

# Digital Product Passport (DPP) Please!

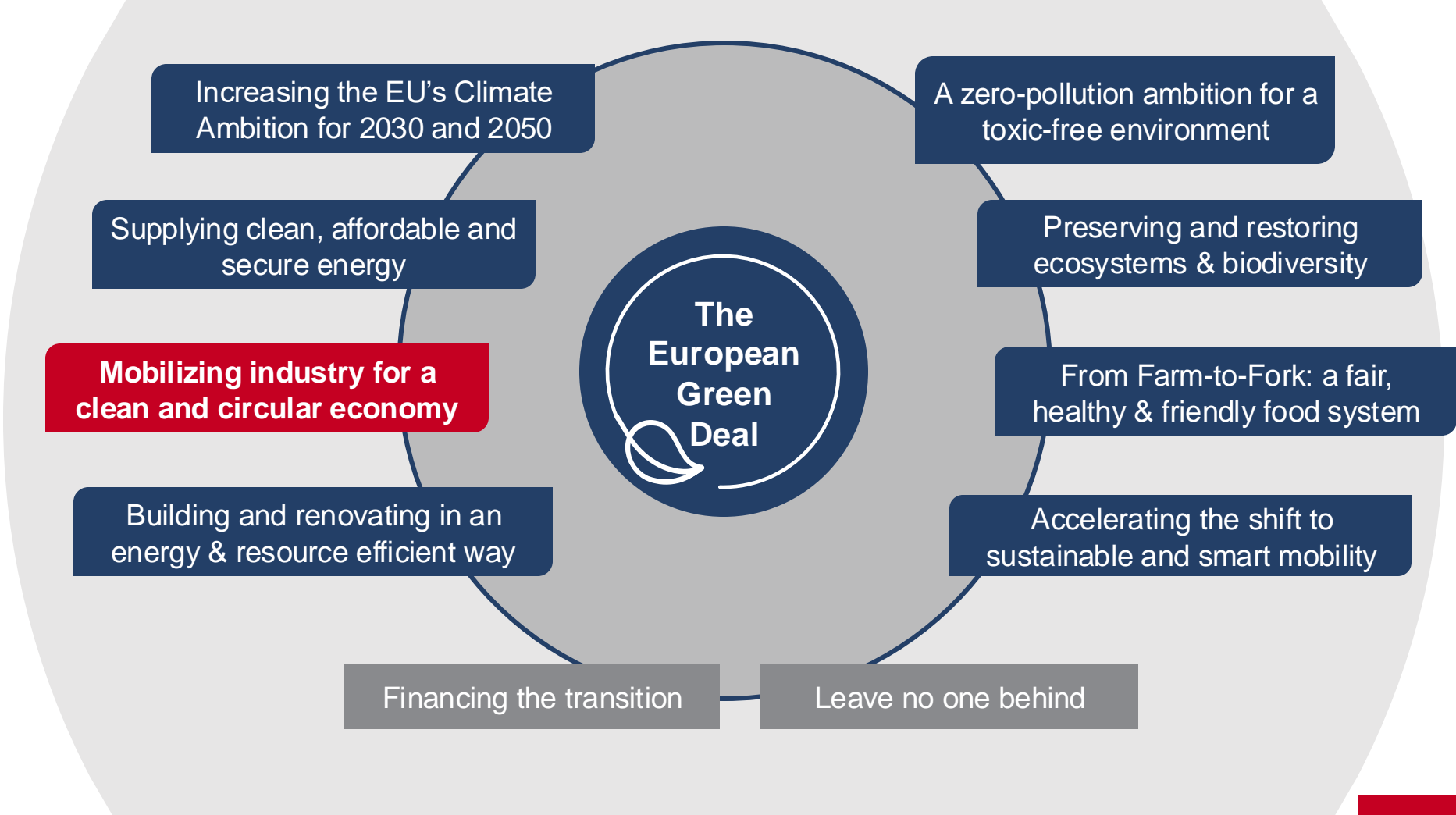
An Introduction to DPPs as required by the  
Ecodesign Sustainable Product Regulation  
(ESPR)

Adrian von Mühlennen (GPT)  
PO Digital Material & Product Passport

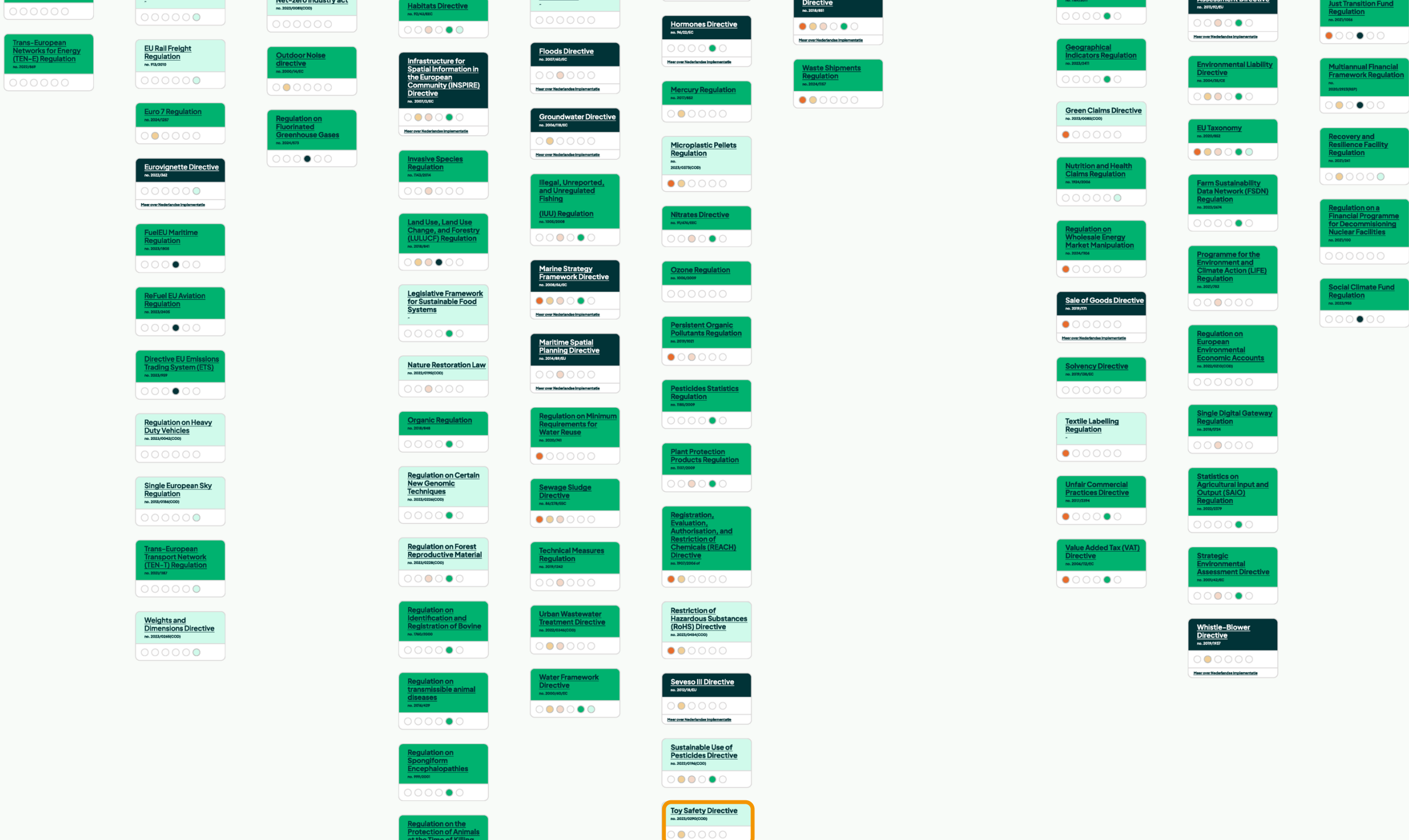
# Green Deal – EU’s Man on the Moon Moment

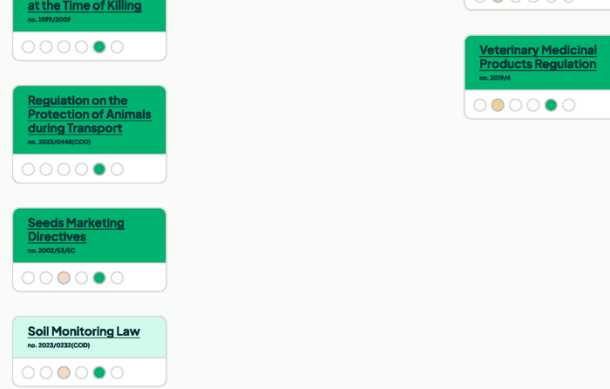


# Green Deal - EU's Man on the Moon Moment



ENERGY	TRANSPORTATION	CLIMATE & EMISSIONS	LAND & ANIMALS	WATER	CHEMICALS & POLLUTANTS	WASTE	PRODUCTS & MATERIALS	CONSUMER GOODS	REPORTING	FUNDING & SUPPORT
<a href="#">Energy efficiency directive</a> no. 2012/27/EU Here on Dutch Implementation	<a href="#">Alternative Fuels Infrastructure Regulation</a> no. 2022/1804	<a href="#">Ambient Air Quality Directive</a> no. 2022/2541/EC	<a href="#">Birds Directive</a> no. 2009/147/EC	<a href="#">Bathing Water Directive</a> no. 2006/7/EC Here on Nederlandse Implementatie	<a href="#">Food Contact Materials Regulation</a> no. 1924/2004	<a href="#">Common Charger Directive</a> no. 2022/2380 Here on Nederlandse Implementatie	<a href="#">Batteries Regulation</a> no. 2023/1542	<a href="#">Air Services Regulation</a> no. 2020/2008	<a href="#">Aarhus Regulation</a> no. 2021/1017	<a href="#">Direct Payments Regulation</a> no. 2023/1716
<a href="#">Energy Labeling Framework Regulation</a> no. 2022/742	<a href="#">Clean Vehicles Directive</a> no. 2015/2402/EU Here on Nederlandse Implementatie	<a href="#">Carbon Removals Regulation</a> no. 2022/2542/EC	<a href="#">Common Agricultural Policy</a> no. 2021/2117	<a href="#">Common Fisheries Policy</a> no. 1380/2013	<a href="#">Asbestos Regulation</a> no. 2009/148/EC Here on Nederlandse Implementatie	<a href="#">End-of-Life Vehicles Directive</a> no. 2000/54/EC Here on Nederlandse Implementatie	<a href="#">Construction Products Regulation</a> no. 305/2011	<a href="#">Cohesion Policy</a> no. 2022/938	<a href="#">Corporate Sustainability Due Diligence Directive</a> no. 2023/2561/EC	<a href="#">European Agricultural Fund Regulation</a> no. 2023/1716
<a href="#">Energy Performance of Buildings Directive</a> no. 2010/31/EU Here on Nederlandse Implementatie	<a href="#">CO2 Emissions Standards for Cars and Vans Regulation</a> no. 2019/1011	<a href="#">Effort Sharing Regulation</a> 2018/844	<a href="#">Directive on Protection of Broilers</a> no. 2007/43/EC Here on Nederlandse Implementatie	<a href="#">Directive on Harmonized River Information Services</a> no. 2009/44/EC Here on Nederlandse Implementatie	<a href="#">Classification, Labeling, and Packaging Regulation</a> no. 2022/0420/EC	<a href="#">Landfill Directive</a> no. 2018/650 Here on Nederlandse Implementatie	<a href="#">Critical Raw Materials Act</a> no. 2023/1203	<a href="#">Common Markets Organisation Regulation</a> no. 2020/2091	<a href="#">Corporate Sustainability Reporting Directive</a> no. 2022/2544 Here on Nederlandse Implementatie	<a href="#">European Maritime and Fisheries Fund Regulation</a> no. 2017/139
<a href="#">Energy Taxation Directive</a> no. 44/702	<a href="#">Combined Transport Directive</a> no. 2023/0394/EC	<a href="#">Emissions Trading System Directive</a> no. 2018/956	<a href="#">Directive on Protection of Calves</a> no. 2008/75/EC	<a href="#">Directive on Ro-Ro Passenger Ships</a> no. 2023/944 Here on Nederlandse Implementatie	<a href="#">Cosmetic Products Regulation</a>	<a href="#">Packaging Directive</a> no. 94/62/EC Here on Nederlandse Implementatie	<a href="#">Deforestation-Free Products Regulation</a> no. 2023/1755	<a href="#">Consumer Rights Directive</a> no. 2013/24 Here on Nederlandse Implementatie	<a href="#">Directive on Cross-Border Enforcement of Traffic Rules</a> no. 2023/0582/EC	<a href="#">European Regional Development Fund and Cohesion Fund Regulation</a> no. 2023/0582/EC
<a href="#">EU Gas Regulation &amp; Directive</a> no. 2017/1430/EC	<a href="#">Count Emissions EU regulation</a> no. 2023/0244/EC	<a href="#">Environmental Noise Directive</a>	<a href="#">Directive on Protection of Laying Hens</a> no. 1986/60/EC	<a href="#">Drinking Water Directive</a> no. 2020/744	<a href="#">Detergents Regulation</a> no. 2022/0240/EC	<a href="#">Recycled Food Contact Materials Regulation</a> no. 2022/1796	<a href="#">Ecodesign Regulation</a> no. COM/2022/42	<a href="#">Cybersecurity Act</a> no. 853/2019	<a href="#">Directive on Driving Disqualifications</a> no. 2023/0586/EC	<a href="#">European Social Fund Plus (ESF+) Regulation</a> no. 2023/0587
<a href="#">Regulation on the governance of the energy union and climate action</a> no. 2018/1999	<a href="#">Directive on European Critical Infrastructure Protection</a> no. 2019/1894/EC Here on Nederlandse Implementatie	<a href="#">European Climate Law</a> no. 2023/1719	<a href="#">Directive on Protection of Pigs</a> no. 2006/535/EC	<a href="#">Environmental Quality Standards Directive</a> no. 2008/148/EC Here on Nederlandse Implementatie	<a href="#">Directive on Ship-source Pollution</a> no. 2023/0790/EC	<a href="#">Ship Recycling Regulation</a> no. 2022/2025	<a href="#">European Accessibility Act</a> no. 2019/882 Here on Nederlandse Implementatie	<a href="#">Ecolabel Regulation</a> no. 66/2010	<a href="#">Directive on Public Access to Environmental Information</a> no. 2003/4/EC	<a href="#">General Block Exemption Regulation</a> no. 40/2014
<a href="#">Regulation on the Ignalina programme</a> no. 2019/0202/EC	<a href="#">Directive on Intelligent Transport Systems</a> no. 2010/0518/EC	<a href="#">Industrial emissions directive</a> no. 2022/0140/EC	<a href="#">Directive on the Protection of Animals Kept for Farming Purposes</a> no. 1831/2003	<a href="#">Fisheries Control Agency Regulation</a> no. 2019/153	<a href="#">European Pollutant Release and Transfer Register (E-PRTR) Regulation</a> no. 1825/2004	<a href="#">Single Use Plastics Directive</a> no. 2019/904 Here on Nederlandse Implementatie	<a href="#">Right to Repair Directive</a> no. COM/2023/166	<a href="#">Electricity Market Regulation</a> no. 2019/943	<a href="#">Directive on Registration Documents for Vehicles</a> no. 1999/07/EC	<a href="#">Horizon Europe Regulation</a> no. 2019/945
<a href="#">Renewable Energy Directive</a> no. 2018/2001/EC Here on Nederlandse Implementatie	<a href="#">Revision Directive on Roadworthiness</a> no. 2014/45/EC	<a href="#">Methane regulation</a> no. 2021/0420/EC	<a href="#">Feed Additives Regulation</a> no. 1831/2003	<a href="#">Fisheries Control Agency Regulation</a> no. 2019/153	<a href="#">Fertilising Products Regulation</a> no. 2019/1009	<a href="#">Waste Electrical and Electronic Equipment (WEEE) Directive</a> no. 2012/19/EC Here on Nederlandse Implementatie	<a href="#">EU School Scheme</a> no. 2017/460	<a href="#">Electricity Market Directive</a> no. 2019/944 Here on Nederlandse Implementatie	<a href="#">Directive on Environmental Crime</a> no. 2003/1033	<a href="#">Horizontal Regulation</a> no. 2019/104
<a href="#">Regulation on Gas Storage</a> no. 2022/0602	<a href="#">Directive on Technical Roadside Inspections of Commercial Vehicles</a>	<a href="#">National emissions directive</a> no. 2016/1328 Here on Nederlandse Implementatie	<a href="#">General Food Law</a> no. 1831/2003	<a href="#">Fisheries Control Regulation</a> no. 2023/0842	<a href="#">Harmonised Risk Indicators Directive</a> no. 2019/782	<a href="#">Waste Framework</a>	<a href="#">Food Information to Consumers Regulation</a>	<a href="#">Environmental Impact Assessment Directive</a>	<a href="#">InvestEU Regulation</a> no. 2023/1633	





## CLIMATE NEUTRAL BY 2050

The European Union aims to be climate neutral by 2050; an ambition that's known as the 'Green Deal'.

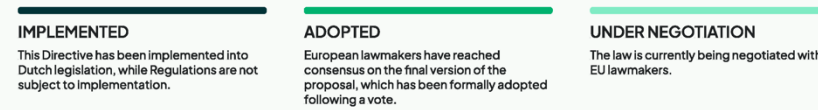
Under the Green Deal, a great deal of new legislation is being proposed, revised or already enacted.

The different regulations and directives address several different perspectives of the climate neutrality effort.

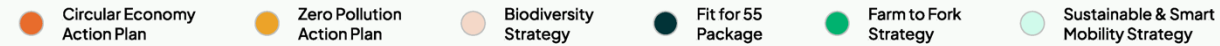
Here, we give you an overview, including the current status of each proposal and the area of applicability.

 <https://www.circulaw.nl>

### Instrument status (as of July 2024):



### Instrument referenced in:



# EU Green Deal Initiatives Requiring DPPs (5 out of 168)

**Battery Regulation**  
2023/1542

**Ecodesign for Sustainable Product Regulation**  
2024/1781

**Construction Product Regulation**  
2022/0094(COD)

**Detergents Regulation**  
2023/0124(COD)

**Toy Safety Directive**  
2023/0290(COD)

- Circular Economy Action Plan
- Fit for 55 Package
- Adopted
- Zero Pollution Action Plan
- Farm to Fork Strategy
- Under Negotiation
- Biodiversity Strategy
- Sustainable & Smart Mobility Strategy



# Making Sustainable Products the Norm





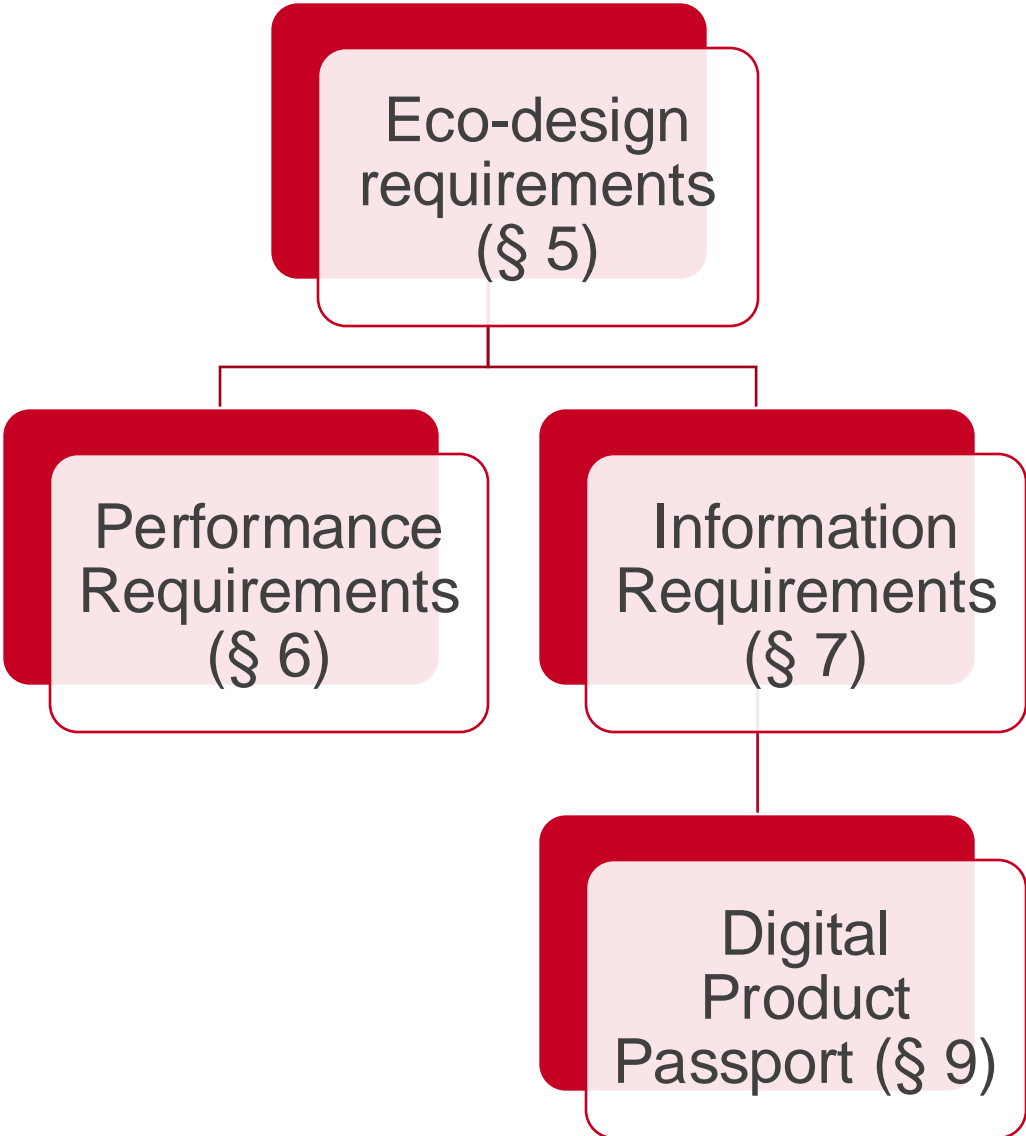
# Making Sustainable Products the Norm



# **Ecodesign for Sustainable Products Regulation (ESPR)**

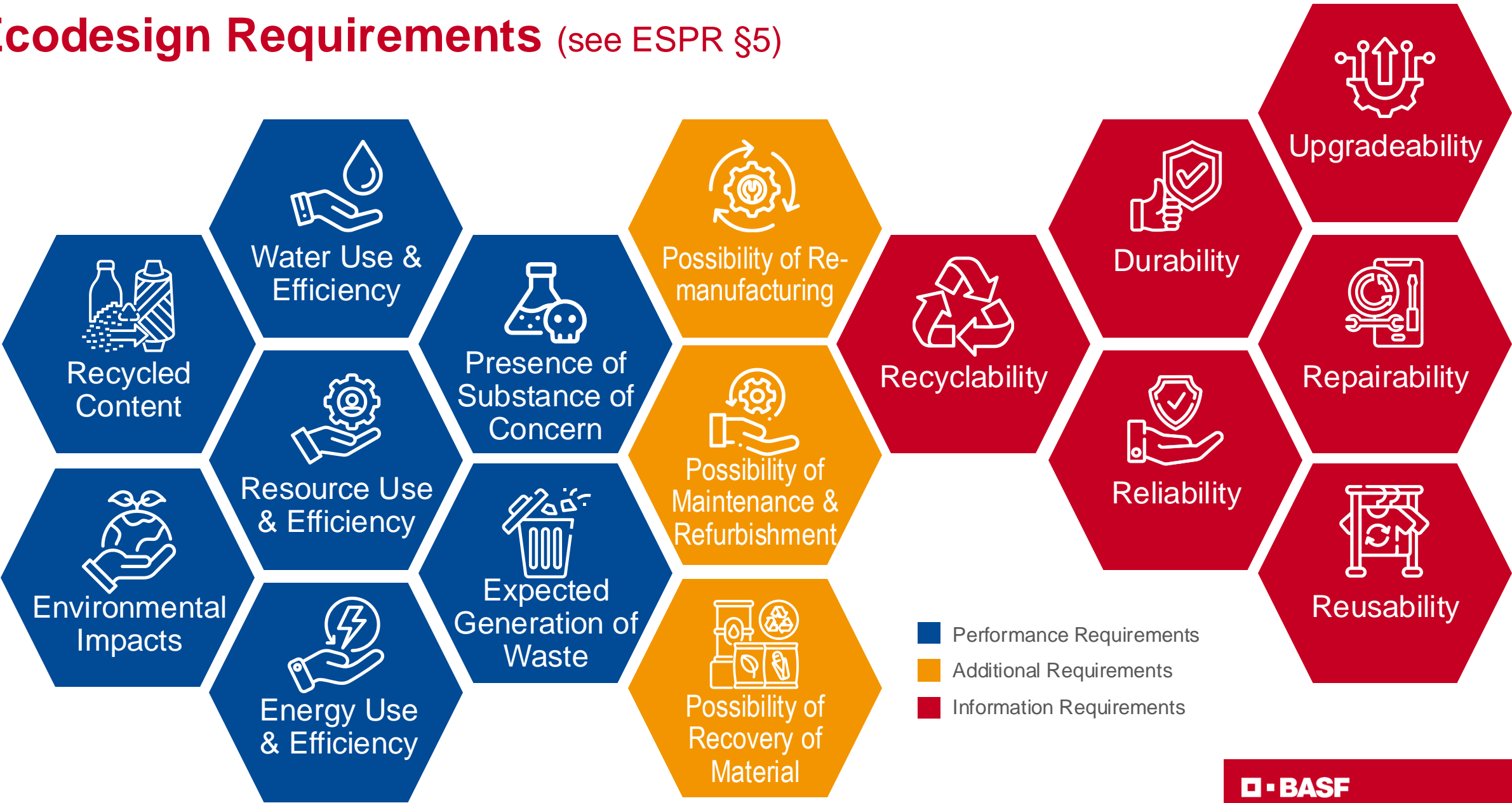
- Performance and information requirements for greener products
- Tackle the destruction of unsold goods
- Waste prevention and reduction
- Mandatory criteria for green public procurement
- Digital Product Passport and new labeling rules
- Stronger market surveillance

# Critical Aspects of the Ecodesign for Sustainable Product Regulation



- **Durability, reliability, reusability, upgradability**
- **Reparability:** possibility of **maintenance** and **refurbishment**
- Presence of **substances of concern**
- **Energy use** or **energy efficiency**
- **Resource use** or **resource efficiency**
- **Recycled content**
- Possibility of **remanufacturing** and **recycling**
- Possibility of **recovery** of materials
- **Environmental impacts**, including carbon and environmental footprint
- Expected generation of **waste** materials

# Ecodesign Requirements (see ESPR §5)



- Performance Requirements
- Additional Requirements
- Information Requirements

# What is a Substance of Concern (SoC) (see ESPR §2.27 ff)

a) Regulation (EC) No 1907/2006, Article 59 → **REACH**, Substances of very high concern (SVHCs)

b) Annex VI to Regulation (EC) No 1272/2008 → Classification and Labelling (**CLP**) Regulation

- carcinogenicity categories 1 and 2
- germ cell mutagenicity categories 1 and 2
- reproductive toxicity categories 1 and 2
- endocrine disruption for human health categories 1 and 2
- endocrine disruption for the environment categories 1 and 2
- persistent, mobile and toxic or very persistent, very mobile properties
- persistent, bioaccumulative and toxic or very persistent, very bioaccumulative properties
- respiratory sensitisation category 1
- skin sensitisation category 1
- hazardous to the aquatic environment — categories chronic 1 to 4
- hazardous to the ozone layer
- specific target organ toxicity — repeated exposure categories 1 and 2
- specific target organ toxicity — single exposure categories 1 and 2

c) Regulation (EU) 2019/1021, Persistent Organic Pollutants (**POPs**) legislation

d) Negatively affects the reuse and recycling of materials in the product in which it is present.

# What Shall Not Be Covered by the Ecodesign for Sustainable Product Regulation (ESPR)?

## Article 1, Paragraph 2

This (Ecodesign for sustainable Product) Regulation applies to **any physical goods** that are **placed on the market or put into service**, including **components** and **intermediate products**. However, it does not apply to:



**Food**

Regulation (EC)  
178/2002



**Feed**

Regulation (EC)  
178/2002



**Medicinal products  
for human use**

Directive  
2001/83/EC



**Veterinary  
medicinal  
products**

Regulation (EU)  
2019/6



**Living plants,  
animals and  
micro-organisms**



**Products of  
human origin**



**Products of plants  
and animals  
relating directly to  
their future  
reproduction**



**Vehicles**

Regulation (EU)  
167/2012,  
Regulation (EU)  
168/2023,  
Regulation (EU)  
2018/858

# What Shall Be Covered by the Ecodesign for Sustainable Product Regulation (ESPR)?

## Article 1, Paragraph 2

This (Ecodesign for sustainable Product) Regulation applies to **any physical goods** that are **placed on the market or put into service**, including **components and intermediate products**.

### End-use Products



Textile



Furniture



Mattresses



Construction



Tires



Detergents



ICT



Lubricants



Ceramics



Paints



Cosmetics



Toys



Fishing Nets & Gear



Absorbent Hygiene Products



Energy Related Products

### Intermediate Products



Steel



Non-Ferrous Metals



Aluminum



Chemicals



Plastic and Polymers



Paper Pulp and Boards



Glass

# What Shall Be Covered by the Ecodesign for Sustainable Product Regulation (ESPR)?

## Article 18, Paragraph 5

In the first working plan, which shall be adopted by 19 April 2025, the Commission shall prioritise the following product groups.

### End-use Products



Textile



Furniture



Mattresses



Construction



Tires



Detergents



ICT



Lubricants



Paints



Toys

### Intermediate Products



Steel



Aluminum



Chemicals



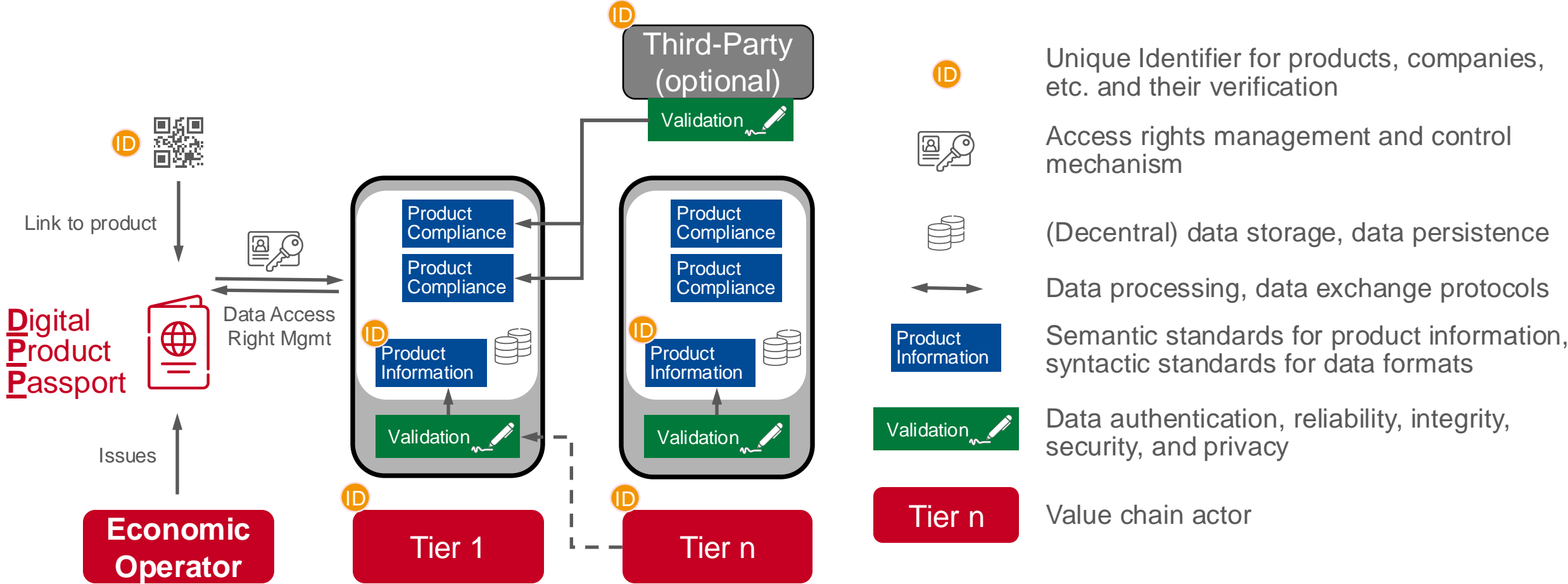
Energy Related Products



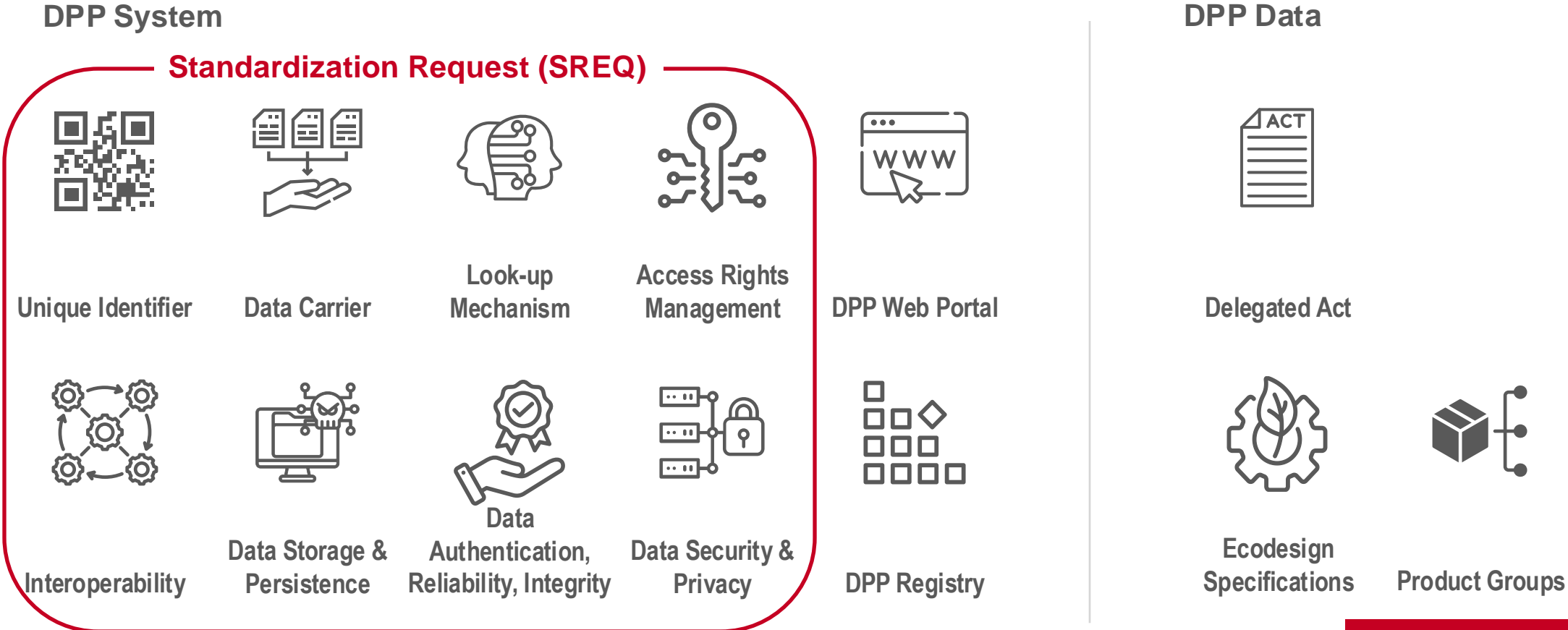
# Why is a Digital Product Passport (DPP) Required

- The **Ecodesign for Sustainable Product Regulation (ESPR)** requires the introduction of **digital product passports (DPPs)**
  - ▶ §1.1: “This Regulation also establishes a digital product passport, provides for the setting of mandatory **green public procurement requirements** and creates a framework to **prevent unsold consumer products from being destroyed.**” and
  - ▶ §1.2: “This Regulation applies to **any physical goods** that are **placed on the market or put into service**, including **components** and **intermediate products.**”
- ESPR §4 empowers the commission to adopt **delegated acts** (... that) shall include at least the elements listed in §8.
- ESPR §8 requires **that products may only be placed on the market or put into service if a digital product passport** (‘product passport’) is **available** in accordance with **delegated acts** to be adopted under the future Regulation.

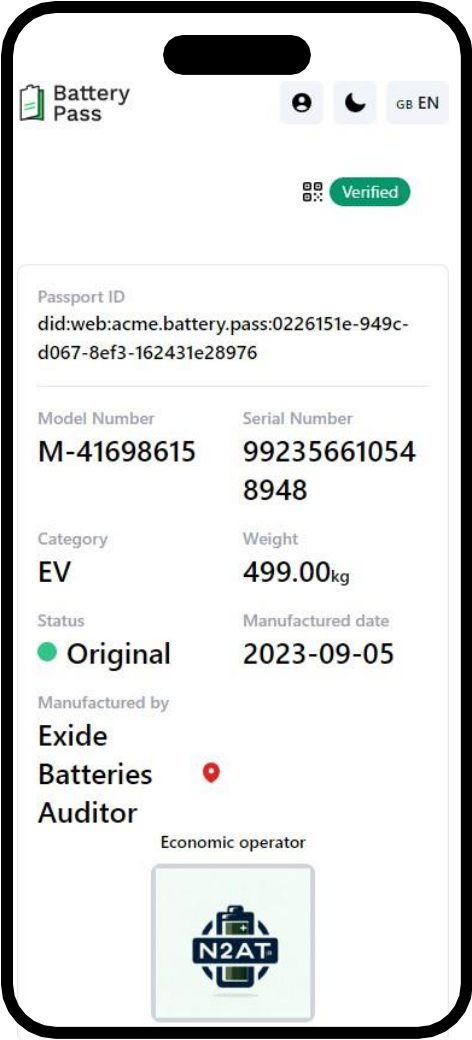
# What is the Digital Product Passport (DPP)? (see ESRP §9 - §15)



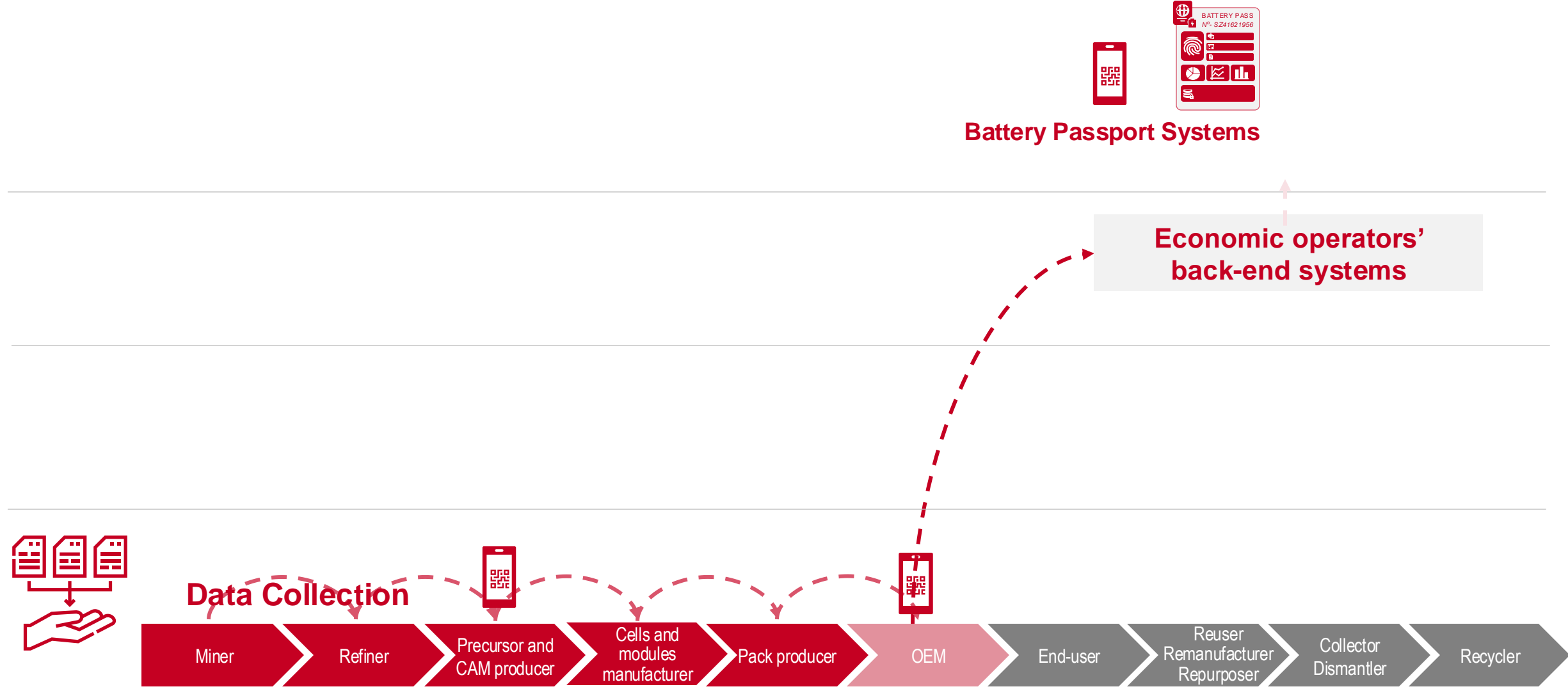
# What is the Digital Product Passport (DPP)? (see ESR §9 - §15)



# DPP Vision / Battery Passport



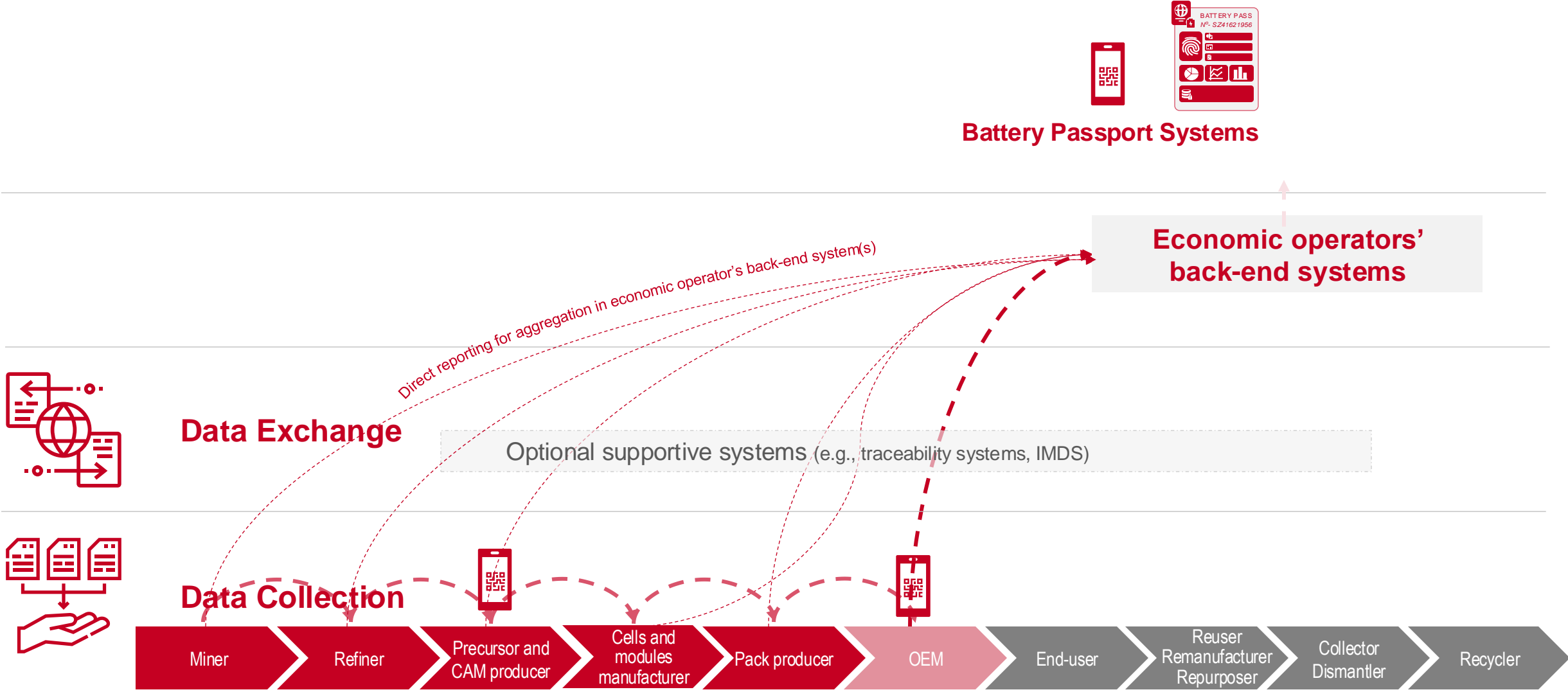
# Lessons Learned from the Battery Pass



This project receives funding from the [German Federal Ministry for Economic Affairs and Climate Action](https://www.bmwi.de/Content/DE/Presse/pm/2023/2023-09-14-german-federal-ministry-for-economic-affairs-and-climate-action.html) by resolution of the German Bundestag under grant agreement No 16BZF335.



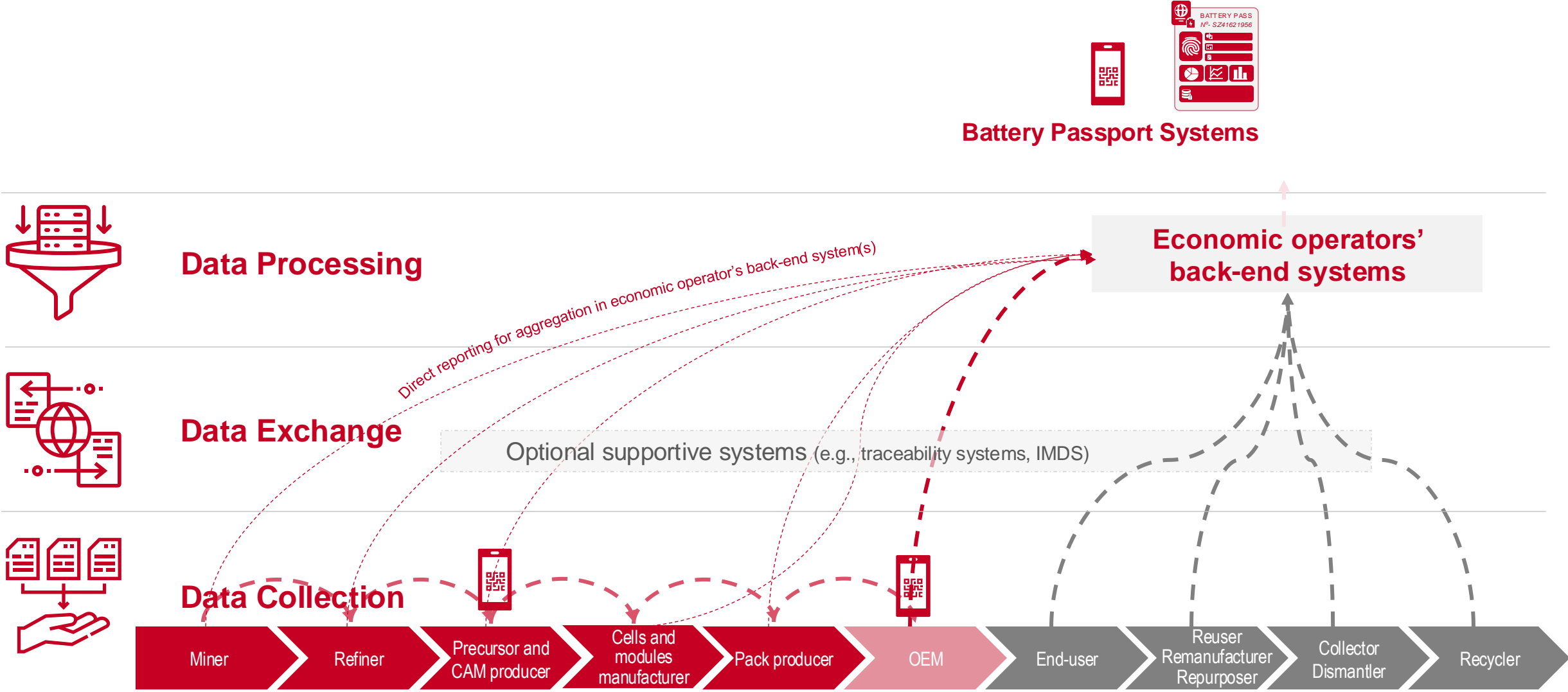
# Lessons Learned from the Battery Pass



This project receives funding from the [German Federal Ministry for Economic Affairs and Climate Action](https://www.bmi.bund.de/EN/Home/home_node.html) by resolution of the German Bundestag under grant agreement No 16BZF335.



# Lessons Learned from the Battery Pass



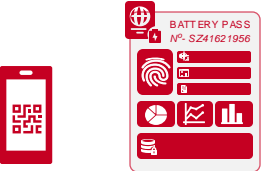
This project receives funding from the [German Federal Ministry for Economic Affairs and Climate Action](https://www.bmi.bund.de/EN) by resolution of the German Bundestag under grant agreement No 16BZF335.



# Lessons Learned from the Battery Pass



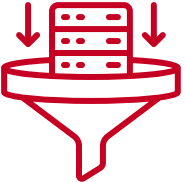
Data Access



Battery Passport Systems

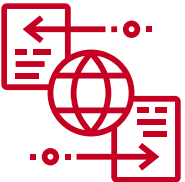


Product Passport Registry



Data Processing

Economic operators' back-end systems



Data Exchange

Optional supportive systems (e.g., traceability systems, IMDS)



Data Collection



This project receives funding from the [German Federal Ministry for Economic Affairs and Climate Action](https://www.bmi.bund.de/EN/Home/home_node.html) by resolution of the German Bundestag under grant agreement No 16BZF335.



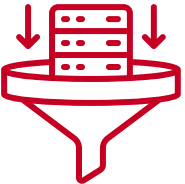


# Lessons Learned from the Battery Pass



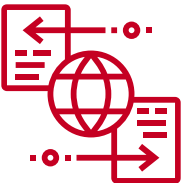
## Data Access

Lifecycle Management, Roles & Responsibilities



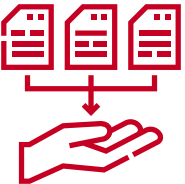
## Data Processing

Audit, Rulesets, Standards



## Data Exchange

Interoperability (“What”, “How”)



## Data Collection

Availability, Automation, Harmonization, Sovereignty, Validation

# DPP-Reality In the Process Industry. ID Link



SIEMENS
English



**6GK5206-2BS00-2AC2**

SCALANCE XC206-2SFP

SCALANCE XC206-2SFP manageable Layer 2 IE switch; IEC 62443-4-2 certified; 6x 10/100 Mbit/s RJ45 ports; 2x 100/1000 Mbit/s SFP; 1x console port; diagnostics LED; redundant power supply; temperature range -40 °C to +70 °C; assembly: DIN rail/S7 mounting rail/wall Office redundancy functions features (RSTP, VLAN,...); PROFINET IO device; Ethernet/IP-compliant; C-plug slot;



✓ Lieferfreigabe  
12/01/2016

**Digital nameplate**

---













More certificates

The test symbols depicted on the nameplate indicate the certificates and directives with which the product complies.

**Support entries**

---

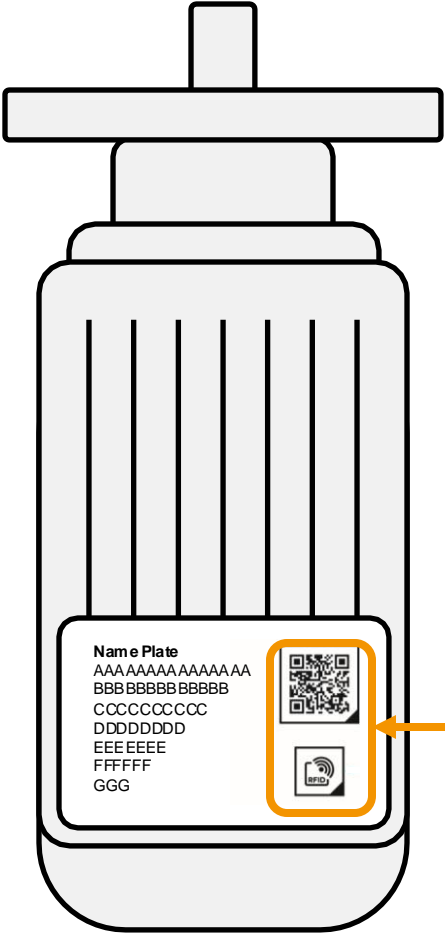
Manual/Operating instructions	21
Technical data	
Asset Administration Shell (AAS)	
Certificate	39
Download/Software	10
Product note	22
FAQ	25
Application example	9
Catalog/Brochure	2

© Siemens AG, 1996 – 2024 | [siemens.com Global Website](#) | [Corporate Information](#)

[Privacy Policy](#) | [Cookie Policy](#) | [Terms of use](#) | [Digital ID](#)

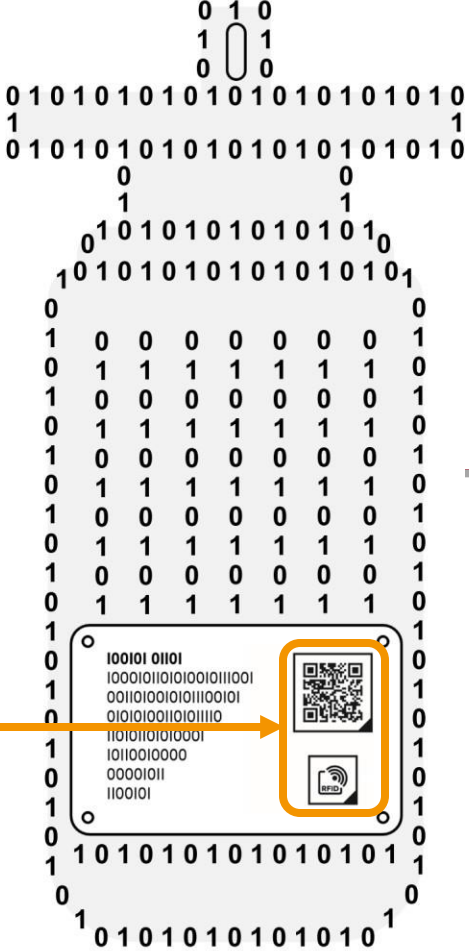
# DPP-Reality In the Process Industry. ID Link

physical object



digital twin

digital representation of the physical object



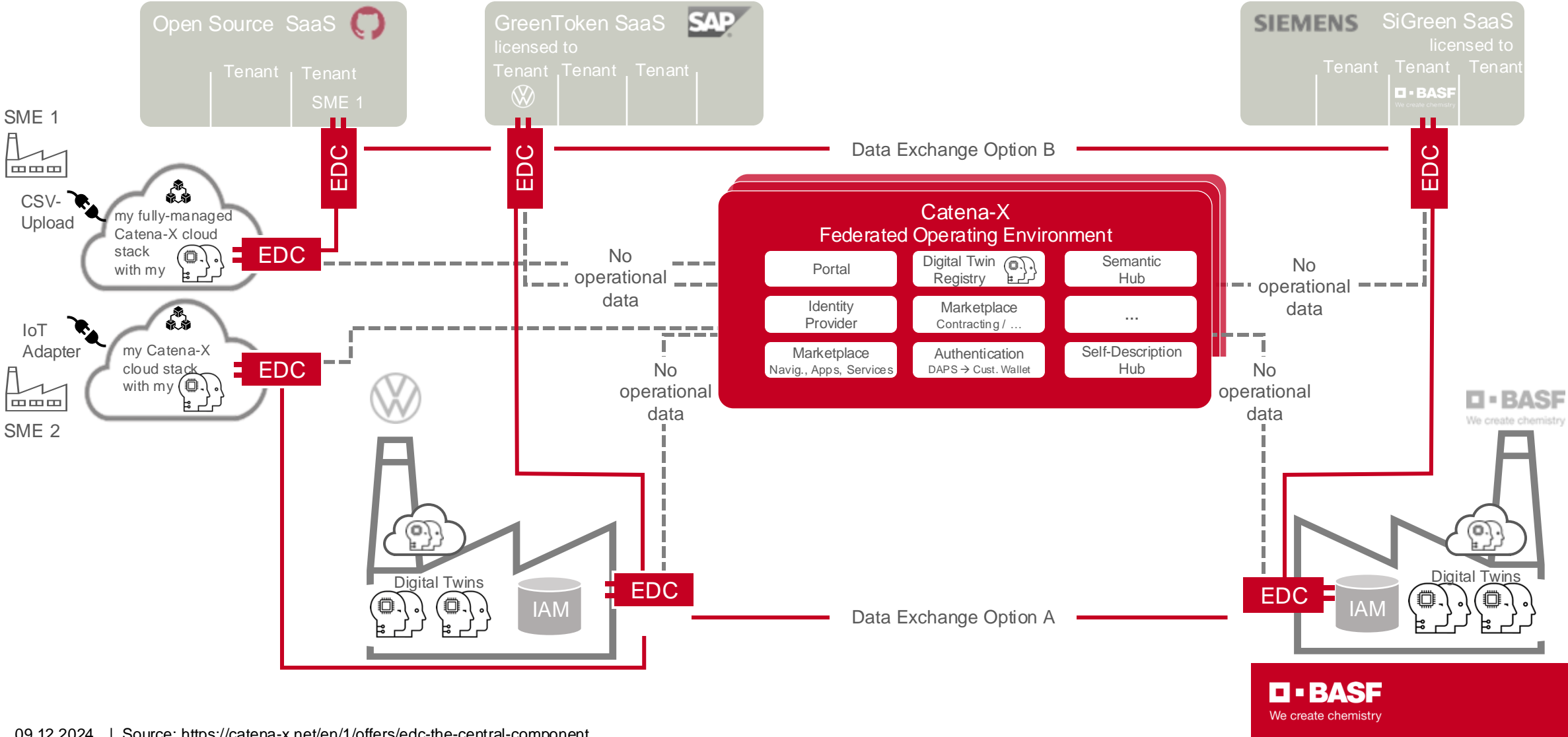
**Information model**

- tech specs
- documentation
- life cycle information
- ...

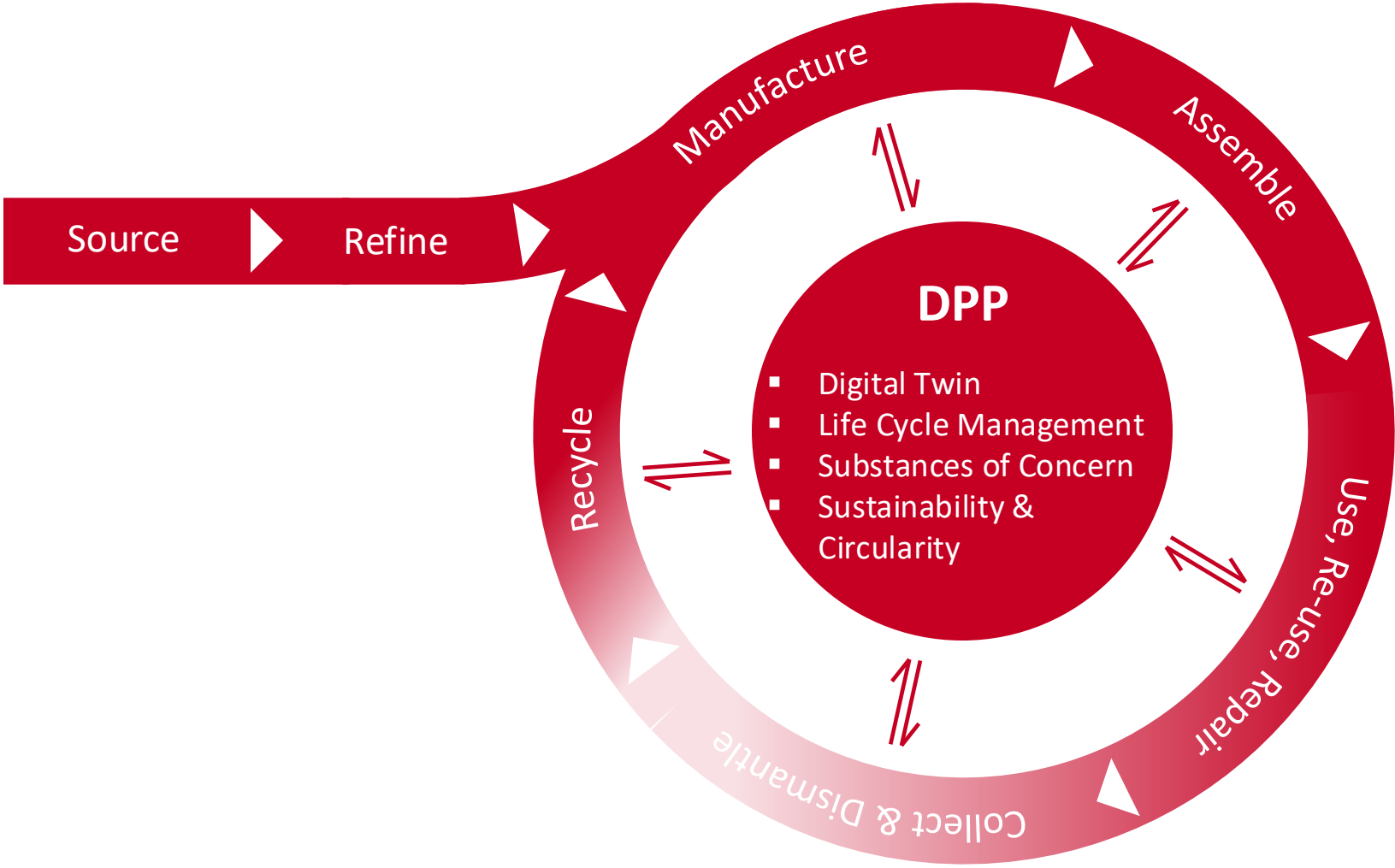
**Advantages ID link**

- URL based
- 100% cost-free
- 100% interoperable
- From / for the industry

# Catena-X Architecture to Power Sovereign Data Exchange for DPP



# Mind the Product Lifecycle and the Involved Data

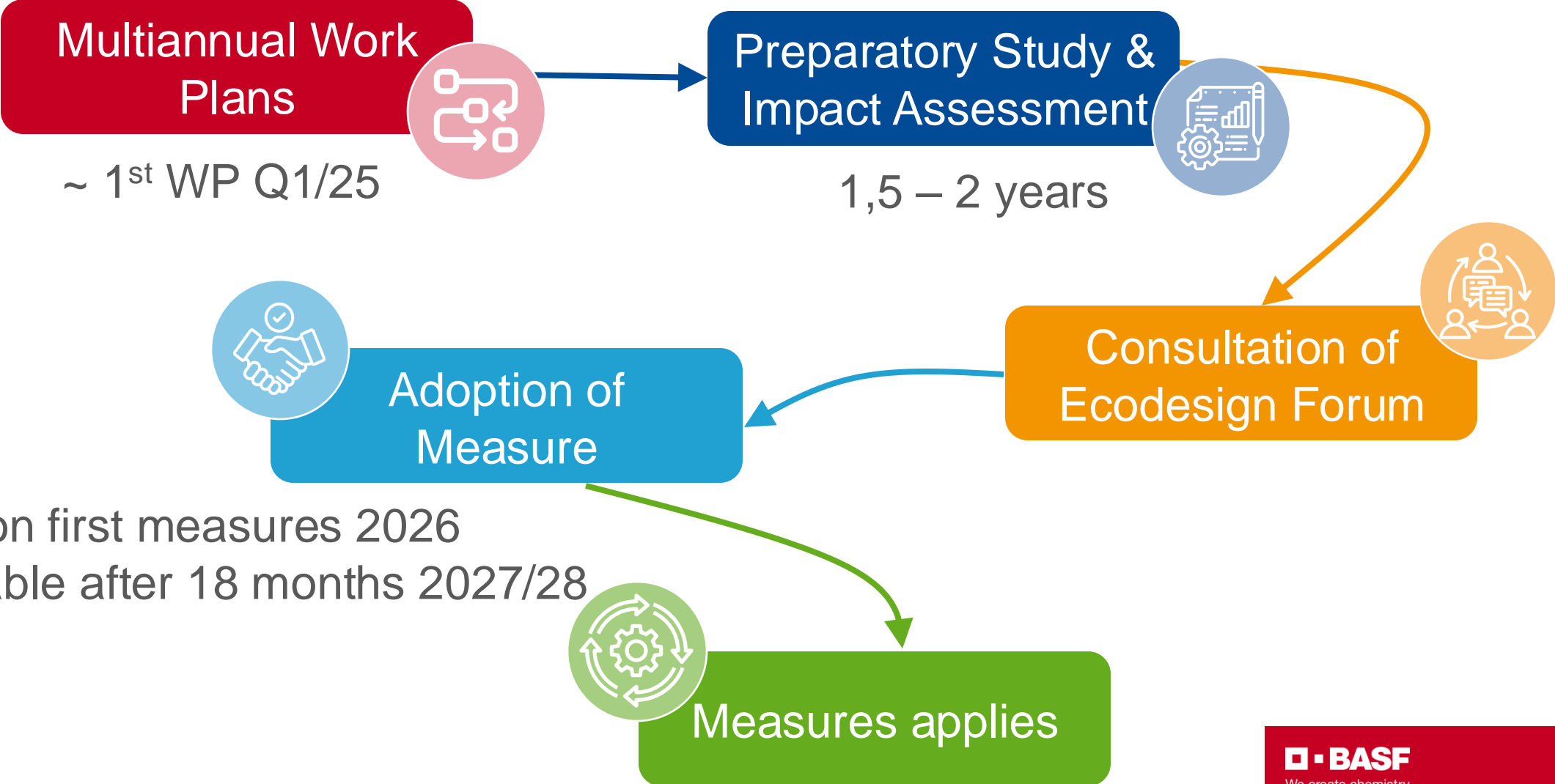


- Do you know your supply chain **actors** who can access the DPP data?
- Right granularity (model, batch, item)?
- DPP-Data **available**?
- **Backup** of the DPPs done?
- **Market surveillance** mechanisms?

# Timeline



# Timeline con't



Adoption first measures 2026  
Applicable after 18 months 2027/28

# Wrap-up & Checklist

1. Is there a viable **Business Case**?
2. Are you an **Economic Operator**?
3. Are your **products falling under** the **ESPR**?
4. Is your **product part of** a prioritized **product groups**?
5. Are you aware of the data required to report on the **Ecodesign Requirements**?
6. Are you aware of the **product categories'** priorities and **timelines**?
7. Do you possess the relevant **information, performance, and additional requirements**?
8. Is your **MDM / PIM ready** to host the **DPP-Data**?
9. Do you know the downstream **actors** and their **R&Rs** along the **product lifecycle**?
10. Are you aware of the **market surveillance** mechanism?
11. Can you issue a **unique identifier** for the granularity required?
12. Can you **back up DPPs**?
13. Is there a viable **Business Case**?



# Take Home Messages

- Horizontal DPPs are key
  - ▶ Standards for technical implementation
  - ▶ Standards for Interoperability (“what” & “how”)
  - ▶ Standards for assessment algorithms (e.g. PCF)
- Data Sovereignty is key
  - ▶ Decentralized DPP Data Storage
- Chem-X addresses these key requirements
  - ▶ Launch & Press Release in January 2025

# References in the Sequence of Appearance

- EU Green Deal – EU's Man on the Moon Moment - <https://youtu.be/F2Z7rio5sow?si=ZK8jhl6a6SvvM-Rx>
- EU Green Deal – <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019DC0640>
- EU Green Deal overview – [https://www.circulaw.nl/European\\_green\\_deal.pdf](https://www.circulaw.nl/European_green_deal.pdf)
- Batteries and waste batteries regulation, (EU) 2023/1524 – <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32024R1781>
- Ecodesign for Sustainable Product Regulation (ESPR), (EU) 2024/1781 – <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32024R1781>
- Proposal for Construction Product Regulation (CPR), 2022/0094(COD) – <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52022PC0144>
- Proposal for Detergents and Surfactants Regulation, 2023/0124(COD) – <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=COM:2023:217:FIN>
- Proposal for Toys Safety Regulation, 2023/0290(COD) – <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52023PC0462>
- EU Green Deal Legislative Train Schedule – <https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal>
- Make sustainable Products the norm – <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022DC0140>
- Ecodesign for Sustainable Product Regulation (ESPR) – <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32024R1781>
- JRC Preliminary Study on New Product Priorities (Draft) – [https://susproc.jrc.ec.europa.eu/product-bureau/sites/default/files/2023-01/Preliminary%20ESPR%20WP%20Report\\_MERGED\\_CLEAN\\_.pdf](https://susproc.jrc.ec.europa.eu/product-bureau/sites/default/files/2023-01/Preliminary%20ESPR%20WP%20Report_MERGED_CLEAN_.pdf)
- JRC Preliminary Study on New Product Priorities - <https://publications.jrc.ec.europa.eu/repository/handle/JRC138903>
- Critical Aspects of the DPP – <https://cirpassproject.eu/wp-content/uploads/2024/03/A2-EC-Michele-Galatola.pdf>
- ESPR EU COM Homepage – [https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/ecodesign-sustainable-products-regulation\\_en](https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/ecodesign-sustainable-products-regulation_en)
- DPP System Standardization Request (SREQ) – [https://ec.europa.eu/growth/tools-databases/enorm/mandate/604\\_en](https://ec.europa.eu/growth/tools-databases/enorm/mandate/604_en)
- The Battery Pass project – <https://thebatteryypass.eu>
- Digital Data Chain Consortium Identity Link – <https://www.digitaldatachain.com>
- Catena-X Architecture and Offering – <https://catena-x.net/en/1/offers/edc-the-central-component>
- ESPR Timeline and next steps – [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)



We create chemistry

# Thank you!



## Questions? Comments? Please connect with me



[/in/adrian-von-muehlenen](#)



[Book an appointment](#)



[adrian.von-muehlenen@basf-intertrade.com](mailto:adrian.von-muehlenen@basf-intertrade.com)



[+49 172 86 99 530](tel:+491728699530)