SPI as an important driver for circular business models, internalization of externalized costs, true life cycle environmental pricing of products and (digital) product passes

19.01.2022 | Lars Baumgürtel

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Green Deal and circular business models

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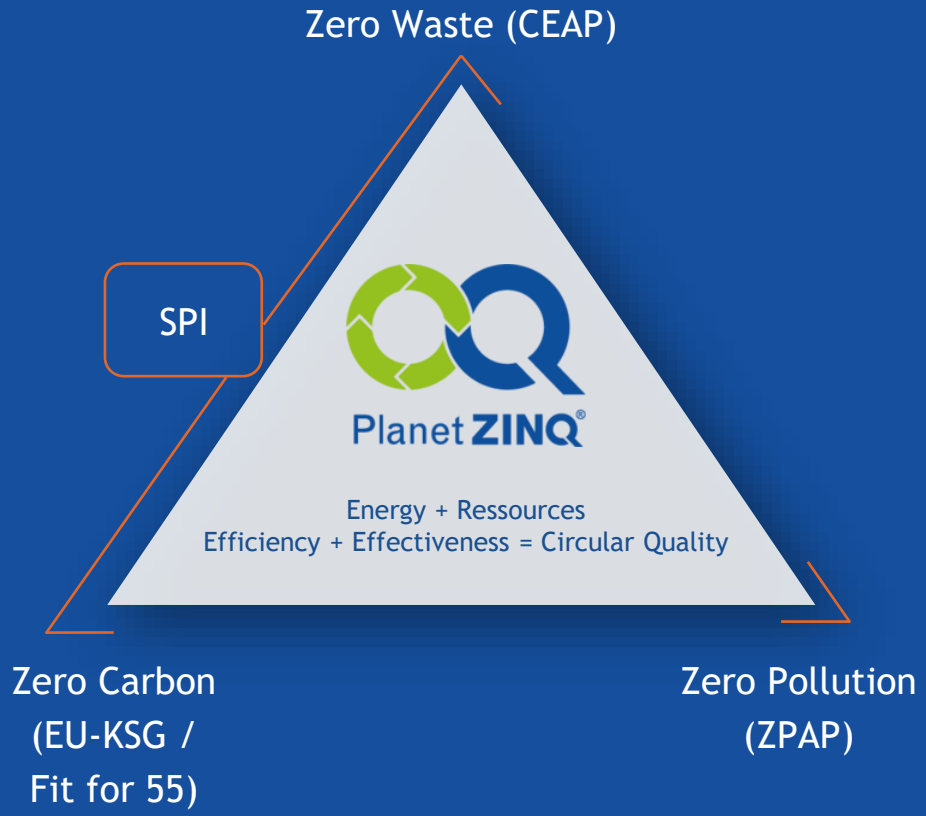
How to make the Green Deal work



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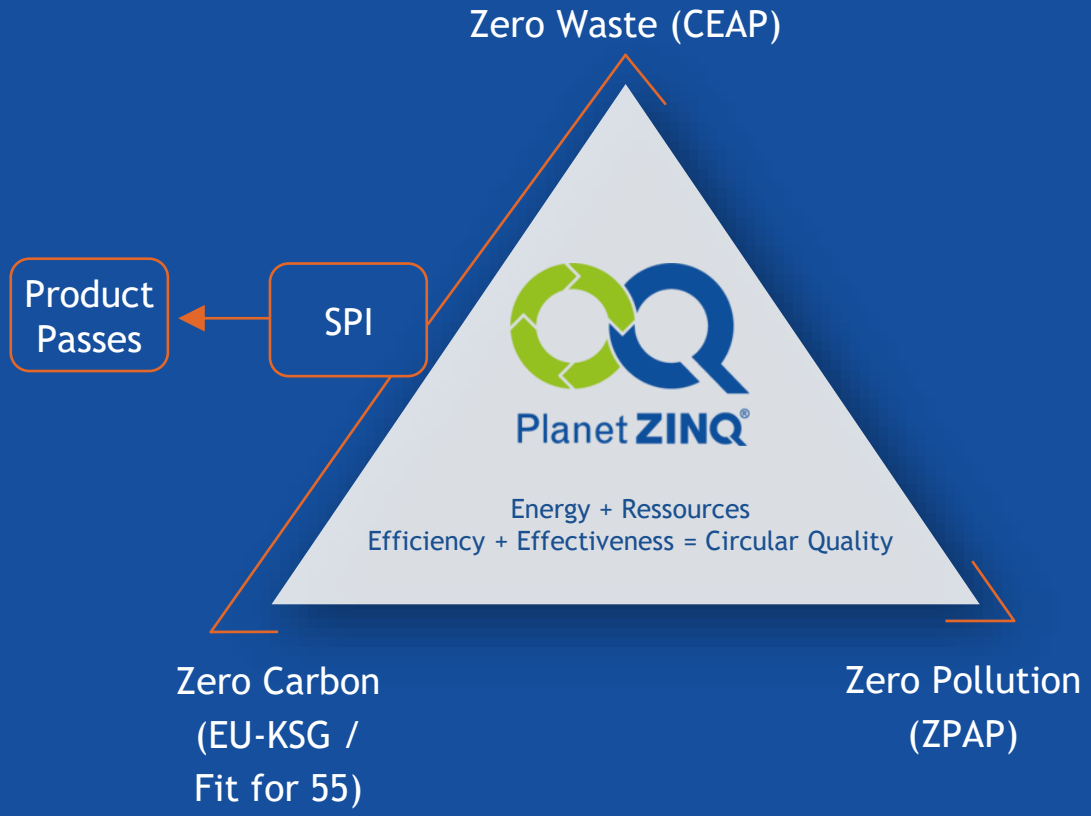
How to make the Green Deal work



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Circular economy has the power to shrink global GHG emissions by 39% and cut virgin resource use by 28%.
Yet, only 9 % of the global economy is circular.

Circularity Gap Report (2021)

Comment: 99% of public discussions are about decarbonizing and energy only.

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It is all about products, stupid!

- Green Deal and Circular Economy is all about products, not corporate impact
- SPI is about sustainable **products**
- Corporate carbon and circular footprint must and can be transformed into product carbon and circular footprint

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All materials start from the same line

A tree is not the same as wood

- Circular Quality criteria do not change between or with products or materials
- Renewable or recyled content does not imply recycability in circular quality

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What is a circular product?

Design for circularity
(modular, pure materials, recycling in circular quality)
and closed material loops

VS

- → Recycled content
- → Bio-based materials
- → Regrowing/renewable ressources

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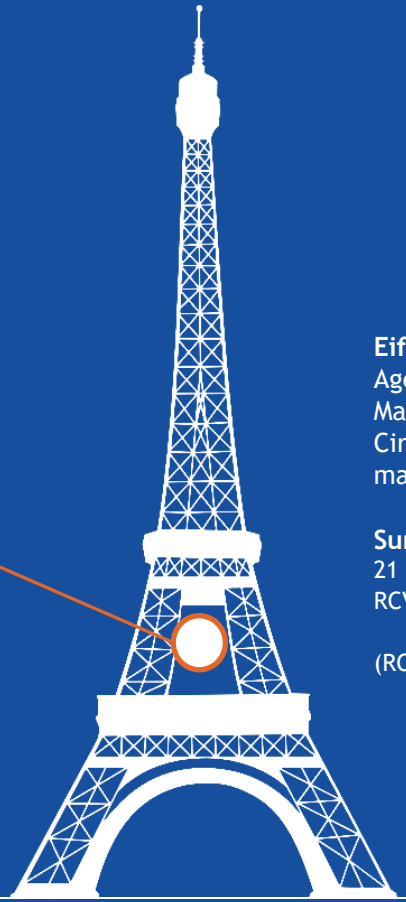
Life-cycle CO2 Management

The upper parts of the Eiffel Tower are painted every 5 years, the lower parts every 10 years. In comparison, zinc coatings like duroZINQ last up to 100 years and more.



Eiffel Tower
Age: > 125 years
Made of: 7.300 to steel
Circular Quality: modular, pure/unmixed material(s), recycable in circular quality

Surface coating product:

21 X paint = 15.300 to CO2	1 X HDG/Zinc = 500 to CO2
RCV 0 (microplastic)	RCV 100% (via ReZINQ)

(RCV = Residual Circular Value)

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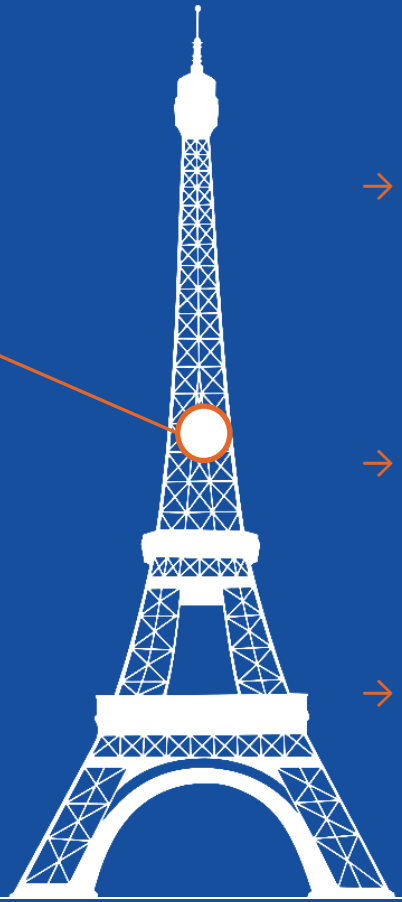
Intersectoral Carbon Leakage



- Products with superior circular properties in the sense of the Triple Zero objective should always be given priority.

- Intersectoral carbon leakage is defined as the undesired substitution of products with a relatively high GHG emission intensity during production and relatively high GHG emission savings during the entire life cycle (including recycling).

- The intersectoral carbon leakage may also relate to other environmental impacts of products during use and recycling not recognized in life cycle environmental cost/CO2 pricing.

- CO_2 pricing limited to emissions in the manufacturing step leads to a relative increase in the price of energy-intensive but long-lasting and circular products and increases the amount of externalized costs.

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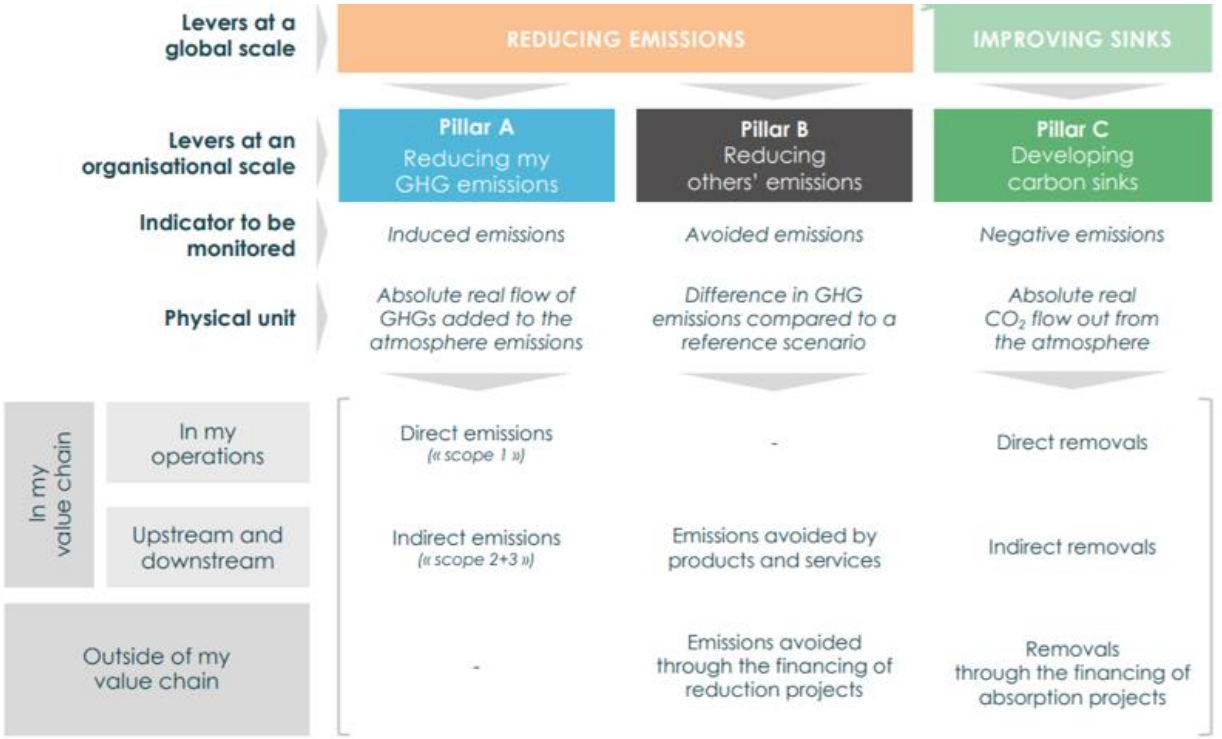
Life cycle CO_2 pricing in the 3-pillar model



Source: Carbone4/Net Zero Initiative

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Sustainable Products are part of sustainable business models (CBM)

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Circular business model in surface technology

Quelle: Ebersold (upp) following to Dugast an Dugast (2020, S.9)

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ZINQ CO_2 Bank & CO_2 Credits

Thank you for choosing a climate-positive ZINQ surface. For your order, we will credit **855 kg of CO_2** to your ZINQ CO_2 account.

Do you have questions about the ZINQ CO_2 credit or about our innovation and sustainability strategy Planet ZINQ? Contact us at planet@zinq.com.

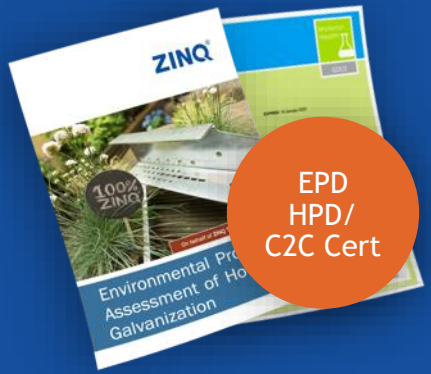
Objective:

To credit customers with EPD-based CO_2 savings in kg (positive footprint) to CO_2 accounts.

Implementation:

CO_2 savings are noted on customers‘ invoice and added to a customer CO2 statement at year end. The Scope 3 EPD for duroZINQ shows an improvement in CO2 savings of 1.5 kg CO_2 per t galvanized steel compared to painted steel.

What do Circular Product Passes look like?



EPD
HPD/
C2C Cert

PCDS

CO_2
Certificate

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What is a Circular Product Pass? What is true pricing of products?

Product passes shall duly reflect all negative and positive impacts of products during their life cycle converted into assessable data and into attributable and marketable values reflecting the sum of all of their direct and externalized environmental costs.

The product pass values shall reflect the true prices or better true costs of a product as a basis for assessing the total environmental impact of a product which is then translated, materialized and monetarized into a trading system for environmental costs (such as the ETS) in the context of product life cycles and the product´s circular quality.

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How do Circular Product Passes and circular pricing of products work?

Required elements of a product pass:

- → Product based (scope for assessing impact is product, not production/corporate)
- → Universal validity (no sector or complex product approach)
- → Data based (verified data refer to EPDs)
- → Standardized approach (refer to normalization projects such as ISO/TC 323)
- → Bottom up, not Top Down approach (collective aggregation)

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How do Circular Product Passes and circular pricing of products work?

Tool Box:

- 3 pillar Model (refer to ISO TC 207/Carbon 4)
- Product Pass according to ISO TC 323/PCDS
- EPD/HPD, C2C as standardized and certified (ISO/EN) data sources
- Databases for circular products such as Madaster, BAMB,…

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How do Circular Product Passes and circular pricing of products work?

Manufacturer responsibilty: Do not enter the market without a (digital & valid) product pass (**license to operate**)

Consumer choice: Do not buy a product without a product pass (**transparent and complete information** of full life-cycle environmental impact of product including recycling step)

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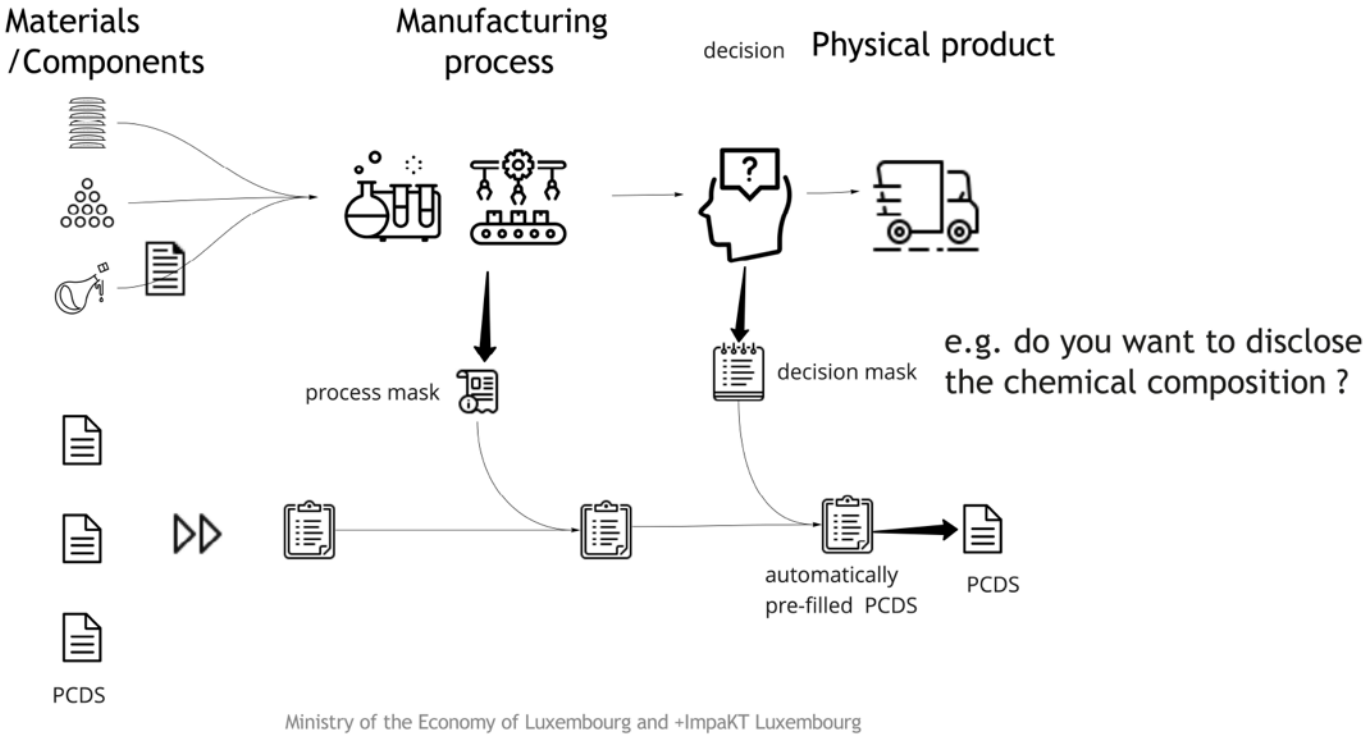
PCDS Assembly Tool



Ministry of the Economy of Luxembourg and +ImpaKT Luxembourg

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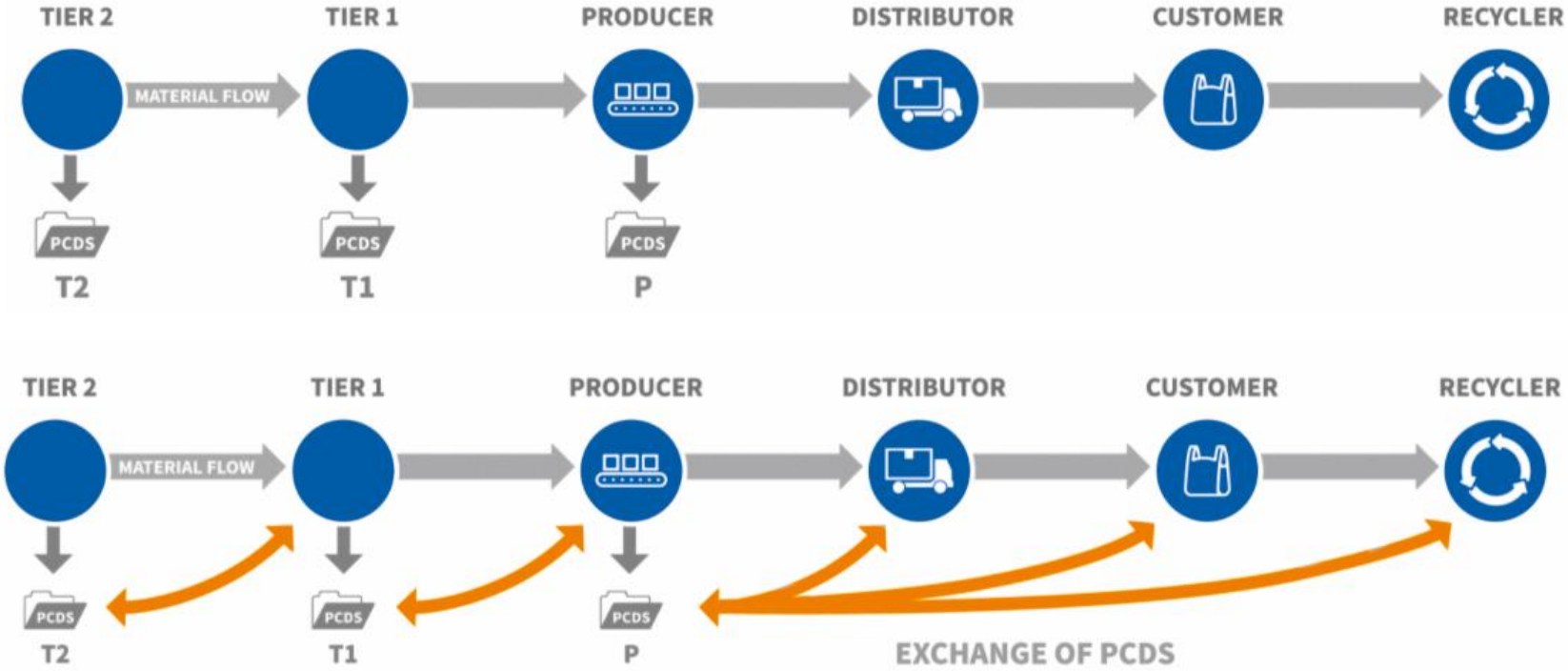
PCDS Ecosystem design (draft)



Bottom-up Circular Product Passes

Sharing of digital product passports (PCDS TC 323, TC 350) as aggregated product passports in a supply chain:

Bottom Up
- Pass on to downstream aggregation level.
- Data content: PCF/PEF via EPD Scope 3, HPD, C2C

Next Steps:
- Recognition of Product Pass content
- Integration into LC-CO2-Pricing
- PEF Incentive schemes („CfD“)

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(Circular & digital) Product Passes as part of SPI

A (circular) product passport serves to transparently and completely record all positive and negative environmental impacts of a product over its entire life cycle.

This includes all significant impacts from corporate processes (production/scope 1,2)) from upstream and downstream process chains and use phases (scope 3, including recycling in circular quality).

For the product passport, the product reference must be as complete as possible: a corporate environmental footprint (e.g. CCF) is converted into a product environmental footprint (e.g. PCF).

External compensation of environmental impacts (i.e. not directly related to the product/not in Scope 1) are voluntary contributions by companies but are not included in the Product Passport.

Relevant environmental impacts are those that are directly related to the threefold objective of the EU Green Deal:
zero carbon, zero waste and zero pollution.

Data collection may be narrowed down according to a generally agreed and applicable materiality limit to allow SMEs to create product passports as well.

Decisive parameters and key figures for a standardized generally applicable product passport are:

- the net life cycle CO2 emissions (with reference to EU-KSG/Fit for 55 as well as CEAP/SPI),
- the (proven) recycling rate (with reference to CEAP/SPI), and
- Material health and natural resource stewardship data (with reference to ZPAP/CEAP).

All data are to be standardized, validated and audited (e.g. via iso-compliant certifications like C2C or audited product declarations like EPD or HPD).

The approach of a generally valid, standardized product passport (like an identity card) is to be implemented bottom up (in analogy to PCDS).

The product passports are stored in (sector-related) product databases such as Madaster or Catena X, which collect and/or evaluate all product passports for a given supply chain or an end product. The data is stored in dataspaces and made available to qualified process chain stakeholders.

The product passport defines the manufacturer's responsibility for the product over its entire life cycle, including use and recycling with regard to the triple objective of the Green Deal.

It can be used by regulators and policymakers to allocate and transfer environmental costs that were previously externalized, i.e. borne by the general public, to products and their manufacturers.

The aim is to convert the economy to a circular and climate-neutral economy with the aim of supplementing or replacing quantitative growth as a steering parameter with parameters for qualitative growth.

At the same time, the "true costs" of products (true pricing) can be disclosed, allocated and balanced through corresponding accompanying regulatory and political measures, so that distortions of competition vis-à-vis products of circular quality are largely eliminated.

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