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Enhancing evaluations of future energy-related product policies with the Digital Product Passport

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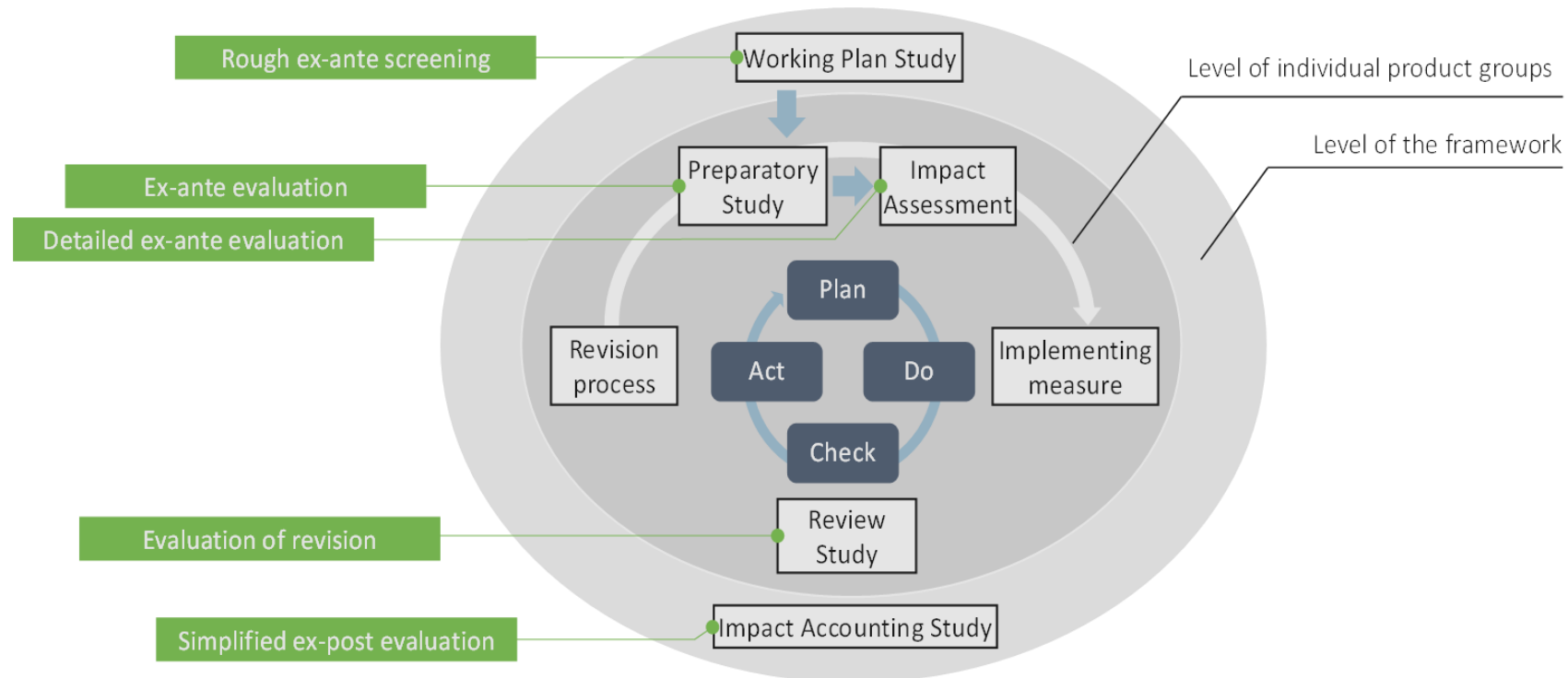2 Wuppertal Institute for Climate, Environment and Energy, Germany

Introduction

Cornerstones of the EU's product policies: **Ecodesign** Directive (2009/125/EC) and **Energy Labelling** Regulation (EU) 2017/1369


*Policy cycles in the Ecodesign context. Source: Fraunhofer ISI.*

The current approach of product regulation
Availability of data and…. need for a Product Passport

- **Ecodesign**: <u>Data availability is a major problem</u> for policy evaluators as the information should be provided on the product itself
  → There is so far no centralised product database for Ecodesign

- **Energy labelling**: Better situation with the EPREL database (EU Product Registration database for Energy Labelling)
  → Suppliers are obliged, before placing on the market a unit of a new model, to enter in the public and compliance parts of the product database the information for that model
  → no info linked to market volume

- **Challenges related to data:** lack of information, information is fragmented and not harmonized
  → need to purchase data (e.g. from market institute) to improve the situation

- **Complexity of current regulations and/or framework** (e.g. because of Circular Economy, Better Regulation Guideline) required accordingly more accurate and transparent data

- → need for an innovative approach
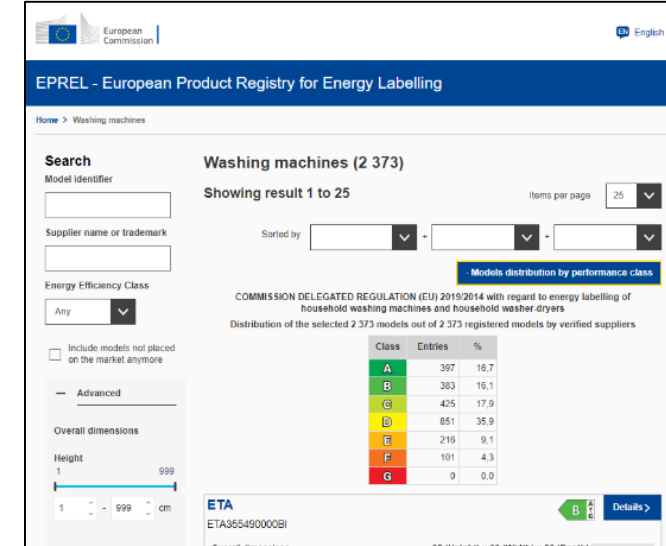
EPREL public website. *Source*:
https://eprel.ec.europa.eu/screen/product/washingmachines2019
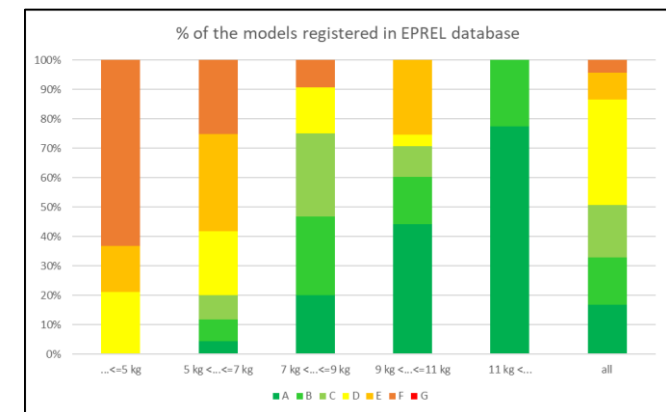
Share by rated capacity of the models registered in EPREL. *Source*:
own calculation, based on the EPREL.

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The Digital Product Passport: Background and operationalisation

History and definition

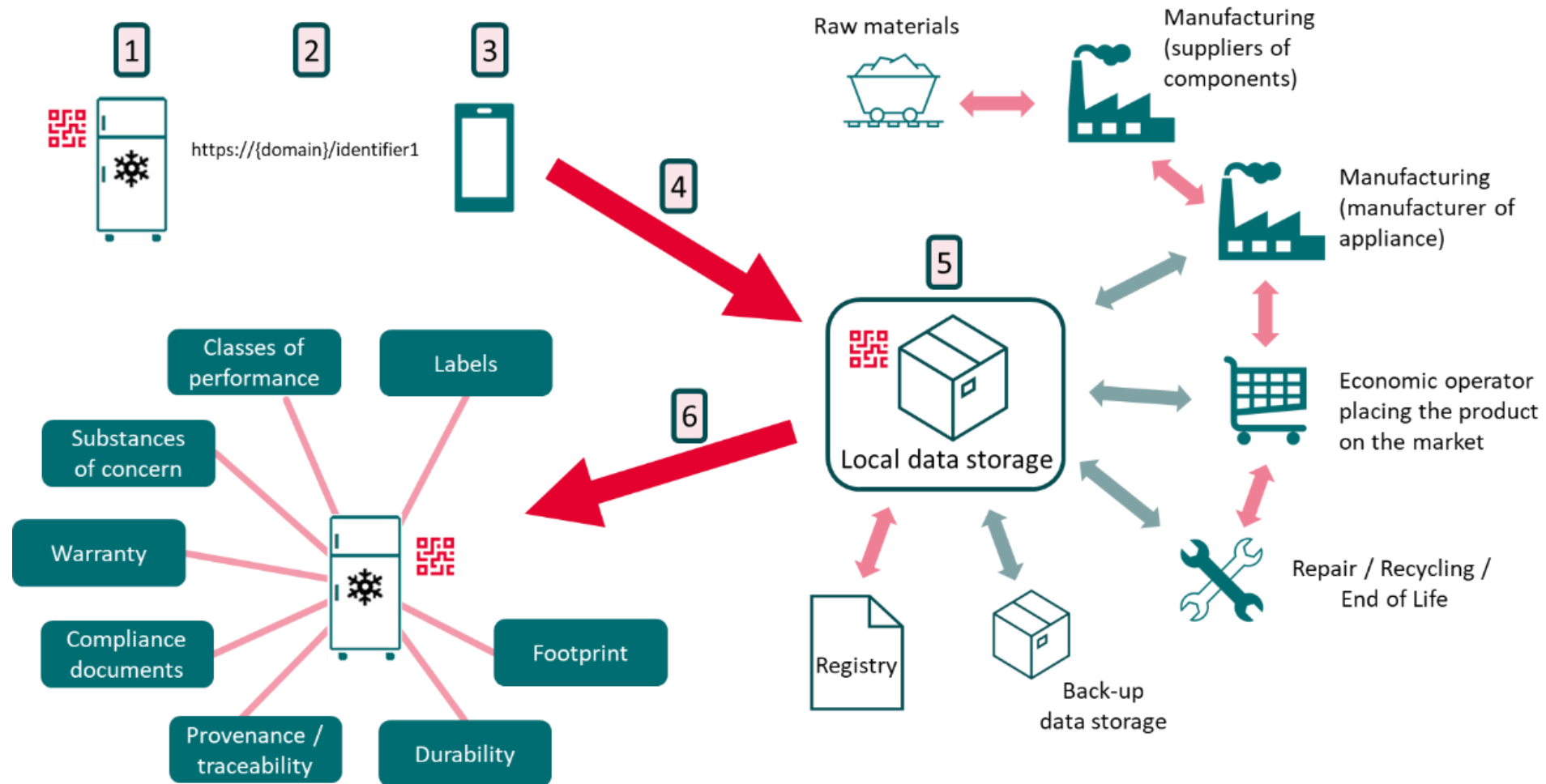| 2014	The **European Resource Efficiency Platform** initiated the current demand for a Europe-wide PP
2019 2020	The **European Green Deal** The **Circular Economy Action Plan** Both introduced the idea of a so-called **'electronic'** or **'digital' product passport (PP)** as essential instrument for more product-focused policies → The EU has started a **new area of EU product policies**
2020	DPP has been first introduced in 2020 in **proposal for a new Batteries Regulation**
2022	DPP is an integral part of EU's 2022 ESPR proposal (**Ecodesign for Sustainable Product Regulation**: New Ecodesign Directive)

A DPP can be described as a **structured collection of product related datasets:**

- **with predefined scope and agreed data ownership**
- **with specific access rights for different target groups** (such as consumers, policy makers, recyclers or market surveillance authorities)
- **accessible through a unique identifier** (number or code) present also on the product.

In the EU, it will be most likely a ***decentralised system for data storage*** combined with a lean ***central registry*** by the EU only for selected key parameters

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Source: Own illustration by Wuppertal Institute, based on (Galatola 2022).

The DPP in the new Batteries Regulation - A blueprint for other policy areas

Major review of the Batteries Directive 2006/66/EC

- Lager scope: covers e.g. batteries for EVs

- Increases sustainability, traceability and social standards over the whole battery product life cycle

- **By 2026: each regulated battery placed on the market** (or changing its status, e.g., repair, 2nd life...) will also an electronic record: the "**battery passport**", which is a DPP for batteries

Information captured by the DPP (non exhaustive list):

Information about the <u>battery model</u>:

- Material composition of the battery

- **Carbon footprint information**

- Information on responsible sourcing

- Recycled content information

- Expected battery lifetime

- The labelling requirements

- The EU declaration of conformity

- Initial round trip energy efficiency and at 50% of cycle-life;

Information about the <u>individual battery</u>:

- Information about the values for **performance and durability** parameters

- Information on the **status** of the battery, defined as ['original', 'repurposed', 'reused'], or 'waste';

- Information and data as a result of its use, including the number of charging and discharging cycles and negative events, such as accidents, as well as periodically recorded information on the operating environmental conditions, including temperature, and on the state of charge;

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A possible DPP-based evaluation approach
Structure of a possible DPP-based evaluation. *Source: Fraunhofer ISI.*

- DPP offers **new possibilities** to European and national authorities with regard to the **monitoring of products**, of the enforcement of the regulation and **the ex-post evaluation** of policy measures.
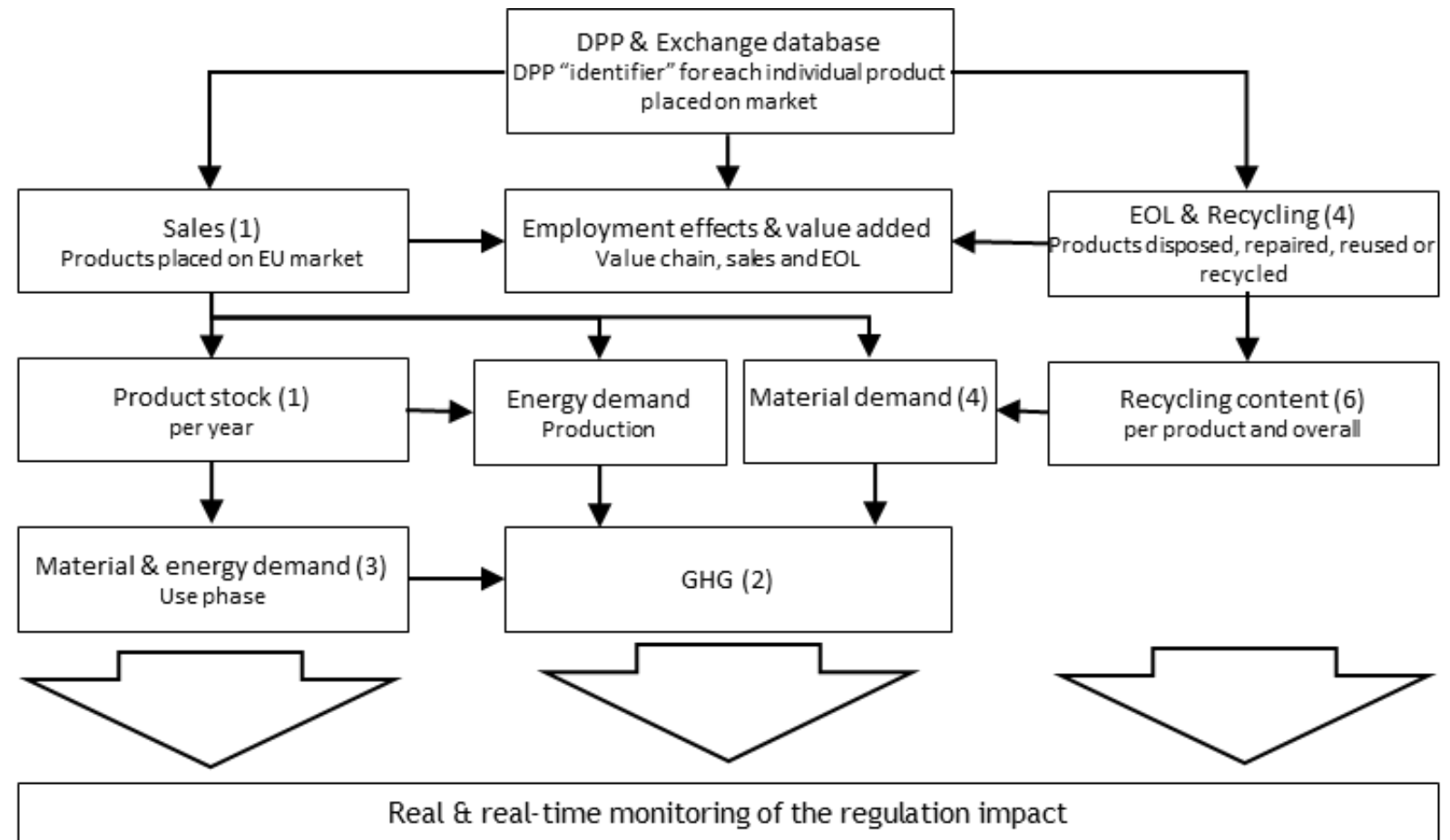
Structure of a possible DPP-based evaluation. *Source: Fraunhofer ISI.*

Benefits and limitations of a DPP

Benefits

- **Major improvement** compared to EPREL

- **Dynamic**: The actors may introduce or **update** the information in the PP

- The **actors along the value chain**, in particular consumers, economic operators and competent national authorities, can **access product information** relevant to them

- All information included in the PP shall be based on **open, standards, developed with an inter-operable format** and shall be machine-readable, structured, and searchable

*… DPP will be one of the **main features** of the proposed **Ecodesign for Sustainable Products Regulation (ESPR)***

Limitations/risks

- **Degree of specificity of the data**: item, production-batch, or model specific.

- **Access to the data of the DPP database**, which will be required for policy makers but also for consultants as well as researchers supporting the policy making process

- **Possibility to search specific data and to deliver processed data / aggregated figures**. No guarantee, that the data will be computable/processable to allow an analysis on the whole market and this might be the main limitation of the DPP as foreseen in the ESPR

*.. **depend on the way the DPP will be implemented for specific products***

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Discussion and recommendations

DPP is still a concept, which has not been implemented yet

- Selection of a priority list of product groups

- Criteria and exact data requirements

- Recommendation: define a set of common information

- Technical challenges: ensure that with the DPP there is a digital "single point of truth"

- Regulatory framework

- Value chain: the main challenge so far is the lack of data transparency, especially beyond the directly upstream suppliers.

- DPP will benefit to other product policies: Ecolabel, Green Public Procurement... and also to non-EU policies

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Conclusions

- In the current context (Ecodesign and Energy Labelling framework), the **possibility for ex-ante and ex-post evaluations** of products policies is **rather limited**

- The EU has recognized the major informational barrier and decided to address it with an **innovative solution: the DPP**

- The **DPP has the potential to improve evaluations** of product-oriented energy/environmental policies

- The **concept has now been developed** and is being tested within the Batteries Regulation:

  - Real implementation of the DPP to be observed in the next months

  - Expectations to be confirmed:
    - a continuous monitoring of products and
    - a reliable evaluation of the impact of product policies over the entire life cycle of batteries

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Useful links

-   European Commission (2022): Proposal for a Regulation establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC. Available online at https://ec.europa.eu/environment/document/download/11246a52-4be4-4266-95b1-a15dbf145f51_en?filename=COM_2022_142_1_EN_ACT_part1_v6.pdf.

-   Galatola (2022): Sustainable Products and Digital Product Passports. Keynote from Michele Galatola. Virtual Event, 2022. Available online at https://orgalim.eu/sites/default/files/2022-06/Orgalim%20Policy%20exchange%20on%20SPI%20and%20DPP_%201%20June2022_Presentations.pdf, checked on 7/4/2022.

-   Adisorn, Thomas; Tholen, Lena; Götz, Thomas (2021): Towards a Digital Product Passport Fit for Contributing to a Circular Economy. In Energies 14 (8), p. 2289. DOI: 10.3390/en14082289.

-   Barkhausen, Robin; Durand, Antoine (2022): Review and analysis of Ecodesign Directive Implementing Measures: product regulations shifting from energy efficiency towards circular economy. Edited by 11th International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL'22).

-   Spherity (2022): Podcast. Product Passport Pioneers - #5 with Michele Galatola, European Commission. https://www.youtube.com/watch?v=ktI21qRh2yA

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