## WHO ARE WE?

- Est. 2014, Ireland
- Refurbishing/Remanufacturing ICT
- Government agencies, NGOs
- 35.000 units/year
- 22 employees



# POTENTIAL LIFE CYCLE





# CURRENT SITUATION

## Consumer perspective

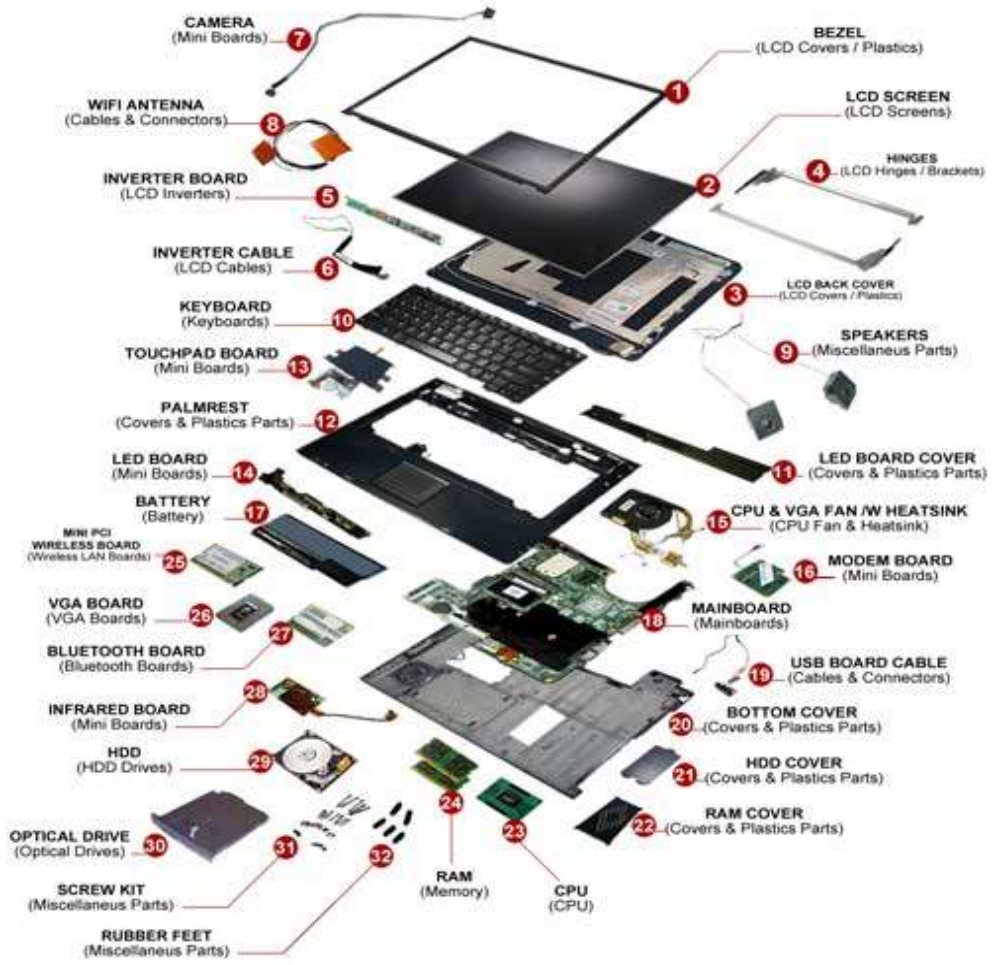
- gets instruction manual, warranty, specification,
- no repair information,
- no information about repair centres,
- no benefits of reuse/remanufacturing, just cost perspective,
- no information about recycling center or how to recycle,
- green credentials of the manufacturers.

# CURRENT SITUATION

## Reuse/Refurbishment/Remanufacturing perspective

- no repair instructions,
- no spare parts information,
- no product history (repair, upgrade history, BoM),
- no recycling prep information,
- no recall information.

# POTENTIAL DATA REQUIREMENT



# Current situation

## Recycling perspective

- no BoM,
- no recycling instruction,
- no hazardous alerts/warning.

# OPPORTUNITY WITH DPP

## Consumer perspective

- Repair, Reuse, Recycling information relevant to the consumer,
- Environmental benefits of the product,
- Increased demand for professionally refurbished and remanufactured equipment.

## Deposit and Return Scheme?

# OPPORTUNITY WITH DPP

## Industry reuse, refurbishment and remanufacturing

- detailed repair, replace, upgrade instructions,
- product history,
- BoM,
- detailed recycling instructions,
- increased productivity and capacity,
- potential attainment of EU environmental and reuse targets.

**Subscription and qualification/training requirements?**

# OPPORTUNITY WITH DPP

## Recycling centre

- detailed recycling instructions,
- CRM (critical raw material) information and LCA (Life cycle assessment),
- detailed hazardous material instruction,
- qualified downstream recycling partners per region.

**Subscription and qualification/training requirements?**

# DRIVING DPP SUCCESS LEGISLATION SUPPORT AND TARGETS

## Achived without DPP

LATEST NEWS  
GreenIT awarded an Office of Government Procurement scheme,  
valued at €30 million

POSTED ON 17/06/2024 BY GREENIT



National Tender Award  
10% equipment  
remanufactured for  
Ireland OGP

- Not only DPP but also need for supportive WEEE legislation;
- Right to repair legislation.





**Thank you for your attention! 😊**

# ANY QUESTIONS?

15:55 – 16:00





# Recycling: Can DPPs unlock improvements in recyclability?

Rembrandt Koppelaar, EcoWise

Digital Product Passport: How can we make circular economy strategies the norm and not the exception?

Brussels, 1<sup>st</sup> October 2024



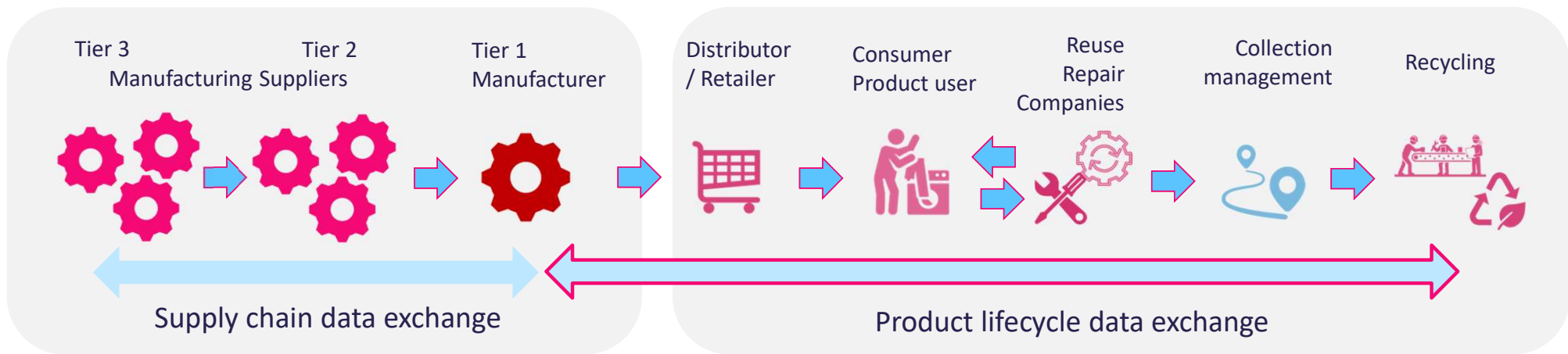
This project has received funding from the H2020 programme under Grant Agreement No. 958448

# CircThread focuses on a circular economy information system for the product life cycle

## Our focus:

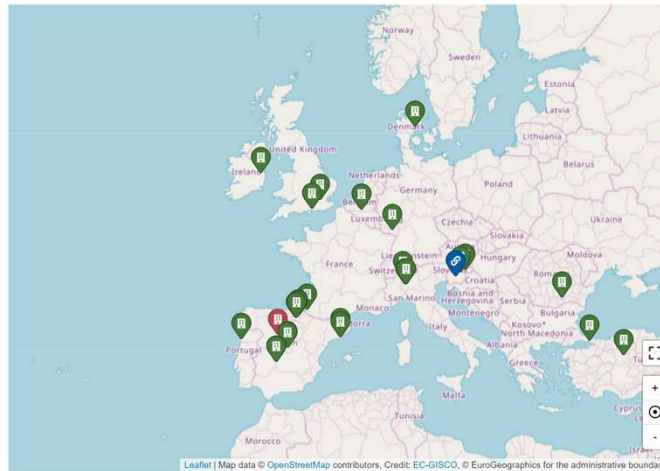
### Supply Chain Management

### Product life cycle from manufacturing to end-of-life



# CircThread: Develop, implement and assess a circular Economy oriented Product Information Management system

- Website: [www.circthread.com](http://www.circthread.com)
- 30 partners
- 4 year project 2021 – 2025
- Funded by the European Union under the EU H2020 programme.
- In final year ending May 2025



## Project Information



### CircThread

Grant agreement ID: 958448



### DOI

[10.3030/958448](https://doi.org/10.3030/958448)

### Start date

1 June 2021

### End date

31 May 2025

### Funded under

SOCIETAL CHALLENGES - Climate action, Environment, Resource Efficiency and Raw Materials

### Total cost

€ 9 883 198,21

### EU contribution

€ 7 994 956,75

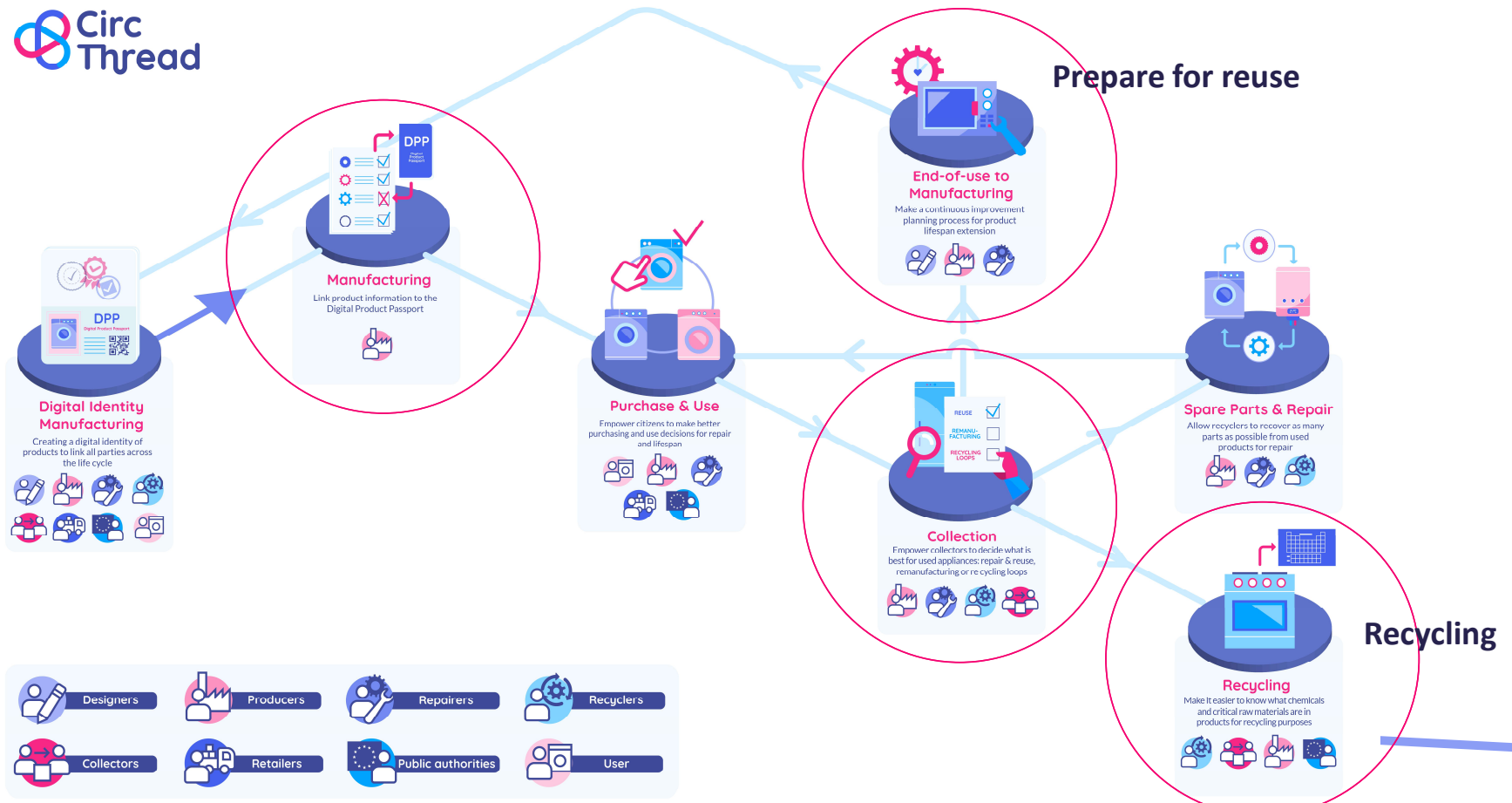


### Coordinated by

FUNDACION CARTIF

 Spain

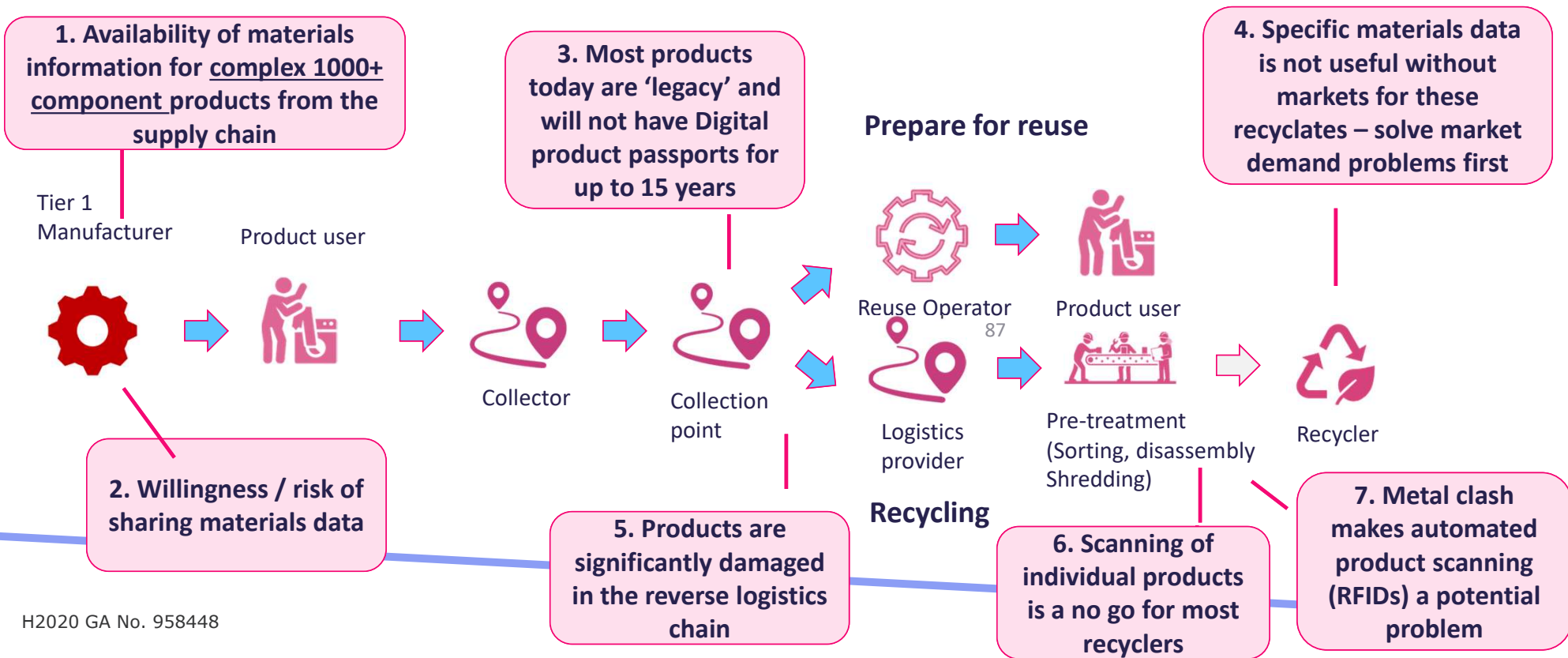
# Circular Digital Thread (CircThread) piloting activities



H2020

# Challenges for Digital Product Passports to boost Critical Raw Materials Recycling

We encountered a few challenges and received a lot of insights...





# Detailed Insights are publicly available in our 3<sup>rd</sup> policy brief

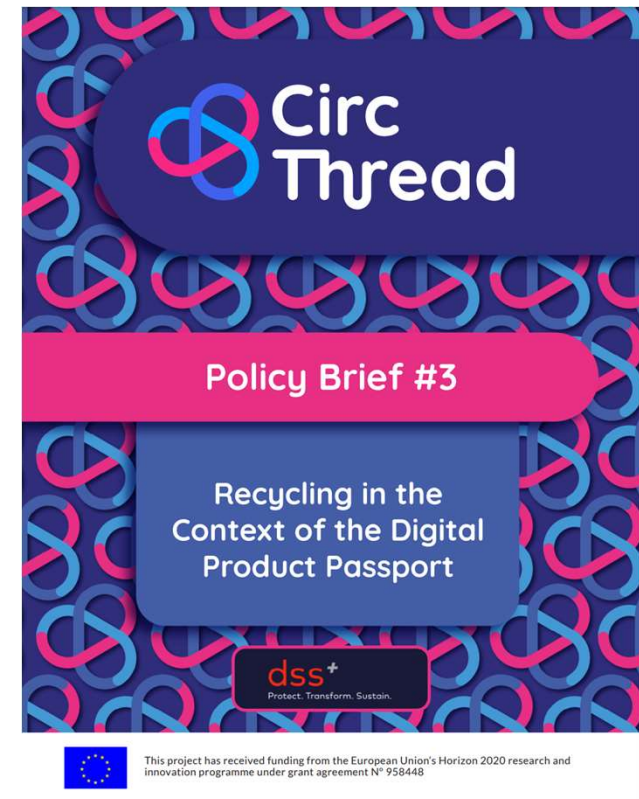
## Recycling in the Context of the Digital Product Passport

Authored by CircThread Partner dss+ consulting

<https://www.consultdss.com/>

[www.circthread.com](http://www.circthread.com) → policy briefs

Direct Link: <https://circthread.com/download/policy-brief-3-recycling-in-the-context-of-the-dpp/>





# Evolved thinking:



**1. Simplified BOM with only specific CRM containing components in new product DPPs**

Provide CRM data on a need-to-know basis



**2. Collectors on-site generation of DPPs using product category templates for reverse logistics traceability**

Transition system until all products have DPPs



**3. Make prepare for reuse vs recycling screening standard at collection points – similar to textiles**

Unlock value-added boosting prepare for reuse



**4. Link batch-item DPPs at collection points to eliminate individual product scanning for recycler**

Eliminate scanning cost of DPPs for recyclers

# We screen textiles in 3 seconds for re-use vs recycling We can do the same for electronics & electricals

Textile House sorting centre in Slovakia

<https://textilehouse.sk/>



Copyright: textile house

Electrical waste collection in Poland



Copyright: maxshot.pl

# In addition to DPP driven recycling information for new EEE products expected by end 2030



DPP information characteristics → Recycled content: **Pre-consumer and post-consumer recycled content declaration for CRM containing components**

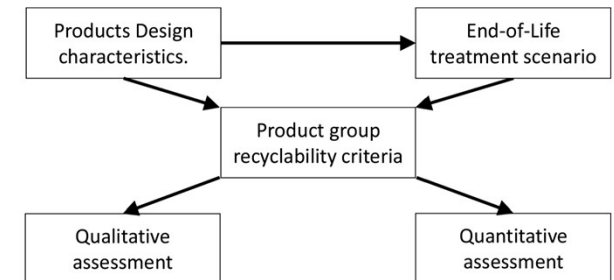
EN 45557 - General method for assessing the proportion of recycled material content in energy related products



Recyclability: **Recyclability scoring index per product group**

EN 45555, general methods for assessing recyclability

Product group specific standards to establish components & criteria of importance



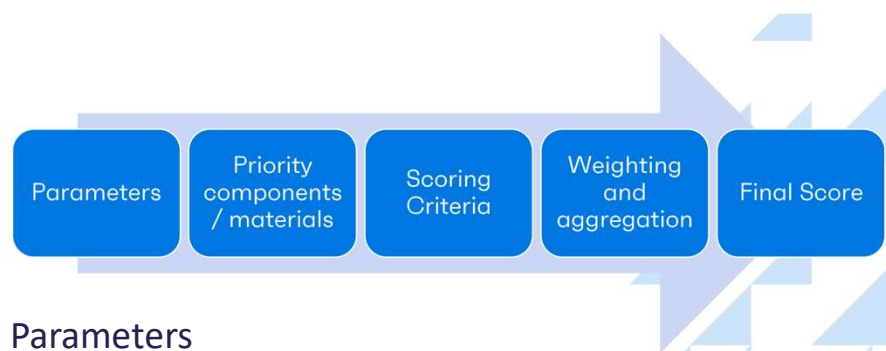
# Development of a recyclability index for photovoltaic products

Study website: <https://www.pv-recyclability-index.eu/the-study/>

*Potential policy application for these recyclability indexes for PV modules and inverters could include a compulsory disclosure of the indexes for each PV module model / inverter model placed on the EU market, as an effect of Ecodesign and/or energy labelling measures.*

## Timeline:

- 12 February 2024 10:00-12:30: Online stakeholder meeting held
- October 9 2024: First stakeholder consultation meeting
- Spring 2025: Second stakeholder consultation meeting
- June 2025: Publication of the final report and end of study



## Parameters

- Service / information availability related
- Dismantling related
- Materials / substances of concern

# Critical Raw Materials Act + Recycled Content requirements under CRM + ESPR can drive the market

## Critical Raw Materials Act - Regulation (EU) 2024/1252

### Article 29 – Recycled content of permanent magnets

1. By 24 May 2027 or two years from the entry into force of the delegated act referred to in paragraph 2, whichever is later, any natural or legal person that **places on the market products** referred to in Article 28(1) which incorporate one or more **permanent magnets** referred to in Article 28(1), point (b), (i), (ii) and (iii), and for which the **total weight of all such permanent magnets exceeds 0,2 kg** shall make publicly available on a free-access website the share of neodymium, dysprosium, praseodymium, terbium, boron, samarium, nickel and cobalt **recovered from post-consumer waste present in the permanent magnets** incorporated in the product.

Rotor magnets

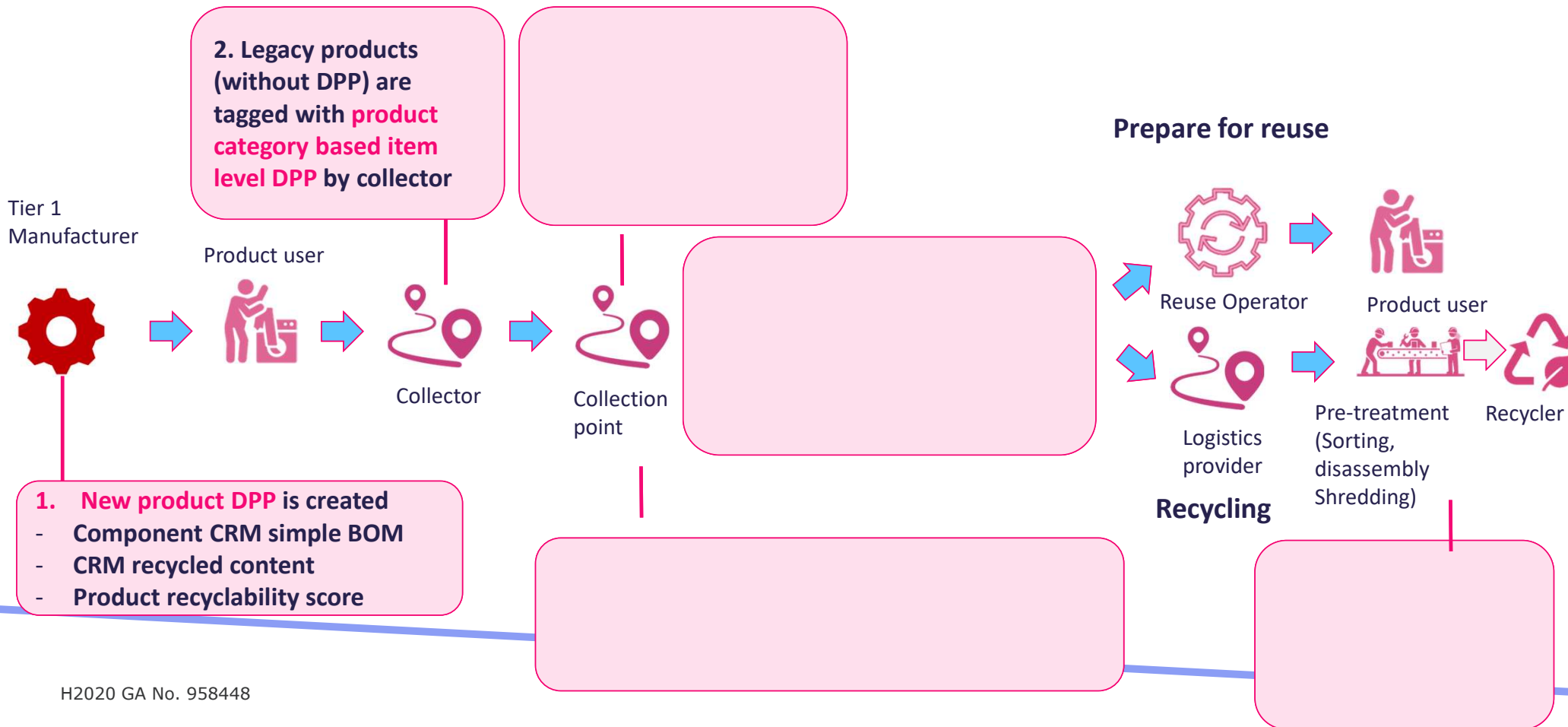


3. After the entry into force of the delegated act adopted pursuant to paragraph 2, and in any event by 31 December 2031, the Commission shall adopt delegated acts supplementing this Regulation by **laying down minimum shares for neodymium, dysprosium, praseodymium, terbium, boron, samarium, nickel and cobalt recovered from post-consumer waste** that must be **present in the permanent magnet** incorporated in the products referred to in paragraph 1.

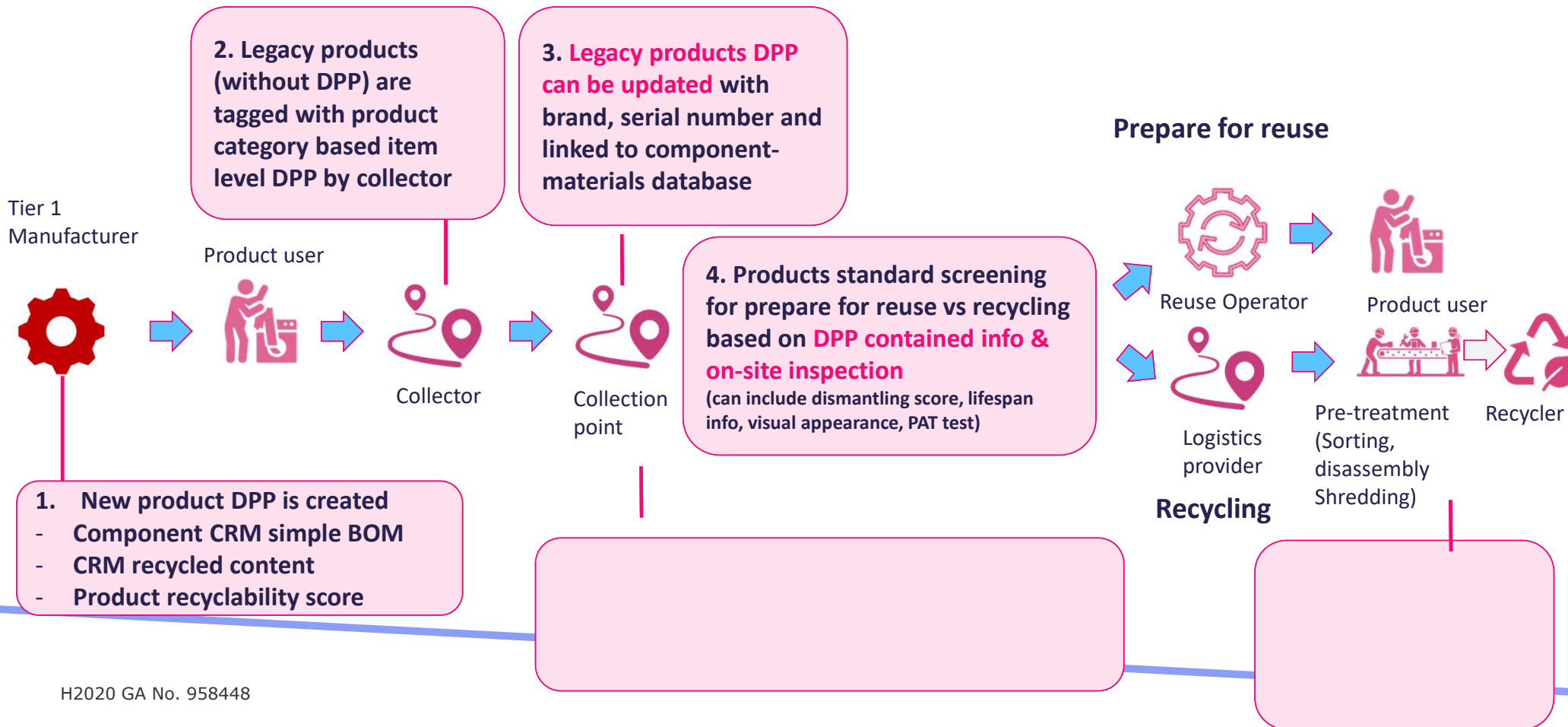
[https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L\\_202401252](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202401252)



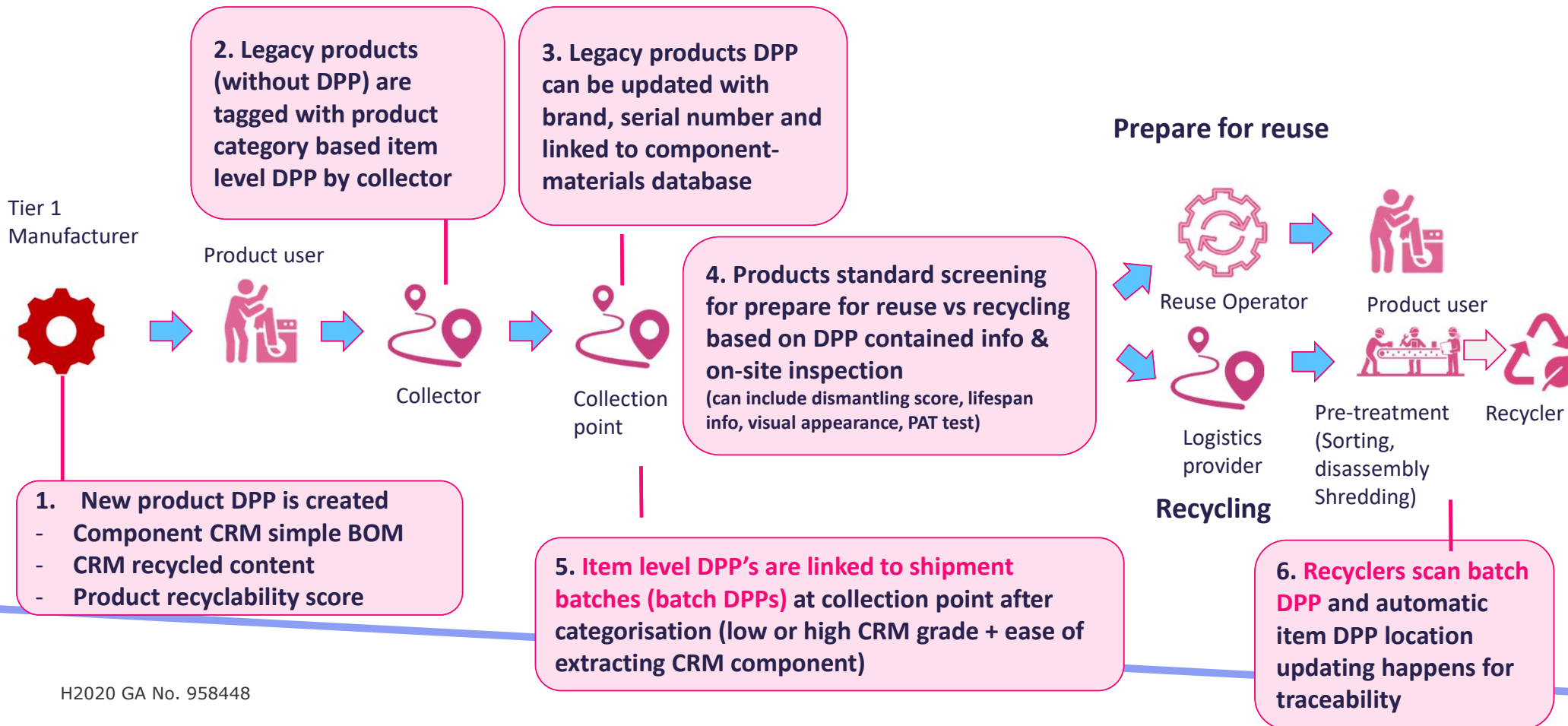
# New concept for managing product information + product materials data for prepare for reuse / recycling



# New concept for managing product information + product materials data for prepare for reuse / recycling



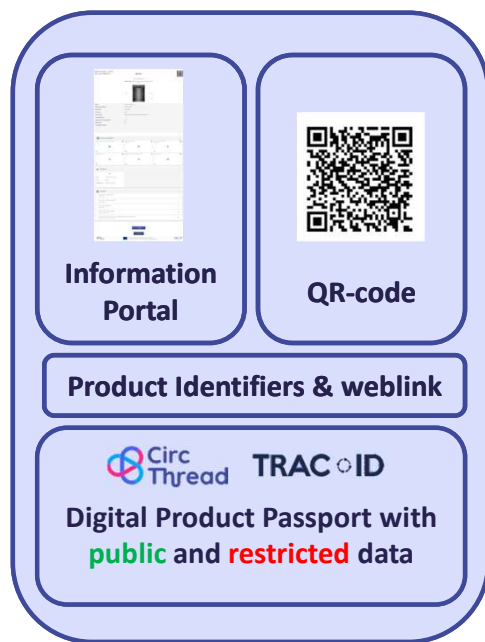
# New concept for managing product information + product materials data for prepare for reuse / recycling





# Demonstration of the concept in our pilots Q4-2024 to Q1-2025

## Generate DPP



The 'Generate DPP' stage is represented by a rounded rectangular box containing three main components:

- Information Portal**: A screenshot of a web interface showing a form for generating a Digital Product Passport.
- QR-code**: A large QR code used for product identification.
- Product Identifiers & weblink**: A section containing the **Circ Thread TRAC ID** logo and the text "Digital Product Passport with public and restricted data".

Red arrows indicate the flow from this stage to the next.

## Update, Screen & Sort

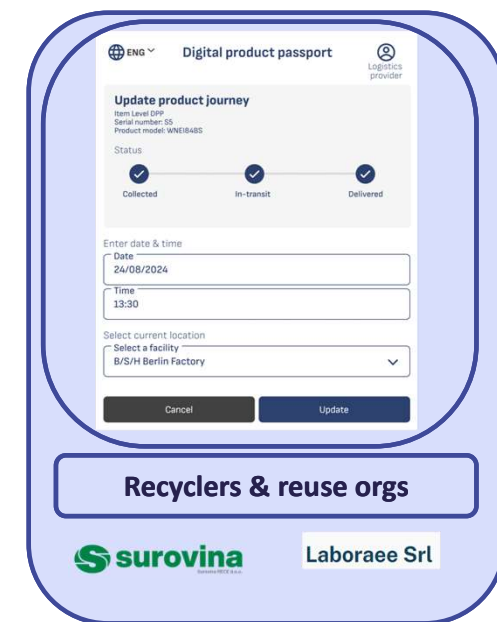


The 'Update, Screen & Sort' stage is represented by a rounded rectangular box containing two main components:

- Update product journey**: A screenshot of a mobile application interface with a progress bar (Collected, In-transit, Delivered) and input fields for date and time. It also shows a dropdown menu for selecting a facility.
- PROs and collectors**: A section containing logos for **ZEOS** and **erion**.

Red arrows indicate the flow from this stage to the next.

## Receive, Update & Process



The 'Receive, Update & Process' stage is represented by a rounded rectangular box containing two main components:

- Update product journey**: A screenshot of a mobile application interface showing a completed status (all three steps: Collected, In-transit, Delivered) and input fields for date and time. It also shows a dropdown menu for selecting a facility.
- Recyclers & reuse orgs**: A section containing logos for **surovina** and **Laborae Srl**.

# Please contact us for early adopters Proof of Concept deployment collaborations

- CircThread Association to be launched in October 2024
- CircThread Platform to be available Q1 2025
- Early adopters expression of interest:
- E-mail: [Rembrandt.Koppelaar@eco-wise.co.uk](mailto:Rembrandt.Koppelaar@eco-wise.co.uk)



**Thank you for  
your attention**



This project has received funding from the H2020 programme under Grant Agreement No. 958448

<https://circthread.com/>



@circthread



company/  
circthread-project/

# ANY QUESTIONS?

16:15– 16:20





**Digitalised Value  
Management for Unlocking  
the potential of the Circular  
Manufacturing Systems with  
integrated digital solutions**

**Arcelik**

**gorenje**  
*Life Simplified*



**Lexmark**



**MASARYK  
UNIVERSITY**



**Crowdhelix**  
COLLABORATION INTELLIGENCE

# DiCiM

## The role of Open Access Digital Platforms in the context of Digital Product Passport

**Farazee Asif**

Assistant Professor

KTH Royal Institute of Technology

Scientific Lead, DiCiM



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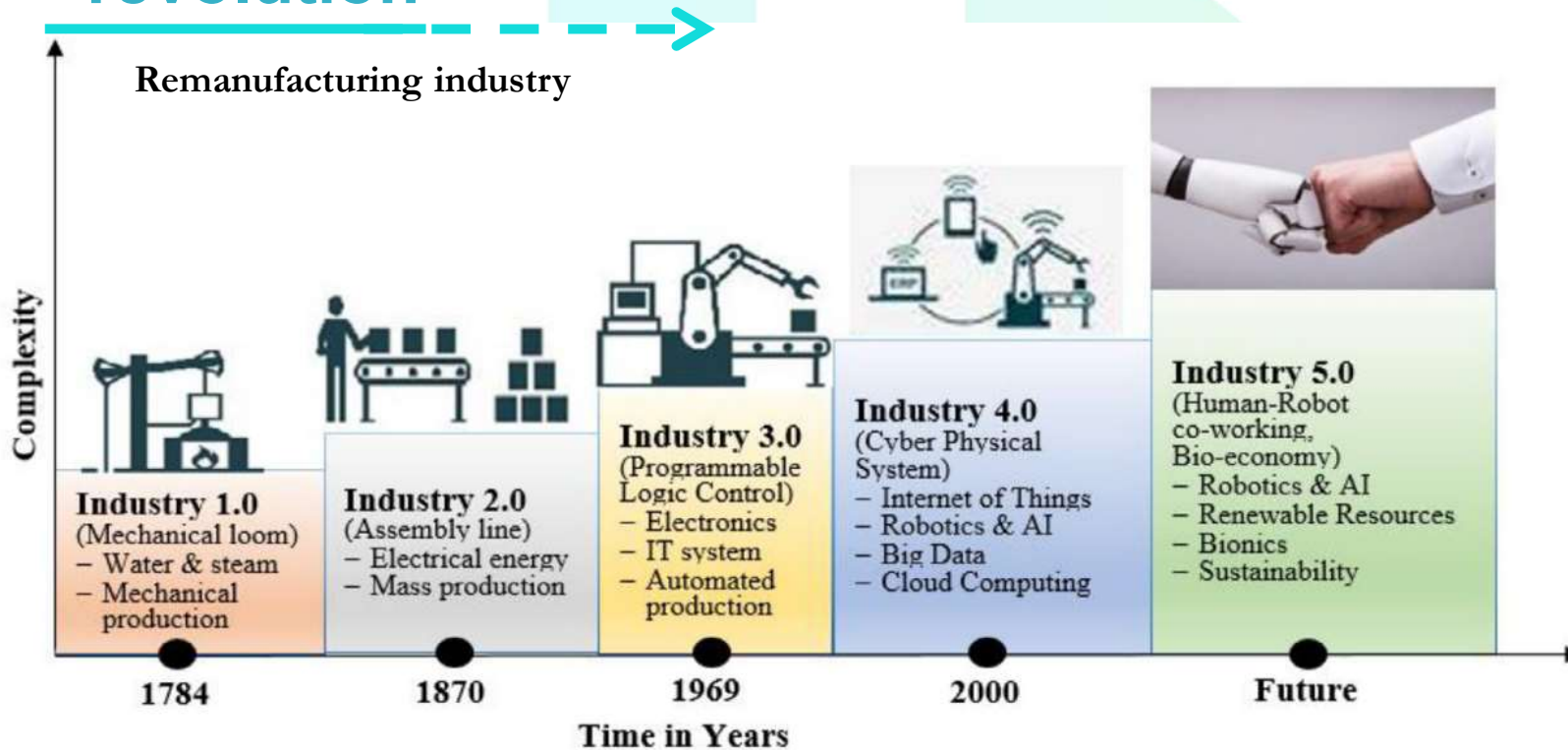
# Agenda

- Background
- The DiCiM Project
- Digital Solutions for Refurbishment and Remanufacturing in DiCiM
- Open Access Digital Platform (OADP) in DiCiM
- OADP and Digital Product Passport

# Emergence of a new research stream



# Remanufacturing Vs Manufacturing Industrial revolution



Source (Mezgebe et al., 2023).

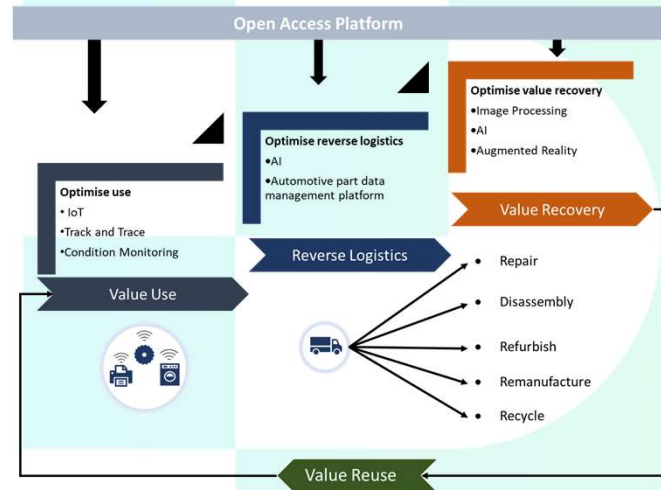


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# DiCiM- Digitalised Value Management for unlocking the potential of Circular Manufacturing Systems with integrated digital solutions



## Technologies:

- AI for decision support in product collection
- IoT-based tracking, tracing, and condition monitoring
- Image processing and AI for part sorting
- AR for disassembly and part sorting
- Open-access digital platform



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# Remanufacturing: AI for decision support in product collection



 Lexmark™

Source: Google

## Current State:

- Over 80% of printers are sold with an option to sell them back at the end of life (EoL) or end of use (EoU).
- There is no access to embedded usage information in the printers.
- There is high uncertainty about whether the bought-back printers can be remanufactured.

## DiCiM Development:

- AI generates the appropriate purchase price based on the condition of the printers.
- AI assesses if the printers are suitable for remanufacturing, part recovery, or recycling.

# Refurbishment: AI and image processing in product sorting



 **arcelik**

Source: Arcelik

## Current State:

- Limited throughput in the refurbishment of refrigerators.
- Manual sorting, inspection, and testing processes are time-consuming and costly.
- Manual inspections are prone to errors.

## DiCiM Development:

- Automated image recognition and processing.
- AI analyzes images and instantly tests PCBs and the cooling performance of refrigerators.

# Open access digital platform

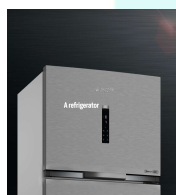
**A wider value chain actors have access to information on:**

- Available used parts
- Trading options for a used product
- Processes of value recovery activities
  - Sorting operations

DiCiM open access digital platform



Lexmark



arçelik



gorenje  
*Life Simplified*



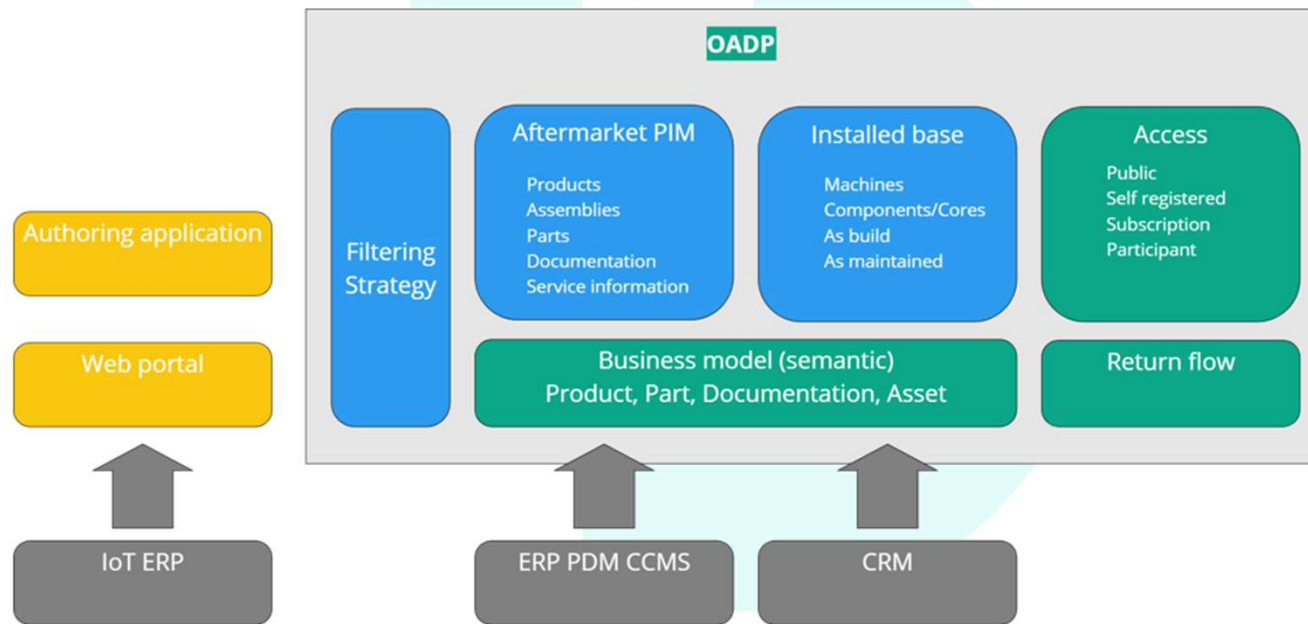
CECO  
Group Energy Systems Ltd



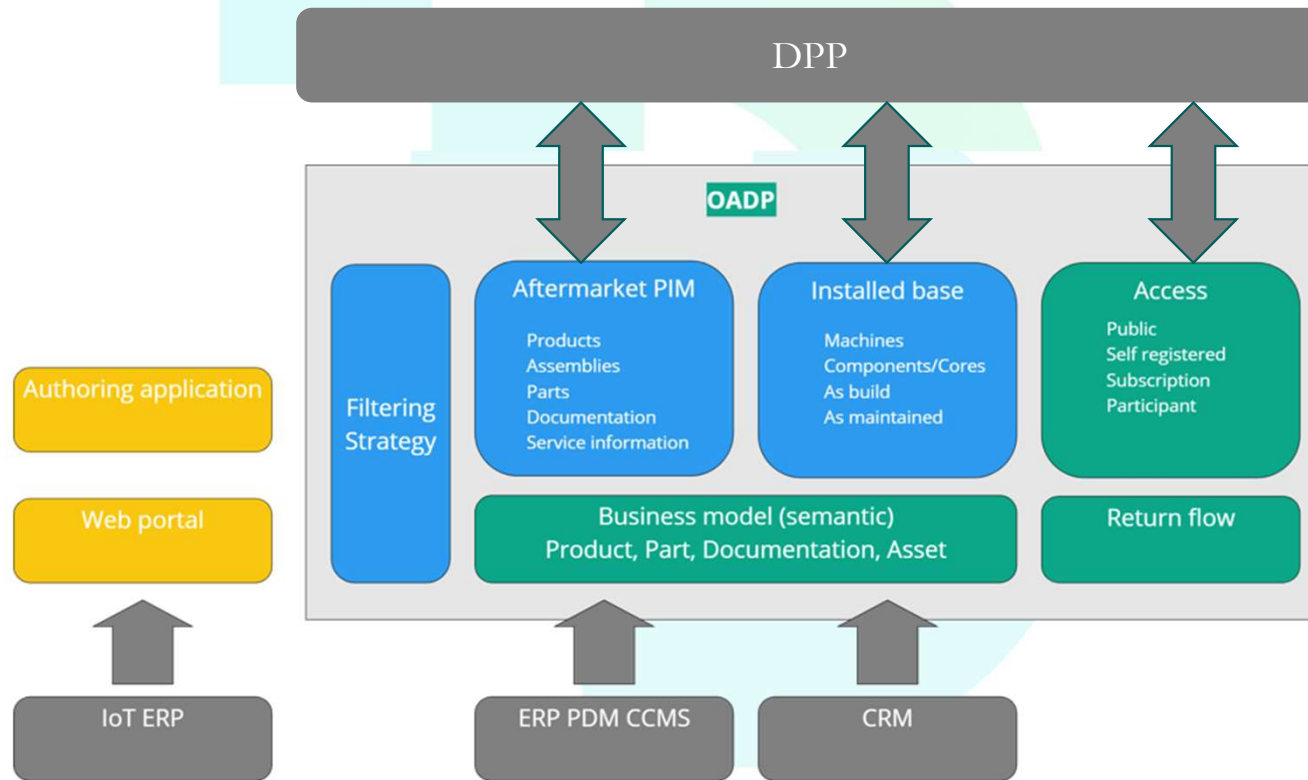
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# Open Access Digital Platform



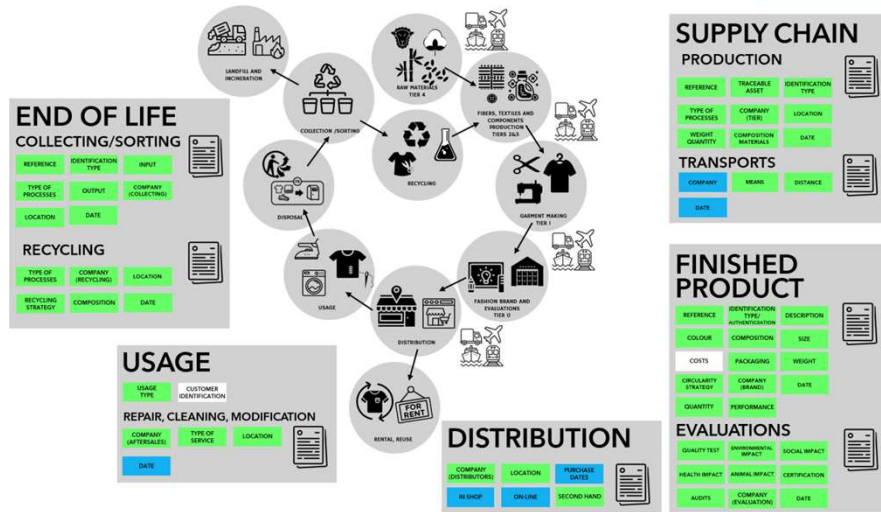
# Open Access Digital Platform



# DPP: Expectations Vs Reality

- Article 7(1) Information requirement
  - Durability (maintenance and repair)
  - Dispose
  - Disassembly and Recycling
  
- Article 8(2) product passport (as appropriate for the product groups covered)
  - (f) the actors that shall have access to information in the product passport and to what information they shall have access, including customers, end-users, manufacturers, importers and distributors, dealers, repairers, remanufacturers, recyclers, competent national authorities, public interest organisations and the Commission, or any organisation acting on their behalf;

# Example: Proposed Full Circular DPP for the Textile Industry



- The sorting and recycling processes are more efficient when information about the design and manufacturing techniques is retrieved in the DPP.
- The rate of recycling material in the close loop is higher with information exchange via DPP between recyclers and upstream suppliers (Tier 4 or 3) to reduce the extraction of natural origin material.





**Digitalised Value  
Management for Unlocking  
the potential of the Circular  
Manufacturing Systems with  
integrated digital solutions**

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**Lexmark**



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## Contacts:

**Project coordinator:** Alena Klapalová, [alena.klapalova@econ.muni.cz](mailto:alena.klapalova@econ.muni.cz)

**Scientific lead:** Farazee Asif, [aasi@kth.se](mailto:aasi@kth.se)

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Digital

Information and Communications Technology Components & Systems



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# ANY QUESTIONS?

16:40-16:45



# ROUNDTABLE DISCUSSION



# CONCLUDING REMARKS

Pascal Leroy | Director General, WEEE Forum





# UPCOMING EVENTS | CE-RISE



14 OCTOBER 2024

## International E-Waste Day

Join the e-waste hunt – retrieve, recycle and revive!



Hosted by



## DATA SHARING FOR CIRCULAR TRANSITION IN HEALTHCARE

How could Digital Product Passports be applied for digital health devices?

29 October 2024 | 14:00 - 15:00 CET | Online



**James Horne**  
Project Manager  
WEEE Forum



**Els Ducheyne**  
DiCE Coordinator &  
Senior Manager  
Johnson & Johnson



**Cristina Guerreiro**  
CE-RISE Coordinator &  
Research Director  
NILU



**Elena Fernandez**  
Consultant  
UNITAR



**Marion Junique**  
Assistant Project  
Manager Sustainability  
Johnson & Johnson



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# UPCOMING EVENTS | CircThread

## **CircThread Event - Economia circolare nelle organizzazioni**

15<sup>th</sup> October - 14:30 - 18:30 - Lugano, Switzerland - Italian language event

L'evento copre temi chiave come l'adozione di materiali sostenibili, il ruolo della standardizzazione, gli strumenti decisionali per la sostenibilità e l'applicazione pratica della circolarità nelle organizzazioni pubbliche e private. Scopri come SUPSI supporta le aziende locali nella transizione verso pratiche più sostenibili, promuovendo un futuro innovativo e rispettoso dell'ambiente.



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# 2024 DIGITAL SOLUTIONS FOR CIRCULARITY INFO DAY

28 NOV

THURSDAY

09:00 - 17:00

AM PM

We are pleased to announce that leaders from Turkey's textile, steel, and construction industries, alongside representatives from various associations and public institutions, will convene at **The Marmara Pera Hotel in Istanbul**.

The event will focus on Turkey's transition towards a circular economy and the opportunities and needs for digital transformation, addressing these topics within emerging regulations.

**Pre-Registration Link:**

<https://www.jotform.com/assign/242693840358970/242701397796064>



**Detailed Agenda** - <https://circthread.com/news-and-events/workshops/>

eco||wise

ekodenge

Circ Thread

# NETWORKING DRINKS

17:30 – 18:30

