INTRODUCING A UNIVERSAL DIGITAL CIRCULARITY FINGERPRINT FOR PRODUCTS

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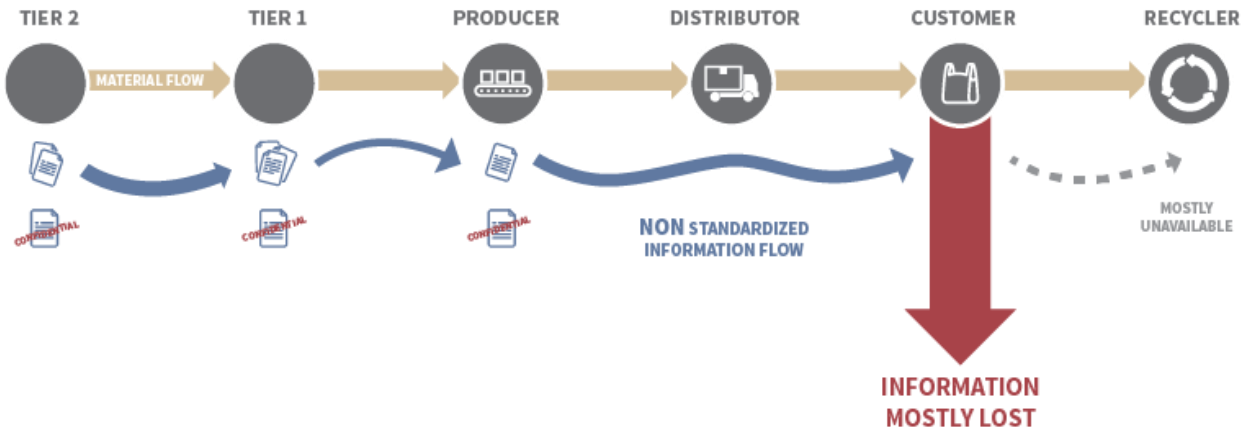
The Product Circularity Data Sheet (PCDS) bridges a data gap in the Circular Economy.

There's a lot of hype about making business 'circular', but when it comes to data about products, the gap is huge. Continuous, high-quality material loops in a Circular Economy (CE) require information and resource sharing throughout the cycle, but standardized data on circularity of products is lagging behind demand. CE aggregator platforms each have different formats, so manufacturers have to organize information differently for every platform as well as their own customers.

The Product Circularity Data Sheet (PCDS) is designed to solve that. It aims to save costs across the supply chain by improving CE data-sharing efficiencies, while protecting the integrity of data in an open format available to all platforms without proprietary fee-based software. It started when the Ministry of the Economy of Luxembourg asked the consultancy +ImpaKT to create and pilot a practical tool, in cooperation with multinational manufacturing companies & platforms and Luxembourg's ISO-accredited agency ILNAS.

Collecting circularity data is expensive, difficult and non-standardized.



Who uses it ?

The main target group is manufacturers and other stakeholders involved in CE business models, including product designers, builders, regulators, remanufacturers, refurbishers, recyclers, and data platforms.

What is it?

The PCDS is *a product declaration that provides standardized and trustworthy data about the circularity aspects of a product.* It is based on a template containing pre-set true/false statements in an open data format. One advantage of the format is to let manufacturers and platforms combine identical line items describing features of each component into a PCDS for an assembled product or groups of products.

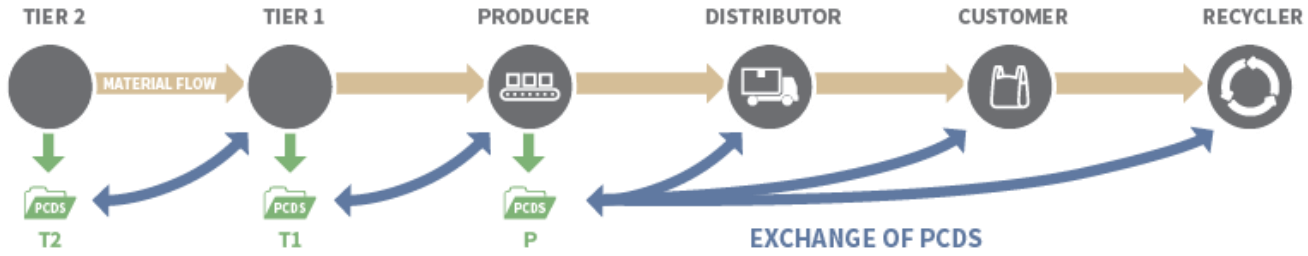
PCDS standardized statements include information about chemical substance thresholds, design for reuse and disassembly, recyclability, recycled content, biocompatibilities, hazardous materials thresholds, and actively positive impacts.

As with the Materials Safety Data Sheet (MSDS) on which it is modeled, there is no central repository in the PCDS system. The PCDS is "platform independent" and the data is extractable by all platforms. The stand-alone format is designed so each manufacturer in a supply chain can generate a PCDS for their product and make it accessible to customers via e.g. the corporate webserver. The PCDS is not a scoring or rating mechanism. Instead, its data are inputs for other product schemes and platforms to do that.

How does it work?

Each product assembler, manufacturer, refurbisher, or remanufacturer who makes or modifies a product is eligible and responsible for creating a PCDS from the template, as well as storing it and making it accessible to other stakeholders.

A standardized mechanism to share circularity data at each step of the value chain.



At any stage of the supply chain, manufacturers can pull multiple PCDS from suppliers and integrate the data into a new PCDS for their own products and provide this to customers. A standardized approach allows the assembly of information from multiple PCDS in cases where a product contains multiple components each with its own PCDS.

The PCDS is completed based on how the manufacturer designed its own product to be used, not on how the next user in the value chain intends to use the product. This is because the pathways of products are often impossible for the manufacturer to predict accurately. Thus, the PCDS describes circularity properties of a product at a particular point in the supply chain. For example, if a product is refurbished or remanufactured, it gets a new PCDS, or if it becomes part of another product, the data goes into a new PCDS.

How reliable is the data?

To promote accuracy and consistency, and minimize the conflict between confidentiality and transparency, the PCDS describes features as 'true' or 'false' without having to disclose to every party the manufacturer production secrets. Manufacturers who publish a PCDS guarantee validity of the data, so it is in the manufacturer's interest to assure accuracy. To further ensure this, the originating data are verifiable by an independent audit, often as part of other audits to avoid adding costs. Third-party verification protects the manufacturer against unintentional errors in providing the market with data on e.g. product recyclability.

A Guidance document is provided with the PCDS to show users and auditors the criteria used in each statement and other standards that those relate to. Blockchain-type data protection is being developed to guarantee chain of custody of the data and maintain a record of changes.

Progress to date

A PCDS Proof of Concept and associated Guidance were developed with manufacturers from 2018 to 2020. Manufacturers and their suppliers tried the PCDS with one of their products and provided feedback. Results are being piloted with various data platforms, and an accompanying open IT format is being developed along with an affordable audit scheme.

The ultimate aim is an official standardized format that aligns with ISO, CEN or other standards, and the interim aim is a de facto industry standard.

For more information see www.pcds.lu and http://positiveimpakt.eu/en/pcds/

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